United Nations
Educational, Scientific and
Cultural Organization

Biosphere
VÄNER ARCHIPELAGO
KINNEKULLE

YEAR
2010 -
2020

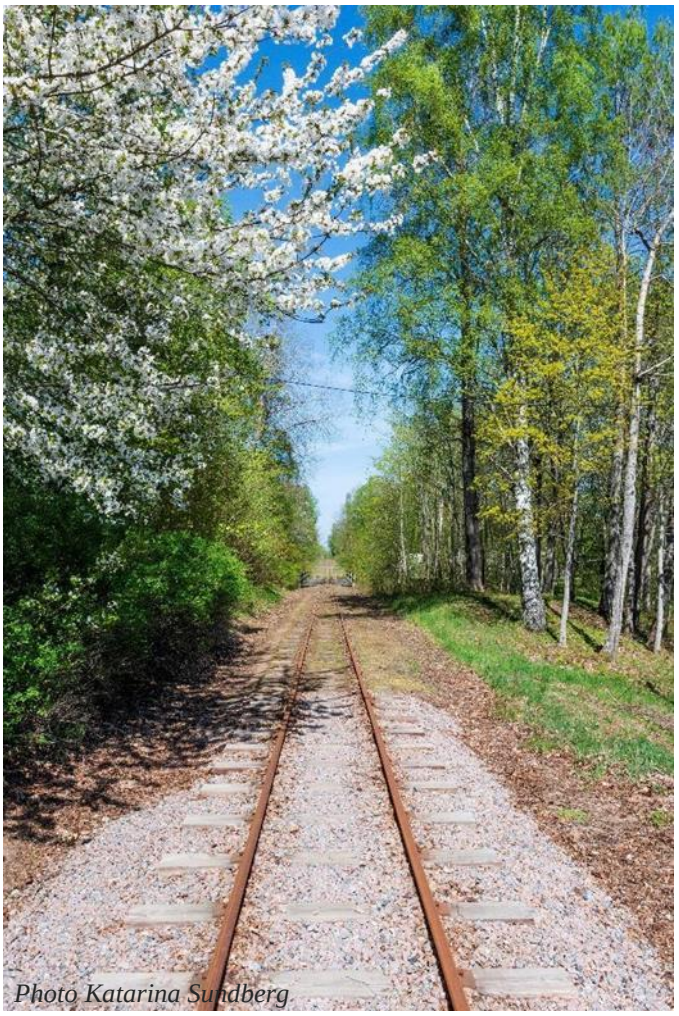

Photo Katarina Sundberg

Lake Vänern Archipelago and Mount Kinnekulle UNESCO Biosphere Reserve, Sweden

PERIODIC REVIEW MAN AND BIOSPHERE (MAB) PROGRAMME

THE GLOBAL GOALS
For Sustainable Development

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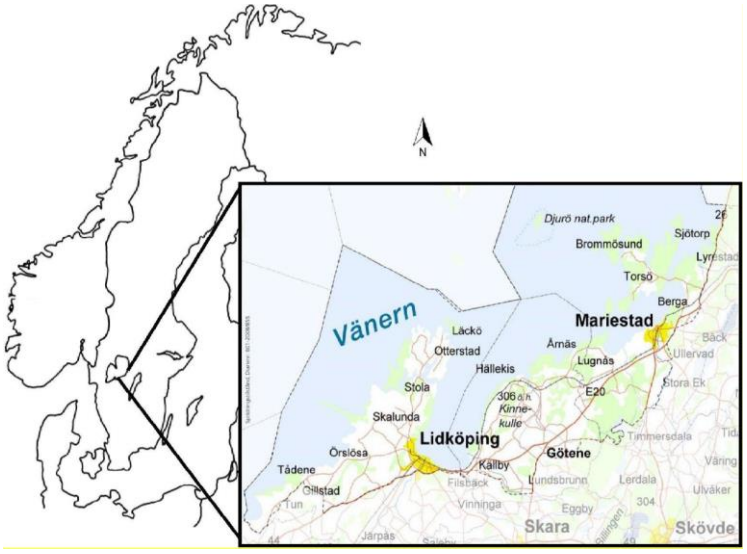
PART I: SUMMARY



a) Name of the biosphere reserve: Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

b) Country: Sweden.

c) Year of designation: 2010.

d) Year(s) of periodic review(s): 2020.

e) Previous recommendation(s) made by the International Co-ordinating Council (MAB- ICC), if applicable: No recomendations have been given earlier.

f) What follow-up actions are completed and if not completed/initiated, please provide justifications. Not applicable. No earlier periodic reviews have been done before.

g) Update on the implementation of measures to achieve the objectives of the biosphe rereserve.

Since the biosphere reserve designation in 2010, the Biosphere Association, whose board is formed by the three municipalities of the biosphere among others, has worked with the following:

- Established a Biosphere Office with a coordinator and other staff.
- Drafted a vision statement and goals, and performed a review of them.
- Annual operating plans with activities clearly connected to preservation, development and support, and also with a clear connection to the realisation of the Biosphere Association's vision and goals.
- Ecological, social and financial sustainability.
- Followed the IMPA methodology to Inspire, Mediate, manage Processes and create Arenas for meetings related to sustainability.
- Engaged and mobilised various stakeholders in the work to be a model area for sustainable development.

h) Briefly describe the process by which the current periodic review has been conducted:

The review concerns the entire biosphere reserve and not just the operations of the Biosphere Association. It is a extensive work and the evaluation contains examples of operations and activities. Work on the review began in spring 2019 and the board of the Biosphere Association is responsible for carrying it out. The work has been carried out by Biosphere Office staff as well as a hired consultant. A large number of people in various capacities have been involved in the review. The national programme committee has also been informed about the work. The collection of materials occurred before the corona pandemic struck and that is why this major event is not reflected in the review.

i) Area and spatial configuration:

The zonation for the biosphere reserve remains the same as when it was designated.

	Previous report (nomination form) 2008	**Proposed changes** (if any)
Area of terrestrial Core Area(s)	2709 ha	-
Area of terrestrial Buffer Zone(s)	20698 ha	-
Area of terrestrial Transition Area(s)	64000 ha	-
Area of marine Core Area(s)	13572 ha	-
Area of marine Buffer Zone(s)	4120 ha	-
Size of marine Transition Area(s)	157443 ha	-

j) Human population of the biosphere reserve:

	Previous report (nominationform) 2008	**At present** October 2020
Core Area(s) (permanent and seasonally)	7	25
Buffer Zone(s) (permanent and seasonally)	9280	8600
Transition Area(s) (permanent and seasonally)	50274	58700

k) Budget (main sources of funds, special capital funds) and international, regional or national relevant projects/initiatives carried out or planned.

In addition to money from the Swedish Environmental Protection Agency, an administrative, environmental government authority, and funding from local councils, the Biosphere Association has received almost 15 million SEK in the form of activity and project grants since 2010. Furthermore, the project Lake Vänern Archipelago Fisheries Area included 11 million SEK.

Other stakeholders in the biosphere reserve have received grants for activities and projects and have also contributed resources of their own, in the form of time and materials. The total sum for other stakeholders is not possible to estimate.

The figures below include funds from the Swedish Environmental Protection agency as well as the three municipalities that form the biosphere reserve. The distribution is 32% from the Swedish EPA and 68% from municipal councils. This money is primarily used to operate the Biosphere Office, which works to coordinate activities in the area.

Budget in the previous report (nomination form) 2008	**Current budget** Year 2020
88 596 EUR 2010 (940 000 SEK)	114 986 EUR (1220 000 SEK)

l) International, regional, multilateral or bilateral framework of cooperation. Describe, where applicable, the contribution of the biosphere reserve to achieve objectives and developing mechanisms that contribute to the implementation of international or regional bilateral or multilateral agreements, conventions, etc.

There are a number of frameworks which apply to the biosphere area. Some examples are listed below:

- **Agenda 2030 - 17 global goals.** In September 2015, the UN General Assembly ratified a global agenda for sustainable development. The agenda has 17 global goals and 169 subgoals, designed to meet the challenges faced by humanity and our planet. The global strategy for the UNESCO Biosphere Programme (MAB) coupled with the Lima Action Plan (2016-2025) highlights the role of the Biosphere Programme in implementing the global goals. The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve carried out a communications project in 2017-2019, called "Here's Life", directly connected to the 17 global goals.

- **The Convention on Biological Diversity**
  Signed by 150 government leaders at the 1992 Rio Earth Summit, the Convention on Biological Diversity is dedicated to promoting sustainable development. Conceived as a practical tool for translating the principles of Agenda 21 into reality, the Convention recognizes that biological diversity is about more than plants, animals and micro organisms and their ecosystems – it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live.

- **Sweden's environmental targets.** The system of environmental targets consists of one generational target, 16 environmental quality targets as well as a number of multiple-stage goals in the areas of waste, biodiversity, dangerous substances, sustainable urban

development, air pollution and climate. Sweden's environmental targets are the national implementation of the ecological dimension of the global sustainability targets.

- **The municipal councils of Lidköping, Götene and Mariestad** jointly carried out the preparatory study that formed the basis of the application for biosphere reserve designation. In 2008, the three municipal councils each decided to submit the application to be designated a biosphere reserve. Through participation in the board of the Biosphere Association, among other things, the municipalities work together on various activities inside the biosphere reserve. The municipalities also link the goals and purposes of the biosphere reserve to their management policies.

- **Framework for project collaboration.** In the many projects organised by the Biosphere Association, there are financial backers who also wish to contribute to sustainable development. Some examples of funding providers are Jordbruksverket, the Swedish Board of Agriculture, an administrative government agency in the field of agriculture and Leader Nordvästra Skaraborg, a part of the EU Rural Development Programme 2014-2020, aimed at promoting financially, ecologically and socially sustainable rural development. Another funding provider is Skaraborgs Kommunalförbund, an organisation promoting the interests of and collaboration between the 15 municipal councils of Skaraborg County. The county is located between Sweden's two largest lakes, near the demographic centre of Sweden. The frameworks for collaboration between the Biosphere Association and the respective parties are very clear. Through the projects, the Biosphere Association agrees to act in an inclusive, equitable and sustainable manner.

- **The UN Convention on the Rights of Persons with Disabilities (CRPD).** The Biosphere Association chooses to organise its activities in locations that are accessible to persons with disabilities. This applies not only to lectures, but also to other experiences such as exhibitions and training events.

- **The UN Convention on the Rights of the Child.** The Biosphere Association has conducted a preparatory study to evaluate the attractiveness of the biosphere reserve from a children's perspective, called Barns öar i de vuxnas hav (Children's Islands in the Grown-ups' Sea). In interviews and workshops, the importance of including children and young people in the biosphere work has often been highlighted. The school programme at the Lake Vänern Museum, a museum in Lidköping detailing life in, on and near Lake Vänern, is a good example of how this has been done in practice.

PART II: PERIODIC REVIEW REPORT

1. THE BIOSPHERE RESERVE

1.1 Year designated: 2010.

1.2 Year of first periodic review and of any following periodic review(s) (when appropriate) 2020.

1.3 Follow-up actions taken in response to each recommendation from the previous periodic review(s) (if applicable), and if not completed/initiated, please provide justifications. -

1.4 Other observations or comments on the above. -

1.5 Describe in detail the process by which the current periodic review has been conducted.

Work on the review began in the spring of 2019, with the Board of the Biosphere Association and Biosphere Office staff reviewing the form and drafting a working plan. The original plan was to have Biosphere Office staff conduct the review. Due to staff changes, certain tasks, such as conducting parts of the review and coordinating work on the review were instead assigned to a consultant, who had previously worked as a coordinator for another biosphere reserve. The consultant began their work in September 2019. Biosphere office staff have participated in the work and completed the review. The Board of the Biosphere Association has discussed processes and procedures for the review on numerous occasions. The Biosphere Association is a small organisation with limited human and financial resources. The board has jointly decided that the review must provide experiences and lessons for the future, while at the same time not consuming too many resources.

The board representatives, along with the coordinator, met with the national programme committee for the MAB Programme in September 2019. The committee was then given a presentation on the planned implementation of the work. A report on how work progressed was sent to the chairman of the Swedish MAB committee in December 2019.

Work was carried out as follows:

1. A walk-through of the review document, the UNESCO application for the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve, the Biosphere Association's business plan from 2010-2020, as well as the 10-year review of the Kristianstads Vattenrike Biosphere Reserve.
2. The review process in conjunction with various stakeholders in the biosphere reserve began in the autumn of 2019. Information was collected from various competent individuals and experts throughout the community, in the following ways: Approximately 20 interviews were conducted with a selection of representatives from various stakeholders in the biosphere reserve. The selection was made so as to cover the entire 10-year period.

   Three workshops were held in the autumn of 2019:
   - A workshop with current and former board members as well as members of the Nomination Committee.

- A workshop with Nätverket Naturnytta Biosfär, a local network of professionals from the municipalities.
- Workshops with municipal council leaders, council opposition leaders and municipal chief executive officers, representing the decision-making and executive bodies of the three respective municipalities.

A survey aimed at local residents was conducted in December 2019 - January 2020. In parallel, collected materials were processed and reports were authored.

3. The first draft of the review was completed on 2020-02-14.
4. The first draft was reviewed by the Biosphere Association Board on 2020-02-24.
5. It was submitted for public enquiry to the municipalities and other stakeholders in March 2020. It was also published on the website of the Biosphere Association, so that the general public could submit comments.
6. A popular version of the review is to be published in 2020.
7. The review was translated into English in October 2020.
8. The review was handed over to the Programme Committee of the Swedish Biosphere Programme in October 2020.

1.5.1 Which stakeholders were involved?

Stakeholders involved were the members of the Board of the Biosphere Association, politicians, officials of the County Administrative Board who are county-level representatives of the Swedish government, and the municipalities in sectors such as tourism, enterprise and sustainability. The members of the Biosphere Association, local business people and the general public have also been consulted and contributed to the contents of the review.

1.5.2 What methodology was used to involve stakeholders in the process (e.g., workshops, meetings, consultation with experts).

Work has been conducted in the form of workshops, interviews, questionnaire surveys and dialogues with various experts and stakeholders. Information and invitations have also been communicated through the website, via email and through social media.

1.5.3 How many meetings, workshops, etc. occurred throughout the process of conducting this review?

The review was discussed at five of the Biosphere Association's board meetings. Workshops have been held on three occasions and 20 people have been interviewed. A meeting was held between representatives of the Board of the Biosphere Association, the coordinator and the National Committee of the MAB Programme. A number of review questions were also discussed in email conversations with various experts and engaged individuals, throughout the entire process.

1.5.4 Were they well attended, with full and balanced representation?

(Describe participation and stakeholders).

The meetings and workshops were well attended, with between 10 and 20 people per workshop. They had a full and balanced representation, in terms of gender, on all occasions. In the selection of interviewees, we also considered representation with regard to gender and function in society. Generally, immigrants and persons with disabilities are underrepresented in this context, even though survey questions were directed at the general public.

2. SIGNIFICANT CHANGES IN THE BIOSPHERE RESERVE DURING THE PAST TEN YEARS

2.1

Brief summary overview: Narrative account of important changes in the local economy, landscapes or habitat use, and other related issues. Note important changes in the institutional arrangements for governance of the biosphere reserve area, and changes (if any) in the coordinating arrangements (including the biosphere reserve organization/coordinator/manager) that provide direction for the biosphere reserve. Identify the role of biosphere reserve organization/coordinator/manager in initiating or responding to these changes.

There have been some changes to the use of landscapes and habitats throughout the 10-year period. Examples include an increase in the number of professional fishermen, and a decrease in the number of farmers. Organic farming has increased in scope. The fragmentation of the forest landscape due to forestry has continued, and elm and ash populations have declined due to tree diseases. Some former farmland and forestry land has been repurposed for the construction of homes, commercial centres, industries and roads. The importance of wetlands has garnered additional attention and government subsidies to farmers have led to restorations.

Nine new nature reserves have been formed over the past 10 years. Kinnekulles betesmarker and the Lake Vänern archipelago are areas where preservation and conservation efforts have been expanded. At the time of the initial application, conservation work primarily concerned the restoration and maintenance of grazing lands at Mount Kinnekulle, a flat-topped mountain located at the centre of the biosphere reserve. Over time, efforts have been expanded to cover Sweden's largest lake, Vänern, and its archipelago, where, as an example, islets important to birds have been cleared from overgrowth. There is a continued problem with overgrowth on Lake Vänern, and with hydrological control. This was especially notable in the hot summer of 2018, when groundwater levels plummeted to extreme lows. In recent years, climate change awareness has increased. New rules have been implemented regarding any new construction adjacent to Lake Vänern, taking into account both flooding risks and the protection of flora and fauna.

Tourism in the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve has increased since the initial application, natural tourism in particular. There is an increasing demand for active holidays with a learning component. During the 10-year period, several initiatives have been initiated by the Biosphere Association to meet these new demands. This includes, among other things, the creation of the Biosphere Trail, which spans the entire biosphere reserve and is suitable for both hiking and cycling. A visitors' centre can now be found with biosphere ambassadors at the former mine, Lugnås Qvarnstensgruva. During the past decade, a naturum has also been constructed, adjacent to Läckö Castle. A naturum is a centre with information for visitors, where they can learn more about local geology, flora, fauna and cultural history. It is meant to inspire outdoor activities and excursions in the surrounding natural environment. At the Lake Vänern archipelago naturum by Läckö Castle you will find a permanent exhibition about Lake Vänern and the biosphere reserve, among other things.

In 2011, a ban was introduced on the sale of lavaret from Lake Vänern. The Swedish Food Administration decided that lavaret, a species of fish from Lake Vänern, contained excessive levels of dioxins. Professional fisheries where lavaret, and smoked lavaret in particular, was a major source of income, were faced with a difficult blow. Vänerlöjrom (vendace roe from

Vänern) - a new brand signifying quality and sustainability while also strengthening the local fishing industry. Through a major work on the Fisheries Area, professional fishermen organised and developed the Vänerlöjrom brand, as a new, marketable product. This has increased awareness of the importance of sustainable fishing, among both fishermen and local residents.

Demographically, a major change occurred in 2015, as the influx of asylum seekers from Syria led to major population growth within the biosphere reserve, within a short space of time. This influx led to both challenges and opportunities.

The Biosphere Office works with projects and coordination within the biosphere reserve, to preserve, develop and support the values of the biosphere reserve and to meet the changes that happen in the landscape and the world around us. Over the past ten years, this has necessitated changes to focus, competencies and tasks, as required, for the Biosphere Office staff. The changes also require the board of the Biosphere Association to stay up-to-date so that they can make decisions relevant to changing conditions.

2.2 Updated background information about the biosphere reserve

There have been no geographical changes to the biosphere reserve; it still encompasses the southeastern part of Lake Vänern and its archipelagos, as well as the flat-topped mountains, Mount Kinnekulle and Mount Lugnåsberget, parts of the ravine systems of the rivers Lidan and Mariedalsån, as well as the eastern part of Lake Dättern. The inland ice sheet created fertile lands, with thick layers of glacial mud and other, coarser moraine types. The landscape is primarily lowland, with the exception of Mount Kinnekulle, Mount Lugnåsberget and a number of moraine ridges. The flat-topped Mount Kinnekulle is an area with highly valuable natural and cultural environments, a fact reflected in the numerous protection and care-demanding areas covering Kinnekulle.

The biosphere reserve has a temperate climate, according to the Köppen climate classification. There have been changes in the climate of the biosphere reserve over the past 10 years, according to the Såtenäs meteorological station, based on 93 monthly measurements (last updated August 1, 2019). The average temperature of the warmest month is now 17.3 ºC (previously 16 ºC). The average temperature of the coldest month is now -0.8 ºC (previously -3 ºC).

The total area of the biosphere reserve is 278,600 hectares. The biosphere reserve contains:

- A national park.
- A Ramsar site.
- 44 nature reserve.
- 27 biotope protection areas.
- 30 Natura 2000 areas.
- 19 nature conservation agreements.
- 20 species found on the global IUCN Red List.
- At least 33 species listed in the EU Birds Directive.
- At least 18 species listed in the EU Habitats Directive.
- At least 171 species listed on the national red list, belonging to the categories vulnerable (VU), endangered (EN) and critically endangered (CR).

Changes since the application

Within the reserve, nine new nature reserves have been formed, as well as three new Natura 2000 areas, one new biotope protection area (2.2 hectares) and five new nature conservation agreements (22.9 hectares), since the initial application.

New nature reserves after the application

2008-12-17 Varaskogen (decision by the County Administrative Board).
2009-04-27 Östra Sannorna (decision by Lidköping Municipal Council).
2011-02-14 Brommö archipelago, expansion(decision by the County Administrative Board).
2011-09-20 Kalvö archipelago, expansion (decision by the County Administrative Board).
2012-12-14 Varan (decision by the County Administrative Board).
2013-05-20 Vristulven (decision by the County Administrative Board).
2015-12-21 Mariedalsån (decision by the County Administrative Board).
2018-03-26 Björkkullasand (decision by Götene Municipal Council).
2019-06-19 Lugnås kvarnstensgruvor (decision by the County Administrative Board).

Natura 2000 areas

The Swedish government designated the following Natura 2000 areas under the EU Bird Directive, SPA. Previously designated areas were part of the application, under the EU Habitats and Species Directive pSCI. Now also designated under SPA.

SE0540076 Djuröarna
SE0540077 Brommö archipelago
SE0540078 Kalvö archipelago
SE0540085 Kålland archipelagoes
SE0540107 Fågelöarna

New Natura 2000 areas under SPA (new since application):

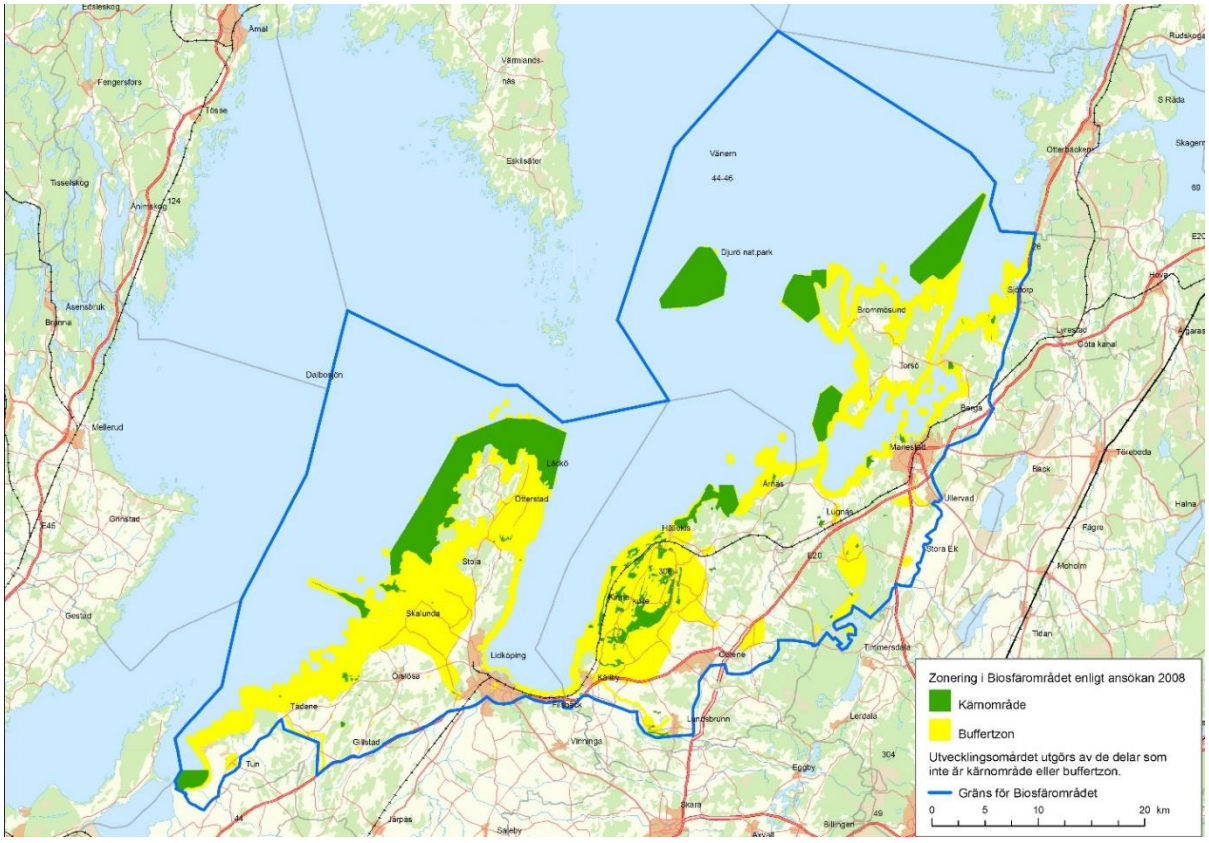
SE0540329 Varaskogen
SE0540332 Onsö
SE0540333 Tjursholmarna

2.2.1 Updated coordinates (if applicable). If any changes in the biosphere reserve's standard geographical coordinates, please provide them here (all projected under WGS 84):

No changes since the time of application.

Cardinal points:	Latitude	Longitude
Most central point:	58° 43'44" N	13° 19'16"O
Northernmost point:	59° 03'33"N	13° 35'28"O
Southernmost point:	58° 53'29"N	14° 01'00"O
Westernmost point:	58° 23'22"N	12° 41'41"O
Easternmost point:	58° 24'48"N	12° 38'47"O

2.2.2 If necessary, provide an updated map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve Map(s) shall be provided in both paper and electronic copies. Shape files (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form.



If applicable, also provide a link to access this map on the internet (e.g. Google map, website). –

2.2.3 Changes in the human population of the biosphere reserve.

The Most recent census data: At the time of the initial application, the population of the three biosphere municipalities was 74,154 in total. Mariestad then had a population of 23,895, Götene 12,879 and Lidköping 37,380. Today, the total population of the biosphere municipalities is 77,923. The population has thus changed, increasing by 3,769 residents from 2009 until the end of 2019. (SCB 2020-01-09).

The total population of the three municipalities in the biosphere reserve :
77,923
Mariestad municipality 24,537
Götene municipality 13,297
Lidköping municipality 40,089
(SCB end-of-year figures 2019/2020)

2.2.4 Update on conservation function, including main changes since last report.

Within the reserve, nine new nature reserves have been formed, as well as three new Natura 2000 areas, one new biotope protection area (2.2 hectares) and five new nature conservation agreements (22.9 hectares), since the initial application.

According to the County Administrative Board, conservation efforts have been highly successful, in part thanks to the project LIFE Kinnekulle, which enabled coordination of public subsidies for farmers. Another important factor has been continuity in the workforce. None of the nature reserve designations following the LIFE Kinnekulle collaboration project has been appealed, and the project also led to the biosphere reserve application.

Several important conservation projects have been carried out during the 10-year period. One example is LIFE Vänern, in which bird islets in the Lake Vänern archipelago were cleared of overgrowth.

Götene municipality has supported long-term efforts of the local conservation society to preserve hay meadows in Österplana hed for 30 years. This contributes to important local involvement in the preservation of biodiversity and biological cultural history.

To promote involvement in biodiversity, the Biosphere Association organised a Bio Blitz in 2013, gathering Swedish species experts to perform an inventory of the biosphere area together with the public. The species found were then reported to the Swedish digital species database, Artportalen.

The Biosphere Association educates the public and spreads knowledge of sustainability throughout the entire biosphere reserve, through activities, lectures and communication.

Read more in chapters 4 and 9.

2.2.5 Update on the development function, including main changes since last report.

The work to fulfil the development function of the biosphere reserve goes hand in hand with conservation work and the spreading of information, in constructive dialogue with various stakeholders.

Some good examples are:

- An increase in tourism in general and an increase in natural tourism to the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve in particular.
- The establishment of a naturum with accommodation and a restaurant in Läckö.
- ElectriVillage, showcasing a one-of-a-kind, solar powered hydrogen gas filling station in Mariestad.
- The Lugnås Qvarnstensgruva as well as a hostel in Lugnås.
- A new product from the biosphere reserve in Vänerlöjrom (Vendace roe from Vänern).
- Hotell Aqva Restaurant & Bar - a tap water certified biosphere hotel focused on sustainability, located in Mariestad and offering guided tours with a biosphere guide on Torsö.
- The picturesque site Spiken on Kållandsö and its restaurants, marketing Vänerlöjrom.

Read more in chapter 5

2.2.6 Update on logistic support function, including main changes since last report. Research occurs in a number of fields.

The biosphere reserve and the Biosphere Association attract researchers from all over the world and have been referred to in international scientific journals. Following the application, there has primarily been a development of collaboration with the universities of Skövde and Gothenburg. Skövde University is, due to its location, the one geographically closest to the biosphere reserve, and an important node for higher education. Dacapo Mariestad is a platform for higher education in Mariestad, established after the application, as well as the project "Landscape Observatory Västra Götaland". Campus West Skaraborg and the biosphere reserve have also collaborated during the 10-year period. Gothenburg University, the Stockholm Resilience Centre at Stockholm University, the Swedish University of Agricultural Sciences (SLU), Gävle University and Karlstad University are examples of institutions conducting research in the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. Field work and other activities in advanced courses at these institutions are also held here.

The pedagogical component is a considerable part of the operations of the Biosphere Association. One example is the Biosphere Challenge, aimed at classes and students aged 7-15. Another important pedagogical project is conducted in collaboration with pre-school teachers. Diplomas are awarded to mini ambassadors, aged 5 to 6. The Lake Vänern Museum is visited by all classes in Lidköping municipality, in grades 2, 5 and 8, in a programme focused on sustainable development. Several of the projects within the Lake Vänern Archipelago Fisheries Area were aimed directly at children and young people.

The Lake Vänern Archipelago - Victoriahuset naturum is a visitors' centre and one of several meeting places for the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. It holds a permanent exhibition with information on the biosphere reserve. Additionally, visitors can learn more about ecosystems and biodiversity near the castle, through an app-type game developed by the Biosphere Association in collaboration with several stakeholders in Skaraborg. The game is played along a nature trail near Läckö Castle.

The long-term communications efforts of the Biosphere Association are aimed at influencing the behaviour of people to promote sustainable development, for the benefit of both humans and the natural environment. The Biosphere Association supports various initiatives by inspiring, brokering, leading processes and creating spaces for conversation and public education.

Read more in chapter 6.2.

2.2.7
Update on governance management and coordination, including changes since last report (if any) in hierarchy of administrative divisions, coordination structure.

The management and coordination organisation is a non-profit association. It is called The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve (and throughout the text referred to as the Biosphere Association). The association is built around democratic principles where all of the members of the association are treated as equals and all of the members of the board have equal influence. The members of the board represent public, private and non-profit sectors. The members of the association and the biosphere ambassadors also represent different sectors. A broad group of representatives ensures that various interests have a voice in the association. Members can, for instance, submit proposals to the association's annual general meetings. A simpler and faster way, however, is to contact the Biosphere Office and present ideas.

The activities of the municipalities impact all of the residents of the biosphere reserve in some way. In order to more clearly connect these to the biosphere reserve, a working committee was established by the board in 2017. The working committee contains the regular, municipal representatives on the board, as well as the chairman and the coordinator. The primary purpose of the working committee is to discuss municipal questions. The coordinator always participates in board meetings and other staff participate as required. The coordinator also manages the Biosphere Office and supervises employees.

Based on needs and projects, a number of working groups are active. One example is the group Naturnytta biosfär, gathering officials such as municipal ecologists, planning architects and municipal developers from the municipalities, as well as volunteer representatives from the Swedish Society for Nature Conservation. The network works with questions relating to ecosystem services and has, among other things, developed projects in that regard. It is important to involve various sectors to ensure progress of work in the biosphere reserve.

Read more in chapter 7.

Effects of brokering efforts by the Biosphere Association

The three biosphere municipalities now clearly express that they wish to, and will, collaborate on matters of sustainability.

2.3 The authority/authorities in charge of coordinating/managing the biosphere reserve.
The Biosphere Association coordinates initiatives within the biosphere reserve and operates a Biosphere Office with a coordinator and one employee. The association has ongoing activities and projects, of varying lengths. The office also initiates and supports projects and activities initiated by other stakeholders in the biosphere reserve, falling within the scope of biosphere activities. The Biosphere Association also has a board that establishes goals and operative activities within the association.
The biosphere reserve was initiated by the three municipalities within it and they are also actively involved in work within the biosphere reserve, and represented on the board of the Biosphere Association. After the application, a working committee has been formed, consisting of the council leaders of the three municipalities, a board chairman and the Biosphere Office coordinator.

2.3.1
Updates to cooperation/management policy/plan, including vision statement, goals and objectives, either current or for the next 5-10 years.
A few years after the designation in 2010, the Biosphere Vision 2030 was ratified, containing four focus goals. Throughout the years, some activities connected to the vision have been carried out, however, follow-up of this work has not been optimal.

In 2018, the Biosphere Association updated its goals, with a 2025 horizon. Based on these goals, and in collaboration with other stakeholders, the association produces an annual operating plan. The goals are linked to indicators, which are continuously followed up.

Read more in chapter 8

2.3.2 Budget and staff support, including approximate average annual amounts (or range from year-to-year); main sources of funds (including financial partnerships established (private/public), innovative financial schemes); special capital funds (if applicable); number of full and/or part-time staff; in-kind contribution of staff; volunteer contributions of time or other support.

The Biosphere Association has a basic annual funding of 1,220,000 SEK (2019). This money comes from the three municipalities which form the biosphere reserve (820,000 SEK) as well as from the Swedish Environmental Protection Agency (400,000 SEK). The money is used to cover the costs of the Biosphere Office, its staff, board, office facilities, meetings, co-funding of various projects etc. Approximately one full time employee is covered by these funds.

In addition to the annual budget, the Biosphere Association applies for various grants for individual projects, in collaboration with other stakeholders. These grants allow the Biosphere Office to employ more than one person. Staff numbers at the Biosphere Office have varied throughout the years, largely due to fluctuations in funding received through various projects.

Within the biosphere area, there are a number of funds which, throughout the years, have contributed to different activities, projects, as well as to the GULLD Fund operated by the Biosphere Association. Other funding provided to the biosphere reserve in connection with initiatives and projects, has come from various trusts, locally managed development projects, the Rural Development Programme and Skaraborgs Municipalityalförbund, among others.

The Biosphere Association has received close to 15 million SEK in the form of activity and project grants since 2010. Furthermore, the project Lake Vänern Archipelago Fisheries Area included 11 million SEK. Stakeholders within the biosphere reserve, other than the Biosphere Association, have also received grants for activities and projects. Additionally, they have contributed resources of their own in the form of time and materials. Biosphere ambassadors and members of the non-profit association do volunteer work, for instance by participating in the training of mini ambassadors, holding lectures and working on various projects. Many more have also participated in projects. The total sum of such grants, and of the time invested, is large and highly valuable, but not possible to estimate in numbers.

2.3.3 Communications strategy for the biosphere reserve including different approaches and tools geared towards the community and/or towards soliciting outside support.

The long-term communications efforts of the Biosphere Association are aimed at influencing the behaviour of people to promote sustainable development, for the benefit of both humans and the natural environment. Information about the biosphere reserve is collected and available on the Biosphere Association's comprehensive website. The website is crucial to the support function, in that it works both as an information archive, and, alongside the association's Facebook page, as a way to communicate news. The Biosphere Association can also be found on Instagram. These social media allow for dialogue with interested individuals, who also like, share and comment on posts.

The communication with members, biosphere ambassadors, financial backers, the biosphere network, board members and other people across the various networks of the Biosphere Association is key to the exchange of inspiration, experiences and knowledge. The media are also an important part of the communications efforts of the Biosphere Office and over the past 10 years, a large number of articles have been published in local, regional and national publications, as well as on radio and TV. Materials on the biosphere reserve can also be found at tourist information offices, businesses, museums and with other stakeholders. Information

signs are found at selected destinations as well as at major railway stations.

In 2010, the Biosphere Association developed a communication strategy highlighting various target groups and which strategies were to be used to reach a wider audience, among other things. The communication strategy has been updated continuously, reflecting the development of the association and the addition of more projects. A profile programme for the Biosphere Association was established in 2010. The target groups that need to be reached by information from the Biosphere Office are many. Various initiatives have been made in order to better reach select target groups.

The following tools have been developed:

- A training programme for biosphere ambassadors who spread knowledge about the biosphere reserve through their various interests and networks.
- The Biosphere Challenge, a challenge for primary schools in the biosphere reserve, as well as in other Swedish biospheres and internationally.
- A programme to train pre-school children in the biosphere reserve to become mini ambassadors.
- The communications project **Here's Life* (2017-2019) provided insight into good, local examples of sustainability and the spreading of knowledge about the UN Agenda 2030. The goal of the project was to reach a broad, public audience, businesses and students, through an exhibition and an app-type game among other things.
- Various working groups have been active as required. One example is a group of municipal communications officers, which was active for a number of years.
- Biosfärstipendiet (the Biosphere Grant) was awarded to individuals and organisations that contributed to the sustainable development of the biosphere reserve (2012-2018).
- The Biosphere Association has produced brochures and films to support good initiatives and to make it easy for local residents and various community stakeholders to spread knowledge and information about the biosphere reserve.

In 2018, a new vision and goals were developed. A horizontal goal is "the strengthening of the UNESCO Lake Vänern Archipelago and mount kinnekulle biosphere reserve brand. The horizontal goal is part of all other goals. As one of UNESCO's model areas for sustainable development, the entire community needs to be involved.

By spreading knowledge about the UN Agenda 2030, the global development goals and the role of the biosphere reserve as a model area, to those who live in the biosphere reserve, more people can be inspired to take active steps towards increased sustainability. The Biosphere Association strengthens the brand through modern communication, active ambassadors and collaboration with various stakeholders, among other things.

The Biosphere Association was an early user of communications channels such as the website, Facebook and Instagram. For most of the 10-year period, there were staff employed with the dedicated role and skills to communicate the biosphere, its activities and results to an external audience.

***Here's life* is a communication's project that in 2018-2019 inspired, brought life to and highlighted the highly active ongoing work in the biosphere reserve to support sustainable community development. In total, the project's communications reached more than 750,000 people.**

The touring exhibition that was part of the project, and it's two specially designed app-type games spread knowledge about the UN Agenda 2030 and good, local examples of sustainability within the biosphere reserve.

The app-type games *The Map Game* and the *Superpower Game* are based on questions and answers about the 17 global sustainability goals of the UN. One example is biodiversity and ecosystems services. The app is available in Swedish and English.

The touring exhibition reached a total of more than 100,000 visitors. It could be seen at the Lake Vänern Archipelago naturum near Läckö Castle during 2018. It could also be seen in the Mariestad City Hall, Centrumhuset in Götene, the Guldgruvan recycling centre in Töreboda, Österplana church, at Vårrundan on Mount Kinnekulle, at the Gothia Science Park in Skövde and in Almedalen, Gotland during the national political week 2019.

Within the scope of **Here's life*, a number of lectures, training initiatives and other spaces for meetings on matters of sustainability, were organised. The activities were almost always carried out together with co-creating stakeholders. The project was widely spread in newspapers and on social media.

2.3.4 Strategies for fostering networks of cooperation in the biosphere reserve that serve as connections ("bridging") among diverse groups in different sectors of the community (e.g. groups devoted to agricultural issues, local economic development, tourism, conservation of ecosystems, research and monitoring).
The Biosphere Association operates according to a model called IMPA, Swedish for Inspirera (Inspire), Mäkla (Broker), Processleda (Manage Processes) and Agera Arena (Act as an arena [for communication/dialogue etc.]). This involves inspiring those who live and work within the biosphere reserve to find their roles in the development of a sustainable community, and to help facilitate the meeting and linking of people, ideas organisations, knowledge and funding. Biosphere reserves must design and drive processes, while also offering a neutral arena for conversations on what the development of sustainable communities means, and how we can work to move in that direction. This model was developed in 2014.

Based on various projects which are run by or participated in by the Biosphere Association, new networks are established. For example, the coordinator has regular follow-up meetings

with municipal management functions, in order to coordinate their strategic work within the biosphere reserve. That is a forum of considerable importance, as the roles of the municipalities are key to their citizens. Through close collaboration, ideas, activities and efforts are welded together, so that work clearly moves in a particular direction.

Another important network is Nätverket Naturnytta Biosfär, containing representatives from the municipalities, the Biosphere Office, the County Administrative Board and the non-profit association. Here, knowledgeable people come together to develop ideas and projects which can further development.

2.3.5. Particular vision and approaches adopted for addressing the socio- cultural context and role of the biosphere reserve (e.g. promotion of local heritage resources, history, cultural and cross-cultural learning opportunities; cooperation with local population; reaching out to recent immigrant groups, indigenous people etc.).
In order to reach as many groups as possible, naturums, museums, libraries and schools are important stakeholders in the biosphere work. For example, the exhibition *Here's life, developed under the leadership of the Biosphere Association, has toured naturums, museums and various schools. The Lake Vänern Museum has a school programme for grades 2, 5, 8, with a focus on sustainable development, and cultural history as a natural component.

During the 2007-2014 EU programme period, the Biosphere Association made conscious, targeted efforts to establish sustainable fishing on Lake Vänern, by running the project Lake Vänern Archipelago Fisheries Area within the framework of the European Maritime and Fisheries Fund. The Biosphere Association served as the platform and together with other stakeholders such as commercial fishermen, organisations and municipalities, new ideas and projects were developed. Several of the projects aimed to spread knowledge about Lake Vänern and commercial fishing. The Lake Vänern Museum was one of the stakeholders, working to highlight the historical perspective on the role of fishing and its importance in the area. This resulted in a book and an exhibition that has toured several locations throughout the biosphere reserve, as well as in municipalities outside it. When it comes to fishing, it is easy to forget local history, as commercial fishermen grow older and the number of people with a direct connection to the fishing industry declines. In another project, primary school students learned more about where the fish come from, the history of fishing, and they met with commercial fishermen who told them about their work and various fishing methods.

In the area, there are a number of organisations that, in various ways, preserve and promote traditional and local knowledge, and are active within the network of the Biosphere Association. Below you will find a couple of examples:

Dacapo Mariestad is a platform for a network of university-level education programmes. The University of Gothenburg and its Department for Conservation offers two educational programmes; the Gardening and Landscape Conservation Craft Programme and the Conservation Building Crafts Programme. The platform also operates its own programmes for higher vocational education, on the subjects of Cultural Painting - traditional painting of buildings, and Window Craft - traditional craftsmanship techniques. All of the programmes are focused on sustainability and promotion of the green cultural heritage, as part of the collective memory of our community. By preserving and learning from our cultural heritage, we can understand our history, our present time, and we can find sustainable solutions for the future.

Läckö Castle and the Lake Vänern Archipelago Victoriahuset naturum are important parts of the cultural heritage of the biosphere reserve. Läckö Castle has medieval roots and

is located on the outermost point of Kållandsö, just by the edge of Lake Vänern. It is the fourth most visited destination in western Sweden.
The *naturum* is an excellent starting point for the area of natural and cultural importance surrounding Läckö Castle. At the Lake Vänern Archipelago Victoriahuset naturum, visitors can learn more about the flora and fauna, as well as the geology and cultural history that has shaped the area, before they venture out into the natural environment. There are also ongoing educational projects for schools, and a fully organic restaurant, with ingredients from the castle garden. The restaurant is also listed in the White Guide book of quality restaurants in Sweden.
Läcko Castle is located within a region which is part of an ecotourism network, developing natural and sustainable tourism within the biosphere reserve. The goal of this is to meet the needs and expectations of environmentally conscious tourists. The Biosphere Association envisions long term collaboration with the member Läckö Castle Trust, exchanging thoughts, ideas and experiences.

Qvarnstensgruvan at Mount Minnesfjället in Lugnås was the site of a major millstone quarry, in operation until 1919. Remains, in the form of moss-covered millstones, tell of the past and attract visitors seeking to experience the exciting history of the area, as well as its beautiful natural environment. Today, this is the only millstone quarry in Europe that is open to visitors. There is a museum, a mine, a café, and open quarry pits where visitors can learn more about work in the mine and the tools that were used. In summer, young people are hired, trained in the history of the place and then get to work as guides. In 2012, Qvarnstensgruvan was given the Swedish award and quality label *Work Life Museum of the Year* in 2012.

Råbäcks Mekaniska Stenhuggeri (Mechanical Stone Masonry Workshop) is located on the shore of Lake Vänern, at Råbäck Harbour on Mount Kinnekulle. Here, you will find a living, functioning and well-preserved industrial memorial. Stonemasonry operations began in 1888 and continued until 1970. It currently serves as a museum on stone masonry techniques, the local environment and history. The old workshop has been listed for conservation since 1948 and houses are restored, there is still operational machinery. In summer, young people are hired, trained in the history of the place and then get to work there as guides. The workshop has regularly been a site for the training of mini ambassadors and close to 300 5-6-year-olds have been here to experience stone masonry. The stone masonry workshop has, just like the aforementioned Qvarnstensgruvan, been named Work Life Museum of the Year (2018).

The Society for Nature Conservation in Lidköping is locally active and manages a part of Kinnekulle using older, traditional methods, including traditional reaping, using scythes, to promote increased biodiversity. They are also actively spreading the knowledge through education associations and interested individuals in the general public. In 2016, they received the Biosphere Grant for their work. The Society for Nature Conservation in Lidköping has also published a book detailing their important work with preserving biodiversity and promoting a sustainable society.

The Lake Vänern Museum in Lidköping shows life in, on and close to Lake Vänern. The museum also tells the story of Lidköping and its relationship with other cities and the lake. The Lake Vänern Museum is an active partner in the biosphere reserve, promoting local history and conducting interdisciplinary work.

2.3.6 Use of traditional and local knowledge in the management of the biosphere reserve.

The biosphere reserve has an important biological cultural heritage to manage and preserve.

Such work depends on the skills of those who farm the land. Examples of areas where traditional knowledge is used are restoration, grazing and hay making on Mount Kinnekulle.

As part of the pedagogical work to generate interest in and increase awareness of sustainable development, aspects of cultural history are important. Through increased knowledge of fishing traditions, the history of land use and the importance of reverting to older practices to save threatened values, understanding and interest may increase.

Read more in chapter 2.3.5.

2.3.7 Community cultural development initiatives. Programmes and actions to promote community language, and, both tangible and intangible cultural heritage. Are spiritual and cultural values and customary practices promoted and transmitted?

The documentary film *Mellan bleke och storm* tells the life stories of three commercial fishermen. The fishermen each represent three different generations and their respective knowledge and traditions in the field of commercial fishing. The rich, local natural and cultural environments are also shown in the film, which is a collaboration between the biosphere reserve and filmmaker/photographer Anette Lundgren Lykke. *Mellan bleke och storm* has been shown several times on Swedish national television.

Effects of the project work of the Fisheries Area

The film *Mellan bleke och storm* tells the story of the local cultural heritage in the Biosphere Reserve and has been shown on Swedish national television.

The association Sigrid Storråda brings attention to culture and history from the 10th century. The association has an eponymous Viking ship, and organises cultural excursions, among other things. Sigrid Storråda (known as Sigrid the Haughty in English literature) was a Viking woman, said to have lived in Västergötland in the late 10th, early 11th century. She was rich and powerful, owning an estate in Främmestad among other things. She is also believed to have been the mother of Olof Skötkonung, Sweden's first Christian king.

The Hotel Aqva Restaurant & Bar is a tap water certified biosphere hotel focused on sustainability where local products and other aspects of sustainability are in focus. The proprietor also offers guided tours, exploring the sagas and history of the island of Torsö.

The Platåbergen Geopark which has applied to become a UNESCO Geopark also highlights cultural values. The application was submitted following the preparatory study conducted by the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

My Place in the Biosphere is a communicative project- an offspring from a research project aimed at investigating the role of the cultural environment and the ecosystem services of cultural heritage and local identity in people's wellbeing and sustainable landscape management within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. The research is described in the publication My Place in the Biosphere, published in 2019.

Read more in chapters 2.3.5 and 2.3.6

2.3.8 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve. Has there been a change in the number of spoken and written languages? Has there been a revitalization programme for endangered languages?

The primary language spoken in the biosphere reserve is Swedish. Additionally, people of a number of different nationalities live in the biosphere reserve and their languages are related to their places of origin. Mariestad municipality is an administrative management area for the Finnish minority language. This means that there is a locally strengthened protection of the Finnish language, pursuant to the Swedish National Minorities and Minority Languages Act.

2.3.9 Management effectiveness. Obstacles encountered in the management/ coordination of the biosphere reserve or challenges to its effective functioning.

Biosphere Office staff have consistently worked with dialogue and collaboration between various local stakeholders. The work is based on good examples and engaged stakeholders. The method used is called IMPA, a Swedish acronym for Impress, Broker, Manage Processes and Act as a [neutral] arena. Since the nomination in 2010, the Biosphere Association has seen the development of collaborative projects, such as that between commercial fishers on Lake Vänern and the three municipalities forming the biosphere reserve. Through projects, good examples have developed and spread, growing into larger projects and activities. One example is the Lake Vänern Fishery Management project, running from 2014 to 2020. This Fisheries Area is a geographical expansion of the Lake Vänern Archipelago Fisheries Area, a project operating between 2007 and 2013.

In recent years, it has occasionally been difficult to find candidates for the board of the Biosphere Association. Reasons for this may be a general decline in non-profit involvement throughout the community, or that the Biosphere Office has not had time to work on generating interest to attract new people to positions within the Biosphere Association.

One obstacle is that most of the contact with officials and politicians, in municipalities and other stakeholder organisations, is tied to specific individuals. When these individuals change jobs, the contact is lost. It is a challenge to ensure knowledge transfer about the biosphere reserve between various people in organisations. One way to solve this may be to tie the contact more to a function, than to an interested individual.

Another challenge for the Biosphere Association is to find sufficient funding to conduct various projects and activities, as well as to find both competent and experienced staff, knowledgeable on the biosphere reserve and our operations.

« The Biosphere Office has limited resources. This may be something to review. There is a need for clearer mandates, with contact persons in the municipalities available to work from their end, to make things less vulnerable. To broaden the involvement of municipalities and create a network. »

Chair of the Municipal Executive Committee

A number of important lessons that have been revealed through workshops and interviews indicate that the Biosphere Office needs more human resources, and that there is a need for greater collaboration between the municipalities. There is also a demand for closer contact between the Biosphere Association and municipal decision-makers. An absence, or lack, of actively involved individuals in municipal management bodies, has also been highlighted as a problem. An additional obstacle has been the loss of contact between the County Administrative Board and the Biosphere Association. There are, however, tentative efforts underway to restore contact. Two things which have already led to improvement are the relatively recently established working committee and the network Naturnytta biosfär.

It is important for board members to enshrine the work of the Biosphere Association board in their own organisations.

There is an involvement by local residents, members, biosphere ambassadors, biosphere guides and public officials etc. – the benefits of which could be better reaped. Many people are interested in participating in activities within the biosphere reserve. One concrete example of the local residents' reflections on the biosphere reserve was when the annual Culture and Harvest Festival in Mariestad had a biosphere theme. Locals painted pictures that were put on display outdoors, in the city centre, during the event which had thousands of visitors. The paintings depicted interpretations of the biosphere area, its natural environment, culture and its role as a model area for sustainable development. On a deeper level, an activity like that can be about everything from the in-depth, individual processing of questions related to sustainability, to pride, to perhaps being a first encounter with the name of the biosphere reserve and reflections on what it means to be a part of the global network of biosphere reserves.

Effects of the Biosphere Association's work

Through a variety of projects, the Biosphere Association has attracted millions in funding for sustainability measures to the area – not least in the form of EU funding.

2.4 Comment on the following matters of special interest in regard to this biosphere reserve:

The Biosphere Association pioneered questions of sustainable tourism. Work even began before the biosphere designation had been completed. However, the time was not quite ripe, and several of the expected effects failed to materialise. However, this early work has resulted in an infrastructure of hiking and cycling trails as well as a number of companies and associations that show potential for development.

The Biosphere Association also pioneered the concept of training biosphere ambassadors to spread knowledge, and as a way to invite participation in the work of the Biosphere Association. This concept has spread both nationally and internationally.

Municipal interest was recently sparked, following the hosting of a conference for those Swedish municipalities that were part of biosphere reserves, in 2018. A working committee featuring municipal representatives is a good way to generate actionability in future municipal work with the biosphere reserve.

Collaboration between the Biosphere Association and organisations such as the Lake Vänern Museum and the Läckö Castle Trust has been highly positive. There may be additional potential and opportunities in connection with this, where collaborative marketing initiatives is one example of something that could generate positive effects. There is also the possibility of another naturum, located on Mount Kinnekulle. This would generate additional opportunities for collaboration. The Platåbergen Geopark is also an important collaboration partner.

2.4.1 Is the biosphere reserve addressed specifically in any local, regional or/and national development plan? If so, what plan(s)? Briefly describe such plans which have been completed or revised in the past 10 years.

The biosphere reserve is mentioned and taken into account in several different development plans, with a few examples listed below.

Götene Municipality has included the biosphere reserve in the following of their plans:

Future plan for Götene Municipality 2009-2020. The future plan consists of visions and strategies, strategic areas, working procedures, finances, and a comprehensive plan.

In-depth comprehensive plan Kinnekulle 2030 - an in-depth version of the comprehensive plan and thematic in-depth descriptions of areas for rural development in shoreland locations, throughout all of Götene Municipality.

Comprehensive planning programme, Filsbäck-Truve/Svanvik, Lidköping Municipality & Götene Municipality.

The Götene Municipality Climate and Environmental Policy Programme 2019-2024 ratified by the municipal council on April 29, 2019, lists the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve as an example of how global efforts can come to fruition in local contexts. Here, it is made clear that Götene Municipality, alongside the municipalities of Lidköping and Mariestad, functions as a model area for sustainable community development, an important site for testing of various methods for sustainable development in real-world scenarios. The measures detailed here are to promote nature conservation, community development, research and education.

Lidköping Municipality has included the biosphere reserve in the following plans:

Environmental Plan for Lidköping Municipality. This plan was ratified in 2017 and briefly describes the biosphere reserve. A municipal official describes that the entire environmental plan is implicitly in line with the goals and purpose of the biosphere reserve. Now that the goals of the Biosphere Association have been reworked and clarified, Lidköping Municipality is thinking about how these can be more clearly integrated into the 2030 Environmental Programme, currently under development.
The biosphere reserve is also mentioned in the Nature Conservation Programme, under the section on valuable landscapes in Lidköping.

The Comprehensive Plan was ratified in October 2018. Here, the biosphere reserve is described in the strategy for the future, regarding natural and cultural environments. The value of intermunicipal cooperation is important in the development of the biosphere reserve. Several of the recommendations listed in the CP are meant to promote rural areas and maintain attractive landscapes in the municipality. The CP states that the guiding principles of the biosphere reserve must be taken into account and implemented in planning;

preserve and develop cultural diversity, ecosystems and landscapes. Develop the community with a long-term perspective and support demonstration projects, research and environmental survey projects.

The Windpower Plan (thematic addendum for the Comprehensive Plan) ratified in January, 2014. The biosphere reserve is listed as a planning condition.

The Hamnstaden In-Depth CP states that the guiding principles of the biosphere reserve shall be implemented in the planning process.

The biosphere reserve has been referred to in about 10 different detailed development plans, primarily concerning non-urban areas.

Additional information: In all new detailed development planning procedures, Lidköping Municipality has a checklist for *Evaluation of considerable environmental impact*, and the section *On regulations and areas of protection* has a subsection on international conventions (UNESCO, World Heritage Sites etc.) where the author of the plan has to decide whether the detailed development plan in question needs to take such aspects into consideration.

Mariestad Municipality has included the biosphere reserve in the following plans:

The Comprehensive Plan 2030 which entered into force on July 8, 2018. The biosphere reserve is named as one of the cornerstones of the vision of Mariestad Municipality. The biosphere reserve is also mentioned in connection with tourism education and local products. The Comprehensive Plan shows how the municipality seeks to manage areas of national importance and ensure long-term sustainable development. It also defines the direction in which urban and rural areas are to be developed.

The Rural Strategy ratified in 2016. The strategy refers to the biosphere reserve in the context of areas of important natural and cultural heritage, among others.

The Climate Adaptation Plan ratified in 2017. The plan refers to the biosphere reserve both as one of the municipality's visionary areas and policies.

Additional information:
Strategy for locally led development in northwestern Skaraborg, 2014-2020. The strategy describes how this area within the Leader programme is to reach its goals and expected targets. The biosphere reserve is described as one component of this, in the field of sustainability.

Regional landscape strategies previously established by the Västra Götaland County Administrative Board are also in place, and these have led to an ambitious Regional Plan for Green Structures. It contains decisions on concrete measures to be taken, and assigns responsibility for their implementation.

2.4.2 Outcomes of management/cooperation plans of government agencies and other organizations in the biosphere reserve.

The Biosphere Office has collaborated with both regional and national authorities, resulting in the spread of knowledge about sustainable development, and contributing to sustainable fishing in Lake Vänern. National climate investments have enabled local biogas

investments and partly sustainably produced hydrogen gas. The same applies to municipal investments in sustainable development within urban environments.

The municipalities within the biosphere reserve work constantly with sustainable development, and this has led to various tangible results.

Below are additional examples of the results of management and collaboration plans implemented by government agencies and other organisations within the biosphere reserve:

- The work of the Västra Götaland County Administrative Board has resulted in nine new nature reserves and three new Natura 2000 areas within the Lake VänernArchipelago and Mount Kinnekulle biosphere reserve.
- The ecological functionality of the Lake Vänern archipelago has been improved during the course of the project Life Vänern (2013-2018), in part thanks to the clearing of overgrown islets for birds.
- A new, major application for a LIFE project to improve the natural values of the oak landscape is being submitted by the County Administrative Board and the Environmental Protection Agency, as a result of the previous project, LIFE Kinnekulle.

Read more in chapter 7

2.4.3 Continued involvement of local people in the work of the biosphere reserve. Which communities, groups, etc. How are they involved?

The local community is, in various ways, involved in matters of sustainability and in the work of the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

Members are citizens, organisations and businesses
The Biosphere Association has approximately 60 members. Most of these are residents of the biosphere reserve and about 60% of the members are organisations and businesses. The latter often has many people and areas of contact in their day to day business. The type of involvement differs greatly between members. They all have consultation rights at the annual general meeting of the Biosphere Association and can thus influence the ways in which work is conducted.

Biosphere ambassadors, teachers and mini ambassadors
Another important group involved in the biosphere reserve is the biosphere ambassadors. They organise various activities based on their own special interests and experiences. Some of them contribute to various events within the biosphere reserve such as expos and the Biosphere Day. Some of the biosphere ambassadors train mini ambassadors; 5-6-year-olds who, through pre-schools in the biosphere reserve have the opportunity to learn more about sustainability, thanks to the efforts of teachers and biosphere ambassadors. The biosphere ambassador training programme is geared towards adults with an interest in the biosphere reserve and its activities. Thus far, 34 biosphere ambassadors have been trained. The roles of the ambassadors are to spread knowledge and inspire interest in the biosphere reserve among colleagues, customers, friends, family and other associations. Thus, they contribute to the support function of the Biosphere Association.

« I feel a great sense of pride in the fine work being done and of our fantastic region. »

A resident of the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve

Associations, schools and institutions of higher education
The biosphere reserve has an extensive network, spread out across the three municipalities. The projects of the Biosphere Association are diverse and create many opportunities for collaboration since involvement of local communities often is central. One example is the preparatory study *The Biosphere as an Arena for Diversity*. Through this study, approximately 40 associations and organisations within the biosphere reserve have expressed that they wish to collaborate with the Biosphere Association to include recent immigrants into Swedish society.

The project *Here's life*
The project generated considerable involvement among local residents, regarding knowledge about the UN Agenda 2030. Some of the partners and meeting arenas involved were the Läckö Castle Trust, the De la Gardiegymnasiet (secondary school), Dacapo Mariestad, Skövde University, Karlstad University, Campus West Skaraborg, Vadsbogymnasiet (secondary school), the Lake Vänern Museum, the Vadsbo Museum, Tillväxt Mariestad, the Götene Business Network, Fridays for Future, the CLAS Project, the Agenda 2030 Conference West, businesses such as EcoLogic UF, teachers and officials working with culture and sustainability in the municipalities of Lidköping, Götene and Mariestad. Other visitors who have decided to get involved based on the content of the exhibition have come from Vara, Töreboda, Skövde etc.

More coolaborations
Non-profit associations are also represented in the network *Naturnytta biosfär,* alongside representatives of the public sector. A long-term, well functioning collaboration exists with the *Lake Vänern Museum* and the *Lake Vänern Archipelago Victoriahuset naturum,* and its experiential pedagogical activities. Partly because the staff are knowledgeable about the biosphere reserve, and partially, there is good and continuous collaboration with teachers and students.

Effects of the project work of the Biosphere Association

The preparatory study conducted by the Biosphere Association led to the inclusion of several recent immigrants into the activities of Swedish non-profit associations, improving their social security and employability.

2.4.4 Women's roles. Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration within the biosphere reserve? What incentives or programmes are in place to encourage their representation and participation? (e.g. was a "gender impact assessment" carried

out?) Are there any studies that examine a) whether men and women have different access to and control over sources of income and b) which sources of income do women control? If so, provide reference to these studies and/or a paper copy in an annex.

Sweden is considered one the world's most gender-egalitarian countries, and the norm is to give equal consideration to the needs and interests of men and women. Swedish legislation also prohibits the unequal treatment of people based on their gender. Even so, there is of course more to be done. Within the Biosphere Association, both men and women are highly involved, at the Biosphere Office, in local organisations and in decision-making processes.

Several women are members of the board of the Biosphere Association. However, men have been clearly overrepresented on the board for all of the past 10 years. This, even though the identification committee has in some years had an overrepresentation of women. The board is currently approaching a representation of 50% women and 50% men. When electing a new chairperson of the board two years ago, a woman was elected to the post. Other than that, both men and women are represented in the working committee, the executive committees of the municipalities, the County Administrative Board, as well as in the network Naturnytta biosfär and among the biosphere ambassadors. There are more women then men among the Biosphere ambassadors.

In every project application, there is a requirement to work with equality, a requirement which the Biosphere Association naturally abides by. In the preparatory study "the Biosphere as an Arena for Diversity", the Biosphere Association focused especially on women who had recently immigrated, and their daughters. By enabling the mothers and daughters to try various leisure activities under safe conditions, they also learned more about the activities of Swedish voluntary associations. This is an important step towards inclusion, the establishment of new networks, and ways to reach the labour market.

2.4.5 Are there any changes in the main protection regime of the core area(s) and of the buffer zone(s)?

There have been no changes to the core areas included in the initial applications.

2.4.6 What research and monitoring activities have been undertaken in the biosphere reserve by local universities, government agencies, stakeholders and/or linked with national and international programs?

A large number of monitoring and research activities have been carried out within the biosphere reserve over the past 10 years. This is detailed in the table below. The table shows the main organisation involved in the respective activities, in which fields they conduct research/monitoring, and whether the activity occurred as part of a local, regional, national and/or international programme.

Here follows an overview of the most significant organisations/institutions conducting research and/or monitoring within the biosphere reserve, as well as the focus of their activities. NB. - the list only includes programmes related to the biosphere reserve.

Organisation	Role	Areas of focus	Programme type	Comment
The Swedish Environmental Protection Agency	Research and monitoring	Coordinates all environmental monitoring in Sweden. Provides funding for and commissions research	National	
The Swedish Agency of Marine and Water Management	Research and monitoring	Coordinates environmental monitoring of marine and aquatic environments in Sweden	National	
The Västra Götaland County Administrative Board	Monitoring	Biotic and abiotic monitoring according to a county programme to follow up on the 16 environmental targets	Regional	
Mariestad Municipality	Monitoring		Local	
Götene Municipality	Monitoring		Local	
Lidköping Municipality	Monitoring		Local	
The Lake Vänern Aquatic Conservation Society			Regional	

SMHI	Monitoring	Meteorological measuremets Water flow measuremets Carbon dioxide emissions measurements	National	
The Lidköping Birding Society	Monitoring	Bird inventories and counting	Local	Non-profit association
The Lidköping Society for Nature Conservation	Monitoring	Projects i.e. salamanders, flora	Local	Non-profit association

Below : an overview of the most significant organisations/institutions conducting research and/or monitoring within the biosphere reserve, as well as the focus of their activities. NB. - the list only includes programmes related to the biosphere reserve.

Organisation	Role	Areas of focus	Programme type	Comment
Gothenburg University	Research	Cultural geography		
Karlstad University	Research	Tourism		
Skövde University		Digital storytelling		
The Royal Academy of Sciences	Research			
Stockholm Resilience centre	Research			Part of Stockholm University

See also chapter 6, section 6.2 where the primary focus areas of research and monitoring are described in detail. See also chapter 8.

2.4.7 How have collective capacities for the overall governance of the biosphere reserve (e.g. organization of new networks of cooperation, partnerships) been strengthened?

The Biosphere Association has decided to involve the entirety of the three municipalities in biosphere work. Visions, targets and indicators have been established based on local and global sustainability challenges. Subsequently, various projects have been initiated and conducted. Examples are sustainable tourism in the Biosphere Association or the transition to fossil-free transportation. Other examples are communicative efforts to promote less consumption and circular economic decisions. Organisationally, the coordinator works closely with the board and representatives of all three municipalities of the biosphere reserve.

The project *Lake Vänern Archipelago Fisheries Area* ran from 2009 to 2013, as one of 14 Fisherie Areas in Sweden. Its purpose was to develop a sustainable fishing industry, create economic growth and thereby jobs. The Fisheries Area had a special development strategy, established by local stakeholders. In order to reach the goals set out in the strategy, stakeholders who applied for grants from the Fisheries Area, or the Biosphere Association, conducted various projects. Funding for the projects and the operation of the Fisheries Area was provided by the Swedish Agency for Marine and Water Management, Västra Götaland County Council and the three biosphere reserve municipalities. In total, 14 different projects were carried out as part of the Fisheries Area.

The Biosphere Association consciously works with continuous learning efforts throughout the biosphere reserve. The most recent example of this is the communications project Here's life. Another example of a project is the Biosphere as an Arena for Diversity, through which about 40 different associations have expressed an interest in collaborating with the Biosphere Association on a larger project aimed at the inclusion of recent immigrants. As the Biosphere Association primarily conducts its work in the form of projects, this is an impactful way to find new partners and create new arenas for collaboration between local residents and the Biosphere Association.

Organisationally, a working committee has been in place since 2018, consisting of the council leaders of the three municipalities, the coordinator and the chairperson of the Biosphere Association. The working committee aims to integrate the management bodies of the municipalities in Biosphere Association work, in a long-term fashion.

Additionally, there is the collaborative network Naturnytta biosfär, dealing with questions relating to management of the biosphere reserve. In 2019, the Regional Green Structure Plan was finished, containing many important measures connected to management activities within the biosphere reserve.

Effects of public education provided by the Biosphere Association

The mini ambassador programme and the Biosphere Challenge both spread knowledge about the important interplay between Man and Biosphere.

2.4.8. Please provide some additional information about the interaction between the three zones.

As previously mentioned under section 2.4.5., all core areas are formally protected under Swedish law, and the same applies to several of the areas classified as buffer zones. Zoning has not changed over the past 10 years and the geographical distribution of the various zones is the same as it was at the time of application. Several voluntary undertakings have been implemented in the buffer zones, in order to strengthen the core areas. Furthermore, new nature reserves and biotope protection areas have been established within the buffer and development zones. These are not part of the core areas, but they are part of the biosphere related work to promote sustainable development. The new protection areas are valuable to biodiversity, but are not listed as core areas, as they are not surrounded by any buffer zones.

2.4.9 Participation of young people. How were young people involved in the organizations and community decision-making processes? How were their interests and needs considered within the biosphere reserve? What are the incentives or programs in place to encourage their participation?

The involvement of young people in sustainable development efforts is key to the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. The young people of today will be responsible for the development of the future, for many years to come, and our sustainability efforts are long-term. We have taken a number of different actions to involve young people. Some examples are listed below:

- **Mini ambassadors.** 5-6-year-olds are trained in subjects related to the biosphere. This is a long-term effort, ensuring that children receive the knowledge they need at an early age.

- ***The Biosphere Challenge*** is aimed at classes and students aged 7-15. It is organised with the goal of helping children and young people think and act in sustainable ways, as they solve the challenge together with their classmates.

- **Lectures and seminars.** Lectures are held when time permits, for example at the Vadsbogymnasiet secondary school, Dacapo Mariestad and Campus West Skaraborg. The lectures are pedagogical and allow for dialogue and reflection, where the ideas of students and pupils are brought into the Biosphere Association.

- **Collaboration with institutions of higher education.** Karlstad University visits the biosphere reserve annually as part of its tourism programme. Skövde University was involved in the project Here's life. Students have conducted their field studies and internships within the biosphere reserve and at the Biosphere Office.

- ***The Biosphere as an Arena for Diversity*** preparatory study. Here, activities were organised for recently immigrated mothers and their daughters, to help them become part of Swedish society.

- ***The project Here's life*** **with games related to the Agenda 2030 and the biosphere reserve.** Today, the Map Game is a permanent exhibition at the De la Gardiegymnasiet secondary school, with more than 2,000 students. The Superpower Game, following the nature trail at Läckö Castle is also permanent. Both games are suitable for ages 12 and up.

- ***The preparatory study Children's Islands in the Grown-ups' Sea.*** The Biosphere

Association conducted a preparatory study to investigate the attractiveness of the biosphere reserve from a child's perspective.

- **Involvement in fairs for young people.** The Biosphere Association has, on several occasions, participated in a jury at a fair for ninth-grade students. The jury work consisted of interviews and a dialogue on ecological, social and economic sustainability.

- ***The EuroMAB Conference.*** In 2019, young people living in the biosphere reserve had the opportunity to apply for a chance to participate in the EuroMAB Conference in Dublin. Three people aged 18-24 were selected to participate. At the conference, they contributed their ideas on how the Biosphere Association can work to involve young people.

- **Social media.** The Biosphere Association regularly publishes information on Facebook and Instagram. Inspiration is also sought through Pintrest and LinkedIn. The Biosphere Association operates partly in forums of its own, partly by posting in groups where many of the biosphere reserve's residents are members. Examples of such forums are the Facebook groups "Mariestadare", "Götenebor" and "Lischstil". It is not uncommon for the Biosphere Association's posts to reach thousands of people. Being active on social media is a way to reach a broad spectrum of people both young and old.

- **Local newspaper articles.** Over the years, many good examples of biosphere work have been publicised by local newspapers. These reach a large number of households. Some articles have also been published in free newspapers, distributed to all households.

Sempers platschef Jörgen Thunholm berättade om företagets satsningar i Götene.

Semper berättade om satsningen

Septembers företagslunch i sessionssalen i Centrumhuset lockade ett femtiotal besökare.

Näringslivsföreningens ordförande Bo Bergsten hälsade välkomna och presenterade dagens huvudtalare Jörgen Thunholm, platschef på Semper i Götene. Han berättade om företagets satsningar på anläggningen i Götene, arbetet med att lyfta in den nya spraytorken och planerna på etablering i Kina.

Han uppmanade även åhörarna att använda sig av Götenes läge i ett område med höga natur- och kulturvärden. Hållbarhet blir mer intressant för alla delar i värdekedjan och vårt biosfärsområde kan vara ett bra marknadsföringsargument, tyckte han.

Vid lunchen berättade även kommunalrådet Åsa Karlsson att Götenes nya översiktsplan är ute på samråd och välkomnade besökarna att läsa den och ge synpunkter.

Näringslivsföreningens företagslunchar i Götene arrangeras tillsammans med Götene kommun första måndagen varje månad, för representanter från kommunens företag samt kommunala tjänstemän och politiker.

Målet är att skapa en mötesplats för det lokala näringslivet samt företrädare för den kommunala organisationen och politiker, för att bevara Götenes goda näringslivsklimat.

Article from the local Swedish newspaper NLT (2018)

3. ECOSYSTEM SERVICES

3.1 If possible, provide an update in the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

(As per previous report and with reference to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (http://millenniumassessment.org/en/Framework.html and http://www.teebweb.org/publications/teeb-study- reports/foundations/)).

The bisophere area has a varied landscape with various ecosystems connected to the local natural environments. The area is located in the boreal region of the Earth and has ecosystem types present in temperate and subpolar forests and woodlands. There is a mosaic of ecosystems, both within the protected areas and in the land areas used for agriculture. Mount Kinnekulle is an ecological centrepoint and provides one of the most important ecosystem services in the form of recreation and outdoor living. The natural environment in itself is the primary resource, as well as its cultural history, connected to human use of the land. Another important ecosystem service is the pedagogical function of these areas of the natural world, where people have the opportunity to learn more about biology and nature conservation. As for the archipelagoes of the lake, these are also wholly unique in terms of the outdoor living and natural tourism opportunities they offer. In both these areas there is an incredibly rich biodiversity, and a large number of species are directly protected either by Swedish legislation or by the EU Bird and Habitats Directives.

Ecosystem services are products and services which provide direct or indirect benefit to humans, and are important to our wellbeing. According to the MEA and TEEB frameworks, ecosystem services can be divided into four categories:

1. ***Supporting services*** - the natural processes and conditions which form the basis for all other ecosystem services.
2. ***Regulating services*** - benefits derived from the regulation of natural processes.
3. ***Provisioning services*** - various products offered by the ecosystems.
4. ***Cultural services*** - immaterial benefits provided by the ecosystems such as mental and physical wellbeing, recreation, spiritual and aesthetic benefits.

No comprehensive analysis of ecosystem services has been conducted for the biosphere reserve or for the individual types of environments. The summary below is a based on a consultation with experts knowledgeable about the local environment, members of the network Naturnytta biosfär. The network consists of representatives from various parts of the biosphere reserve ; the biosphere municipalities Lidköping, Mariestad and Götene, the Swedish Society for Nature Conservation, the Västra Götaland County Administrative Board and the Biosphere Association. There are also biosphere ambassadors in the network.

The summary below includes the natural processes which can provide services in the various types of natural environments/ecosystems, and their users. The overview of various ecosystem services is divided into four categories, for six important natural environments within the biosphere reserve:

	Supporting	Regulating	Provisioning	Cultural
Lake Vänern and its coastal ecosystems	Reproduction of 30 species of fish	Local climate regulation	Drinking water	Recreation, aesthetic experieces
The agricultural landscape	Grazing lands, living environment for plants and animals	Pollination	Food 1,000-2,000 species dependent on oaks	Ancient farm fields Biological cultural heritage
Other lakes, waterways and wetlands	Living environment for plants and animals	Water regulation Carbon dioxide storage	Unique plants and animals	Recreation
The woodland	Living environment for plants and animals	Carbon dioxide storage	Wood products Mushrooms and berries	Hunting Recreation Health
The geological landscape and the table mountains	Nutrient-rich bedrock	Temperature	Unique plants and animals	Recreation Knowledge Views

The urban landscape	Small biotopes i.e. parks	Air purification Temprature	Living environment	Health

The Lake Vänern Archipelago and Mount Kinnekulle area contains a number of habitat and land cover types. A selection of habitat and land cover types that in various ways characterise the landscape are described in this chapter together with descriptions and examples of their ecosystem services:

The lakes and the running water

Ecosystem services provided:

- Reproduction of 30 spieces of fish.
- Birdlife.
- Biological diversity.
- Climate regulation.
- Water supply for humans and animals.
- High quality drinking water.
- Irrigation for the agribusiness.
- Water purification.
- Recreation.
- Physical and mental health.
- Connection with the history.
- Culture.
- Identity of citizens.
- Genuine and traditional fishermen culture.
- Products like *Vänerlöjrom.*

The beneficiaries of these services are :

- Human beings.
- Animals.
- Nature.
- Fishermen.
- Citizens.
- The agribussines sector.
- The business sector.
- Tourists
- The municipalities.
- Lake Vänern is strengthening the regional area and is therefor of great importance on a national level.

The wetlands

Ecosystem services provided:

- Fish reproduction.
- Fishing.
- Birdlife.
- Biological diversity.
- Recreation.
- Water purification.
- Water management.
- Environment for threatened spieces.
- Culture.
- Peat as a raw material.

The beneficiaries of these services are :

- Human beings.
- Animals.
- Nature.
- The fishermen.
- The citizens.
- The business sector.
- Tourists.
- The municipalities.

The coastal ecosystems

Ecosystem services provided:

- The coast line attracts citizens.
- Recreation.
- Culture.
- The archipelago is well-frequented by boats in the summertime.
- Sports; Golf, hiking tracks, beach volleyball, padel, stand up paddling, kayak etc.

The beneficiaries of these services are :

- Human beings.
- Animals
- Nature.
- The fishermen.
- The citizens.
- The business sector.
- Tourists
- The municipalities.
- Scientists.

The forests

Ecosystem services provided:

- Biological diversity.
- Birdlife.
- Oak stands with its 1000-2000 spieces.
- Recreation.

- Health and sports.
- Carbon dioxide storge.
- Reproduction of wild animals.
- Hunting.
- Picking berries and mushrooms, spring onions.
- Air purification.

The beneficiaries of these services are :

- Human beings.
- Animals.
- Nature.
- The citizens.
- The business sector.
- Tourists.
- The municipalities.
- Scientists.

The arable land

Ecosystem services provided:

- Food for humans and animals.
- Biological diversity.
- Supply services.
- Grazing animals.
- National park.
- Recreation.
- Cultural services like photographs, personal experiences.
- Out door activities for physical and mental health like hiking and cycling.

The beneficiaries of these services are :

- Human beings.
- Animals.
- Nature.
- The farmers.
- The citizens.
- The business sector.
- Tourists.
- The municipalities.
- Innovators.
- Scientists.

The geological landscape and the table mountains

Ecosystem services provided:

- The rare areas of limestone pavement provide biological diversity.
- Knowledge tourism.

The beneficiaries of these services are :

- Human beings.

- Animals.
- Nature.
- Citizens.
- The tourism sector.
- The citizens.
- The business sector.
- The municipalities.
- Scientists.

Built-up areas

Ecosystem services provided:

- Small habitats like parks and croft environments provide biological diversity.
- Mansions and very old churches at Kinnekulle are parts of a rich cultural landscape.

The beneficiaries of these services are :

- Human beings.
- Animals.
- Nature.
- Citizens.
- The tourism sector.
- The business sector.
- The municipalities.

Descriptions of each natural environment

The lakes and running water

Lake Vänern is the largest inland lake in Sweden and the third largest in Europe. Lake Vänern has an extensive archipelago with a total of 22000 islands and skerries. The biosphere reserve includes 4569 islands that are more than 10 m2. The Lake Vänern Archipelago and Mount Kinnekulle area is traversed by agricultural rivers. Tidan and Lidan are the two largest rivers, while Friaån and Sjöråsån are somewhat smaller.

Ecosystem: Inland sea

The biosphere reserve is built around the southern archipelago of Lake Vänern. This freshwater inland sea is thus a dominant feature of the area. The lake also influences the local climate by its evening effect on temperatures in the area. Lake Vänern contains both shallow and deep waters (<20 m) in e.g. the bays Mariestadsfjärden, Forshemsviken, Sjöråsviken and Kinneviken, which exhibit bottom biotopes and coastal zone biotopes. Deep areas of water (>20 m) are found north of Djurö and Brommö and west of Kållandsö. Apart from bottom biotopes, these areas also contain purely pelagic biotopes. The shores of Lake Vänern are varied, but the most common forms are wet grassland and rocky shores. In addition, there are sandy beaches, rubble formations and drifting sand dunes. This diversity together with the extensive archipelago has resulted in a rich birdlife, and a fish fauna containing 38 species. Lake Vänern is home to unique salmon and brown trout sub-groups, which are a relic from the period following the last Ice Age when the lake was part of the sea.

Ecosystem: Lakes

On the southern part of the biosphere reserve is the nutrient-poor forest lake Vristulven. The shores are mostly stony and rocky and the lake contains many islands and islets of which several

are bird protection areas. Birdlife is rich with breeding osprey *(Pandion haliaetus),* heron *(ardea cinerea),* hobby *(Falco subbuteo),* and black-throated diver *(Gavia arctica).*

Ecosystem: Running water
The agricultural rivers Friaån, Tidan, Sjöråsån and Lidan discharge into Lake Vänern. As they run through clay plains, they transport big quantities of loose material and are nutrient-rich. They are largely slowflowing and rich in aquatic vegetation e.g. reeds, rushes and water-lilies. There are also faster-flowing stretches which often include high natural values, such as fish and bottom fauna. The rivers Tidan and Lidan run through urban environments prior to discharging.

Wetlands
Wetlands are a group of biotope types where shallow water covers the soil, or is present either at or near the surface of the soil. Mires, wet forests, shallow lakes and running waters are included in the definition. Wetlands constitute a valuable natural resource with prerequisites for a rich flora and fauna. Wetlands are scattered along the shores of Lake Vänern and commonly bear evidence of human impact. The southwestern part of the area is home to most wetlands of the highest classification according to the County Administrative Board's wetland inventory. Other valuable areas are scattered along the coast.

Ecosystem: Shallow lakes
Shallow lakes rich in vegetation are important sites for birdlife. In general, it can be said that the richer the underwater flora, the more resting and breeding birds. Other organisms are also favoured by underwater vegetation as it offers protection against predators and strong wave movements. Shallow lakes form a unique aquatic environment as the productive and the regenerating water layers are in direct contact, providing a direct nutrient supply which contributes to the highly productive characteristics of the lake.

Ecosystem: Small surface waters
Shallow wetlands in the cultivated landscape are among the most species and specimen rich aquatic environments, and one of the most highly productive environments when it comes to biological diversity. Small surface waters are no more than one hectare big and the water surface is present all year or for varying periods of time during the year.

Ecosystem: Bogs
Mires produce peat and form on waterlogged land, overgrown lakes, or where there is a dependency on shallow surface water. Raised bogs tend to be species-poor since the water supply from surrounding land has been cut off.

Ecosystem: Marshes
Marshes tends to be more nutrient-rich than bogs and are characterised by more nutrient-demanding and species-rich vegetation, including more nutrient-rich peats. The reason is that marshes are fed by direct precipitation and also by water from surrounding land areas. Rich marshes environments are fed by land and surface water containing minerals from adjacent mineral-rich bedrock or soil. Vegetation is also affected by the mobility and oxygen levels of the water. Rich marshes are located near the plateau mountains and are protected as Natura 2000 sites.

Coastal ecosystems
The Lake Vänern coast within the biosphere reserve is a mosaic that includes a broad variety of ecosystems. This variation in the coastal landscape contributes to a rich flora including species that are otherwise linked to marine environments, e.g. golden dock *(Rumex maritimus)* and sand sedge *(Carex arenaria).* The varied biotopes also contribute to a rich bird fauna.

Ecosystem: Seasonally inundated grasslands
Natural hay meadows that are not artificially fertilised, cultivated or seeded with alien species. These are the oldest types of meadows along lake shores, rivers or streams. Open wet meadows provide a highly species-rich environment and are home to many rare and threatened plants and animals, especially when the grassland is managed.

Ecosystem: Rocky shores
Rocky shores dominate the coast of the biosphere reserve. Mineralogical conditions and exposure give rise to an interesting flora and vegetation. Species such as sheep's-fescue *(Festuca ovina)*, red canary-grass *(Phalaris arundinacea)*, purple moor-grass *(Molinia caerulea (L.) Monech)* and alpine rush *(Juncus alpinoarticulatus Chaix)* dominate the rocky shores. Vegetation is mainly localised to cracks where soil and moisture has collected.

Ecosystem: Clay and mud shores
These are only found in protected bays and are home to the most species-rich flora. Contiguous reed beds are common in nutrient-rich bays with clay and mud shores. Reeds are largely represented by the cosmopolitan common reed *(Phragmites australis)*. Large contiguous reed beds are important for breeding birds such as bittern *(Botaurus stellaris)* and marsh harrier *(Circus aeruginosus).* They also provide valuable spawning grounds for fish.

Ecosystem: Boulder and shingle shores
This shore type is dominated by large rocks and boulders, with a very scant interspersion of fine-grained soils between and under the rocks. They are normally of small ecological value, but can in places provide breeding sites for rare species of birds. This type of shore completely dominates at Hindens rev, but also occurs in other places in exposed environments.

Ecosystem: Sandy shores/ sand dunes
The impact of waves has created sand dunes of varying sizes along the shores of Lake Vänern. This is a relatively rare environment with a potential for high natural values. Many of the sandy beaches are highly frequented by summer visitors.

Forests
Based mainly on climatic and biotic, but also historic, factors, the country has been divided into five major forest ecosystems with their own characteristic features. Coniferous forests in the biosphere reserve are located in the southern coniferous region. Its south-westerly border coincides with the southern limit of the natural range of spruce, i.e. the line that spruce reached in its natural spread from the north before extensive forestation took place in southern Sweden. Deciduous forests constitute the most species-rich environments in the country, and a large number of the red-listed species of insects, mosses, lichens and fungi are linked to different deciduous forest environments.

Coniferous forest
Ecosystem: Flat-rock pine forest
This is a Nordic vegetation type that grows on areas of Archaean rock. It is often very dry, with a thin layer of soil, and nutrient-poor. This form of habitat occurs in areas that existed below the High Coast line (the highest level reached by the sea in any of its inland lake stages after the last Ice Age) and that were washed clear by the waves during the land uplift. Flat-rock pine forests are often species-poor. The vegetation includes low, sparse pine forest *(Pinus sylvestris)*, heather *(Calluna vulgaris)*, cowberry *(Vaccinium vitis-ideas)*, reindeer lichen *(Cladonia rangiferina)*, fungi and swallow-wort (*Vincetoxicum hirundinaria*). Animals include ants, centipedes *(Chilopoda)* and beetles *(Coleoptera)*. Birds include capercaillie (*Tetrao urogallus*), woodpeckers, *Picidae)*, crossbills *(Loxia)*, mistle thrush (*Turdus viscivorus*), nightjar *(Caprimulgus europaeus)*, redstart (*Phoenicurus phoenicurus*) and tits.
Within the biosphere reserve, this nature type is largely found along the coastal cliffs of Lake Vänern and is well-developed on the islands in the Kållandsö archipelago. Many of the islands

are home to very old, pine-dominated forest, rich in old pines and dead wood. Very old pines and pine stands that are up to 200 years old are found in scattered areas, mainly on the islands of Djurö, Västra Brommö and Kalvöarna.

Ecosystem: Bilberry spruce forest
Bilberry spruce forest is more humid and nutrient-rich than flat-rock pine forest, with a rich flora and fauna. Plants include spruce (*Picea abeis)*, bilberry *(Vaccinium myrtillus)*, ferns *(Polypodiaceae)*, mosses and fungi. Animals include ants, spiders *(Arachnae)*, earth-boring dung beetle (*Geotrupes stercorarius)* and ground beetles *(Carabidae)*.

Ecosystem: Calcareous coniferous forest
Calcareous coniferous forests are characterised by naturally regenerated forest with long-term continuity. They are rare in the forest landscape. Many of the calcareous coniferous forests are home to a species-rich flora, including mycorrhizal fungi. A great number of red-listed species are linked to these forests. There are several calcareous coniferous forests on Mount Kinnekulle.

Ecosystem: Coniferous swamp forest
In this type of forest any one species rarely dominates the stand. Apart from on pine bogs, spruce and pine most often grow together.

Deciduous forest
Ecosystem: Broadleaf forest
The broadleaf species elm *(Ulmus glabra)*, ash *(Fraxinus excelsior)*, oak *(Quercus)*, Norway maple *(Acer platanoides)*, rowan *(Sorbus aucuparia)* and beech *(Fagus sylvatica)* occur as pure stands and in stands mixed with either conifers and/or other deciduous trees, and as solitary trees or copses in the cultural landscape. In addition, broadleaf trees are a major feature of parks and avenues. Broadleaf forests are often mixed. To a fairly large extent, structures and stands remain from the old cultivated landscape, where broadleaf trees were an important feature. The remains of the tree and shrub layers, e.g. old oaks and pollarded trees, can be found especially on the sites of former infields. On Mount Kinnekulle, forest values include very rich ash-elm groves, oak-hazel groves and oak pastures, with a large number of old, coarse trees. The transition between forest and wooded pastures is often diffuse. Valuable oak environments and oak pastures are found in the area of Ullersund, in the Eken archipelago and on the eastern part of Kållandsö.

Ecosystem: Other broadleaf forests
Among other broadleaf forests are a number of deciduous forest environments with varying mixes of species. Some of them are described below.

Ecosystem: Waterside natural deciduous forests
These include shoreline alder forests and various types of secondary deciduous forests. The shoreline forests most deserving of protection are those that are flooded during short or long periods. A zonation of various flood-tolerant stands is often found along the water's edge. Alder *(Alnus glutinosa)*, birch *(Betula)* and aspen *(Populus tremula)* are favoured and can form flood forests with high natural values. Some of these forests stand on former haymaking and grazing land that has successively become overgrown. Many waterside forests along flat shores are a result of the 19th century lake drainages, and are now the first generation of forest on former lakebeds. Shoreline alder forests are found in large areas by Lake Vänern.

Ecosystem: Natural succession
Natural species succession is a relatively short-lived event in the forest landscape and "moves around" over a long period in mesic soil areas. Late successions are characterised by many standing and fallen dead trees with a sparse interspersion of old deciduous trees successively screened by invading spruce. This forest type has been strongly under-represented for the past hundred years compared with its historic distribution.

Ecosystem: Wet forest
Wet forests grow on damp or wet soil. They are sometimes called Sweden's rainforests. Wet forests are relatively dense with a large proportion of dead wood, and are home to many valuable species and habitats. They are of great significance for several species of bird, including capercaillie (*Tetrao urogallus*), hazel grouse *(Bonasa bonasia)*, rustic bunting *(Emberzia rustica)*, long-tailed tit *(Aegithalos caudatses)*, and a number of woodpecker species. The biosphere reserve includes several types of wet forest. The most common are shoreline alder forests and alder carrs. Wet forests are found at Östra Sannorna and on the island of Torsö. Important natural processes:

Arable land
The arable land within the biosphere reserve is varied and diverse, created in symbiosis between humans and animals over thousands of years. Today, it can be hard to distinguish traces of ancient cultivation in the landscape. The post-war agricultural transformation has had an impact on the landscape, with larger holdings, extensive replanting with Norway spruce *(Picea abies)*, the removal of obstructions to mechanical cultivation, etc. The cultivated landscape has become more monotonous.

Ecosystem: Fields and seeded grassland
The landscape on Kålland is characterised by a fully cultivated landscape, broken by unproductive areas and stretches of woodland. The terrain is fragmented. Production is mainly arable with some animal husbandry. Mount Kinnekulle is surrounded by largely continuous farmland, which becomes fragmented near the forest edge. The cultivated landscape around Mount Lugnåsberget is more mosaic-like. The Swedish Environmental Protection Agency has awarded parts of Kållandsö and practically all of Mount Kinnekulle the status of "Sweden's finest agricultural landscape".

Ecosystem: Grazing pasture
Kålland's mosaic landscape includes grazing land with rocky outcrops and oak pastures.
Characteristic for Mount Kinnekulle are the extensive pastures on the limestone plateau. In many places the soil consists only of a thin layer of weathering gravel with scattered limestone outcrops. This particular type of environment is called *alvar* – a very rare biotope found only in a few places around the world, also called limestone pavement. Mount Kinnekulle is also famous for its unusually large number of large, old deciduous trees. The oak enjoys a special position. The many oak-filled pastures on the western side of Mount Kinnekulle make the mountain one of the most valuable oak tree areas in the whole of Europe. On Kålland there are speciesrich dry meadows linked to the unproductive areas of farmland.

Ecosystem: Meadows
Meadows reached their maximum distribution during the 17th and 18th centuries. This was the culmination of a development spanning over more than 2000 years. Meadows were the most important feature of infields. In the early 19th century, there were around two million hectares of meadows in Sweden. Today, only some 2,500 hectares remain, which means that 99 % of all meadows have disappeared. Remnants of wooded meadows are found on Mount Kinnekulle.

Ecosystem: Ancient remains
Of particular interest from an agrarian history point of view are ancient remains and archaeological environments directly linked to the agrarian economy, such as settlements and remnants of primitive iron production and subsidiary industries. Rune stones and certain grave types, e.g. barrows and stone cists, are also of interest. Abandoned agricultural remains, so called fossil fields or ancient fields, constitute a fundamental historic component of the cultivated landscape. We now know that many of the remains date back to pre-historic times and the Middle Ages. Rich Bronze Age environments, including the bronze shields discovered in Fröslunda, are found on Kålland, as well as barrows and rock carvings. The area is also rich

in Iron Age remains, e.g. large stone circles, and numerous grave-fields and rune stones. The 18th century agricultural landscape can still be traced at Källstorp manor farm, through the buildings, the fence that divided the crop-rotation fields and parts of the cattle-path that led to the outfields. There are also remains of an Iron Age village and a Bronze Age barrow. Mount Kinnekulle is also an important Bronze Age settlement area with a large rock carving site at Flyhov in Husaby. A zone around the mountain is rich in grave-fields from the Iron Age. Västerplana meadow is an interesting site, where clearance cairns clearly show that the area was part of a system of cultivation and fallow during the Bronze Age and later cultivated as a meadow when Västerplana village was formed.

The Geological Landscape with its table top mountains
The table mountains have created conditions for a rich cultural heritage and valuable natural habitats, and the mountains have been important to the people of the area for a very long time. The gelogical landscape incudes Lugnåsbergets millstone mine and the great quarry at Kinnekulle. The cultural landscape tells us its history from the ice age as well as through egalithic tombs, old stone churches, stonemasonries and a fascinating nature and landscape. The alvar areas in this region have a very nutritious bedrock. That gives a special environment for some spieces.

Built-up areas

Urban settlements

Within the biosphere reserve there are three towns and a number of peripheral municipalities. These areas are characterised by planned structures where the natural environment has been replaced by constructions, impervious surfaces and planned green areas. The urban centres have grown up around trade, administration and industry. The urban environment contains a variety of microhabitats. Recreational areas, parks, gardens, disused wasteland, water areas, etc., provide habitats for many species of flora and fauna. Adaptation to an urban environment, offering food and protection from predators, has allowed some species to thrive. Buildings and other constructions also house flora and fauna, and often replace natural habitats.

Rural settlements

Building in the countryside is relatively evenly distributed. With the exception of the outer archipelago, the whole area is inhabited. The area is marked by the far-reaching enclosures that took place in the 19th century, when many villages were broken up. Some village formations, however, still remain. There are also a large number of summer/weekend homes in the rural areas, often linked to water or the natural environment. In places, these are built in dense clusters. Historically, rural settlements and agriculture have fragmented the natural environment and created new biotopes. Cultivated plants provide new sources of food for animals, and other biotopes have been pushed back. In modern society, recreational housing has reduced the area of untouched shoreline.

Manor house environments

Several remarkable 18th century country estates remain is the area. The finest example of Gustavian architecture is found at Hellekis manor on Mount Kinnekulle. The western side of Mount Kinnekulle is dominated by manor houses. As a result of this historic manor house environment, a park landscape was created on Mount Kinnekulle, dominated by large trees. There are around 1,500 large oaks on the mountain, and their bark contains more than 1,000 species of animals. Other country estates in the biosphere reserve include Läckö, Stola, Traneberg, Senäta, Apelås, Börstorp Castle and Stora Ek. These estates are not clustered like on Mount Kinnekulle, but they provide clear evidence of the manor house influence on the landscape.

Infrastructure

Within the biosphere reserve there are several high-traffic roads (e.g. E 20, national roads 26 and 49) with private as well as freight traffic. A fine-meshed network of small roads also exists.

The Kinnekullebanan railroad crosses the area. Special biotopes occur in connection with roads and railroads, e.g. banks and central reservations. Roads and railroads can also act as barriers, affecting species that require access to large areas. Lidköping has a commercial port, and fairways to this port and other ports in Lake Vänern traverse the waters included in the biosphere reserve. Guest harbours and pleasure boat marinas are scattered throughout the area. Göta Canal, one of the most popular tourist attractions in Sweden, is a historic transport route linking Lake Vänern with the Baltic Sea.

Land requisition
Expansion and rebuilding of urban areas and the construction of infrastructure leads to a constant change in the microhabitats created in such environments. The development of summer cottages and permanent housing is land-demanding and alters the conditions of the open cultivated landscape.

Management of parks and other green urban areas
The management of gardens, parks and other green urban areas is of great importance for creating biotopes in the built-up environment.

3.2 Specify if there are any changes regarding the indicators of ecosystem services that are being used to evaluate the three functions (conservation, development and logistics) of the biosphere reserve. If yes, which ones and give details and update.
There are no former indicators from year 2010 covering the whole biosphere reserve area to refer to today in an evaluation. There are goal indicators for the Biosphere Reserve Assosiation for year 2019-2025. From April 2019 there is also a Region action plan made by the Västra Götaland County Administrative Board. It contains concrete followable actions to conserve, develop and support ecosystem services. That action plan is so new that there are no results to present at this point.

3.3 Update description on biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).
Biodiversity in flora and fauna is often a prerequisite for ecosystems to be able to provide important ecosystem services. The importance of various species varies with their function in the ecosystems, for instance if they pollinate flowers or are apex predators. That also influences their importance in this context. It is the total extent of biodiversity in the area that makes the biosphere reserve unique. In several cases, biodiversity contributes to ecosystem services in itself. Additionally, a greater species diversity will often contribute to a greater resilience in ecosystems, meaning their ability to cope with stresses such as human impact or natural disruptions. If several different species can provide the same function and service, they can replace each other if the species composition changes. New, notable threats to biodiversity are invasive species, ash decline, Dutch elm disease and effects of climate change, among other things.

Find out more in chapter 4

3.4 Specify whether any recent/updated ecosystem services assessment has been done for the biosphere reserve since its nomination/last report. If yes, please specify and indicate if and how this is being used in the management plan.
In order to facilitate the long term preservation and development of green infrastructure, the County Administrative Board established a regional action plan in 2019. Green infrastructure is defined as a natural network contributing to well-functioning living environments for plants and animals, and to the wellbeing of humans. It is meant to contribute to the understanding of various interactions in landscape geology when decisions on land and water use are made, and to strengthen the landscape perspective in nature

conservation work related to protection, maintenance and species-targeted actions. The action plan shall also support the prioritisation of measures in forestry and agriculture, and contribute to measures which improve the level of climate adaptation.

Lidköping Municipality has conducted a biotope mapping and habitat analysis, and created a working model for ecosystem services, for use in their work with detailed development plans. Mariestad Municipality has recruited students to do their theses on ecosystem services, regarding the spread of pollinators and corridors of spread inside Mariestad.

The Swedish University of Agricultural Sciences (SLU) is conducting a project in the biosphere, to produce a model to communicate the risks associated with invasive species to garden proprietors. The project is being carried out across two biosphere reserves and is a good example of biosphere reserves being used as arenas for testing.

One of the organisational goals of the Biosphere Association is ecosystems and biodiversity. Concretely, this has been demonstrated through the dissemination of knowledge and examples within projects such as Here's life, where the UN Agenda 2030 has been in focus, among other things.

4. THE CONSERVATION FUNCTION

[This refers to programmes that seek to protect biodiversity at landscape and site levels and/or ecological functions that provide ecosystem goods and services in the biosphere reserve. While actions to address this function might be focused on core area(s) and buffer zone(s), ecosystem dynamics occur across a range of spatial and temporal scales throughout the biosphere reserve and beyond.]

4.1 Significant changes (if any) in the main habitat types, ecosystems, species or varieties of traditional or economic importance identified for the biosphere reserve, including natural processes or events, main human impacts, and/or relevant management practices (since the last report).

Within the 10-year period, tree diseases such as the Dutch elm disease and ash decline have appeared in the biosphere reserve. The effects can now be seen. Large parts of Mount Kinnekulle have been hit by these diseases. The consequence is a change in the composition of trees in the broadleaf forests. The trees that appear instead are black alders, birches and aspens. Major spruce bark beetle outbreaks, coupled with tree diseases, have had considerable consequences for forest owners in the archipelagoes, in Mariestad and on Mount Kinnekulle.

In the early 2000's, Lake Vänern flooded, which consequently led to a stricter regulation of its water level. This, in turn, has led to the overgrowth of beaches. Reeds and black alders have taken over, which impacts natural values such as biodiversity. It also affects the opportunities for outdoor living and nature tourism, when it comes to kayaking, bathing etc. Within the EU project Life Vänern 2015-2019, conducted in collaboration with Värmland County, the County Administrative Board has worked to solve the problems, for example by clearing overgrown islets for birds. A positive impact is an increase in the number of white-tailed eagles. This has reduced the previously large population of great cormorants.

The spread of invasive species has increased. Examples include the giant hogweed, Japanese knotweed, Himalayan balsam, hairy willowherb and spear thistle. In terms of fauna, fallow deer have increased in number on Mount Kinnekulle, which causes problems as they graze on lady's-slipper orchids, pasque flowers, crops such as rapeseed and forestry plantations of oak and pine. Garden proprietors, cemeteries and others will often need to fence off their properties if they wish to preserve gardens or floral displays.

4.2 Describe the main conservation programmes that have been conducted in the biosphere reserve over the past ten years as well as current on-going ones. Note their main goals and the scope of activities, e.g. biotic inventories, species-at-risk, landscape analyses, conservation stewardship actions. Cross reference to other sections below where appropriate.

A number of activities have been carried out within the biosphere reserve to preserve, develop and support biodiversity, over the past 10 years. Below is a description of some of these activities, in which the Biosphere Association has often had an initiating and key executive role.

- **Preparatory study for MSC certification**
  MSC certified fishing means that commercial fishing operations are conducted in a way which preserves other species and living environments. The fishing industry must ensure that fishing can continue indefinitely and that the fish population remains productive and strong. In order to support sustainable fishing on Lake Vänern, the Biosphere Association conducted a preparatory study in collaboration with commercial fishermen and the Swedish Inland Fishermen's Federation, as a first step towards MSC certification of Lake Vänern fisheries. The fishing of zander was MSC certified in 2017.

- **Bioblitz**
  On Biosphere Day, June 2, 2013, a bioblitz was conducted at the Lake Vänern Archipelago naturum. A bioblitz is a species inventory carried out over 24 hours, where experts in various fields inventory and register all the species found within a designated area. The purpose of such events is to increase interest in biodiversity and showcase the biological myriad to a wider audience. 14 national and local species experts conducted inventories and shared their knowledge, additionally, a number of other people, highly knowledgeable in the field of biodiversity, participated. Approximately 200 species were found and registered in the digital species database Artportalen. Information events and guided tours were also conducted as part of the bioblitz, and approximately 600 people were present.

  Read more in chapter 9

- **The thematic lecture series on biodiversity within the biosphere reserve.** The target group for the lecture series on biodiversity within the biosphere reserve was interested individuals from the general public, and the lectures were held in 2016.

- **The Bee Hotel**
  The Biosphere Association organised a design competition, resulting in a winning contribution in the form of a bee hotel, designed by Linda Loland. The bee hotel, which carries the logo of the biosphere reserve, is a popular commemorative gift from the association and the participating municipalities. Members can also buy the bee hotels and they are available to purchase in a number of locations throughout the biosphere reserve. The bee hotels serve as dwellings for wild bees, which may struggle to find good dwelling sites as humans cut down forests in favour of urban development. The bee hotels highlight the importance of humans being aware of biodiversity and ecosystem services.

- **The GULLD Fund.** The biosphere reserve's GULLD Fund makes annual contributions to sustainable initiatives. Organisations and businesses can donate money to it, and citizens of the biosphere reserve can apply for grants from it. One of the 2019 grants went to Project Expedition Linneaus 1A, conducting a survey of flowering plant species along the roadsides on Mount Kinnekulle.

- **The Biosphere Grant** has been awarded to various stakeholders contributing to sustainable development, for several years. One of the recipients was the Swedish Society for Nature Conservation, for their work with hay making on Mount Kinnekulle. The Association of Lake Vänern Inland Fishermen has also received the grant, for their work to protect the threatened eel, by aiding it on its journey to the Sargasso Sea. Recipients are often publicised in media articles, which contributes to the dissemination of knowledge on biodiversity, and they also receive financial support.

- **Protection and preservation plans.** Maintenance plans for the new nature reserves have been established, and the County Administrative Board has updated the preservation plans for all of the Natura 2000 areas, in the period 2016-2019.

- **Hay meadows.** The County Administrative Board has an ongoing initiative through which they establish more hay meadows, within the framework of reserve maintenance. They are also working to strengthen natural values related to oaks. One example is the continued work to clear space around oaks and plant new oak trees. In 2019, the application process began for a new project following LIFE Kinnekulle, known as LIFE Restored, concerning the restoration of oak environments.

- **The communications project *_Here's life_ 2017-2019**
  The project highlighted a number of good examples related to biodiversity and climate matters. Two app-type games facilitate playful learning about the UN Agenda 2030, and showcase concrete, good examples of sustainable activities within the biosphere reserve. The Map Game is played in front of a 6x1 metre map and the Superpower Game is found along the nature trail near Läckö Castle.

The Here's life Map Game is about the Biosphere Reserve and Agenda 2030. The map size is 6 X 1,5 meter and the game is played with the app Here's life. Illustration Veronica Jensen.

4.3 In what ways are conservation activities linked to, or integrated with, sustainable development issues (e.g. stewardship for conservation on private land used for other purposes)?

The Biosphere Association participates in a project to find a model to communicate risks associated with invasive, foreign species, aimed at garden proprietors. The establishment of foreign species is a consequence of climate change, and a growing threat to domestic biodiversity. Countering and limiting the damage costs billions of Swedish kronor every year, and private gardens are often a gateway for these species. The project is run by the Swedish University of Agricultural Sciences (SLU) and is being conducted in two other Swedish biosphere reserves as well. Götene Municipality has experience in communicating about and fighting invasive species, and they have contributed their knowledge to the project.

In an interview with an official at the County Administrative Board, they expressed a wish to work more with species common in agriculture and forestry, as well as with aquatic issues. One arena for such work is the network Naturnytta biosfär. The official also

underlined that the land use by various stakeholders within the tourism industry, as well as by people engaging in outdoor activities, constitutes considerable land use pressure. Collaboration between the County Administrative Board, tourism businesses, municipal tourist information offices and the Biosphere Association, is important. Sometimes, projects are initiated inside nature reserves and proceed without any preceding dialogue with the County Administrative Board, which may lead to unnecessary conflict. A good example of collaboration is the newly started (2020) project on a sustainable tourism industry in the Lake Vänern archipelago.

Read more in chapter 4.2 for examples on how we promote local involvement through activities such as the Bioblitz, the Biosphere Grant and the project Here's life.

« As I see it, the fundamental idea of the biosphere reserve is an instrument for continued work with ecosystem services within the entire biosphere reserve and not just inside the protected areas. »

Nature Conservation Manager at the County Administrative Board, within the Lake Vänern archipelago and Mount Kinnekulle Biosphere Reserve area.

Photo Katarina Sundberg

4.4 How do you assess the effectiveness of actions or strategies applied? **(Describe the methods, indicators used).**

Knowledge about the biosphere reserve is generally good, and trust in the Biosphere Office and the Biosphere Association is generally high among decision-makers, local stakeholders and the general public. The area has also received attention in local, regional and national media for what has been achieved over the past 10 years. Some examples:

- The legitimacy of the biosphere reserve is underlined by the fact that the biosphere reserve is part of the long-term plans ratified by the municipalities. *See 2.4.1.*
- The Lake Vänern Archipelago naturum and the Lake Vänern Museum are pedagogical hubs, used to spread knowledge about the biosphere reserve and the UN Agenda 2030.
- Several conferences have been held in the biosphere reserve. Examples include EuroMAB 2011, a national fishing conference and a national conference for municipalities which form part of biosphere reserves.
- Large areas have been designated nature reserves and Natura 2000 areas, thanks to a good dialogue and cooperation between public authorities and land owners.
- The biosphere reserve pioneered the field of sustainable tourism in Sweden. Biosphere trails for cycling and hiking, designated boating routes etc. have been established, for the benefit of all local residents and visitors. A good foundation for the continued development of sustainable tourism has been built.
- The biosphere reserve has been part of several research projects, and hosted students for periods of varying length.
- Within the biosphere lies the ElectriVillage, with its world-unique investment in a solar powered hydrogen gas filling station. This investment is one of many steps to serve as a model area for sustainable community development, on several different levels. The ElectriVillage is one example of an effect of the UNESCO Biosphere designation.
- A positive dialogue followed by the development of methods and knowledge within the fishing industry has led to a progression from sustainable fishing to MSC certification. The Lake Vänern fisheries were ready for accreditation according to the MSC standards without making any changes. The benefits are numerous, it becomes easy for consumers to choose sustainable products, and it is financially rewarding for the fishermen to act sustainably.
- Thanks to already established sustainable working procedures, the MSC certification benefits consumers, who can clearly see the sustainability aspect, but there are also positive effects for the commercial fisheries, as a consequence of their successful work and the resulting certification.

"There is a concrete discussion among the commercial fishermen about sustainable fishing and MSC certification. In my new job, I met them again, as they held a meeting on the issue of vendace roe. If the vendace roe were to undergo certification, the risk would be that authorities would then advise against fishing it at all - "and then we shouldn't", said the fishermen. The project resulted in an increase in the value of the vendace roe, and the fishing of it became more efficient. The commercial fishermen are now collaborating – they were previously competing, but they have now formed an organisation."

A long-time employee of the Biosphere Office

4.5 What are the main factors that influenced (positively or negatively) the successes of conservation efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective for conservation and sustainable development?

According to the network Naturnytta biosfär, municipal strategies and their implementation constitutes one of the most important factors for the success of nature conservation efforts within the entire biosphere reserve. The municipalities have better strategies today than they did 10 years ago. Götene Municipality has requested an increased local presence of the Biosphere Office, for instance through on-location presence in each of the municipalities every third week. There is an idea to create a Biosphere Room on Mount Kinnekulle. Continuity is important, so that these questions remain active. Municipalities would be able to contribute more if they were more closely involved, through activities such as the Biosphere Challenge.

Lidköping Municipality has established a good local strategy, which could be communicated as more of a biosphere strategy. The same applies to Götene Municipality. The municipalities have each done good, local work on sustainability, but it often hasn't been synchronized with the goals of the Biosphere Association. One suggestion from the network is the production of a joint report, every second or third year. This, in order to provide better opportunities to see what has succeeded and what results have been produced. Joint analysis and reflection provides a shared foundation for continued work.

The fundamental efforts of the County Administrative Board are also highlighted as something that has provided a good foundation. Collaboration between the county administrative board, landowners and municipalities is highly important. This is an important lesson learned from the method used in the project LIFE Kinnekulle.

From the perspective of the County Administrative Board, the county administrative boards and municipalities have successfully continued work on shared maintenance initiatives for the protected areas. As an example, Götene Municipality has decided to work with continuous-cover forestry.

According to the network Naturnytta biosfär, experiences gained and lessons learned over the past 10 years will be highly impactful in the promotion of sustainable development. This includes new strategies, methods and collaborations, for instance within the network. Thanks to all this, new projects and collaboration efforts can be established.
When it comes to the question of what the Biosphere Association can contribute to promote sustainable development, and which other stakeholders will need to be involved, these are the replies from the network Naturnytta biosfär and other interviewees:

- *Those working in the tourism industry* have an important role.
- *Public agencies such as the Forest Agency,* as we need a plan for sustainable forestry, with more continuous-cover forestry and more leafy trees, especially in the interest of climate change adaptation and the preservation of biodiversity.
- *The Church of Sweden* is a major landowner and should also be involved in collaborations.
- *Planning architects and building permit administrators* working for the municipalities also have important functions. It is important to include ecosystem services in the planning process, so that compensatory measures are prioritised. Work is underway in some areas but may need stronger support.
- *Local history societies and the Federation of Swedish Farmers (LRF)* are mentioned as important partners for cooperation.
- In the context of spreading knowledge, *biosphere ambassadors and mini ambassadors* are highlighted as incredibly important, and the children are considered particularly important.

- The Biosphere Association is a driving force, organising and ensuring that anyone who needs it has access to new, up-to-date knowledge. *The co-operation with academia* is highlighted as a very important function of the biosphere reserve.

> ***« You must be open to the circumstances of each and every specific case. The role, and modus operandi, of the biosphere reserve is to build bridges. It is important to find ways to see each other as useful. Every now and then, situations of conflict arose – then, we tried to serve as a neutral arena. For instance on the matter of wind power. People on both sides of the issue were upset – we tried to find new ways, to look at the issue from several different perspectives. The bridge-building role of the biosphere reserve and the biosphere itself as a neutral arena has often been an asset to us, the fact that we are not in the role of a public agency. »***
>
> *A long-time employee of the Biosphere Association*

The network Naturnytta biosfär requested continued work on the biosphere trails and collaboration on sustainable travel, together with the following stakeholders:

Västtrafik (the public transport authority of western Sweden), the Swedish Transport Administration, Destinationsbolaget Läckö Kinnekulle AB, the Mariestad tourism organisation, the Swedish Society for Nature Conservation, the Swedish Outdoor Association, schools, local history societies, businesses, private stakeholders and landowners.

Effects of the work of the Biosphere Association.

The function of the Biosphere Association as a link between various community stakeholders has contributed to many projects and development activities.

4.6 Other comments/observations from a biosphere reserve perspective.

An important aspect highlighted by the network Naturnytta biosfär is that the Biosphere Association should in the future be able to work with biotope mappings and similar activities. Examples could include working with grassland in forest cuttings for power lines, and adjacent to agricultural land, to connect small and large islands of such environments. Another thing requested by some is continuous-cover forestry. The Biosphere Association is deemed to be a suitable facilitator of arenas for collaboration between nature and culture conservation.

A new LIFE project application has been initiated, headed by the county administrative boards of Stockholm and Östergötland. Several other county administrative boards are involved. The focus lies on habitats with oak trees and areas which were not restored as part of LIFE Kinnekulle 2002-2007. These are Munkängarna, Hjelmsäter, Västerplana Storäng and Halla. Examples of planned actions are the clearing of space around oaks,

placing of large boxes filled with wood chips and sawdust to provide environments for insects, fungi etc. - and to speed the development of hollow oaks, for instance by damaging younger trees. The application is to be submitted in spring of 2020, and a decision will be made during the autumn.

The continued work on coniferous, pine forest environments along the entire Lake Vänern shoreland is also important.

A new regulation scheme for Lake Vänern, allowing larger water level fluctuations, is also an important matter of nature conservation, to promote biodiversity, outdoor recreation and tourism.

« Kinnekulle is home to unique values that will not survive without our help. We must promote biodiversity – that is what the construction of green infrastructure means. »

Nature Conservation Strategist, Västra Götaland County Administrative Board

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5. THE DEVELOPMENT FUNCTION

[This refers to programmes that address sustainability issues at the individual livelihood and community levels, including economic trends in different sectors that drive the need to innovate and/or adapt, the main adaptive strategies being implemented within the biosphere reserve, and initiatives to develop certain sectors such as tourism to complement and/or compensate for losses in other markets, employment, and community well-being over the past ten years]

5.1 Briefly describe the prevailing trends over the past decade in each main sector of the economic base of the biosphere reserve (e.g. agriculture and forest activities, renewable resources, non-renewable resources, manufacturing and construction, tourism and other service industries).

Fishing

The general trend is a decline in the number of commercial fishermen. However, collaboration between commercial fishermen on fishing matters has improved, as a consequence of the project *Lake Vänern Archipelago Fisheries Area*. More of them see the opportunities in collaboration, and that more customers for their colleagues can benefit them too.

Agriculture

There is a trend towards increased organic farming, especially in Götene Municipality. Grazing lands are kept open, following the large LIFE project conducted on Mount Kinnekulle. That project was also what ultimately led to the application to be designated a biosphere reserve. The environmental management department of the County Administrative Board has served as one of the primary organisers and worked intensively to establish collaboration between public authorities and landowners, to help preserve the valuable grasslands, in collaboration with active farmers.

Forestry

Fragmentation of the forest landscape due to forestry has continued, however, the issue of climate adaptation has opened up opportunities for a greater variety of trees in forestry. Courses on continuous-cover forestry are now being held in the biosphere reserve.

Manufacturing, renewable resources and urban development
There are a large number of manufacturing companies in the biosphere reserve, and there has been a considerable increase in urban development over the past decade. There is a housing shortage in large parts of the country and locally, this has been addressed through the development of a number of areas for new construction.

A clear trend is the increasing inclusion of aspects of sustainability. This is visible for example in the choice of materials and vehicles, in both the manufacturing and construction industries. There are also many more solar power facilities in the biosphere reserve now than there were ten years ago. In Mariestad, a municipal pre-school is being built, which will receive most of its energy through solar power, stored using hydrogen gas. Activities which are ongoing, but not always clearly visible to the outside world, include choices of other energy efficient solutions. Companies also invest in social responsibility. The latter includes initiatives for employee health and sponsorship of sporting associations, as well as other contributions to the community. Other examples are dialogues and business cluster collaborations on circular systems with reduced waste and increased recycling.

« The businesses that do not make the transition to become environmentally efficient will not be around ten years from now. »

Municipal Commissioner

A concrete example of a business making the transition to become fossil free is the large paper mill Metsä Tissue in Mariestad, an important local employer with 360 employees. The mill produces toilet paper, among other things. In addition to its transition to become fossil free, the company engages in several sustainability activities. Excess heat is used to provide district heating for the residents of Mariestad, and the process also generates electricity. Another concrete municipal example is Mariestad, which has invested 90 million SEK in energy adaptation of all municipal-owned buildings. This was borne out of ideas on sustainability and realised through political decisions.

Tourism industry
There is a general trend in Sweden indicating a growing interest in more active tourism, such as hiking and cycling. Another trend is the increase in opportunities for knowledge tourism. One example of knowledge tourism within the biosphere reserve is the unique investment in a hydrogen gas filling station and solar panel park, the ElectriVillage in Mariestad. It has received attention and visitors from various parts of the world. There is also an ongoing effort to establish the local Platåbergen Geopark, which can be seen as an important contribution to knowledge tourism. In the Geopark, visitors can learn more about geology and the millions of years of history hidden beneath the surface of sites such as the Kinnekulle limestone quarry and the Qvarnstensgruvan mine in Lugnås.

A popular destination is Läckö Castle, with about 300 000 visitors annually. Here, visitors are greeted by the castle building, its treasures, and a busy summer programme. The castle is surrounded by a stunningly rich natural environment, with the Kållandsö cultural landscape meeting islets, skerries and a rich flora and fauna. The Lake Vänern Archipelago Victoriahuset naturum is also an important tourist destination, hosting a permanent exhibition on the biosphere reserve. The biosphere reserve is also represented outdoors, near the castle, through the Superpower Game which can be played along the nature trail. Götene and Kinnekulle also have strong visitor numbers, with the limestone quarry and cultural events such as Vårrundan and Returrundan, focusing on local art and creativity. Mariestad also attracts a great number of visitors, with its guest harbour in the city centre, and its location close to Sjötorp and the Göta Canal. The biosphere reserve truly flourishes during the summer months.

There are a number of tourism businesses in the biosphere reserve focused on providing sustainable activities and experiences for visitors. As an example, there are biosphere ambassadors and Biosphere Association members who are also active in the tourism industry, and can all tell people more about the biosphere reserve. There is a biosphere hotel in Mariestad, characterised by a focus on various aspects of sustainability. As part of biosphere projects, hiking and cycling trails have been established, creating the foundation for increased tourism.

Additional information
Wishes have been expressed that the Biosphere Association should help with applications for project funding, to develop innovations.

« I notice that things are being discussed in different ways now that we have terms such as 'planetary limits'. The conditions are set by our planet, and lively, living communities are the goal. The world has caught up with this fact. »

Former coordinator of the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve

5.2 Describe the tourism industry in the biosphere reserve. Has tourism increased or decreased since nomination or the last periodic review? What new projects or initiatives have been undertaken? What types of tourism activities exist? What effect have these activities had on the economy, ecology and society of the biosphere reserve? Are there any studies that examine whether designation of the area as a biosphere reserve has influenced the number of tourists? Please provide the bibliographic information of any studies and/or a paper copy in an annex.

Tourism within the biosphere reserve has increased considerably over the past ten years. A number of projects and initiatives have been carried out within the biosphere reserve, to find opportunities and conduct activities in order to promote the tourism industry in a sustainable fashion. When it comes to tourist businesses, awareness in matters of sustainability is greater today than it was ten years ago. There used to exist a broader view of what a sustainable profile meant. In the past, this could include relatively minor initiatives such as waste recycling or the switching of individual food products to organic ones, now the trend indicates more significant transition initiatives. Tourism organisations are active when it comes to analysing the surrounding world and conducting projects which strengthen tourism. These projects include collaboration with tourism businesses and other relevant stakeholders.

The Biosphere Association has also been involved in these matters. Project work has led to the establishment of a signposted biosphere trail, spanning the entire biosphere reserve. It is excellent for hiking, and also suitable for cycling and horseback riding. The length of the hiking trail is 136 km. Signposted boating routes have also been established. In several locations, hiking trails are being developed by various stakeholders, such as on Torsö, the largest island on Lake Vänern. The County Administrative Board is also responsible for the management of a large number of hiking trails spanning the nature reserves.

It is possible to reach the area in a sustainable fashion, travelling by public transport, however, public transport options are sparse. A general trend is an increase in train travel due to increased awareness of global challenges related to climate change. The biosphere reserve is transversed by the Kinnekullebanan railroad line, named Sweden's most scenic railroad in 2018.

It is believed that the time is now ripe to take yet another step towards a more sustainable tourism industry. Therefore, tourism organisations, the Biosphere Association, businesses and other associations, will act to build on the results of previous projects and research within the biosphere reserve. A new project began in the spring of 2020, to develop existing cycling and hiking trails, create clear entrance points for the biosphere, communicate travel suggestions and provide clearer information to residents and visitors about the options for sustainable experiences that are available.

« Sharing the experience of past projects is a strength. In the project that we are now initiating, we have conducted preparatory work and anchored it with tourism organisations, associations, businesses and other relevant stakeholders. Those practically involved in the project are also tourism industry experts and this guarantees a long-term perspective, and persistence after the end of the project. »

Coordinator for the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve

Research on the interplay between tourism and sustainability, conducted at the University of Karlstad, shows the following reasons for travel to the biosphere reserve:

- The adventure. Having something to talk about during coffee breaks at work.
- The landscape. Its beauty, the contrast with city life.
- Ideology. Close to home, in Sweden, environmentally friendly. Showing your children the landscape, to illustrate that you do not need to travel to the Canary Islands [to have memorable experiences].
- Function. Experiencing various dimensions of landscapes, enjoying time off. Learning and the availability of information is an important part of the destinations visited. It can also be a matter of nostalgia and past memories. Sports. Running. Cycling. Most visitors were not aware that they were inside a biosphere reserve. Some had preferences for an active holiday, for which there are numerous options in the area.

Research also shows that many of the tourists surveyed have an interest in the natural environment, its significance and what activities are made available by the natural environment. Some have chosen not to travel to the biosphere, because it was designated as such. Some believed that all parts of the biosphere were somehow protected. Many were unaware of the existence of the biosphere reserve. Most had some notion of acting as sustainable travellers, but there were other factors which decided how they ultimately chose to act.

See links to publications and research by Fredrik Hoppstadius at Karlstad University in chapter 9.7

Effects of the efforts of the Biosphere Association

The Biosphere Association was quick to spot opportunities, invite the creation of networks, and generate development within sustainable tourism.

5.3 When applicable, describe other key sectors and uses such as agriculture, fishing, forestry. Have they increased or decreased since the nomination or the last periodic review? What kind of new projects or initiatives have been undertaken? What effect have they had on the economy and ecology of the biosphere reserve, and on its biodiversity? Are there any studies that examine whether designation as a biosphere reserve has influenced the frequency of its activities? If so, provide the bibliographic information of these studies and/or a paper copy in an annex.

The number of agricultural companies has decreased, but the amount of land used in

agriculture remains the same. The number of grazing cattle and sheep has decreased, which impacts biodiversity. Due to stricter requirements on animal houses and poor profitability, dairy farms have faced an especially difficult situation, leading to a decrease in such operations. The import of foreign foods has increased and Sweden is self-sufficient in only a few food items. Over the past 10 years, more farms have invested in wind power and biogas.

Forestry continues to the same extent as in previous years, however, in recent years there have been major, local problems with spruce bark beetle outbreaks, which impacts profitability. The grubbing aspect of forest management has been somewhat neglected. More and more forests are mixed to a greater extent, with both leafy and coniferous trees, as this provides better opportunities to manage climate change. Forests are receiving more and more attention for their carbon storage capacity.

Both agriculture and forestry will be crucial components of our future food and energy supply.

The number of professional fishermen has declined, however, their identity and level of cooperation have been strengthened by the projects within the Lake Vänern Archipelago Fisheries Area.

5.4 How do economic activities in the biosphere benefit local communities?

In the latter part of the ten-year period, community awareness of sustainability and of the biosphere reserve has increased significantly. Companies both small and large now often have environmental plans for their operations. Customers also demand products and services that are sustainable from both ecological and social perspectives. Running a business within a biosphere reserve offers the opportunity to have the biosphere designation as part of your environmental profile. Businesses increasingly describe the biosphere reserve as an excellent arena for discussions relating to sustainability, and for the establishment of new contacts.

At the beginning of the ten-year-period, the Biosphere Association found that it was more difficult than it is today, for members of the community to grasp the valuable aspects of an UNESCO biosphere designation. With limited resources and narrowly defined projects, the biosphere reserve became well known to stakeholders, project participants and certain others. However, the general public was more difficult to reach. Articles and information events spread knowledge about the role of the biosphere reserve as one of the global model areas for sustainable development, but it remained difficult for many to grasp what the biosphere designation really meant.

> ***« It became too much about grand visions and international efforts, and too little of the tangible, concrete things in our local environment. We had a hard time formulating these visions so that people felt they were relevant and somehow rewarding to them. There was a feeling that you couldn't really understand what was going on – fancy words but little action. »***
>
> *A long time employee of the Biosphere Association*

Today it is more widely understood that social and ecological sustainability work often is a financially wise investment too. When it comes to international contacts, businesses now describe the benefits of working or being established in a biosphere reserve. Because of this, the Biosphere Association has designed a logo for businesses to use on their products, produced within the biosphere reserve. Both the company and the product must meet certain sustainability requirements in order to be authorised to use the logo. One example of a business currently using it is Hjelmsäters egendom, a company producing biochar using waste products from the Kinnekulle region.

Effects of the Biosphere Association's information and outreach activities

Today, 60% of local residents are aware of the biosphere reserve, and 60% of the biosphere reserve association's members are businesses and organisations.

The biosphere reserve designation may also be of importance to investment in existing companies and new establishments. The fact that a municipality clearly shows that it is part of a UNESCO model area for sustainable development may be seen as attractive by businesses. It may influence matters of establishment and skills supply. A strong, local business sector can in turn lead to new job opportunities and subsequent population growth. These are things that are highly important for the retention of private and public sector services throughout the three municipalities of the biosphere reserve. The three municipalities have each chosen to communicate their participation in the UNESCO biosphere network in different ways. Mariestad has a unique, one-of-a-kind solar powered hydrogen gas filling station, which has had effects such an increased sense of pride, attractiveness and attention in a time when the transition to fossil-free fuels needs to happen quickly. When lectures related to, and presentations on, the investment are held, the UNESCO designation is always highlighted. The same applies to other public communication from Mariestad Municipality, such as job advertisements and tourism communication.

Municipal involvement in the biosphere reserve has taken slightly different forms across the three municipalities over the years. Lidköping Municipality has long been marketing itself with a strong sustainability profile. Mariestad Municipality lists the biosphere reserve as one of five cornerstones of its municipal vision, and takes strong action in line with this. One example is the one-of-a-kind, solar powered hydrogen gas filling station. Götene Municipality has unique qualities such as the, often by tourists and artists, described attraction of Mount Kinnekulle with its amazing natural and cultural landscapes. Götene also shows a clear strength in local collaboration, not least within the business sector.

« If it weren't for the biosphere reserve designation, we would not have invested in hydrogen gas. »

Mariestad Municipal Commissioner

The Picture : A newsletter from Lidköping's business growth network Tillväxt Lidköping, encouraging its corporate members to use the biosphere reserve's 2019 film.

A strong economy for the communities within the biosphere reserve is largely a matter of the municipalities' population numbers and tax revenue. This means that it is of considerable importance that current residents actively choose to stay here, rather than move to larger cities. If the residents are happy with and proud of their communities, this can in turn encourage more people to move to the biosphere reserve. Tourism also generates income. Income opportunities in local communities are also a matter of retaining local businesses, as well as creating good opportunities for, and succeeding in, attracting new establishments. All this should be viewed in a context where Sweden, like the rest of the world, has a strong trend towards urbanisation. The UNESCO biosphere designation can benefit the economic sustainability of the biosphere reserve. The UNESCO designation can contribute to an increased sense of pride in the sustainability projects being conducted. Provided that it is marketed in a smart and on-going fashion, this can be financially beneficial in a time when more and more companies have realised the benefits of sustainable products and services.

An important part of the biosphere work is to contribute to ideas and efforts on sustainability within the municipality. The Biosphere Association does this using the IMPA method:
Inspirera (Inspire) - activities for a transition towards Agenda 2030 and the sustainable community.
Mäkla (Broker) - throughout different networks, to facilitate interaction between people and various functions.
Processleda (Manage Processes) - ask questions, listen, monitor the surrounding world, support efforts to drive development forward.
Skapa arenor (Create **A**renas) - create forums for dialogue and public education, to contribute to people's awareness of the need to act within planetary boundaries.

The actions of tourism companies have led to the establishment of hiking and cycling trails. They have also contributed knowledge on how companies can work with sustainability. It is in this type of company the Biosphere Association has observed the most direct effects, in terms of increased employment and increased revenue. The following are examples of results from the project *Eco-Tourism Destination Lake Vänern Archipelago and Kinnekulle*, which ran from 2009 to 2012:

- 10 out of 14 companies saw an increase in the number of guests throughout the project period.
- 9 out of 14 companies saw an increase in turnover throughout the project period.
- 6 out of 14 companies increased the number of employees, 1 company reduced it.
- 1 new company was established and one was bought by another stakeholder within the network instead of being shut down.
- 12 out of 14 companies received positive feedback from their visitors for their eco investment.
- 12 out of 14 companies felt that the project contributed to the development of their organisations.

The Biosphere Association has also generated a number of visitors by itself, in the form of

study visits, for instance to learn more about the activities of the Biosphere Office.

5.5 How do you assess the effectiveness of actions or strategies applied? **(Describe the methods, indicators).**

In order for the entire biosphere reserve to develop and function as one of the world's model areas for sustainable development, it is important to be aware of the total effectiveness, collectively generated by all of the parties within the biosphere reserve. The role of the Biosphere Association is to act according to the method IMPA: Inspirera (Inspire), Mäkla (Broker), Processleda (Manage Processes) and Agera Arena (Act as an Arena). The purpose of this method is to coordinate and facilitate participation for everyone in the development processes of the model area. The various stakeholders found within the biosphere reserve create different kinds of sustainability efforts based on their respective conditions and ambitions. Thus, they have different actions, strategies and tools to measure their results. This means that it is difficult to create a completely fair overview. However, assessments have been made and are being made to visualise effectiveness and results.

Assessment of the effectiveness of the Biosphere Association

The effectiveness of actions taken by the Biosphere Association is measured and followed up through the associations vision and targets with associated indicators. One concrete example showing the effectiveness of the association is the involvement of its members. among the members of the Biosphere Association, 60% are businesses and organisations (2020). Another measurable indicator is the number of requests for project collaborations, study visits and lectures, directed to the Biosphere Office.

Other types of assessments are also conducted. In new research from the universities of Gothenburg and Gävle, *My Place in the Biosphere*, results showed that about 60% of the population of the biosphere reserve is aware of the biosphere reserve.

The Biosphere Association also works with various projects, which have different indicators. These serve to clarify the project results. The communications project *Here's life* concluded at the turn of the year 2019/2020 and the exhibition managed to reach more than 100000 people. Additionally, more than 650000 people were reached through articles, the project website, film and social media.

The Biosphere Association is actively involved in public education efforts and communication. This takes the form of lectures, social media content and tips for local news media on various sustainability activities. Effectiveness is assessed based on the number of people in the audience as well as social media statistics, among other things. The Facebook posts often reach several thousand people.

The effectiveness of the activities of the Biosphere Association is also visible in the large number of requests directed to the Biosphere Office, for study visits, lectures and various types of collaboration. Other indicators of effectiveness, not as readily measurable, are when the Biosphere Association observes sustainable actions taken by members of the general public, and when businesses step forward to talk about the biosphere reserve in the media. An additional example of effectiveness is when the municipalities clearly act in line with the global goals of the UN Agenda 2030, and when they describe the UNESCO designation in local, national and international fora.

Assessment of effectiveness within the municipalities of the biosphere reserve

The municipalities are of utmost importance for the impactfulness of the transition to a sustainable community. The engagement of municipal politicians and officials therefore

carries considerable weight. The municipalities' results are evaluated through their concrete tools, in the form of visions and goals, scorecards and plans, and the municipalities are governed strictly according to the targets set out in political decisions. The municipalities often state in their policy documents that they are part of a biosphere reserve.

Over the past ten years, the issue of whether or not to promote the UNESCO biosphere reserve designation in various contexts has turned out to be largely person-dependent. It is however clear that, when officials are given clear mandates and missions to work with matters of sustainability by the politicians, the measures taken can have a major impact. It can affect areas such as communication, schools, tourism, trade, community development, the transition to a fossil-free society and other development measures.

Assessment of effectiveness among businesses and organisations

- The operations of some companies are geared towards the international market. Götene is home to *Semper*, a company that sees a major value in talking about the biosphere reserve in international business contexts. *Semper* also clearly describes its contribution to the fulfilment of the Agenda 2030 goals and the fact that the company operates within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve, in its sustainability statement.
- One of the GULLD members of the biosphere reserve is the local insurance company Länsförsäkringar Skaraborg. Through their membership, they contribute to the biosphere reserve's GULLD fund, which provides grants to sustainable projects and activities.
- More and more companies have begun to act with a greater focus on sustainability over the past ten years, both within the biosphere reserve and in other parts of Sweden. The Biosphere Association observes a tendency within the biosphere reserve, that there is a desire to contribute to the transition to a sustainable community. Good initiatives often give rise to more good initiatives. One example is the ElectriVillage, where the municipality and local businesses have made a clear impression. The good conditions created by the collaborating parties afford the opportunity to attract more skills and job opportunities to the biosphere reserve. In connection with these investments, more companies have been inspired to review their operations, monitor the surrounding environment and invest in more sustainable solutions.

5.6 Community economic development initiatives. What programmes exist to promote comprehensive strategies for economic innovation, change, and adaptation within the biosphere reserve, and to what extent are they implemented?

The Biosphere Association, as well as other stakeholders, apply for grants for various projects, to conduct development measures. Through these actions, additional financial resources are brought into the biosphere reserve, for instance to develop models and work with sustainability. One example is the communication project **Here's life,* communicating knowledge about the UN Agenda 2030. A number of financial backers supported the project, with the primary financier being Skaraborgs kommunalförbund. Other providers of funding include Grevillis fond, John Hedins stiftelse and the Swedish Environmental Protection Agency. Examples of the most frequent providers of grants for the Biosphere Association's projects are the Rural Development Programme, the European Maritime and Fisheries Fund, the Leader Programme of the Swedish Board of Agriculture, the LONA Programme of the Swedish EPA, Västra Götalandsregionen (County Council) and Skaraborgs kommunalförbund. Each grant has its own development strategy, with specific goals and objectives for the funds provided.

5.7 Local business or other economic development initiatives. Are there specific "green" alternatives being undertaken to address sustainability issues? What

relationships (if any) are there among these different activities?
A number of measures have been taken locally, within the biosphere reserve, over the past ten years, to address global challenges. The measures have been taken by actors within both the private and public sectors, and often with collaboration between the two. The Biosphere Association has also been active to some extent in the activities carried out.

Business examples

- The estate *Hjelmsäter Egendom* on Mount Kinnekulle is one of only a few biochar facilities in Sweden. Here, high quality biochar is produced, for use in agriculture and gardening applications, to bind carbon dioxide in the ground, improve soil quality and bind nutrients to the soil, thereby yielding optimal harvests. The company has a set of solar panels on one roof, as well as electric vehicles, which, alongside the biochar facility provides good examples of transitioning towards a sustainable society. Many study visits are conducted here. The company collaborates with the Biosphere Association in a number of ways.

- A fuelling station for liquid biogas was established in Götene in 2019. The establishment is the result of a local logistics firm, *Götene Kyltransporter*, purchasing six trucks which run on liquid biogas, and plans are to expand the fleet in the future. A number of major food and dairy companies are clients of Götene Kyltransporter. This investment therefore creates a chain of positive events from a perspective of sustainability and environmental friendliness.

- *The Gasum biogas facility* in Lidköping is Sweden's first large-scale facility for the production of liquid biogas. Its waste is converted into bio-fertiliser, which is used in agriculture.

- *Lisas trädgård* is located in Sjöängen, on the outskirts of Mariestad. Here, plantations and nurseries are managed with biodiversity and sustainability in mind. In addition to selling vegetable and flower plants, Lisa is also a member of Omställningsgruppen (the Transition Group), active on issues of climate change.

- *The Lake Vänern Archipelago Victoriahuset naturum* houses a restaurant which has received several awards, and serves locally produced food all year round. Adjacent to the restaurant, you will find a permanent exhibition on Lake Vänern and the biosphere reserve.

Examples of initiatives by local associations and municipalities

- Lidköping has been a Fairtrade City since 2013. This means, among other things, that there are a number of shops and cafés where consumers are offered ethically sourced products. There are also several workplaces offering their employees at least one product labelled according to Fairtrade or similar standards.

- *The Mariestad Golfing Association (MGK)* strives for a sustainable environment in several different ways. Despite extensive efforts to keep the grass in top shape, measurements of the water coming from the facility show good and toxin-free results. The Mariestad Golfing Association is a member of the Biosphere Association and has placed bee hotels throughout the course.

- Lidköping Municipality manages its environmental work according to the international standard ISO 14001. The areas deemed to be most effective, and therefore current priorities, are waste management, use of electricity, energy use in heating, urban planning, transportation, procurement, training and communication, as well as chemicals management.

« The politicians have played an important role in the biosphere work. The establishment of the naturum is connected to the biosphere designation. »

Environmental Strategist, Lidköping Municipality

- Lidköping Municipality also maintains contact with its residents, for example by participating in various events such as Fridays for Future, and organising a Pride parade. On social media, short clips provide inspiration and show that Lidköping Municipality is a good, sustainable place to live.

- *Miljönär* is a communications campaign from the Swedish Waste Management Association, Avfall Sverige, used by Lidköping Municipality. The goal is to promote sustainable consumption and reduce waste. People are encouraged to borrow, repair or reuse things, rather than to buy new. The award serves as an inspiration to residents, businesses and other organisations. Today, a number of shops in Lidköping have signs showing that they are part of the Miljönär project. The message is that by acting according to the Miljönär principles, you are doing something good both for your wallet and for the environment.

- *Miljömålen i Naturen* is a communications project where Götene Municipality describes twelve of the environmental targets, at various environmental target locations throughout the municipality. Visitors can learn more about the goals and purposes of the environmental targets, and how they themselves can act to help fulfil them.

- The world's first solar-powered filling station for hydrogen gas is located in Mariestad. It is an investment in an innovative solution by Mariestad Municipality, as part of the concept, ElectriVillage. The municipality also owns a number of hydrogen-powered fuel cell cars. Following the municipality's investment, local businesses have also developed services around hydrogen gas, as it is a new market in Sweden.

- Mariestad Municipality has a vision for 2030, consisting of five cornerstones. These are meant to serve as a set of guiding principles for political decisions and the municipal officials' execution of said decisions.

"Mariestad – an international model area

In year 2030, we will have made visible the opportunities of the biosphere reserve as an international model area for sustainable development. We will have created the necessary conditions for a high quality of life in harmony with the natural environment, where a safe living environment, ecotourism and entrepreneurship are important components. We are an attractive municipality with a strong potential for growth, in rural areas and smaller communities, as well as in the heart of the city."

From the Mariestad Municipality Vision

5.8 Describe the main changes (if there are any) in terms of cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage.
(c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003 (http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html and http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html)).

As for the cultural landscape on Mount Kinnekulle, there are more open pens and meadows today than there were ten years ago, thanks to measures that commenced at the start of the decade and have since continued.

During the past ten years, a large number of refugees have come to Sweden. This has meant a considerable change, not least for Götene, which received a large number of people.

An experience shared by many of the people interviewed in the survey process is that perspectives on sustainability have widened over the past ten years. Over the years, a lot of the focus has been on economy and ecology, but there is considerable potential for the development of better social sustainability.

5.9 Community support facilities and services. What programmes in/for the biosphere reserve address issues such as job preparation and skills training, health and social services, and social justice questions. What are the relationships among them and with community economic development?

In Sweden and within the biosphere reserve, healthcare services are well developed and accessible to all residents. In the municipalities, there are also facilities within schools and social services to help children and adolescents who wish to improve their psychological well being.

The Biosphere Association organises skills development initiatives such as lectures and workshops, and contributes to the establishment of new networks within various projects. Over the years, these efforts have been aimed at various target groups, to create a greater breadth when it comes to the public utility of the biosphere reserve.

Concrete examples of skills development and employment preparatory initiatives include the Biosphere Office acting as a mentor with the centre for new businesses. The association has also had a number of student interns working at the office. Its staff lecture at schools and associations, on subjects such as the Agenda 2030 and the biosphere reserve. Other initiatives are involvement in job fairs for recent immigrants, where the Biosphere Association has collaborated with the centre for new employment, the Swedish Public Employment Agency, the municipal labour market department and a number of businesses. These fairs have provided both new areas of contact and knowledge about Swedish society, and led a considerable number of people into either employment or studies.

The Biosphere Association has also organised activities involving natural and cultural experiences for recent immigrants. The purpose has been to give greater insight into and a better grasp of Sweden, and of the riches, traditions and opportunities of the biosphere reserve. Some activities have focused on giving foreign-born women and their daughters the opportunity to try activities which may lead to their continued involvement in various associations. The aim of the activities has been to provide new experiences of Swedish

society, improve self-confidence and increase employability – components which may in turn contribute to positive economic development on a societal level.

Within the *Lake Vänern Archipelago Fisheries Area* commercial fishermen revealed that they lacked skills in various areas which they needed in their professional roles. Because of this, the Biosphere Association collaborated with the study association Studiefrämjandet to provide a series of training events for commercial fishermen, carried out over a longer period of time. They received training in subjects such as bookkeeping, study visits on branding and product development, and knowledge exchange within the industry. The training programme strengthened the role of the commercial fishermen and resulted in commercial fishermen coming together to establish trademark protection for vendace roe from Lake Vänern.

5.10 What indicators are in place to assess the effectiveness of activities aiming to foster sustainable development? What have these indicators shown?
There were no general indicators from the time of application for biosphere designation. In conjunction with the Biosphere Association's development of new goals for the period 2019-2025, measurable indicators connected to each goal were established.

There are often indicators within individual projects, decided by the financial backers of said project.

Lidköping Municipality has developed 50 so called *2030 indicators.*

Effects of the initiatives of the Biosphere Association

Associations throughout the biosphere reserve have expressed an interest in collaborating with the Biosphere Association to provide recent immigrants with good points of entry into the community.

Read more in section 5.5

5.11 What are the main factors that influenced (positively or negatively) the success of development efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective?

The factors that have been most important in the success of development efforts in the biosphere reserve are active, concrete advances within various biosphere projects, and the clear actions of municipalities, businesses and other organisations to move in a sustainable direction. All of this has been revealed in conversations and dialogues with local residents, children, young people, teachers, business owners, public servants and politicians.

Working with projects according to the IMPA method has provided a good model and is something that the Biosphere Association will continue to do. It is important to involve as many stakeholders and individuals as possible, so that they can take initiatives and act within their own organisations. Clear strides forward have been made in connection with the Vänerlöjrom project for vendace roe, conferences, the biosphere trail and the

communications project **Here's life.* Other important factors have been the spread of information and inspiration through local newspapers and social media.

A negative factor has been that biosphere reserve related work within the municipalities and municipality-owned companies has been slow from time to time. The UNESCO designation could have permeated the organisations and been communicated more clearly through the municipalities by now. There are many good, sustainable initiatives in the three municipalities, and these could, along with an increased marketing of the UNESCO biosphere reserve designation, serve to attract former residents potentially looking to return here, improve the skills supply and attract those seeking to establish themselves within sustainable fields of business.

Examples of outcome from the biosphere association's work and cooperations with others year 2010-2020

Vänerlöjrom –
The Lake Vänern vendace roe

Vänerlöjrom is today an appreciated brand, using a local food product to strengthen the local fishing industry.

The brand Lake Vänern vendace roe resulted from the work of the Biosphere Association and is today a highly treasured local delicacy by both citizens of the Biosphere Results as well as tourists and others.

The Biosphere Trail

The 136 km Biosphere Trail spans the entire biosphere reserve. It offers valuable opportunities for recreation and sustainable tourism in the biosphere reserve, providing opportunities for hiking and cycling. Various subsections of the trail can be reached via the Kinnekullebanan railroad – named Sweden's most scenic in 2018.

The Biosphere Trail was developed through a project managed by the Biosphere Association and is currently being improved as part of a new project, resulting from a preparatory study led by the Biosphere Association.

Here's life

Here's life is a communications project that in the years 2018-2019 spread knowledge about the Agenda 2030 and the biosphere reserve, through exhibitions, new app-type games, lectures, films and a number of arenas for meetings and collaboration. The project, led by the Biosphere Association, highlighted local, concrete examples of sustainability, to inspire more people to act sustainability. One good example was the ElectriVillage in Mariestad, the world unique, solar powered hydrogen gas filling station – an exciting example of sustainability which has received both national and international attention in connection with the transition to a fossil-free society.

Mini ambassadors

The Biosphere Association engages in ongoing work together with teachers, handing out diplomas to 5-6-year-olds throughout the biosphere reserve as they have completed various learning activities. When the children are training to become mini ambassadors, they learn about our planetary boundaries and man's impact on one another and on the biosphere, the home of all living things.

Sustainable businesses

60% of the members of the Biosphere Association are businesses and organisations. The picture shows a member charging electric vehicles using solar power, and producing biochar using local waste products. The char improves soil quality and also binds carbon dioxide, which serves to reduce global warming.

The company has collaborated with the Biosphere Association, for example by hosting jointly organised study visits and labelling its products with the biosphere reserve logotype.

The Biosphere Challenge

The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve has established an annual competition in which pupils of local schools are encouraged to participate in ways which suit them. Over the years, activities have included reducing food waste, organising democratic games and recycling waste materials. The challenge is popular and has seen participation by children from several Swedish biosphere reserves. The Biosphere Challenge has also had participants from Biosphere Reserves in Estland, Slovenia, India, South Africa, Uganda, El Salvador, Florida, the U.S.A. Gueatemala and Costa Rica. The Biosphere Challenge is ready to take another step to become nationwide.

Biosphere ambassadors

The biosphere reserve has 38 biosphere ambassadors, who have received training and are spreading knowledge about the biosphere reserve. Some are private individuals and others are business owners.

The concept started out in Lake Vänern Archipagao and Mount Kinnekulle biosphere reserve and has spread to other biosphere reserves in Sweden and to biosphere reserves in Finland, Slovenien, Tjeckien, Frankrike och Canada.

ElectriVillage

Mariestad Municipality is home to a world-first: a solar panel powered hydrogen gas filling station. The ElectriVillage is part of an effort to meet strict climate goals such as the Agenda 2030 on a fossil-free vehicle fleet and also the Paris Agreement.

At the same time, this generates conditions for community development with new business opportunities, more job opportunities, new skills and increased attractivity for the city.

6. THE LOGISTIC FUNCTION

[This refers to programs that enhance the capacity of people and organizations in the biosphere reserve to address both conservation and development issues for sustainable development as well as research, monitoring, demonstration projects and education needed to deal with the specific context and conditions of the biosphere reserve.]

6.1 Describe the main institutions conducting research or monitoring in the biosphere reserve, and their programmes. Comment on organizational changes (if any) in these institutions over the past ten years as they relate to their work in the biosphere reserve.

Within the biosphere reserve, the Swedish model of long-term, regular environmental monitoring is observed. This has generated an extensive series of measurements, in a way unparalleled anywhere else in the world. National environmental monitoring is coordinated by the Swedish Environmental Protection Agency, within ten different programme areas. On a regional level, the county administrative boards as well as the Swedish Forest Agency are responsible for conducting and coordinating monitoring, while municipalities are responsible for local monitoring. Environmental monitoring is also conducted by non-profit organisations such as Vänerns vattenvårdsförbund (the Lake Vänern Aquatic Conservation Association), birdwatching clubs, universities and other institutions of higher education.

See also 2.4.6.

6.2 Summarize the main themes of research and monitoring undertaken over the past ten years and the area(s) in which they were undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

(For each specific topic provide reference citations. Provide the full citations alphabetically by lead author at the end of Section 6 or in a separate annex).

Below is a selection of various themes of research within the biosphere reserve:

- **Fishing on Lake Vänern.** The work was carried out in the period 2009-2014, through a number of projects as part of the Lake Vänern Archipelago Fisheries Area. This was one of 14 Fisheries Areas throughout Sweden. The purpose was to develop a sustainable fishing industry and generate economic growth, thereby generating job opportunities. A total of 14 projects were carried out during this period. *See also 2.4.7.*

- **Sustainable tourism and its connection to outdoor living.** Research on the interplay between tourism and sustainable development, conducted at Karlstad University, where information was collected about people's reasons for travelling to the biosphere reserve, among other things. *See also 5.2 and 9.7.*

- **My Place in the Biosphere/Cultural environment and cultural heritage as part of sustainable landscape management.** My Place in the Biosphere is the communications component of a project aimed at investigating the role of the cultural environment and the cultural ecosystem services cultural heritage and local identity in people's well being, and in sustainable landscape management within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. *See also 2.3.7.*

- **Social entrepreneurship.** Focusing on the fishing industry, a project was carried out to investigate how venture capital and investments within the biosphere reserve can provide potential for social entrepreneurship. A preparatory study on what social entrepreneurship/biosphere entrepreneurship is, as well as a mapping of biosphere entrepreneurship within the biosphere reserve, were also carried out. *See also 7.7.5.*

6.3 Describe how traditional and local knowledge and knowledge from relating to management practices have been collected, synthesized and disseminated. Explain how such knowledge is being applied to new management practices, and how and if it has been integrated into training and educational programmes.

The coordination efforts undertaken by the Biosphere Association include the dissemination of information and knowledge, from various measures and activities, to various stakeholders. Projects and activities often arise from contacts and random meetings. A couple of examples are described below.

During EuroMAB 2011, the Lake Vänern Museum established contact with the Karst Biosphere Reserve in Slovenia. This led to a project called To DO IT, for teacher exchanges between the Lake Vänern Museum and Vinnningaskolan in Sweden, and teachers from the Karst Biosphere Reserve in Slovenia. The project concluded with the conference "To do it – together for sustainable development in schools", with 70 participants. The purpose was to spread knowledge about the well functioning network of schools found within the Karst Biosphere and discuss whether there was a need for a similar network here. Teachers from the entire biosphere reserve participated and the idea of creating a biosphere challenge came up. The first biosphere challenge was designed in 2014.

« We have had five biosphere challenges. The children are featured in the local press. They get to feel that they are seen, and that they are problem solvers. This has a significant ripple effect. »

Head of the Lake Vänern Museum

A group of teachers and staff from the Lake Vänern Museum contributed their knowledge on matters of pedagogical activities, among other things. *The Biosphere Challenge* highlights current questions on sustainability and the challenge is also shared throughout national and international biosphere reserve networks. Classes compete with each other to solve various tasks, varying from year to year. Subjects covered have been everything from food waste to democracy and physical activity.

Effects of the activities of the Biosphere Association

The Biosphere Challenge began in the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve and is now shared annually throughout the global network of biosphere reserves.

Pre-school children aged 5-6 have been trained to become mini ambassadors since 2012. The idea for the initiative came up in discussions between ambassadors and teachers who met during a fair held with pre-school children, in the libraries of the three municipalities. The exhibition explored how pre-schools worked with sustainable development and the biosphere ambassadors were present to talk about the biosphere reserve. The mini ambassador concept developed over time and there is a training programme for teachers to

use. The children receive a diploma once they have completed their activities, and are named mini ambassadors for the biosphere reserve.

A number of pre-schools conduct this programme annually. Through teaching the children, their parents can also be reached, and thereby learn more about the biosphere reserve and its role as a model area for sustainable development. Other biosphere reserves have been inspired by this model of activities for younger children.

My Place in the Biosphere is a project to communicate the results of research on the roles of the ecosystem services, of cultural heritage and local identity in people's well being, and in sustainable landscape management. The research has been conducted within the biosphere reserve, by Gothenburg and Gävle universities, with funding from the research and development grant of the Swedish National Heritage Board. The communications project was funded by Formas, the government research council for sustainable development. The Lake Vänern Museum and the Biosphere Office have also been involved in the research as well as in the communications project.

6.4 Environmental/sustainability education. Which are the main educational institutions ("formal" – schools, colleges, universities, and "informal" services for the general public) that are active in the biosphere reserve? Describe their programmes, including special school or adult education programmes, as these contribute towards the functions of the biosphere reserve. Comment on organizational changes (if any) in institutions and programmes that were identified in the biosphere reserve ten or so years ago (e.g. closed down, redesigned, new initiatives). Refer to programmes and initiatives of UNESCO Associated Schools networks, UNESCO Chairs and Centers where applicable.

The Swedish education plan for primary schools includes education on sustainability. In terms of higher education, Gothenburg University, Skövde University and the Swedish University of Agricultural Sciences have a presence either within the biosphere reserve or within 30 kilometres of it. There is a broad range of distance courses available in Sweden, which means that residents of the biosphere reserve have access to nationwide opportunities for higher education. Research within the biosphere reserve is conducted by the universities of Gothenburg, Karlstad and Gävle, among others. The University of Skövde and the Swedish University of Agricultural Sciences are conducting projects within the biosphere reserve.

Mariestad is home to Dacapo Mariestad, offering higher vocational education in various crafts (painting and window renovation) in close collaboration with Gothenburg University and its programmes focused on building and gardening craftsmanship. The Landscape Conservation Programme was established in 2008 and developed alongside the then-candidate area for biosphere reserve designation.

The Lake Vänern Museum has conducted research on the biology and archaeology of Lake Vänern, as well as on the development of the Vänern area. The Lake Vänern Museum is the Museum of the Great Lake and its exhibitions, lectures and activities reflect life on, in and around Lake Vänern. The Lake Vänern Museum is also an important, local, pedagogical resource as it often hosts activities for school students. The Lake Vänern Museum has, together with the De la Gardiegymnasiet secondary school, helped make younger generations better aware of the importance of sustainable development. This has been achieved through an exciting collaboration between museum staff, teachers and students, where people were offered the opportunity to undergo a three-year training

programme to become landscape guides, specialising in various areas.

Within the biosphere reserve, as in the rest of Sweden, there are courses within both the sciences and the humanities where you can learn more about sustainable development. The subject is also, increasingly, part of many higher education programmes. During part of the ten-year period, upper secondary students were able to take a *Lake Vänern Programme* in Lidköping, containing specialisation opportunities within both the sciences and the humanities. The programme consisted of several practical components such as surveys, inventories and documentation, often in collaboration with the Lake Vänern Museum.The students' work also contributed to the research of the Lake Vänern Museum. Sadly, the Lake Vänern Programme was closed down following national upper secondary school reforms.

Hållplats Vänern is a mobile field station, specifically aimed at children and young people, to spur their interest in science. The field station has lab equipment and information materials, with which students can explore the natural and cultural environment of the Lake Vänern area in various ways. The goal is to give students an understanding of the environmental quality targets, their importance for the health and living environment of humanity, and to allow them to draw connections between environmental changes and human activity. The field station is operated by the Lake Vänern Museum.

See also 2.4.6 and 6.2.

6.5 How do you assess the effectiveness of actions or strategies applied?
(Describe the methods, indicators).

Over the past ten years, the biosphere reserve has focused heavily on the logistic function, by spreading knowledge to various target groups. Offering the biosphere reserve as an arena for research, where researchers can get help with local contacts and local knowledge through the Biosphere Office, has been effective. So has the practice of collaborating with research and educational institutions on the projects conducted within the biosphere reserve. For instance, this led to the development of the project *Here's life, which reached more than 765,000 people and was conceived in collaboration with Skövde University. A number of students have worked and had their internships within the biosphere reserve, both at the Biosphere Office and with other stakeholders. Public education on sustainable development has been a key component of the projects carried out.

Offering different concepts such as the Biosphere Challenge and the mini ambassador training programme is a good way to engage a lot of people. In these two examples, teachers at schools and pre-schools have been responsible for carrying out the projects. The Biosphere Challenge has involved about 2000 children, both within and outside the biosphere reserve. The children who become mini ambassadors receive a diploma, which lets their parents know that they are working with sustainability and that they live within a biosphere reserve.

See also 6.2.

6.5. 1 Describe the biosphere reserve's main internal and external communication mechanisms/systems.
The main external communication systems are the website, newsletters, Instagram and Facebook. The Biosphere Association is also involved in a number of different contexts and events both locally and nationally, either through Biosphere Office staff, ambassadors, board representatives or members of the association. Examples include Sollördag (Sun

Saturday, weekend activities focused on solar energy, held in the city square), the Culture and Harvest Festival, fairs with Young Achievement and lectures at the Almedalen Week (a national meeting place for democracy issues).

The board of the Biosphere Association is an important communications channel and one component in the successful coordination of local activities. One aspect is being aware of ongoing or upcoming events, and communicating information to local stakeholders and within their own organisations.

When it comes to the municipalities, the working committee that was established in 2017 has played an important role in communication to the municipalities. As the members of the working committee are also part of senior management within the respective municipalities, the Biosphere Office and particularly its coordinator, have had a direct channel to municipal management teams and vice versa. Another important communications channel, established in 2018, is the regular meetings between the municipal commissioners, the leaders of the opposition in the respective municipalities, the chief municipal executives, the biosphere reserve coordinator and the chairman of the Biosphere Association board. These meetings have concerned strategic questions relevant to the biosphere reserve and have created a shared vision and increased collaboration between the municipalities. Another effect is that the municipalities become aware of and are able to influence the work of the Biosphere Association and the Biosphere Office. This is an assuring factor for the municipalities, as municipal funds are the primary source of funding for the Biosphere Association's activities.

Members and ambassadors are also important, first and foremost when it comes to spreading information and knowledge about what goes on in the biosphere reserve. Working groups that are established within projects or in other contexts can often be impactful. One such example is the working group of communicators that was active over a number of years. The Biosphere Office observed that communication together with them, and through their network, yielded a good impact.

When it comes to external communication directed towards the public, local newspapers are of considerable importance. The importance of social media is also steadily growing. From time to time, newsletters have been sent out by the Biosphere Office. The project **Here's life* has played a highly important role in recent years, in communicating good examples from the biosphere reserve, connected to the UN Agenda 2030 and the 17 global sustainability targets.

Effects of the initiatives of the Biosphere Association

The Biosphere Ambassador volunteer concept was initiated by the Biosphere Association and has spread to other biosphere reserves.

See also chapter 2.

6.5.2 Is there a biosphere reserve website? If so, provide the link.

www.vanerkulle.org

6.5.3 Is there an electronic newsletter? How often is it published? (provide the link, if applicable).

The biosphere reserve newsletter is sent to about 300 people and the frequency has varied over the years. The primary outlets of news from the Biosphere Association are its Facebook page and website.

6.5.4 Does the biosphere reserve belong to a social network (Facebook, Twitter, etc.)? Provide the contact.

The Biosphere Association uses Facebook, with four different public pages, each serving a particular purpose:

- Biosfärområde Vänerskärgården med Kinnekulle. (The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve)
- Biosfärambassadörer Vänerskärgården med Kinnekulle. (Lake Vänern Archipelago and Mount Kinnekulle biosphere ambassadors)
- ”mab is #proudtoshare”
- A page for communication within Swedish biosphere reserves ”kommunikation-biosfärprogrammet”.

Instagram: @vanerkulle Pinterest: vanerkulle@gmail.com
Youtube: Clips can be found by searching for Vänerkulle.

6.5.5 Are there any other internal communication systems? If so, describe them.

Examples of internal communication systems include the Biosphere Association website, Google Drive and email. A lot of communication also happens by mobile phones and Skype. An internal communication system for the Biosphere Office exists through a platform operated by Mariestad Municipality, to which the Biosphere Office is connected. It can be used to book rooms, meetings, cars etc. and to perform various other, practical, administrative tasks. Communication also occurs in-person, in the form of various working groups which meet to hold dialogues and develop new ideas. One group consists of municipal commissioners, leaders of the opposition in the respective municipalities and chief executive officers of the municipalities, and deals with more strategic questions. Another group is Naturnytta biosfär, which focuses primarily on green issues.
Over the past ten years, a large number of various working groups have been established and dissolved as requirements and areas of focus have changed. Groups have been working on the following subjects, among others: schools/education, intra-municipal communication, development and urban planning.

The board has regular meetings and has a strategic composition, where participants can reach their respective networks.

Regular communication occurs between the Biosphere Office, Biosphere Association members and ambassadors.

6.6 Describe how the biosphere reserve currently contributes to the World Network of Biosphere Reserves and/or could do so in the future.

Representatives of the biosphere reserve regularly attend EuroMAB conferences. In 2011, the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve hosted the meeting “EuroMAB - Sharing sustainable futures” at Lundsbrunn. The conference had a five-day programme and attracted 170 people from 28 different countries. Workshops, study visits and knowledge sharing was offered to the participants. The Biosphere Association also participates in other conferences organised by MAB, such as NordMAB.

Videos and certain other materials created by the Biosphere Office are available in both Swedish and English. The Biosphere Challenge is being translated into English and spread throughout the global network". The Facebook group "mab is #proud to share" spreads knowledge and experiences, and the Biosphere Association shares good examples there as well.

At a conference in Germany in 2017, focusing on biosphere reserves and renewable energy, Mariestad Municipality presented its investment in the *Mariestad Testing and Demonstration Site.* The investment sparked interest among other biosphere reserves from different parts of the world, as well as among representatives of the UNESCO headquarters in Paris.

The OASIIS (Opening Access to Sustainable Independent Income Streams) Platform encourages sustainable economic development in and around biosphere reserves. By promoting companies that work in harmony with biosphere reserves, OASIIS shows the value contributed by businesses and social businesses to their local economies. The Biosphere Association is listed as a good example.

6.6.1 Describe any collaboration with existing biosphere reserves at national, regional, and international levels, also within regional and bilateral agreements.

The coordinators of Sweden's biosphere reserves hold regular meetings to exchange experiences and develop collaborations. On a national level, the biosphere reserves take turns organising conferences for the boards of the respective biosphere reserves. The purpose of this is to facilitate knowledge exchange.

The ambassadors conducted a project in which they made study visits and met with ambassadors in other Swedish biosphere reserves.

A conference, aimed at municipalities belonging to biosphere reserves, was held in the autumn of 2018 in Lidköping. It was hosted by the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve and municipalities from all of Sweden's biosphere reserves and candidate areas participated, to discuss the role of municipalities in biosphere reserve related work.

A biosphere ambassador and a biosphere guide with work experience from the Lugnåsberget hostel and the Qvarnstensgruvan mine, participated in a conference on biosphere reserves and sustainable tourism in Italy, in 2018.

Another ambassador visited a conference about entreneurship at the Archipelago Sea biosphere Reserve, Finland in 2018. There the ambassador shared experiences from running a biosphere hotel business. She also shared her thoughts from her experiences as an ambassador.

One professional fisherman visited a biosphere reserve in Italy where he shared knowledge about the fishermens work with preserving the eel in lake Vänern. The eel is threatened because of expansions of hydroelectic power stations. Those stations are situated outside the biosphere reserve, but the efforts and the work by the fishermen to save the eel in Vänern have been done inside the Biosphere Reserve.

There has also been an exchange between the Biosphere Association and the North Devon Biosphere Reserve, Wienervald, Österrike and Lower Morava in The Czech Republic.

6.6.2 What are the current and expected benefits of international cooperation for the biosphere reserve?

Inspiration, experience and good examples from other biosphere reserves are highly valuable things. Seeing that others also work to create models for sustainable development strengthens the stakeholders within the biosphere reserve. It is valuable to be part of the international UNESCO biosphere network. International cooperation generates knowledge and understanding of the shared challenges of the biosphere reserves, when it comes to sustainability. The Biosphere Associations also have the opportunity to share knowledge with each other on the models already developed. In the coming years, the Biosphere Association hopes to be able to work even more with international collaborations.

One example of where the EuroMAB network had an impact is the 2019 conference in Dublin. Three students (aged 18-24) from the biosphere reserve, participated, learned more and found inspiration in the work being done throughout UNESCO's biosphere reserves. One of these students then started a Young Achievement (YA) business and, together with a number of other students, published a book with facts and tips on how to create a sustainable world. One of the chapters of the book covers the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

Exchanges in the fields of pedagogy, knowledge tourism, ecosystems and biodiversity are areas where international cooperation is particularly nurturing, also from the perspective of how we spread knowledge. Furthermore, we expect a continued, international exchange between biosphere reserves, at conferences and through the OASIIS platform. Monitoring of the surrounding world and collaboration, for instance on forestry projects, are topical subjects.

6.6.3 How do you intend to contribute to the World Network of Biosphere Reserves in the future and to the Regional and Thematic Networks?

The various networks within UNESCO are important to the biosphere reserve and the Biosphere Association is happy to share examples and experiences. This has been done, for instance through the project *Here's life, with a pamphlet explaining the contribution of the project to the fulfilment of the global action plan for biosphere reserves, the Lima Action Plan. The pamphlet is intended for distribution in Sweden and in other biosphere reserves throughout the world. It is also important for the biosphere reserve to study and learn from the results of other biosphere reserves. This happens through searches or personal contact, and will often involve searching for answers to concrete questions, as they come up.

Other important networks and arenas are EuroMAB, NordMAB and national MAB meetings. The Biosphere Association is happy to participate in joint national and international projects to find inspiration, learn more and share good examples.

The Biosphere Association's model using the Biosphere Challenge for primary schools has been spread both nationally and internationally. The Biosphere Challenge is about to become a national initiative. It is an example of when the Biosphere Association has developed a model based on local circumstances, and then shared it through the network.

6.7 What are the main factors that influenced (positively or negatively) the success of activities contributing to the logistic support function? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be favored as being most effective?

An important aspect of the work done by the Biosphere Association is the spreading of knowledge and fostering of a sense of pride with those who live and work within the

biosphere reserve. A guiding principle is that the communication must be accessible and easy to understand. One approach that we have favoured is the involvement of universities and other institutions of higher education, as well as their students, in various projects and activities such as the work carried out as part of *Here's life. The Biosphere Association has a well-functioning strategy that can be developed even further.

The Biosphere Association participated actively in the reference group for the Vänern Landscape LTSER (Long Term Socio Ecological Research), alongside the Lake Vänern Museum, the universities of Karlstad, Gothenburg and Stavanger, the Swedish University of Agricultural Sciences and University West. A lesson learned from this is that some collaborations are highly person-dependent, and therefore become vulnerable as those involved move on to other positions.

6.8 Other comments/observations from a biosphere reserve perspective.
The Lake Vänern Museum and the Lake Vänern Archipelago naturum are important hubs for the logistic function of the biosphere reserve, in addition to schools and educational institutions. Many have suggested that a biosphere centre or naturum on Mount Kinnekulle would be a good addition to the logistic function.

Some stakeholders have requested a better balance between local and global involvement than what has been achieved over the past ten years.

Spreading and clearly communicating the results of surveys, research and studies is highlighted as something that remains a very important task for the Biosphere Office, going forward.

7. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION

[Biosphere reserve coordination/management coordinators/managers have to work within extensive overlays of government bodies, business enterprises, and a "civil society" mix of non-governmental organizations and community groups. These collectively constitute the structures of governance for the area of the biosphere reserve. Success in carrying out the functions of a biosphere reserve can be crucially dependent upon the collaborative arrangements that evolve with these organizations and actors. Key roles for those responsible for the biosphere reserve coordination/management are to learn about the governance system they must work within and to explore ways to enhance its collective capacities for fulfilling the functions of the biosphere reserve.]

7.1 What are the technical and logistical resources for the coordination of the biosphere reserve?

The Biosphere Association is a non-profit association responsible for coordination of activities within the Biosphere Association. Its governing body is the board of the association. The board consists of one regular member and one alternate from each of the municipalities as well as from the County Administrative Board. The board also consists of other regular members and their alternates, elected by the members of the association, at the association's Annual General Meeting. The chairman of the board is elected at the Annual General Meeting and must not be a representative of any of the municipalities or of the County Administrative Board. A selection committee suggests members for the board. Over the years, the number of regular and alternate members has fluctuated. The board must have a gender-equal representation and represent various sectors.

The governing document is the statutes of the association, and the board works according to its Rules of Procedure. A business plan and a budget are drafted annually. The association operates a Biosphere Office with staff. In addition to the coordinator, who holds a 50% position, the office has had between one and four employees. The Biosphere Association has

finances to fund approximately one full-time employee, other employees have been covered by project funding.

> ***« The fact that the biosphere reserve organisation is run as an association is important for us to generate broad involvement, and to ensure that we are not perceived as a political project. This makes it easier to involve other associations, businesses and individuals in what we do. »***
>
> *Former chairperson of the Biosphere Association for 7 years*

7.2 What is the overall framework for governance in the area of the biosphere reserve? Identify the main components and their contributions to the biosphere reserve.
The governance and coordination is built around democratic principles, where all members are treated as equals, and all of the members of the board have equal influence.

The members of the board represent various sectors, i.e. the public sector, the private sector and the voluntary sector. During the years that the Lake Vänern Archipelago Fisheries Area project was active,clear requirements were placed on the distribution and representativeness of board members, to meet the requirements placed on the governing bodies responsible for managing funds within the Fisheries Area, by the European Maritime and Fisheries Fund.

The members of the association also represent various sectors, and so do the biosphere ambassadors. A broad group of representatives ensures that various interests have a voice in the association. Members can, for instance, submit proposals to the association's annual general meetings. A simpler and faster way, however, is to contact the Biosphere Office and present ideas.

The activities of the municipalities impact all of the residents of the biosphere reserve in some way. In order to more clearly connect these to the biosphere reserve, a working committee was established by the board in 2017. The working committee contains the regular, municipal representatives on the board, as well as the chairman and the coordinator. The primary purpose of the working committee is to discuss municipal questions. The coordinator always participates in board meetings and other staff participate as required. The coordinator also manages the Biosphere Office and supervises its employees.

Based on needs and projects, a number of working groups are active. One example is the group Naturnytta biosfär, gathering officials such as municipal ecologists, planning architects and municipal developers from the municipalities, as well as volunteer representatives from the Swedish Society for Nature Conservation. The network works with questions relating to ecosystem services and has, among other things, developed projects in that regard. It is important to involve various sectors to ensure progress of work in the biosphere reserve.

7.3 Describe social impact assessments or similar tools and guidelines used to support indigenous and local rights and cultural initiatives (e.g. CBD Akwé:Kon guidelines, Free, Prior, and Informed Consent Programme/policy, access and benefit sharing institutional arrangements, etc.).
This question is not applicable to the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

7.4 What (if any) are the main conflicts relating to the biosphere reserve and what solutions have been implemented?

The Biosphere Association has faced a considerable challenge in communicating to local residents what a biosphere reserve is, and what its benefits are. This issue is larger than it may seem at a first glance, because, when local residents, politicians, public officials etc. have not understood the significance of the biosphere reserve designation, this has led to very slow-moving processes where potential for development has gone to waste. The association is relatively small, in relationship to the number of people who live and work within the biosphere reserve. The involvement of the municipalities, their words and actions, are important factors in the successful, impactful development of the biosphere reserve. One activity designed to get the municipalities more involved is the regular meetings held between the chairperson and coordinator of the Biosphere Association and the senior management teams of the municipalities (see 6.5.1). The municipalities aren't the only stakeholders who have struggled to grasp the biosphere reserve concept. Local businesses have also been apprehensive about the significance and utility of the biosphere reserve. In summary, considerable amounts of time have been spent by the Biosphere Association communicating what the biosphere reserve is all about. Over the ten years that have passed, a wealth of lectures, local newspaper reports and social media posts have reached thousands of people. The communication project Here's life has also contributed to the sharing of knowledge. Surveys show that a steadily growing number of people are now aware of the existence of the biosphere reserve. The Biosphere Association hopes that this awareness can serve as a springboard for impactful leaps in development over the next ten years.

During the time of candidacy and in the first few years following the designation, there was widespread worry that the biosphere reserve would result in new rules and restrictions for land use. Thanks to increased knowledge about what a biosphere reserve means, this is no longer considered a problem.

There are conflicts in areas such as wind power, forestry and shoreland protection. When it comes to wind power, there is a national statement saying that the biosphere reserve status of an area should not be used as an argument either for or against wind power. Within the network Naturnytta biosfär, questions on forestry have been brought up, contrasting traditional patch clearcutting with continuous-cover forestry. Here, a potential future task for the Biosphere Association is to broker agreement and create arenas for dialogue if conflict does arise within the community.

7.4.1 Describe the main conflicts regarding access to, or the use of, resources in the area and the relevant timeframe. If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone.

Conflicts regarding natural resources often arise from a conflict between the interests of individuals and those of the public. One example is that certain private forest owners sometimes wish to cut down forest classified as key biotopes which warrant protection.

Another example where different public agencies have differing views is the issue of shoreland protection up to 100 metres, and in certain cases up to 300 metres, from lakes and waterways. The protection restricts land use rights in favour of the protection of flora and fauna, and public access to shoreland areas. A current conflict in the area concerns the impact of shoreland protection regulations on the municipalities' ability to develop shoreland locations for both residential use and use in tourism.

Agriculture is necessary for the production of food, however, it also has a considerable impact

on groundwater, waterways, lakes and oceans. Eutrophication, pesticides and their degradation by-products in surface and groundwater, monoculture, the design of land drainage and land use are all important areas to work with. Sweden has one of the most well-developed agricultural sectors in the world when it comes to sustainability, and we also have access to large water resources, compared to the rest of the world. Sustainable agriculture is also a prerequisite for and an important component in preserving biodiversity, where, for example, grazing animals have a key role. People generally have less knowledge about where the food comes from and how the production cycle works. This lack of knowledge leads to various conflicts connected to agriculture.

As part of the adaptation to climate change, competition for access to both agricultural land and forestland is likely to increase. In municipal planning projects as well as in infrastructure development projects, the issue of whether or not construction should be allowed on agricultural land, almost always arises.

Efforts to establish sustainable commercial fishing may also give rise to conflict.

When the tourism industry grows, the issue of littering and perceived overuse of the Swedish Right of Public Access may lead to conflicts with landowners and residents of the biosphere reserve.

7.4.2 Describe any conflicts in competence among the different administrative authorities involved in the management of the area comprising the biosphere reserve.
One example is the issue of shoreland protection, where conflict arises between the County Administrative Board and the municipalities, as they have different interests. *See also 7.4.1.*

7.4.3 Explain the means used to resolve these conflicts, and their effectiveness. Describe its composition and functioning, resolution on a case-by-case basis. Are there local mediators; if so, are they approved by the biosphere reserve or by another authority?
The biosphere reserve will likely have an increasingly important role to play in the management and resolution of conflicts within the biosphere reserve. Over the past ten years, as an example, the Lake Vänern Fisheries Area functioned as an arena for collaboration on issues related to sustainable fishing.

7.5 Updated information about the representation and consultation of local communities and their participation in the life of the biosphere reserve.
The Biosphere Association is a non-profit association in which residents, businesses, associations and organisations participate. The non-profit association is the foundation for coordination of activities within the biosphere reserve.

« A large part of the biosphere work is about finding out what is lacking in the space between needs and desired results, and about working in an attentive, flexible way to contribute to further development. We achieve this through broad collaboration. Everyone has an important part to play in the transition to a sustainable community. The Biosphere Association is a stakeholder less restricted than some of our collaboration partners, who often find themselves within stricter limits. The dynamism is a strength. »

Process Manager at the Biosphere Office

See also 7.5.1 and 7.5.2.

7.5.1 Describe how local people (including women and indigenous people) are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultation of associations, women's groups).
Sweden is one of the world's most gender-egalitarian countries and men and women have equal opportunities to participate in the activities of the biosphere reserve.

The Biosphere Association has no political or religious affiliations, is a non-profit organisation, and all those who share its values are welcome to join. Through their membership, individuals and organisations have the power to influence the activities being coordinated. Everyone is able to participate in and take initiatives for activities in line with the goals and purposes of the biosphere reserve, regardless of gender, ethnicity, disability etc.

7.5.2 What form does this representation take: companies, associations, environmental associations, trade unions (list the various groups)?
Work within the biosphere reserve is founded on collaboration between the private, public and voluntary sectors. This permeates all of our activities. The Biosphere Association has about sixty different members, of which 60% are companies, associations or organisations. The remaining 40% of the members are individuals of the general public.

The Biosphere Association has an extensive network in the community. Politicians and a large number of public officials in the biosphere reserve municipalities and in municipal companies have a good level of understanding of related issues. The dialogue with municipal employees often concerns specific questions relevant to them.

Some examples of groups are:
- Energy counsellors
- Sustainability strategists
- Municipal commissioners
- Municipal leaders of the opposition
- Chief Executive Officers of the municipalities
- Local tourism organisations
- Business strategists
- Communicators
- Culture workers
- Museum staff
- Teachers.

Other individuals and entities involved in the biosphere network are the universities of Skövde and Karlstad as well as other educational institutions. Another important component of the biosphere network is formed by the 38 biosphere ambassadors, who work with sustainability issues based on their own, personal experience and knowledge.

« The idea of biosphere ambassadors is a really good one – it lets individuals be proud and serve as role models. It is important to have wholly volunteer involvement. It is founded on individual grassroots engagement. It is important to honour those who participate and take action. »

Manager of the Lake Vänern Museum

The general public is involved in the network through co-creation within projects, the sharing of information through articles and social media, as well as the participation in inspirational and knowledge-sharing events organised by the biosphere reserve, such as lectures.

One example of a network within the biosphere reserve achieving broad representation is Naturnytta biosfär. It is a group of officials from the municipalities and the County Administrative Board who work with environmental issues, ecology, planning and community development. The network also includes Biosphere Office staff and volunteers from the Swedish Society for Nature Conservation.

Local involvement and participation is key in the projects and activities conducted by the Biosphere Association. One example is the development of the project **Here's life,* where institutions of higher education, businesses, municipalities, study associations and volunteer associations were involved in the development of the project plan as well as in the execution of the project.

See also 7.5, 7.1, 7.2 and 7.5.1.

7.5.3 Indicate whether there are procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities).

The Biosphere Association operates as a non-profit association and has broad geographical representation from the public, voluntary and private sectors. The Biosphere Association also works with stakeholders who are not members. There is no membership requirement for participation in the activities organised by the biosphere reserve organisation. The strength of being a non-profit association lies in the fact that the association and its coordination becomes a neutral party where stakeholders from various sectors in the community can come together to discuss sustainability.

See also 7.2.

7.5.4 How long-lived is the consultation mechanism (e.g., permanent assembly, consultation on specific projects)?

The association holds an Annual General Meeting with its members once a year. If needed, the board or members can request an extraordinary general meeting. The board and working committee of the association holds meetings at least four times a year.

Projects within the biosphere reserve rely on local engagement and are anchored within relevant target groups. The projects gather several different stakeholders who work together towards a shared purpose and goal. Universities and other institutions of higher education

take initiatives for research within the biosphere reserve. The Biosphere Office and other stakeholders are then often involved through working groups or similar fora.

7.5.5 What is the impact of this consultation on the decision-making process (decisional, consultative or merely to inform the population)?

The Annual General Meeting is the highest decision-making body of the Biosphere Association. The board is responsible for the association's operations and will make decisions relevant to them. Political decisions within the municipalities will often affect activities within the biosphere reserve. The politicians are elected by local citizens. Individual projects often have steering committees making decisions on activities to be undertaken within the respective project.

Communication with the general public is an important component, regardless of at which level or within which body decisions have been made. The Biosphere Association is transparent in communicating information to local residents, as are public authorities in Sweden. The more people who have knowledge and information about the biosphere reserve, the more impactful the activities carried out by the association will be.

7.5.6 At which step in the existence of a biosphere reserve is the population involved: creation of the biosphere reserve, drawing up of the management plan, implementation of the plan, day to day management of the biosphere reserve? Give some practical examples.

The Biosphere Association takes every opportunity to engage and involve the population. This happens through communication via social media and invitations to dialogue, among other things. In preparation for this survey, the association has gathered comments and suggestions from the general public. The Biosphere Office, the board members of the Biosphere Association, biosphere ambassadors, members and municipalities share information about the biosphere reserve at conferences, fairs and in other places where people meet, and they also invite involvement and suggestions.

The photo : The biosphere ambassadors play a particularly important role when it comes to reaching the general public, as the ambassadors meet people in their everyday lives, where they can tell them about the biosphere reserve and find out more about their points of view.

The activities and projects of the Biosphere Office also involve the general public to a varying extent, depending on the subject of the work in question.

One of the strengths of the Biosphere Association is that it is organised as a non-profit association. It is neutral and invites everyone to participate. The general public is invited to become involved in various ways, and they have been during the creation of the biosphere reserve as well as during the drawing up and implementation of the Biosphere Association management programme. In the day to day activities of the biosphere reserve, they are involved through activities such as lectures in schools, lectures for the general public, ambassador training programmes and collaborations with pedagogical organisations on the biosphere designation and mini ambassadors.

« The work to unify efforts of and foster collaboration between municipalities, businesses and associations has been positive. »

Municipal Environmental Strategist

During the conduction of the survey, a questionnaire was sent out, directed to the general public. Several of the responses to it showed a strong sense of pride for the biosphere reserve. Some highlighted the fact that the designation gives the citizens living in the area a sence of pride. Several people talked about the fact that the biosphere reserve is an important location for recreation, and expressed happiness about being in a place where environmental concerns are taken one step further. Future wishes were expressed for investments within the biosphere reserve in sustainable travel, for even greater awareness of sustainability issues, for "action" within the tourism industry, as well as for the conservation of important natural areas. The questionnaire respondents themselves wish to contribute for instance by sharing good ideas and encouraging more people to think and act in sustainable ways in their daily lives, by making active choices. One respondent underlined that sustainability efforts within the municipalities should not be on a 'parallel track' from those of the biosphere reserve, and wished for the promotion of the biosphere reserve as a natural part of the area, and for more knowledge on related issues to be communicated among local residents.

7.6 Update on management and coordination structure

7.6.1 Describe any changes regarding administrative authorities that have competence for each zone of the biosphere reserve (core area(s), buffer zone(s) and transition area(s))? If there are any changes since the nomination form/last periodic review report, please submit the original endorsements for each area.

No change since the nomination.

7.6.2 Update information about the manager(s)/coordinator(s) of the biosphere reserve including designation procedures.

The board of the non-profit association names a coordinator. Johanna Mac Taggart served as coordinator until April 2017. The current coordinator, Maria Gustavsson, was hired in the autumn of 2017. The coordinator at the moment work part time (50%) by the Biosphere Association.

7.6.3 Are there any changes with regard to the coordination structure of the biosphere reserve? (if yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence.). Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager of the biosphere reserve?).

Shortly after the application was nominated to UNESCO by the Swedish Government, the non-profit association Biosfärområde Vänerskärgården med Kinnekulle was established. The association was given the responsibility for managing biosphere reserve activities within the area. The association is independent and the Annual General Meeting is the highest governing body of the association. The association is governed according to the statutes decided by the members.

7.6.4 How has the management/coordination been adapted to the local situation?

Management is handled by a non-profit association in which various sectors participate and can discuss issues based on the purpose and goals of the biosphere reserve. The IMPA

working model means that the Biosphere Association can work to create arenas for discussion and information exchange based on local knowledge, combined with the roles of various public authorities. Development activities are often designed as projects.

Based on the circumstances of each project, a group of key individuals assisting its execution is put together.

In order to achieve results more easily based on the activities encompassed within the biosphere reserve, the Biosphere Association has decided to involve the geographical entirety of the municipalities in biosphere activities.

A vision, goals and indicators have been formulated based on sustainability challenges within the biosphere reserve, nationally and globally. Examples of subjects are sustainable tourism and the transition to fossil-free transportation. It can also involve the sharing of information to promote reduced consumption and circular economic choices.

7.6.5 Was the effectiveness of the management/coordination evaluated? If yes, was it according to a procedure?

The Biosphere Association has not conducted any specific evaluation of the effectiveness of the management.

7.7.1 Update on the management/cooperation plan/policy. Are there any changes with regard to the management/cooperation plan/policy and the stakeholders involved? If yes, provide detailed information on the process for involvement of stakeholders, adoption and revision of the plan.

During the ten-year period, the Biosphere Association has had two different vision and target documents.

- The first was drafted through broad collaboration and covered the subjects: borderless collaboration, successful biosphere economy, knowledge about the biosphere and the design of sustainable communities.

- The current vision and goals of the Biosphere Association were developed in 2018 by the board, staff and selected experts, who all had the opportunity to influence its content. The vision and goals of the Biosphere Association are concretised in annual operative plans. These are ratified by the board and communicated by the members of the board and by the Biosphere Office to various stakeholders. The members of the Biosphere Association have the opportunity to influence decisions, for instance at the Annual General Meeting. The board represents various sectors of the community, making it a forum for strong collaboration between various organisations. Over the years, different stakeholders have been involved, such as the fishing association, agricultural organisations, academia, businesses, voluntary sector organisations and the general public. The three biosphere reserve municipalities are always represented on the board. A broad group of stakeholders are behind the operative plans. They are followed up in an annual operations statement, detailing goal-related results based on measurable indicators.

An operating plan is attached as appendix IV.

7.7.2 Describe contents of the management/cooperation plan (provide some examples

of measures and guidelines). Is the plan binding? Is it based on consensus?

The biosphere reserve designation is an international recognition meant to leverage local development. The work of the biosphere reserve assosiacion is built on the ecologically, socially and economically sustainable development of the area. Conservation, development and logistic support are the guiding principles of the annual operating plans, ratified by consensus of the board of the Biosphere Association. Working with annual operating plans is the mode of operation deemed most suitable thus far, given the form of management and the conditions under which the association operates. An example of an operating plan is attached as appendix IV. The goals are in line with the Agenda 2030 and the Lima Action Plan.

The goals were ratified by consensus, by the board of the Biosphere Association, on 2018-11-13, and are further divided into subgoals with associated indicators, which are followed up and presented to the board by Biosphere Office staff, four times a year. The following-up of results by and feedback from board members to their respective organisations is of considerable importance for the perception of work done by the Biosphere Association, and can contribute to synergy effects and further development. Developing an action plan encompassing many more than those who are represented on the board is the next step in our development. Through the work done over the past ten years, the Biosphere Association has laid a solid foundation for the success of future efforts.

GOAL: Communicating knowledge and strengthening ecosystem services

Ecosystem services and biodiversity are the foundation of all life. The valuable natural and cultural landscape of the biosphere reserve is one of the reasons why we are a biosphere reserve. We communicate knowledge on natural values and on how we as humans can make sustainable use of the various ecosystem services. In doing so, we can for example strengthen ecosystem services and broaden their extent.

Goal	Indicator	Measurement	Target value
Increased knowledge and sustainable use.	People stating that they know more about how to sustainably use ecosystem services.	Questionnaire for activity participants.	75 percent of all activity participants.
Introduction of ecosystem services.	The number of people receiving an introduction on ecosystem services and their significance.	The number of people who read information, for example at activities or through digital media.	100 people.
Strengthen ecosystem services and broaden their extent.	Businesses, associations or public associations changing their working procedures to strengthen ecosystem services and/or broaden their extent.	Questionnaire for activity participants or a summary by the Biosphere Office.	10 examples of change
Values of ecosystem service have been realized.	The number of businesses that have. developed products and services based on ecosystem services.	Follow-up after concluded projects.	2 companies.
Making ecosystem services visible.	The number of physical locations in which examples of ecosystem services are communicated.	Summary by the Biosphere Office.	3 locations. 300 visitors.
Increased knowledge and collaboration with universities or other institutions of higher education.	The number of collaborations between the Biosphere Office and universities or other institutions of higher education.	Summary by the Biosphere Office.	2 collaborations.
New collaborations on natural values.	The number of new local, regional or national collaborations combining conservation and development. The biosphere is a neutral meeting place for stakeholders with different interests.	Summary by the Biosphere Office.	5 collaborations.

GOAL: Increase opportunities to easily lead a sustainable everyday life

Our habits and behaviours have an important role to play in the future of our planet. We wish to share knowledge on sustainability and on smart ways to make good choices when it comes to consumption, as well as show good examples. In our biosphere reserve, we can develop and test new models so that we can easily make climate-conscious decisions in our everyday lives, both at home, at school and at work.

Goal	Indicator	Measurement	Target value
Increased knowledge and changed behaviours.	The number of people stating that increased knowledge means that they need to know what to do to consume more sustainably, and that they also apply this knowledge.	Questionnaire for activity participants.	75 percent of participants of a particular activity.
Implement models for climate-conscious action.	The number of new models enabling people to easily lead sustainable everyday lives. New models can be either entirely new, or new to the local community.	Summary by the Biosphere Office.	5 models.
Increased knowledge among children and adolescents.	The number of children and adolescents that have been given the opportunity to learn more about the biosphere reserve.	Lists of participants or information from collaboration partners such as for example schools.	500 children and/or adolescents.

GOAL: Contribute to sustainable business

The sustainable community is dependent on businesses working with sustainability as part of their production and in the sales of goods and services. Together with businesses and other stakeholders, we can help create good conditions for viable sustainable business and community benefits. This can be done for instance by showing good examples, projects in various industries or in the field of circular economy.

Goal	Indicator	Measurement	Target value
More people should be inspired.	The number of people stating that they have gained a better insight following examples from the biosphere reserve. We must show good examples of how businesses can work with sustainability, thereby increasing their business viability. This can happen in different ways, for instance through social media or lectures.	Number of respondents.	2,500 positive responses.
Increased business viability.	The number of companies stating that they have increased their business viability by acting more sustainably.	Follow-up after concluded projects.	25 companies.
New collaborations.	The number of new collaborations between companies. These may concern the development of products, services or projects.	Summary by the Biosphere Office.	10 collaborations.
Arenas for meetings.	The number of arenas in which business owners and other stakeholders can meet to discuss. sustainability matters.	Summary by the Biosphere Office.	25 arenas.
Added knowledge about community entrepreneurship.	The number of people who have participated in activities to gain new or increased knowledge on community entrepreneurship.	Lists of activity participants.	100 participants.
Increased knowledge through collaboration with universities or other institutions of higher	The number of collaborations between the Biosphere Office and universities or other	Summary by the Biosphere Office.	2 collaborations.

education.	institutions of higher education.		

HORIZONTAL GOAL
Strengthen the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve brand. *The horizontal goal is included in all other goals.*

Because we are one of the UNESCO model areas for sustainable development, we need to involve the entire community. By sharing knowledge with the residents of the biosphere reserve on the UN Agenda 2030, the global goals and our role as a model area, we can encourage more people to take active steps towards increased sustainability. We strengthen our brand through modern communication, active ambassadors and collaboration with other stakeholders, among other things.

Goal	Indicator	Measurement	Target value
People are aware of the biosphere reserve and perceive it as something positive.	The percentage of the local population who are aware of the biosphere reserve and associate it with something positive.	Questionnaire directed at part of the population of the biosphere reserve, at some point in 2024-2025.	80 percent of questionnaire participants.
More members.	An increase in the number of members from 2019 to 2025.	Data from the member registry.	100 percent.
Active ambassadors.	Ambassadors sharing knowledge and good examples on sustainability and the Agenda 2030.	Annual report by the ambassadors.	40 activities conducted by ambassadors each year.
Attractive collaboration partners.	The Biosphere Association and Office are attractive collaboration partners for other stakeholders, for instance with projects, lectures or in networks.	The number of requests for collaboration or participation in various contexts.	25 requests per year.

The Biosphere Association also conducts an annual follow-up of results and communicates these to the general public and the media, among others. Several different stakeholders contribute to the work done to achieve the goals. The goals are in line with other important steering documents, such as those of the municipalities.

The Biosphere Association in general and the Biosphere Office in particular, work according to the following strategy.

- Use the earlier desribed method IMPA to inspire, broker, manage processes and act as an arena.
- Work with all three dimensions of sustainability: ecological, social and financial.

- Participate in or manage strong networks encompassing different target groups.
- Work together with universities and other institutions of higher education.
- Participate in or manage international fora for collaboration.
- Collect up-to-date knowledge and monitoring the surrounding world, for example through the network within UNESCO.
- Use a current, modern communications strategy.

7.7.3 Describe the role of the authorities in charge of the implementation of the plan. Describe institutional changes since the nomination form/last periodic review report. Please provide evidence of the role of these authorities.

The public authorities most important in the fulfillment of established goals are the three municipalities as well as the County Administrative Board. The municipalities and the County Administrative Board are active parties within the Biosphere Association and part of the board of the association. They participate in both the design and implementation of goals, strategies and operating plans, which considerably helps these processes. The work also has an impact on the activities of these authorities and the biosphere reserve is mentioned in several important steering documents.

In the autumn of 2019, the municipalities of the biosphere reserve drafted a number of ideas for joint activities and projects within the biosphere reserve over the coming years. The ideas are valid for the fulfillment of the goals of the biosphere reserve, and the needs of the municipalities. The first idea to be implemented, in 2020, is a collaborative project on the Agenda 2030 and the global goals. A selection of other ideas and themes that can jointly be realised include:

- A creative innovation gateway.
- Circular business models.
- A model for storytelling involving the public, private and voluntary sectors.
- Leading a sustainable everyday life, doing the right thing should be easy.
- Microplastics in Lake Vänern.
- A strategic plan or model for sustainable tourism, to both develop and protect our natural environment.
- Housing fairs, the biosphere reserve can provide an added value for those thinking about moving here.
- Plastics projects within the municipal departments, to reduce the use of plastics.
- Equality.

The involvement of municipal politicians and officials in the biosphere reserve will have a decisive impact on the ability to fulfil these goals. The municipalities are large organisations, responsible for several important community functions such as schools, child care and care for the elderly. Furthermore, the municipalities work strategically with community development such as infrastructure, business development and matters relating to the environment and climate change. The local authorities also have an important role in strengthening the UNESCO Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve brand. On a national level, other stakeholders such as the Swedish Environmental Protection Agency and the Swedish National Commission for UNESCO are also important in this regard.

An arena for dialogue. At the opening of the project Here's life, politicians and officials of the three biosphere municipalities were present. They held a dialogue with business owners, the Swedish Environmental Protection Agency and the Swedish National Commission for UNESCO. Members of the general public, biosphere ambassadors, the national biosphere coordinator and representatives of the Environmental Protection Agency were also present.

7.7.4 Indicate how the management plan addresses the objectives of the biosphere reserve.

The purpose of the operating plans is to guide activities to achieve the vision and goals of the local biosphere reserve. By extension, this includes the fulfillment of the vision of the global biosphere programme. The Lima Action Plan is the global action plan for the UNESCO biosphere programme. It covers the period 2016-2025. An example of areas of focus laid out in the operative plans and activities of the biosphere reserve, in line with the Lima Action Plan, is active contribution to the fulfilment of the UN global goals within the Agenda 2030. This has been done through the project *Here's life, where we have communicated and shared knowledge on the 17 global goals of the UN, and in other ways. Other areas of focus on the operative plans of the biosphere reserve are collaboration with universities and institutions of higher education, active participation in the global network of biosphere reserves and the sharing of good examples of sustainable development.

See 7.7.2 for details, as well as Appendix IV.

7.7.5 What are the progresses with regard to the guidelines of the management/ cooperation plan/policy?

The work done by the biosphere reserve partly takes the form of continuous activities, and partly of projects with a fixed duration. The Biosphere Association often manages the projects, but occasionally partners in them, under the management of others. This provides the opportunity to influence the projects so that they have as high a sustainability profile as possible and are conducted in line with the management plan. For the Biosphere Office, and for other stakeholders working with matters of sustainability, it is often difficult to see the exact results immediately. This is due to the complexity of human processes and challenges. However, occasionally, clear results can be presented immediately.

Examples of the continuous work done by the Biosphere Association :

- **Biosphere ambassadors**
  The Biosphere Association organises a biosphere ambassador training programme and a network of people sharing knowledge about sustainability and about the biosphere reserve. 38 persons have completed the training programme and are active as ambassadors to a varying extent.

- **Mini ambassadors**
  The mini ambassador training programme is geared towards pre-schools and pre-school

children aged 5-6. Training mini ambassadors is a way to foster awareness on sustainability at an early stage. It also offers an opportunity to teach the children more about the local natural environment, and become conscious citizens of the biosphere reserve. At the end of the training programme, the children receive diplomas.

- **The Biosphere Challenge**

The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve has developed a concept through which school children receive yearly encouragement to pause, think and be creative with various aspects of a sustainable community in mind. Over the years, they have created things such as democratic games, and made animals out of recycled materials. The Biosphere Challenge has spread throughout Sweden's other biosphere reserves as well as to biosphere reserves in other parts of the world. During year 2019 the Vänermuseum gave a traveling exhibition in different places around the Biosphere Reserve, showing the childrens biosphere challenge work.

List of projects and activities that the Biosphere Association has been responsible for carrying out, as initiators and/or implementers.

Investigation on the establishment of a Fisheries Area for the entire Lake Vänern

The Biosphere Association worked to establish a Fisheries Area covering the entire Lake Vänern, as a unified Fisheries Area would serve to promote sustainable fishing on the entire lake.

Educational project geared towards the fishing industry

A project with the goal of educating stakeholders within the biosphere reserve whose operations are connected to the fishing industry. The training activities covered everything from quality assurance and branding to data management training.

Preparatory study – Geopark

The project was a preparatory study in which seven municipalities produced a description of their most interesting geological attractions, based on the flat-topped mountain landscape as a unifying theme, as well as basic materials describing how a geopark could be designed and function. The preparatory study eventually led to an application to establish a geopark. *Photo :The great quarry at Kinnekulle.*

The project Exportmogen Destination

The project concerned the joint efforts of the three biosphere municipalities Lidköping, Götene and Mariestad to develop the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve to an export-ready destination. The project to establish export-readiness was a successor to the project on ecotourism that concluded in 2012.

The project Miljöväg för Häst
The goal of the project *Environmental horse riding path* was to establish designated riding trails throughout the biosphere reserve. Information materials containing descriptions and contact information were created for the trails, with the goal of attracting equestrian tourism to the area.
Photo: Horse riding among the spring onions at Kinnekulle.

Project to develop overnighting options for kayakers in the Kålland and Eken archipelagoes
The Kålland and Eken archipelago in lake Vänern has good conditions for kayaking tourism. This project established suitable locations for simple facilities to allow for overnight stays, in order to promote opportunities for such tourism.

Project on the European Landscape Convention
The purpose of the project was to test, evaluate and communicate working procedures offering a holistic view of landscape development, with co-creation by the general public in focus.

Project for collaboration on matters related to Lake Vänern
The project highlighted current matters related to Lake Vänern, such as the opportunities afforded by a Fisheries Area, and joint management.

Bioblitz activity
In 2013, the Biosphere Day was celebrated with a Bioblitz, held at the Lake Vänern Archipelago naturum. A family event that included species inventory, building bird houses and many other activities.

The project Awareness for Landscape - inspiring civic responsibility
An exchange on landscapes. A joint effort between three organisations in different countries, to learn from each other on how to work with landscapes.

The project Workshop on Biosphere Economy - SOCAP Deep Local
The project focused on how venture capital and investments within the biosphere reserve can offer potential for social entrepreneurship, with a focus on the fishing industry.

Preparatory study on Social Entrepreneurship
A preparatory study on what social entrepreneurship/biosphere entrepreneurship means, including an investigation of biosphere entrepreneurship within the biosphere reserve.

Project on Equestrian Tourism in Skaraborg County
An investigation to locate current and potential options for equestrian tourism, accommodation facilities, restaurants and other surrounding activities that could be combined into marketable packages, as well as to increase experience exchange, improve

opportunities for complementary options and improve the level of adaptation to market conditions, through collaboration and the establishment of networks.

Project on Kayaking Inventory
An inventory of opportunities to develop and improve conditions for kayaking within the biosphere reserve.
Photo : Kayaking near Läckö Castle.

EuroMAB 2011
EuroMAB is a network for biosphere reserves in Europe and North America. Every second year, a conference is held for the network. In July 2011, the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve was responsible for the conference, which was hosted in Lundsbrunn. Its theme was *Sharing Sustainable Futures.* Close to 200 delegates from various biosphere reserves participated.

Project Ecotourism Destination
A project over several years, with the goal of developing the biosphere reserve into a sustainable destination. Prior to this project, the County Administrative Board conducted a project on regional landscape strategies in which the biosphere reserve was a pilot area. One area of focus was sustainable tourism, and this served as the foundation for the subsequent Project Ecotourism Destination.

Examples of projects that have recently been conducted and/or are ongoing, within the biosphere reserve.

Project on a Sustainable Tourism Industry in the Lake Vänern Archipelago and Mount Kinnekulle (2020-2021). The project intends to generate business development based on the existing Biosphere Trail, hiking and cycling.

The project My Place in the Biosphere (2019-2020). Within this collaborative project, the biosphere reserve is tasked with communicating the results of the research project "Kulturmiljö och kulturarv som en del av hållbar landskapsförvaltning" ("Cultural environment and cultural heritage as components of sustainable landscape management"), conducted by researchers at the universities of Gothenburg and Gävle. The subsequent task to communicate the results is where the Biosphere Association has participated. The research results show the role played by the cultural environment and cultural ecosystem services, cultural heritage and local identity, in the wellbeing of people and sustainable landscape management, within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

The project *Here's life (2017-2019). This was a communications project in which the biosphere reserve, along with other stakeholders such as Skövde University, developed app-type games. These were used, together with a large exhibition map, to spread knowledge on the 17 global UN goals within the Agenda 2030, and the concrete sustainability activities carried out within the biosphere reserve.

Preparatory study - the Biosphere Reserve as an Arena for Diversity (2019). The Biosphere Association observed a need for inclusion and guidance into Swedish society, among recent immigrants. Within the preparatory study, we also designed various activities to try out. The preparatory study led to a large number of contacts with associations and organisations within the biosphere reserve. Based on the materials produced in the preparatory study, major opportunities were identified with associations acting as arenas for recent immigrants to gain access to Swedish society.

Preparatory study on Sustainable Tourism (2018-2019). The Biosphere Association worked alongside tourism organisations within the biosphere reserve to learn from previous projects, conducted an analysis of the surrounding environment and brought in opinions from business owners within the biosphere reserve to create a picture of the current situation and its opportunities.

Projects within the Lake Vänern Archipelago Fisheries Area

- ***Vendace roe event***. *Project owner: Destinationsbolaget Läckö-Kinnekulle*
- ***Ice shed and cold storage at Spiken.*** *Project owner: Spikens fiskehamnsförening*
- ***Knowledge-sharing activities on fish from Lake Vänern.***
  Project owner: Hushållningssällskapet
- ***MSC certification of fish from Lake Vänern. Preparatory study.***
  Project owner: Svenska Insjöfiskarna AB
- ***Quality assurance of Lake Vänern vendace roe.***
  Project owner: Hushållningssällskapet
- ***Knowledge and network development on Lake Vänern fishing.***
  Project owner: Vänergymnasiet in Mariestad.
- ***Sustainable development in upper secondary schools.***
  Project owner: Lidköping Municipality, De la Gardiegymnasiet
- ***Projekt Siklöja (Project Vendace). Preparatory study.***
  Project owner: Food and Health Concept Center
- ***Projekt Siklöja (Project Vendace). Food.***
  Project owner:
  Food and health concept center together with the association Vänerprodukter.
- ***Fishing and fishermen on Lake Vänern.***
  Project owner: the Lake Vänern Museum in Lidköping
- ***Vänerfisk på Tallriken (Fish from Lake Vänern on the plate).***
  Project owner: Hushållningssällskapet

See also 2.3.5 and 5.9.

7.7.6 Were there any factors and/or changes that impeded or helped with the implementation of the management/coordination plan/policy? (Reluctance of local people, conflicts between different levels of decision-making).

The general level of awareness about sustainability issues in recent years has made it easier to communicate the message that the biosphere reserve is an international model area for sustainable development. The Agenda 2030 and the global goals are a clear mission included in the action plan. Overall, many different stakeholders express considerable interest in participating in and following the work within the biosphere reserve. It is also seen as positive that unique conditions exist within the biosphere reserve and as a consequence of the UNESCO biosphere reserve designation.

Most stakeholders consider the goals of the Biosphere Association to be important and relevant. The structure of the board, including representatives of the public, private and voluntary sectors, is needed to reach all parts of the community. Similarly, the biosphere ambassadors and municipal officials are important in the communication of knowledge about the biosphere idea, and in contributing to activities within the area. This form of coordination and the organisation of the biosphere reserve through a non-profit association has yielded good results in terms of including the three different sectors: private, public and voluntary.

In the period 2018-2019, the Biosphere Association has worked with focused efforts to communicate knowledge about the biosphere reserve, and about the coordinating role of the Biosphere Office. We now experience that many more individuals and stakeholders perceive that they are each a part of the biosphere reserve. It shows concretely in the fact that we see more and more initiatives for activities and projects by others. The biosphere work is also increasingly impacting the work of the municipalities, and in this regard, the connection to the Agenda 2030 is clear. Focus has shifted from a previously common perception that the Biosphere Office had to be the implementer of activities – to the idea that all those who live and work within the biosphere will have to work with sustainability in order to develop the model area.

« The UNESCO biosphere designation, the fact that we have been named one of the world's model areas, can be seen as a guiding light for us! To reach higher levels of development than we would have without the designation. We have the right conditions here. The area is brimming with competent, highly ambitious people. »

Process Manager at the Biosphere Office.

The Biosphere Office has few employees and much of their work is built around personal contacts. The budget is limited and its operation depends on external funding, often provided in the form of project funds. In order to make operations less vulnerable, it is

important that more people, such as members of the board, ambassadors, politicians, municipal officials and others, increase their involvement in the biosphere work. The Biosphere Association works to find local solutions to large, complex challenges. These factors, combined with being a small organisation in a geographically large area, with three municipalities, are some of the challenges we face.

In their reflections, the municipalities have said that their expectations of the Biosphere Association from the designation up until recent years, haven't quite matched how the Biosphere Association has worked. The municipalities have also concluded that they themselves should have taken greater responsibility. Because of this, the board of the Biosphere Association decided to form a working committee with members representing the municipalities. It was also decided that senior municipal politicians should be appointed to the board. Over the years, the municipalities have discussed withdrawing from the Biosphere Association, but thanks to the working committee, financial stability, and a change in the direction of operations, such discussions are no longer being had. Both politicians and officials have participated in the work to develop joint activities and projects within their municipal departments.

See also 7.7.3.

7.7.7 If applicable, how is the biosphere integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve? (Please provide detailed information if there are any changes since the nomination form/last periodic review report).

Following the nomination in 2009, collaboration between the County Administrative Board and the Biosphere Association has developed. The County Administrative Board has one representative on the board of the association, and in addition to that, collaboration has occurred within various projects over the past ten years. The Biosphere Association is also working very closely with all three municipalities within the biosphere reserve. There is a continuous dialogue with the other biosphere reserves in Sweden and with the national biosphere coordinator, who receives and provides feedback on various questions on a national level.

The Swedish Environmental Protection Agency describes Sweden's biosphere reserves as complements to culture and nature reserves, national parks and other areas designated as holding high natural and cultural values. The Environmental Protection Agency supports the work with Swedish biosphere reserves, through a financial operating grant to the Biosphere Office among other things. The Environmental Protection Agency also provides funding for a national project coordinator, and hosts the programme committee of the Swedish Biosphere-(MAB) Programme. The Environmental Protection Agency funded the production of films by each of the, then five, Swedish biosphere reserves in 2018. This promoted a unified image of the national impact of the biosphere reserve.

8. CRITERIA AND PROGRESS MADE

[Conclude by highlighting the major changes, achievements, and progress made in your biosphere reserve since nomination or the last periodic review. How does your biosphere reserve fulfill the criteria. Develop justification for the site to be a biosphere reserve and rationale for the zonation. What is lacking, and how could it be improved? What can your biosphere reserve share with others on how to implement sustainable development into practice?]

Brief justification of the way in which the biosphere reserve fulfills each criteria of article 4 of the Statutory Framework of the World Network of Biosphere Reserves.

1. **"Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".**

   (The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

The biosphere reserve has a mosaic of ecosystems, both within protected areas and in land areas used in forestry and agriculture. The biosphere reserve is located in Earth's boreal region and has ecosystem types present in temperate and subpolar forests and woodland. The biosphere reserve has a variety of landscapes and various ecosystems are connected to the local environment types. These include lakes, streams and waterways, rapids, stream ravines and spawning sites for fish, minor biotopes within the agricultural landscape, rocky beaches and pine forests, large reed-covered areas, beach meadows, bird islets, old-growth forest, wetland forest, black alder fens, rich fens, oak groves and broadleaf forest, bare limestone areas and limestone rich grassland, as well as uncultivated pastures. No changes have occurred since the application for biosphere reserve designation was submitted.

Read more in chapters 2 and 3.1.

2. **"Be of Significance for biological diversity conservation".**

The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve is home to a nationally remarkable level of species diversity, with a very high concentration of threatened species and valuable natural environments. The flora and fauna are very rich in variety. According to the national threatened species list, 20 species are known within the biosphere reserve. The preconditions of the rich biodiversity in the area are primarily the great topographic variation, the location close to Lake Vänern, limestone rich soil, an agricultural landscape with a long history, and a freshwater system rich in variety.

The Lake Vänern Archipelago and Mount Kinnekulle hold terrestrial and limnic habitats for a large number of species, some of which are threatened. A total of 16,281 hectares of the total surface area of the region is strictly protected under Swedish law.

The rarest environmental types present in the area are bare limestone grounds, tall herb meadows and western taiga.

The archipelagoes of Sweden's largest lake, Vänern, around the islands of Kållandsö, Brommö, Kalvö and Djurö feature a mix of barren islets and larger islands. This area is home to a number of environment types included in the EU ecological network Natura 2000, such as western taiga and tall herb meadows. Here, you will also find threatened

species such as the osprey, nightjar and black-throated diver, to name a few.

The Lake Vänern Archipelago and Mount Kinnekulle are also home to important geological values such as Mount Lugnåsberget with its sedimentary rocks, the Brommö archipelago with impressive drift dunes, and a number of terminal moraines and eskers. Mount Kinnekulle; the flat-topped mountain with bare limestone soils, traditional agricultural landscapes and old church village environments, is entirely unique in Sweden.

3. "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

(Including examples or learning experiences from putting sustainable development into practice).

Over the past ten years, the biosphere reserve has seen a number of examples of sustainable development being put into practice, with effects reaching beyond the biosphere reserve. Generally, employees of the Biosphere Office and other stakeholders within the biosphere reserve participate in regional fora to communicate the sustainable activities and models that are developed. A number of examples are listed below.

- The biosphere was established following a major EU LIFE project, **Kinnekulle Plateau Mountain - restoration and conservation** from 2002 to 2007. The question of how to produce enduring results came up – the municipalities were eager to see what continued collaboration could lead to. In May 2005, a preparatory study was initiated by the three municipalities Götene, Lidköping and Mariestad. In 2006, the area became a candidate for biosphere reserve designation. Lake Vänern is a major lake spanning the area. Following the formation of the biosphere reserve, traditional barriers to collaboration were challenged and the area was opened up to cross-boundary collaborations.

- One of the most important processes for sustainable development undergone by the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve, both as part of the application process and over the past ten years, has been the **promotion of active collaboration between the municipalities.** It has been a slow learning process, not without setbacks. The goal has been and still is to at some point have a strong collaboration, which will lead to concrete progress. The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve is the first biosphere reserve in Sweden to encompass several different municipalities.

- **Municipal conference for biosphere reserve municipalities.** Over the past ten years, many good initiatives have been taken at a municipal level, on the issue of sustainable development. As a result of this, the biosphere reserve hosted Sweden's first conference for biosphere reserve municipalities in 2018, where Swedish biosphere reserve municipalities met to exchange good practices, a highly appreciated activity. This, as well as the additional examples below, are models used by the biosphere reserve to provide conservation, development and support for the development of a sustainable society.

- **Work related to the Fisheries Area,** first for the biosphere reserve only, later expanded to cover the entire Lake Vänern. The work with the Lake Vänern Fisheries Area received funds from the European Maritime and Fisheries Fund. *(Conservation, development, logistic support*).

- **The Biosphere Trail, a waterway as well as a hiking and cycling trail, and several**

tourism industry investments on the mountains Kinnekulle and Lugnåsberget in Götene Municipality.

- **Investments in sustainable business.** Investments which have a ripple effect, both within and beyond the biosphere reserve.

- Through the **communications project **Here's life***, the Biosphere Association has participated in several fora outside of the biosphere reserve. Examples include an exhibition, lectures at conferences, participation in panel talks in Almedalen, and considerable reach through social media, newspaper articles and a film. *Here's life is also included in the sustainability book published by the Young Achievement company Geologic UF, called *"Var ska vi börja?"* Activities held at Läckö Castle and the naturum reached a wide audience, and the Superpower Game based there will continue to reach large groups of visitors from other parts of Sweden and the rest of the world.

- **Mariestad Municipality.** In connection with the prospective establishment of a battery manufacturing plant, the municipality highlighted the value of its participation in one of UNESCO's biosphere reserves. Unfortunately, the company chose to establish its production elsewhere. Had the production been established in Mariestad, it would have had a major local and regional impact, on the labour market among other things.

Here are some examples of pioneers in developing the field of sustainable tourism within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

- **The Läckö Castle Trust** with a general focus on sustainability and a comprehensive activity programme for all ages. Their work benefits both residents and visitors of the biosphere reserve, through culture, school activities and a strong connection to the natural environment. The restaurant, found in the naturum adjacent to the castle, as well as the castle garden, adds to the experience and creates a lasting, genuine impression.
- **The Qvarnstensgruvan mine in Lugnås.** Here, you can gain insight into millions of years of history, thanks to passionate biosphere ambassadorship. Down in the mine, you can see what was once a sandy seabed, patterned by the waves. The passionate hosts of the mine are also the proprietors of a nearby hostel, priding itself in award-winning sustainability.

- **The Lake Vänern Museum**. This is an innovative museum, one that visitors will remember. Here, they think outside the box and create experiences both within the museum and in many other places. They do dedicated work on method development and continuity together with local schools and the Läcko Castle Trust.

- **Hotell Aqva Restaurant & Bar - a tap water certified biosphere hotel focused on sustainability, in Mariestad.** Here, you will be greeted by a welcoming host, genuinely passionate about sustainable development, both ecologically and socially. The kitchen offers local flavours. Guided tours of the island of Torsö will also give you a hefty helping of cultural history, as you learn more about local folklore.

- **Norrqvarn Hotell och Konferens by the Göta Canal.** Try sustainable activities such as cycling, hiking and stand-up paddle boarding along the Göta Canal, during your visit to this unique hotel facility. Here, you can learn more about the story behind the construction of the Göta Canal, and enjoy the restaurant's amazing palette of local flavours. *Read more in*

chapter 5.

4. "Have an appropriate size to serve the three functions of biosphere reserves".

The biosphere reserve is a large geographical area, spanning 278,600 hectares, and is able to serve the three functions of a biosphere reserve: conservation, development and logistic support. The core areas are largely surrounded by larger buffer zones, with the goal of strengthening the protection of core areas and minimising fringe effects. Most of the local population is found in the development area, however, sustainable use of resources and sustainable development methods are tested and demonstrated throughout the entire biosphere reserve. The biosphere reserve and its zones are suitably large and able to meet the purposes of core areas and buffer zones.

5. Appropriate zonation to serve the three functions

In accordance with the UNESCO criteria, the biosphere reserve is divided into three zones: a core area, a buffer zone and a development zone. No changes have been made to the zonation since 2010.

The core areas consist of national parks, nature reserves, Natura 2000 areas and woodland biotope protection areas. All of these areas are protected under the Swedish Environmental Code. The Natura 2000 areas are covered by the EU Bird and Habitats Directives. The biosphere reserve has core areas in both terrestrial and limnic environments. The total area of the core areas is 16 281 hectares, or 5.8% of the total area of the biosphere reserve. Excluding the water area (approx. 192 000 hectares), the core areas take up 8.5% of the terrestrial area.

The conservation targets of the core areas are primarily tied to archipelagic environments, oak landscapes, the bare limestone soils on Mount Kinnekulle, and valuable woodland areas. Operations within core areas are restricted to those allowed according to the provisions of the aforementioned protection regulations.

The development zone of the biosphere reserve is 221,443 hectares, 64,000 of which are terrestrial. The development zone surrounds the buffer zones and is found in the southern, eastern-, western- and northernmost parts of the area. The major communities of Götene, Lidköping and Mariestad are located within the development zone and home to the majority of the local populations. Residential areas, urban areas and industrial areas within the communities are surrounded by agricultural and rural landscapes, with small villages.

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".

The Biosphere Office coordinates a large number of activities intended to provide conservation, development and logistic support in accordance with the UNESCO Man and the Biosphere Programme. In recent years, the office has worked with a wide array of different activities and projects.

Read more in chapter 7.

« It is important that there is a coordinating function, a process manager who can approach things from a broader perspective, on a landscape level, and work cross-sectorally. »

Previous Biosphere Reserve Coordinator

7. Mechanisms for implementation

a) **Mechanisms to manage human use and activities**
Several activities, especially within the field of nature conservation, are regulated through existing, national, legal frameworks as well as through municipal plans. Additionally, there is the EU environmental support for the use of valuable grazing and haymaking grounds. *Read more in chapter 7.*

b) **Management policy or plan**
A vision, goals and management plan are developed by the Biosphere Association in cooperation with other stakeholders within the biosphere reserve. The municipalities develop comprehensive plans and detailed development plans which regulate long-term development of the physical environment.

One challenge when it comes to landscapes is the achievement of financial profitability in work related to both use and conservation of the environment. The Biosphere Association has a major opportunity to develop models for this purpose. As a result of the new goals which were developed in 2018, work related to ecosystem services and biodiversity is now a higher priority in the work of the Biosphere Association. *Read more in chapter 7.*

c) **Authority or mechanism to implement this policy or plan**
The Biosphere Association does not operate as an authority, since no laws or regulations specifically regarding biosphere reserves have been implemented. The objective of the association is to coordinate activities within the biosphere reserve. Several different stakeholders have expressed interest in and ambitions to work according to the goals of the Biosphere Association.

The Biosphere Association is actively working with the 17 global environmental goals of the UN Agenda 2030. This is particularly apparent through the logistic support function. As an example, a major investment was made in the exhibition **Here's life*, a comprehensive project to visualise the work related to the Agenda 2030, throughout the biosphere reserve. *See also 2.4.1.*

d) **Programmes for research, monitoring, education and training.**

Research, environmental monitoring, education and internships are conducted partly by the Biosphere Office itself, but primarily through dialogue and collaboration with

various institutions of higher education, authorities and associations. Research within the biosphere reserve is carried out across a number of fields, and organised by universities and other institutions of higher education, as well as by government institutions. The biosphere reserve has attracted students and researchers from around the world, and has been publicised and referred to in several international scientific journals.

See also 2.4.6 and chapter 6.

« Socially sustainable development is an important dimension to work with, going forward. »

Chairperson of the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve

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8. Does the biosphere reserve have cooperative activities with other biosphere reserves (exchanges of information and staff, joint programmes, etc.)?

At a national level
Sweden's biosphere reserves collaborate through regular meetings of both their boards and their coordinators. Study visits are made to each other's biosphere reserves, and there is a continuous exchange of experiences and learning.

At a regional level
The nearest biosphere reserve is the East Vättern Scarp Landscape Biosphere Reserve, and the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve has had some exchanges with them.

Through twinning and/or transboundary biosphere reserves
Not applicable.

Within the World network
The Biosphere Office as well as other stakeholders within the biosphere reserve have, in recent years, participated in conferences such as the EuroMAB in France 2017, EuroMAB in Dublin 2019 and a conference in Italy, focusing on the tourism industry within biosphere reserves, in 2018.

Biosphere Ambassadors have traveled to Italy and Finland to share experiences with other Biosphere Reserves.

The biosphere reserve hosted the EuroMAB conference in 2011.

Throughout the years, many exchanges and collaborations have been organised as part of projects.

One example of cooperative activities with other biosphere reserves is a tourism project 2019 where exchange of experiences from biosphere reserves in Ireland, Spain, Germany and Schwitzerland strenghtened the external monitoring part of the project considerably.

Another example is the *Biosphere Challenge* which is an anual cooperative activity, hosted by Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. Participants have been schools and pupils from biosphere reserves in Estland, Slovenia, India, South Africa, Uganda, El Salvador, the U.S.A, Gueatemala and Costa Rica.

Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve is active on social media, both by looking for news from other biosphere reserves and also by sharing facebook posts from other biosphere reserves in Sweden and the world. Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve is also active on the facebook page *Proud to share.*

Obstacles encountered, measures to be taken and, if appropriate, assistance expected from the Secretariat:

The Biosphere Association has had valuable assistance from the secretariat, such as when we organised the 2011 EuroMAB in Lundsbrunn. Also through active participation in the conference for Swedish biosphere reserves that was organised in 2018.

The association found the scope and design of the template provided for this survey to be challenging. A suggestion will be made to provide a clearer template including questions focused more on experiences and learning, and with an option to adapt the questions to suit local conditions.

9. Main objectives of the Biosphere Reserve

Describe the main objectives of the biosphere reserve integrating the three functions and the sustainable development objectives for the coming years.

The main objective of the Biosphere Ossociation's work is to ensure that Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve continues to meet UNESCO's criteria and intentions for biosphere reserves. All work is carried out on the basis of the three functions: conserve, develop and support. The text below is from the associations' goal document, describing the main objectives for Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve.

- **Communicating knowledge and strengthening ecosystem services**
  Ecosystem services and biodiversity are the foundation of all life. The valuable natural and cultural landscape of the biosphere reserve is one of the reasons why we are a biosphere reserve. We communicate knowledge on natural values and on how we as humans can make sustainable use of the various ecosystem services. In doing so, we can for example strengthen ecosystem services and broaden their extent.

- **Increase opportunities to easily lead a sustainable everyday life**
  Our habits and behaviours have an important role to play in the future of our planet. We wish to share knowledge on sustainability and on smart ways to make good choices when it comes to consumption, as well as show good examples. In our biosphere reserve, we can develop and test new models so that we can easily make climate-conscious decisions in our everyday lives, both at home, at school and at work.

- **Contribute to sustainable business**
  The sustainable community is dependent on businesses working with sustainability as part of their production and in the sales of goods and services. Together with businesses and other stakeholders, we can help create good conditions for viable sustainable business and community benefits. This can be done for instance by showing good examples, projects in various industries or in the field of circular economy.

- **Strengthen the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve brand** This is a horizontal goal that is included in all other goals.
  Because we are one of the UNESCO model areas for sustainable development, we need to involve the entire community. By sharing knowledge with the residents of the biosphere reserve on the UN Agenda 2030, the global goals and our role as a model area, we can encourage more people to take active steps towards increased

sustainability. We strengthen our brand through modern communication, active ambassadors and collaboration with other stakeholders, among other things.

Specific secondary objectives for Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve

Communicating knowledge and strengthening ecosystem services

- Increased knowledge and sustainable use.
- Introduction of ecosystem services.
- Strengthen ecosystem services and broaden their extent.
- Realisation of ecosystem service. values.
- Making ecosystem services visible.
- Increased knowledge and collaboration with universities or other institutions of higher education.
- New collaborations on natural values.

Increase opportunities to easily lead a sustainable everyday life

- Increased knowledge and changed behaviours.
- Implement models for climate-conscious action.
- Increased knowledge among children and adolescents.
- More people should be inspired.

Contribute to sustainable business

- Increased business viability.
- New collaborations.
- Arenas for meetings.
- Added knowledge about community entrepreneurship.
- Increased knowledge through collaboration with universities or other institutions of higher education.

Strengthen the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve brand

- People are aware of the biosphere reserve and perceive it as something positive.
- More members.
- Active ambassadors.
- Attractive collaboration partners.

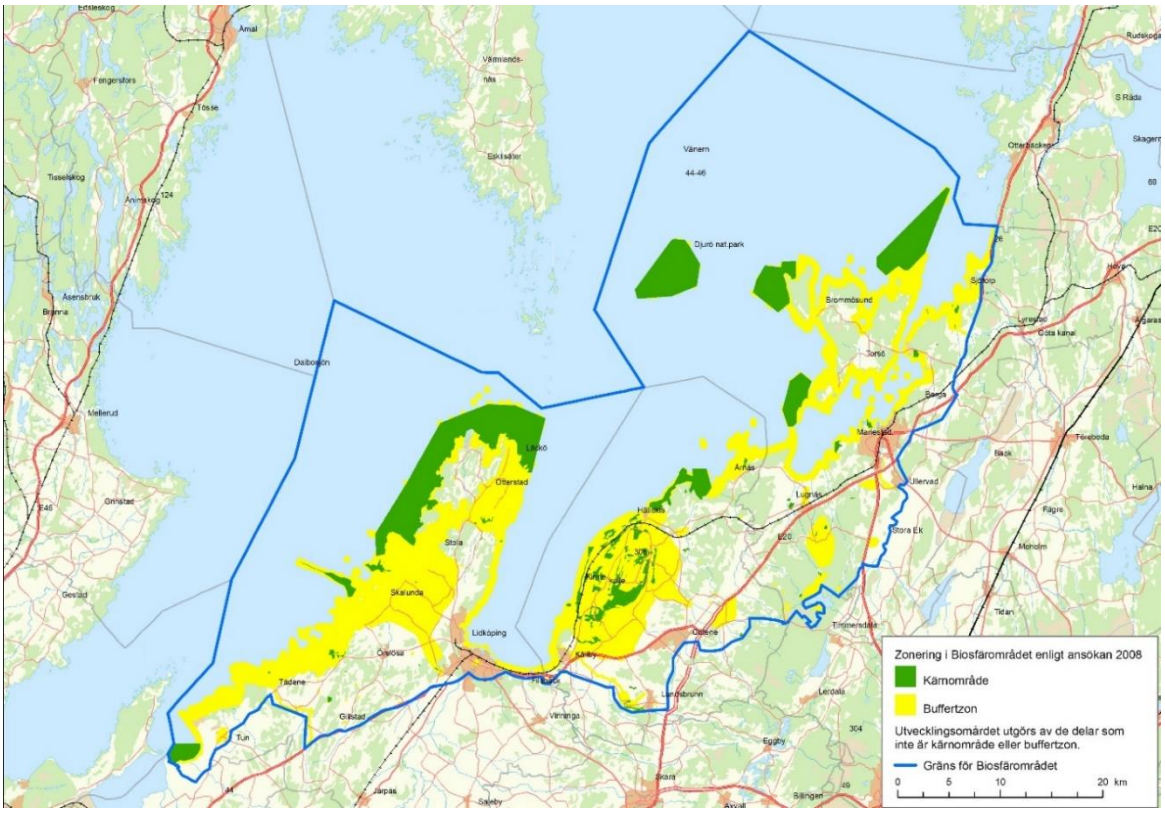
Also see 7.7.2 and appendix IV

9. SUPPORTING DOCUMENTS

[List of the annexes submitted with periodic review report.]

(1) Updated location and zonation map with coordinates

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84). Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website…).]



Points	Latitude	Longitude
Centre point	58° 43'44" N	13° 19'16"O
Northernmost point	59° 03'33"N	13° 35'28"O
Southernmost point	58° 53'29"N	14° 01'00"O
Westernmost point	58° 23'22"N	12° 41'41"O
Easternmost point	58° 24'48"N	12° 38'47"O

(2) Updated vegetation map or land cover map

[A vegetation map or land cover map showing the principal habitats and land cover types of the biosphere reserve should be provided, if available.] -

(3) Updated list of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions) [If applicable update the principal legal documents since the nomination of the biosphere reserve and provide a copy of these documents.]

Established nature reserves, Natura 2000 areas, municipal comprehensive plans and examples of in-depth comprehensive plans within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve.

New nature reserves after the application

2008-12-17	Varaskogen (decision by the County Administrative Board).
2009-04-27	Östra Sannorna (decision by Lidköping Municipal Council).
2011-02-14	Brommö archipelago, expansion (decision by the County Administrative Board).
2011-09-20	Kalvö archipelago, expansion (decision by the County Administrative Board).
2012-12-14	Varan (decision by the County Administrative Board).
2013-05-20	Vristulven (decision by the County Administrative Board).
2015-12-21	Mariedalsån (decision by the County Administrative Board).
2018-03-26	Björkkullasand (decision by Götene Municipal Council).
2019-06-19	Lugnås kvarnstensgruvor (decision by the County Administrative Board).

Natura 2000 areas

The Swedish government designated the following Natura 2000 areas under the EU Bird Directive, SPA. Previously designated areas were part of the application, under the EU Habitats and Species Directive pSCI. Now also designated under SPA.

SE0540076	Djuröarna
SE0540077	Brommö archipelago
SE0540078	Kalvö archipelago
SE0540085	Kållands archipelagoes
SE0540107	Fågelöarna

New Natura 2000 areas under SPA (new since application):

SE0540329	Varaskogen
SE0540332	Onsö
SE0540333	Tjursholmarna

Examples of municipal comprehensive plans and in-depth comprehensive plans are listed below. *To read these in full, see links under 9.7.*

- **Lidköping Comprehensive Plan** (ratified in 2018)
  The comprehensive plan covers the entire municipality. In its comprehensive plan, the

municipality details their decisions, which makes the plan an important, strategic, political policy document. The comprehensive plan currently in force is the Lidköping Municipality Comprehensive Plan, ratified in October 2018.

- **Future Plan for Götene Municipality: 2009-2020**
  The future plan encompasses a vision, strategies, strategic areas, working procedures, and financials as part of a comprehensive plan.

- **In-depth Comprehensive Plan Kinnekulle 2030** (ratified in 2014)
  The in-depth comprehensive plan primarily describes how to develop rural, residential areas in harmony with the natural and cultural environment of the area. Additionally, it explores opportunities for development of outdoor recreation, tourism and the tourism industry, in a way which allows more people to access the remarkable natural and cultural environmental qualities of the area, without jeopardising their conservation.

- **Comprehensive Plan 2030, Mariestad**
  The comprehensive plan for Mariestad has two objectives. Firstly, it describes how the municipality seeks to manage areas of national importance and ensure long-term sustainable development. Secondly, it establishes a direction for how cities and rural areas are to be developed, such as where construction is suitable and desirable, where new roads and cycling routes are to be built and which areas should be reserved for recreation. The comprehensive plan describes how the conservation of areas valuable for their cultural heritage and natural environment are taken into account. It also considers risks of noise pollution and flooding. The plan covers the entire geographical area of the municipality.

(1) Updated list of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the biosphere reserve. Provide a copy of these documents. It is recommended to produce an English, French or Spanish synthesis of its contents and a translation of its most relevant provisions.]

Management plans for nature reserves (new decisions, post-application):
2008-12-17 Varaskogen
2009-04-27 Östra Sannorna
2011-02-14 Brommö archipelago, expansion
2011-09-20 Kalvö archipelago, expansion
2012-12-14 Varan
2013-05-20 Vristulven
2015-12-21 Mariedalsån
2018-03-26 Björkkullasand
2019-06-19 Lugnås kvarnstensgruvor

Regional management plan for Green Infrastructure – Västra Götaland County.
In accordance with government requirements, the County Administrative Board has developed a regional management plan for Green Infrastructure in Västra Götaland County. The management plan was ratified on 2019-04-26.

Updates to conservation plans. In accordance with government requirements, the County Administrative Board updated the conservation plans for all Natura 2000 areas in the period 2016-2019.

(2) Updated species list (to be annexed)

[Provide a list of important species occurring within the biosphere reserve, including common names, wherever possible.]

Lakes and waterways

Lake Vänern is the largest lake in Sweden and the third largest in Europe. Lake Vänern has a major archipelago, and a total of 22,000 islands and islets. There are 4,569 islands larger than 10 m2. The agricultural landscape of the Lake Vänern Archipelago and Mount Kinnekulle is transected by rivers and streams. Rivers Tidan and Lidan are the two largest, whereas Friaån and Sjöråsån are somewhat smaller.

Characteristic species:

Group	*Scientific name*	*Common English name*
Vascular plants	*Carex acuta*	Slender Tufted-sedge
	Lysimahia vulgaris	Yellow Loosestrife
	Lythrum salicaria	Purple Loosestrife
	Phragmites australis	Common Reed
Phytoplankton	*Aphanizomenonflos-aquae*	Cynobacteria
	Aulacoseira (genus)	Diatoms
	Cryptomonas	Cryptomonads
	Rhodomonas	Rhodomonads
	Woronichinia naegeliana	Cynobacteria
Submerged plants	*Chara globularis*	Fragile Stonewort (Charales)
	Isoëtes	Quillworts
	I. echinospora	Spring Quillwort
	I. lacustris	Lake Quillwort
	Myriophyllum	Water Milfoil
	M. alterniflorum	Alternate Water-milfoil
	M. sibiricum	Common Water-milfoil
	M. spicatum	Spiked Water-milfoil
	M. verticillatum	Whorled Water-milfoil
	Nitella flexilis	Stonewort
	Nitella opaca	Dark Stonewort
	Potamogeton perfoliatus	Perfoliate Pondweed
Lichens	*Cladina arbuscula*	Reindeer Lichen
	Cladina rangiferina	Grey Reindeer Lichen
	Cladina stellaris	Star-tipped Reindeer Lichen
Crustaceans	*Gammaracanthus lacustris*	No common English name found
	Monoporeia affinis	No common English name found
	Mysis relicta	Opossum Shrimp
	Pallasea quadrispinosa	No common English name found
	Saduria entomon	Aquatic Sowbug
Mammals	*Castor fiber*	Beaver
	Myotis daubentonii	Daubenton's Bat

Birds	*Anser anser* *Falco subbueto* *Gavia arctica* *Larus canus* *Pandion haliaetus* *Sterna hirundo*	Greylag Goose Hobby Black-Throated Diver Common Gull Osprey Common Tern
Fishes	*Coregonus albula* *Osmerus eperlanus* *Salmo trutta lacustris* *Salmo salar* *Salmo salar*	Vendace Smelt Brown Trout Gullspång Salmon Klarälv Salmon
Molluscs	*Bathomphalus contortus* *Pisidium (genus)*	Twisted Ram's-horn Pea Mussel
Insects	*Ephemera danica* *Ephemera vulgate* *Ephemerella ignite* *Leptophlebiidae vespertin*	No common English name found No common English name found No common English name found No common English name found

Wetlands

Wetland is an umbrella term for environment types covered by shallow water, or with water just below the ground surface. Mires, fens, shallow lakes and waterways are included in this definition.

Characteristic species:

Group	Scientific name	Common English name
Vascular plants	*Alisma plantago-aquatica* *Caltha palustris* *Carex cespitosa* *Carex flacca Schreb* *Dactylorhiza incarnate* *Epipactis palustris* *Glyceria maxima* *Gymnadenia conopsea* *Lythrum salicaria* *Phragmites australis* *Polygonum amphibium* *Potamogeton spp.* *Primula farinose* *Ranunculus spp.* *Schoenus ferrugineus* *Scrophulariaceae spp. Sparganium emersum Rehmann Succisa pratensis* *Typha latifolia*	Water Plantain Marsh-marigold No common English name found Glaucous Sedge Early Marsh-orchid Marsh Helleborine Reed sweet-grass Fragrant Orchid Purple-loosestrife Common Reed Amphibious Bistort Broad-leaf Pondweeds Bird's-eye Primrose Buttercups Brown Bog-rush Speedwells Unbranched Bur-reed Devil's-bit Scabious Bulrush
Mosses	*Sphagnum spp.*	Peat Moss

Birds	*Anser anser*	Greylag Goose
	Anser fabalis	Bean Goose
	Botaurus stellaris	Bittern
	Circus aeruginosus	Marsh Harrier
	Crex crex	Corncrake
	Charadrius dubius	Little Ringed Plover
	Gallinago media	Great Snipe
	Lanius collurio	Red-Backed Shrike
	Limosa lapponica	Bar-Tailed Godwit
	Tadorna tadorna	Shelduck
Molluscs	*Lymnea stagnalis*	Great Pond Snail
	Planorbarius corneus	Great Ramshorn
Arachnids	*Arctosa leopardus*	Wolf Spider
	Drassyllus lutetianus	No English common name found
	Dolmedes fimbriatus	Raft Spider
	Pardosa pullata	No English common name found
	Pirata hygrophilus	No English common name found
	Trochosa spinipalis	No English common name found
	Zelotes latreillei	No English common name found
Insects	*Chironomidae spp.*	Non-biting Midges
	Hemiptera spp.	Half-wings
	Nematocera	Mosquito
	Odonata spp.	Dragonflies
	Simuliidae	Black Fly

Coastal ecosystems

The Lake Vänern shoreland within the biosphere reserve is home to a rich variety of environments. The variety of beach types within the coastland host a rich flora, with species normally found only in coastal areas, such as golden dock and sand sedge. The varied types of environments also contribute to a rich bird fauna.

Characteristic species:

Group	*Scientific name*	*Common English name*
Vascular plants	*Carex acuta*	Slender Tufted-sedge
	Lysimachia vulgaris	Yellow Loosestrife
	Lythrum salicaria	Purple Loosestrife
	Phragmites australis	Common Reed
Photoplankton	*Aphanizomenonflos-aquae*	Cynobacteria
	Aulacoseira (släkte)	Diatoms
	Crytomonas	Cryptomonads
	Rhodomonas	Rhodomonads
	Woronichinia naegeliana	Cynobacteria
Submerged plants	*Chara globularis*	Fragile Stonewort (Charales)
	Isoëtes	Quillworts
	I. echinospora	Spring Quillwort
	I. lacustris	Lake Quillwort
	Myriophyllum	Water Milfoil
	M. alterniflorum	Alternate Water-milfoil
	M. sibiricum	Common Water-milfoil
	M. spicatum	Spiked Water-milfoil
	M. verticillatum	Whorled Water-milfoil
	Nitella flexilis	Stonewort
	Nitella opaca	DarkStonewort

	Potamogeton perfoliatus	Perfoliate Pondweed
Lichens	*Cladina arbuscula* *Cladina rangiferina* *Cladina stellaris*	Reindeer Lichen Grey Reindeer Lichen Star-tipped Reindeer Lichen
Crustaceans	*Gammaracanthus lacustris* *Monoporeia affinis* *Mysis relicta* *Pallasea quadrispinosa* *Saduria entomon*	No common English name found No common English name found Opossum Shrimp No common English name found Aquatic Sowbug
Mammals	*Castor fiber* *Myotis daubentonii*	Beaver Daubenton's Bat
Birds	*Anser anser* *Falco subbuteo* *Gavia arctica* *Larus canus* *Pandion haliaetus* *Sterna hirundo*	Greylag Goose Hobby Black-Throated Diver Common Gull Osprey Common Tern
Fishes	*Coregonus albula* *Osmerus eperlanus L.* *Salmo salar* *Salmo salar* *Salmo trutta lacustris*	Vendaceöja Smelt Gullspång Salmon Klarälv Salmon Brown Trout
Molluscs	*Bathyomphalus contortus* *Pisidium (genus)*	Twisted Ram's-horn Pea Mussel
Insects	*Ephemera danica* *Ephemera vulgata* *Ephemerella ignita* *Leptophlebiidae vespertina* *Myrmeleon bore*	Green Drake Brown Mayfly No common English name found No common English name found Antlion

Photo Katarina Sundberg

Forests

Based primarily on climatic and biotic but also on historic factors, the country is divided into five major woodland ecosystems, based on the characteristics of the respective woodland environments. The coniferous forests of the biosphere reserve are located within the southern coniferous forest region. Its southwestern border is delineated by the natural range of spruce, i.e. the border of the area reached by spruce, prior to the extensive plantation of coniferous forest in southern Sweden. Leafy forests form the most species-rich environments in the country, a large share of threatened species of insects, mosses, lichens and fungi are dependent on various leafy forest environments.

Characteristic species:

Group	Scientific name	Common English name
Vascular plants	*Allium ursinum*	Ramsons
	Anemone nemorosa	Wood Anemome
	Carex canescens	White Sedge
	Carex elongata	Elongated Sedge
	Carex globularis	No Common English name found
	Caltha palustris	Marsh-marigold
	Convallaria majalis	Lily-of-the-valley
	Deschampsia flexuosa	Waivy Hair-grass
	Dryopteris filix-mas	Male-fern
	Equisetum sylvaticum	Wood Horsetail
	Filipendula ulmaria	Meadowsweet
	Gymnocarpium dryopteris	Oak Fern
	Hepatica nobilis	Liverleaf

	Linnaea borealis	Twinflower
	Lysimachia thyrsiflora	Tufted Loosestrife
	Maianthemum bifolium	May Lily
	Matteuccia struthiopteris	Ostrich Fern
	Melampyrum ssp.	Common Cow-wheat
	Menyanthes trifoliata	Bogbean
	Mercurialis perennis	Dog's Mercury
	Oxalis acetosella	Wood-sorrel
	Paris quadrifolia	Herb-Paris
	Potentilla palustris	Marsh Cinquefoil
	Pteridium aquilinum	Bracken
	Pulmonaria obscura	Suffolk Lungwort
	Ranunculus ficaria	Lesser Celandine
	Trientalis europaea	Chickweed Wintergreen
	Vacciniium myrtillus	Bilberry
	Vaccinium vitis-idaea	Cowberry
	Viola palustris	Marsh Violet
Mosses	*Anomodon viticulosus*	Anomodon Moss
	Antrichia curtipendula	Pendulous Wing-moss
	Brachythecium rivulare	River Feather-moss
	Calliergonella cuspidata	Pointed Spear-moss
	Dicranum majus	Dicranum Moss
	Dicranum scoparium	Broom Moss
	Homalothecium sericeum	Silky Wall Feather-moss
	Hypnum cupressiforme	Cypress-leaved plait-moss Squirrel-tail
	Leucodon sciuroides	Moss
	Mnium ssp.	No common English name found
	Neckera complanata	Flat Neckera-moss
	Pleurozium schreberi	Schreber's Feathermoss
	Pohlia nutans	Pholia Moss
	Polytrichum commune	Common Haircap Moss
	Pseudobryum cinclidoides	Pseudobryum Moss
	Ptilium crista-castrensis	Ostrich-plume Feather-moss
	Rhodobryum roseum	Rose Moss
	Sphagnum ssp.	Peat Moss
	Spagnum girgensohnii	Bog moss
	Sphagnum squarrosum	Spread-leaved Bog Moss
Fungi	*Albatrellus ovinus*	Sheep Polypore
	Amanita friabilis	Fragile Amanita
	Amanita muscaria	Fly Agaric
	Amanita phalloides	Deathcap
	Amanita porphyria	Grey Veiled Amanita
	Amanita rubescens	Blusher
	Armillaria mellea	Honey Fungus
	Boletus calopus	Bitter Beech Bolete
	Cantharellus tubaeformis	Trumpet Chanterelle
	Cortinarius armillatus	Red Banded Webcap
	Cortinarius salor	No common English name found
	Cortinarius traganus	Grassy Webcap
	Fomes fomentarius	Tinder Bracket
	Fomitopsis pinicola	Red Banded Polypore
	Ganoderma applanatum	Artist's Bracket
	Geastrum triplex	Collared Earthstar
	Gloeophyllum sepiarium	Conifer Mazegill
	Gomphidius glutinosus	Slimy Spike
	Gyrodon lividus	Alder Bolete
	Hymenochaete tabacina	Reddish-brown Crust
	Hypholoma fasciculare	Sulphur Tuft
	Inocybe lacera	Torn Fibrecap
	Kuehneromyces mutabilis	Sheathed Woodtuft

	Leccinum aurantiacum	Red Aspen Bolete
	Leccinum scabrum	Brown Birch Bolete
	Micromphale perforans	Stinking Parachte
	Paxillus involutus	Briwn Rollrim
	Phellinus tremulae	Aspen Bracket
	Piptoporus betulinus	Birch Polypore
	Rozites caperata	The Gypsy
	Russula pumila	No common English name found
	Stereum hirsutum	Hairy Curtain Crust
	Suillus bovinus	Bovine Bolete
	Suillus luteus	Slippery Jack
	Thelephora terrestris	Earthfan
	Trichaptum abietinum	Purplepore Bracket
	Tricholoma album	White Knight
Lichens	*Alectoria sarmentosa*	Witch's Hair
	Arthonia leucopellaea	Dot Lichen
	Arthonia spadicea	Dot Lichen
	Bryoria capillaris	Grey Horsehair Lichen
	Cladina arbuscula	Reindeer Lichen
	Cladina rangiferina	Grey Reindeer Lichen
	Cladina stellaris	Star-tipped Reindeer Lichen
	Evernia prunastri	Oakmoss Lichen
	Hypogymnia physodes	Monk's-hood Lichen
	Hypogymnia tubulosa	Powder-headed Tube Lichen
	Parmelia saxatilis	Salted Shied Lichen
	Peltigera canina	Felt Lichen
	Pertusaria amara	Bitter Wart Lichen
	Platismatia glauca	Varied Rag Lichen
	Pseudevernia furfuracea	Tree Moss
	Ramalina fraxinea	Cartilage Lichen Angel's
	Ramalina thrausta	Hair
	Usnea filipendula	Fishbone Beard Lichen
	Usnea hirta	Bristly Beard Lichen
	Xanthoria parietina	Orange Wall Lichen
Mammals	*Alces alces*	Moose
	Apodemus flavicollis	Yellow-necked Mouse
	Capreolus capreolus	Roe Deer
	Castor fiber	Beaver
	Cervus dama	Fallow Deer
	Lepus europaeus	Brown Hare
	Lepus timidus	Mountain Hare
	Pipistrellus ssp.	Bats
	Sciurus vulgaris	Squirrel
	Vulpes vulpes	Fox

Birds	*Accipiter nisus*	Sparrowhawk
	Aegithalos caudatos	Long-tailed Tit
	Anthus trivialis	Tree Pipit
	Buteo buteo	Buzzard
	Carduelis spinus	Siskin
	Coccothraustes coccothraustes	Hawfinch
	Dendrocopos major	Great Spotted Woodpecker
	Dendrocopus minor	Lesser Spotted Woodpecker
	Dryocopus martius	Black Woodpecker
	Erithacus rubecula	Robin
	Fringilla coelebs	Chaffinch
	Garrulus glandarius	Jay
	Glaucidium passerinum	Pygmy Owl
	Loxia curvirostra	Crossbill
	Parus arter	Coal Tit
	Parus caeruleus	Blue Tit
	Parus major	Great Tit
	Parus montanus	Willow Tit
	Parus palustris	Marsh Tit
	Phylloscopus sibilatrix	Wood Warbler
	Phylloscopus trochilus	Willow Warbler
	Picus viridis	Green Woodpecker
	Pyrrhula pyrrhula	Bullfinch
	Regulus regulus	Goldcrest
	Scolopax rusticola	Woodcock
	Sitta europaea	Nuthatch
	Sylvia atricapilla	Blackcap
	Tetrao urogallus	Capercaillie
	Tringa ochropus	Green Sandpiper
	Troglodytes troglodytes	Wren
	Turdus merula	Blackbird
	Turdus philomelos	Song Thrush
Reptiles and amphibians	*Anguis fragilis*	Slow Worm
	Lacerta vivipara	Viviparous Lizard
	Natrix natrix	Grass Snake
	Rana temporaria	Common Frog
	Vipera berus	Adder/Viper
Molluscs	*Acanthinula aculeata*	Spiny Snail
	Clausiliidae spp.	Door Snails
	Cochlicopa lubrica	Slippery Moss Snail
	Euconulus fulvus	Tawny Glass Snail
	Vertigo ronnebyensis	No common English name found
Insects	*Agonum fuliginosum*	No common English name found
	Ampedus sanguinolentus	Click Beetle
	Hippoboscidae spp.	Louse flies
	Loricera pilicornis	No common English name found
	Notiophilus reitteri	Ground Beetles
	Operophtera brumata	Winter Moth
	Oxytelus fulvipes	No common English name found
	Trechus rivularis	No common English name found

Agricultural landscape

The agricultural landscape within the biosphere reserve is rich and varied, created by the interaction of humans and animals over thousands of years. Today, it can be difficult to spot older traces of agricultural activity in the landscape. The transformation of the agricultural sector since the mid-1900s has impacted the

character of the landscape, given larger agricultural units, extensive reforestation with spruce, removal of obstacles etc. The agricultural landscape has become more unchanging.

Characteristic species:

Group	Scientific name	Common English name
Vascular plants	*Agrostis canina*	Velvet Bent
	Agrostis capillaris	Common Bent
	Ajuga pyramidalis	Pyramidal Bugle
	Alopecurus pratensis	Meadow Foxtail
	Antennaria dioica	Mountain Everlasting
	Arnica montana	Mountain Arnica
	Bistorta vivipara	Alpine Bistort
	Botrychium spp	Moonworts
	Briza media	Quaking-grass
	Caltha palustris	Marsh-marigold
	Cardamine pratensis	Cuckooflower
	Carex spp	Sedges
	Carlina vulgaris	Carline Thistle
	Centaurea cyanus	Cornflower
	Cirsium helenioides	Melancholy Thistle
	Consolida regalis	Forking Larkspur
	Corynephorus canescens	Grey Hair Grass
	Crepis praemorsa	Leafless Hawk's-beard
	Cynosurus cristatus	Crested Dog's-tail
	Dactylorhiza incarnata	Early Marsh-orchid
	Danthonia decumbens	Heath-grass
	Deschampsia cespitosa	Tufted Hair-grass
	Dianthus deltoides	Maiden Pink
	Euphrasia stricta spp	Eyebrights
	Festuca ovina	Sheep's-Fescue
	Filipendula vulgaris	Dropwort
	Galium verum	Lady's Bedstraw
	Gentiana pneumonanthe	Marsh Gentian
	Gymnadenia conopsea	Fragrant Orchid
	Helictotrichon pratense	Meadow Oat-grass
	Hippocrepis maculata	Spotted Cat's-ear
	Leucanthemum vulgare	Oxeye Daisy
	Linum catharcticum	Fairy Flax
	Luzula multiflora	Heath Wood-rush
	Lychnis flos-cuculi	Ragged-Robin
	Nardus stricta	Matt-grass
	Ophioglossum vulgatum	Adder's-tongue
	Orchidaceae spp.	Orchids
	Pedicularis sylvatica	Lousewort
	Pimpinella saxifraga	Brunet-saxifrage
	Pinguicula vulgaris	Common Butterwort
	Plantago media	Hoary Plantain
	Platanthera bifolia	Lesser Butterfly-orchid
	Polygala spp	Milkworts
	Primula farinosa	Bird's-eye Primrose
	Primula veris	Cowslip
	Pulsatilla vulgaris	Pasqueflower
	Rhinanhtus spp	Rattles
	Scorzonera humilis	Viper's-grass
	Succisa pratensis	Devil's-bit Scabious

	Thymus serpyllum	Breckland Thyme
	Trollius europaeus	Globeflower
	Veronica officinalis	Heath Speedwell
	Veronica spicata	Spiked Speedwell
Mosses	*Leucodon sciuroides*	Squirrel-tail Moss
Fungi	*Agaricus campestris*	Field Mushroom
	Geastrum schmidelii	Dwarf Earthstar
	Geoglossum atropurpureum	Dark-purple Earthtongue
	Hygrocybe spp	Waxcaps
	Lycoperdon lividum	Grassland Puffball
	Tulostoma brumale	Winter Stalkball
Lichens	*Cladina* spp and *Cladonia* spp	Reindeer and Cup Lichens
	Parmelia saxatilis	Shield Lichen
	Ramalina fraxinea	Cartilage Lichen
Mammals	*Alces alces*	Moose
	Capreolus capreolus	Roe Deer
	Dama dama	Fallow Deer
	Eptesicus nilssoni	Northern Bat
	Erinaceus europaeus	European Hedgehog
	Lepus europaeus	Brown Hare
	Meles meles	Badger
	Microtus agrestis	Field Vole
	Murinae spp.	Mice
	Myotis daubentonii	Daubenton's Bat
	Nyctalus noctula	Common Noctule
	Talpa europaea	Common Mole
	Vulpes vulpes	Fox
Birds	*Alauda arvensis*	Skylark
	Anas platyrhynchos	Mallard
	Anthus pratensis	Meadow Pipit
	Buteo buteo	Buzzard
	Carduelis cannabina	Linnet
	Columbia palumbus	Woodpigeon
	Delichon urbicum	House Martin
	Emberiza citrinella	Yellowhammer
	Gallinago gallinago	Snipe
	Hirundo rustica	Swallow
	Lanius collurio	Red-backed Shrike
	Limosa Limosa	Black-tailed Godwit
	Motacilla alba	White Wagtail
	Motacilla flava	Yellow Wagtail
	Numenius arquata	Curlew
	Oenanthe oenanthe	Wheatear
	Phasianus colchicus	Pheasant
	Sturnus vulgaris	Starling
	Tringa tetanus	Redshank
	Vanellus vanellus	Lapwing
Reptiles and amphibians	*Anguis fragilis*	Slow Worm
	Bufo bufo	Common Toad
	Natrix natrix	Grass Snake
	Rana arvalis	Moor Frog
	Rana temporaria	Common Frog
	Triturus cristatus	Great Crested Newt
	Triturus vulgaris	Smooth Newt
	Vipera berus	Adder/Viper
	Zootoca vivipara	Viviparous Lizard

Molluscs	*Anodonta anatina*	Duck Mussel Swan
	Anodonta cygnea	Mussel Spanish
	Arion lusitanicus	Slug Common
	Buccinum undatum	Whelk
	Cepaea hortensis	White-lipped Snail
	Helix pomatia	Roman Snail
	Planorbis planorbis	Great Ramshorn
	Pseudanodonta complanata	Depressed River Mussel
Insects	*Ammophila sabulosa*	Sand Wasp
	Aphodiinae spp.	Dung Beetles
	Apis mellifera	Honey Bee
	Bombus hortorum	Small Garden Bumblebee
	Bombus lapidarius	Red-nigger Bumblebee
	Chorthippus brunneus	Common Field Grasshopper
	Cincindela campestris	Green Tiger Beetle
	Coccinellidae spp.	Ladybirds
	Dectius verrucivorus	Wart-Biter
	Gasteruption jaculator	Parasitic Wasp
	Gonepteryx rhamni	Brimstone
	Hemiptera spp.	Half-Wings
	Hyalopterus pruni	Mealy Plum Aphid
	Hymenoptera spp.	Hymenopterons
	Lasius fuliginosus	Shining Black Wood Ant
	Libellula depressa	Broad-bodied Chaser
	Macrosiphum rosae	Rose Aphid
	Maculinea alcon	Alcon Large Blue
	Mecostethus grossus	Large Marsh Grasshopper
	Meligethes aenus	Pollen Beetle
	Mellinus arvensis	Digger Wasp
	Nitidulidae spp.	Sap Beetles
	Omocestus haemorrhoidalis	No common English name found
	Psithyrus bohemicus	Gipsy Cuckoo Bee
	Rhopalocera spp.	Butterflies
	Scathophaga stercoraria	Common Yellow Dung Fly
	Sitobion avenae	Grain Aphid
	Syrphidae spp.	Hover-flies
	Volucella bombylans	No common English name found
	Zygoptera spp.	Damselflies
Arachnids	*Drasyllus lutetianus*	No common English name found
	Ixodida spp.	Ticks
	Pirata piscatorius	Wolf Spiders
	Thanatus striatus	No common English name found

Built-up areas

The biosphere reserve holds three larger urban agglomerations as well as a number of smaller agglomerations adjacent to these. The aforementioned areas are characterised by planned structures where the natural environment has been replaced with hard surfaces and planned green areas. Historically, human construction in the countryside, as well as the use of land in agriculture, has divided the natural landscape and created new biotopes. Farmed

crops offer new sources of food for animals and other biotopes have been pushed back. The building of leisure homes has become more common, resulting in diminishing, coherent areas of untouched shoreland. The biosphere reserve also includes historic manor environments, forming a park-like landscape on Mount Kinnekulle. There are 1,500 large oaks, and the bark of the Kinnekulle oaks is home to more than 1,000 animal species. Several important, major roads cross the biosphere reserve, such as the European route E 20 and national routes 26 and 49). There is also a dense network of smaller roads. A railroad, Kinnekullebanan, also transverses the area. Close to roads and railroads, distinctive biotopes arise, for instance on the banks of ditches and on central reservations. There is an industrial port in Lidköping, and fairways to this and other ports on Lake Vänern cross through waters that are part of the biosphere reserve. There are guest harbours and leisure boat harbours throughout the area. The Göta Canal, one of Sweden's most popular tourist destinations, connects Lake Vänern to the Baltic Sea. Lines for power transmission and facilities for radio and telecommunication are also found throughout the area. Over the past ten years, a number of wind power parks, as well as new residential and industrial areas, have been built within the biosphere reserve.

Characteristic species:

Group	*Scientific name*	*English common name*
Vascular plants	*Acer*	Maples
	Aesculus hippocastanum	Horse Chestnut
	Anthriscus sylvestris	Cow-Parsley
	Bellis perennis	Daisy
	Betula pendula	Silver Birch
	Fraxinus excelsior	Ash
	Quercus robur	Oak
	Taraxacum	Dandelion
	Tilia cordata	Small-leaved Lime
	Trifolium pratense	Red clover
	Trifolium repens	White clover
	Tussilago farfara	Colt's-foot
	Ulmus glabra	Elm
	Urtica dioica	Common Nettle
	Veronica chamaedrys	Germander
Lichens	*Xanthoria parietina*	Orange Wall Lichen
Mammals	*Capreolus capreolus*	Roe Deer
	Eptesicus nilssonii	Northern Bat
	Erinaceus europaeus	Hedgehog
	Meles meles	Badger
	Plecotus auritus	Brown Long-Eared Bat
	Rattus norvegicus	Brown Rat
	Sciurus vulgaris	Squirrel

Birds	*Anas platyrhynchos*	Mallard Siskin
	Carduelis spinus	Woodpigeon
	Columba palumbus	Jackdaw
	Corvus monedula	Pied Flycatcher
	Ficedula hypoleuca	Chaffinch
	Fringilla coelebs	Common Gull
	Larus canus	Blue Tit
	Parus caeruleus	Great Tit
	Parus major	House
	Passer domesticus	Sparrow Tree
	Passer montanus	Sparrow
	Pica pica	Magpie
	Sitta europaea	Nuthatch
	Sturnus vulgaris	Starling
	Turdus merula	Blackbird
	Turdus pilaris	Fieldfare
Reptiles and amphibians	*Bufo bufo*	Common Toad
	Natrix natrix	Grass Snake
	Rana temporaria	Common Frog
	Vipera berus	Adder/Viper
Arachnids	*Lycosidae spp*	Wolf Spider
	Tegenaria domestica	Common House Spider
Insects	*Aglais urticae*	Small Tortoiseshell
	Gonepteryx rhamni	Brimstone
	Inachis io	Peacock
	Musca domestica	Housefly
	Pieris brassicae	Large White
	Tinea pellionella	Casemaking clothes moth
	Tineola bisselliella	Webbing clothing moth

Photo Katarina Sundberg

(3) Updated list of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the biosphere reserve.]

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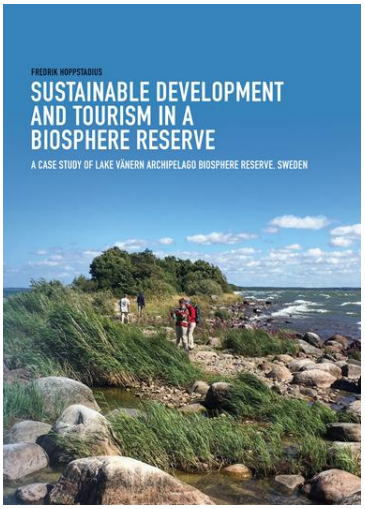

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(4) Further supporting documents.

Below is a list with links to information on the biosphere reserve.

The Biosphere Trails for hiking and cycling: http://ekoturer.se/

Future plan for Götene Municipality 2020:

https://www.gotene.se/kommunochpolitik/kommunalabestammelserochtillstand/kommunensforfattningar/dokument/p/planframtidsplan20092020.7828.html

In-depth comprehensive plan Kinnekulle, Götene: Municipality:
https://www.gotene.se/kommunochpolitik/kommunalabestammelserochtillstand/kommunensforfattningar/dokument/f/fordjupadoversiktsplankinnekulle.19271.html

Environmental plan for Lidköping Municipality: https://lidkoping.se/boende-och-miljo/kommunens-miljoarbete/miljoplan/

The Swedish Environmental Protection Agency's description of biosphere reserves:
https://www.naturvardsverket.se/Var- natur/Skyddad-natur/Biosfaromraden/

A description of biosphere reserves from The Swedish National Commission for UNESCO: https://www.unesco.se/vetenskap/biosfaromraden/

Vision document for Mariestad Municipality: https://mariestad.se/Mariestads-kommun/Kommun--Politik/Vision-2030.html

Comprehensive plan, Lidköping Municipality: https://lidkoping.se/boende-och-miljo/planer-och-program- for-byggnation/oversiktsplan/

Comprehensive plan, Mariestad Municipality: https://mariestad.se/Mariestads-kommun/Bygga--Bo/Stadsplanering/Oversiktsplanering/Oversiktsplan-2030.html

Reports on ongoing projects of the Biosphere Association as well as an archive of past projects: www.vanerkulle.se

10. ADRESSES

10.1 Contact address of the biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve
Street or P.O. Box: Mariestads Municipality
City with postal code: SE- 542 86 Mariestad Country:Sweden
Telephone: +46 (0) 501-755139
E-mail: maria.gustavsson@vanerkulle.se
Website: www.vanerkulle.se

10.2 and 10.3 Administering entity of the core area(s):

The administrative responsibility for core areas and buffer zones is mainly divided between the agencies below and other stakeholders. When the Biosphere Office receives questions regarding the biosphere reserve organisation and core areas or buffer zones, the questions are discussed with relevant authorities and stakeholders.

Naturvårdsverket www.naturvardsverket.se

Länsstyrelsen Västra Götaland
https://www.lansstyrelsen.se/vastra-gotaland.html

Skogsstyrelsen www.skogsstyrelsen.se

GöteneMunicipality https://www.gotene.se/

LidköpingMunicipality https://lidkoping.se/

MariestadMunicipality https://mariestad.se/

10.4 Administering entity of the transition area(s):

Name: Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve
Street or P.O. Box: Mariestads Municipality
City with postal code: SE- 542 86 Mariestad
Country:Sweden
Telephone: +46 (0) 501-755139
E-mail: info@vanerkulle.se
Web site: www.vanerkulle.se

Annex I to the Biosphere Reserve Periodic Review, January 2013

Administrative details

Country: Sweden
Name of BR: Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve
Year designated: 2010
Administrative authorities: (7.6) The organisation is a non-profit association
Name Contact: (10.1) Maria Gustavsson, Coordinator
Contact address: *(Including phone number, postal and email addresses)* (10.1)

Name: Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve
Street or P.O. Box: Mariestads Municipality
City with postal code: SE- 542 86 Mariestad
Country:Sweden
Telephone: +46 (0) 501-755139
E-mail: info@vanerkulle.se
Related links: www.vanerkulle.se
Social networks: (6.5.4) https://www.facebook.com/Vanerkulle/ instagram : vanerkulle

Description

General description:

Approximately 25 lines
The Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve is located by the southeastern archipelago of Lake Vänern, Lake Vänern is Sweden's largest lake, and the third largest in Europe. The biosphere reserve is located in the municipalities of Lidköping, Götene and Mariestad, about 100 km to the west of Sweden's demographic centrepoint. It is a site of major natural and cultural values, which can be experienced for instance by hiking or cycling along the biosphere trail. In 2018, the railroad that crosses Mount Kinnekulle was designated Sweden's most scenic rail route.

The biosphere reserve is also home to Läckö Castle and its naturum, offering cultural, natural and learning-focused experiences. The Kinnekulle area is a popular tourism destination thanks to its rich natural environment, fascinating history and geology. Here, you will find hiking trails, manors, old churches, rock carvings and a large number of nature reserves. Mount Lugnåsberget is one of Sweden's major fossil locations and the Qvarnstensgruvan mine is popular with visitors.

The transition to a sustainable society is more and more noticeable throughout the biosphere reserve. One example is the world unique investment in ElectriVillage, where a solar panel park is used to charge a hydrogen gas fuelling station, a step towards a fossil free society. The archipelago outside Mariestad is home to the islands of Torsö and Brommö, and the national park Djurö. The islands and the shoreland of the biosphere reserve are popular destinations for swimming, fishing and other natural experiences.

Major ecosystem type: Lake Vänern is the dominant feature of the biosphere reserve's landscape.
Major habitats & land cover types: Lakes and waterways, wetland, shoreland ecosystems, forests, agricultural land and developed land.
Bioclimatic zone: The biosphere reserve has a temperate climate, according to the Köppen climate classification.
Location (latitude & longitude): Central point of the biosphere reserve: 58o 43'44'' N, 13o 19'16'' E
Total Area (ha): 278,600 hectares
Core area*(s):* 16,281 hectares
Buffer zone*(s):* 40,876 hectares
Transition area*(s) :* 221,443 hectares
Different existing zonation: The area is part of the southern coniferous forest region
Altitudinal range *(*metres above sea level): Lowest point in Lake Vänern: -45 metres
Lowest point on land: 44 metres
Highest point: 306 metres
Zonation map(s) (refer to section 2.2.2)

Main objectives of the biosphere reserve

Brief description

Approximately 5 lines

By involving and collaborating with local residents and various community functions, the biosphere association is working to reach the goal of transitioning to an ecologically, socially and economically sustainable society. In this work, we seek local solutions to global challenges, with the Agenda 2030 as our overarching target. Examples of local subgoals part of this effort include sharing knowledge on and supporting ecosystem services, improving opportunities to easily lead a sustainable life, and contributing to a sustainable business sector.

Research

Brief description

Approximately 5 lines

Cultural environment and cultural heritage as part of sustainable landscape management - a survey of the importance of cultural environment and heritage for those who live and work within the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Reserve. Another subject that has been researched is the relationship between sustainable development and tourism within the biosphere reserve.

Monitoring

Brief description

Approximately 5 lines

The biosphere reserve conducts no evaluation or monitoring of its own, this is done for example through the national and regional programmes of the Swedish Environmental Protection Agency and the County Administrative Board.

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors	X	Afforestation/Reforestation	X
Acidic deposition/Atmospheric factors		Algae	X
Air quality	X	Alien and/or invasive species	
Air temperature	X	Amphibians	X
Climate, climatology	X	Arid and semi-arid systems	
Contaminants	X	Autoecology	
Drought		Beach/soft bottom systems	X
Erosion	X	Benthos	X
Geology	X	Biodiversity aspects	X
Geomorphology	X	Biogeography	
Geophysics		Biology	X
Glaciology		Biotechnology	X
Global change		Birds	X
Groundwater	X	Boreal forest systems	X
Habitat issues	X	Breeding	
Heavy metals	X	Coastal/marine systems	X
Hydrology	X	Community studies	X
Indicators	X	Conservation	X
Meteorology	X	Coral reefs	
Modeling	X	Degraded areas	
Monitoring/methodologies		Desertification	
Nutrients	X	Dune systems	X
Physical oceanography		Ecology	X
Pollution, pollutants		Ecosystem assessment	X
Siltation/sedimentation		Ecosystem functioning/structure	X
Soil		Ecosystem services	X
Speleology		Ecotones	X
Topography		Endemic species	X
Toxicology		Ethology	X
UV radiation		Evapotranspiration	
		Evolutionary studies/Palaeoecology	
		Fauna	X
		Fires/fire ecology	X
		Fishes	X
		Flora	X
		Forest systems	X
		Freshwater systems	X
		Fungi	X
		Genetic resources	
		Genetically modified organisms	
		Home gardens	
		Indicators	X
		Invertebrates	X
		Island systems/studies	
		Lagoon systems	
		Lichens	X
		Mammals	X
		Mangrove systems	
		Mediterranean type systems	
		Microorganisms	X

		Migrating populations	X
		Modeling	X
		Monitoring/methodologies	X
		Mountain and highland systems	
		Natural and other resources	
		Natural medicinal products	
		Perturbations and resilience	X
		Pests/Diseases	
		Phenology	X
		Phytosociology/Succession	
		Plankton	X
		Plants	X
		Polar systems	
		Pollination	X
		Population genetics/dynamics	X
		Productivity	X
		Rare/Endangered species	X
		Reptiles	X
		Restoration/Rehabilitation	
		Species (re) introduction	
		Species inventorying	
		Sub-tropical and temperate rainforest	
		Taxonomy	
		Temperate forest systems	
		Temperate grassland systems	
		Tropical dry forest systems	
		Tropical grassland and savannah systems	
		Tropical humid forest systems	
		Tundra systems	
		Vegetation studies	
		Volcanic/Geothermal systems	
		Wetland systems	X
		Wildlife	X

		Integrated monitoring	
Agriculture/Other production systems	X	Biogeochemical studies	
Agroforestry		Carrying capacity	
Anthropological studies		Climate change	X
Aquaculture		Conflict analysis/resolution	
Archaeology	X	Ecosystem approach	X
Bioprospecting		Education and public awareness	X
Capacity building	X	Environmental changes	X
Cottage (home-based) industry		Geographic Information System (GIS)	X
Cultural aspects		Impact and risk studies	X
Demography	X	Indicators	
Economic studies	X	Indicators of environmental quality	X
Economically important species		Infrastructure development	
Energy production systems		Institutional and legal aspects	
Ethnology/traditional practices/knowledge		Integrated studies	
Firewood cutting		Interdisciplinary studies	X
Fishery	X	Land tenure	
Forestry	X	Land use/Land cover	
Human health	X	Landscape inventorying/monitoring	X
Human migration	X	Management issues	X
Hunting		Mapping	X
Indicators		Modeling	X
Indicators of sustainability		Monitoring/methodologies	X
Indigenous people's issues		Planning and zoning measures	
Industry		Policy issues	
Livelihood measures		Remote sensing	
Livestock and related impacts		Rural systems	
Local participation		Sustainable development/use	
Micro-credits		Transboundary issues/measures	
Mining		Urban systems	
Modeling		Watershed studies/monitoring	X
Monitoring/methodologies	X		
Natural hazards			
Non-timber forest products			
Pastoralism			
People-Nature relations	X		
Poverty			
Quality economies/marketing			
Recreation			
Resource use			
Role of women			
Sacred sites			
Small business initiatives			
Social/Socio-economic aspects			
Stakeholders' interests			
Tourism	X		
Transports			

Annex II to the Biosphere Reserve Periodic Review, January 2013 Promotion and Communication Materials

Provide some promotional material regarding the site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments Nor sub-titles, of professional quality – DV CAM or BETA only, will be needed.

In addition, return a signed copy of the following Agreements on Non-Exclusive Rights for photo(s) and video(s).

Brochure about Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve

Swedish version
http://media.vanerkulle.org/2019/07/Broschyr-f%C3%B6r-utskrift-svenska.pdf

English version
http://media.vanerkulle.org/2019/07/Brochure-English-Version-f%C3%B6r- utskrift.pdf

Film about Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve and the project *Here's life*

Swedish version
https://youtube/A4jAdqHHX1c

English subtitles
https://www.youtube.com/watch?v=5NfhdVX7vnw&t=46s

Brochure about the project *Here's life*

Here's life, Swedish version https://vanerkulle.org/wp-content/uploads/2020/05/Digital-folder-Svensk-A4.pdf

Here's life, English version https://vanerkulle.org/wp-content/uploads/2020/05/Digital-folder-Engelsk-A4.pdf

Film about Lake Vänern and Mount Kinnekulle UNESCO Biosphere Reserve

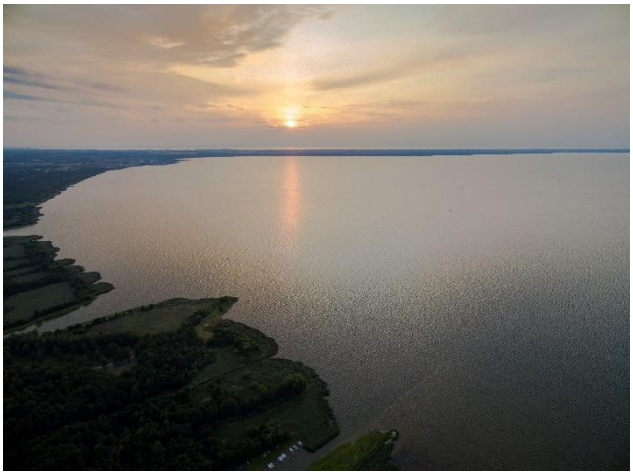
Together we build a sustainable society

Swedish version https://youtu.be/S5DqXVyWyRI

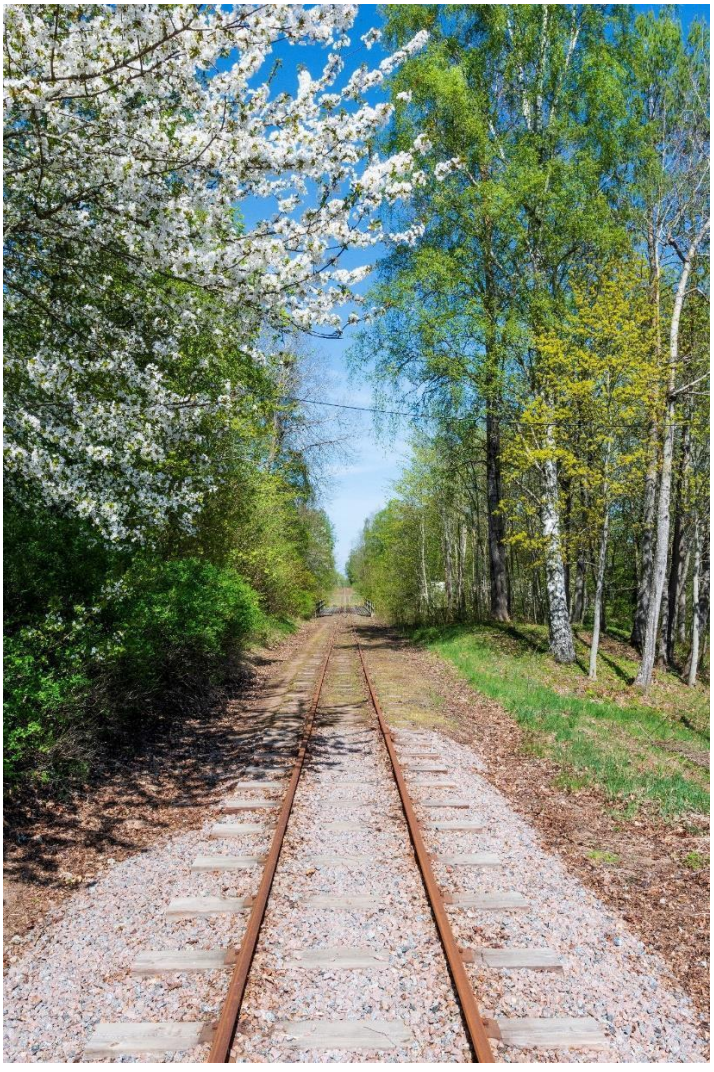
English subtitles https://youtu.be/v7jw0WvQh2Q

Films about the project and exhibition *My space in the Biosphere*

https://vanerkulle.org/min-plats-i-biosfaren/



Please add this information when publishing these photographs:
Photographer Katarina Sundberg.



United Nations Educational, Scientific and Cultural Organization
Organisation des Nations Unies pour l'éducation, la science et la culture
Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
Организация Объединенных Наций по вопросам образования, науки и культуры
منظمة الأمم المتحدة للتربية والعلم والثقافة
联合国教育、科学及文化组织

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Bureau of Public Information

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Signature : Date :

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

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Direct Telephone: 00331 – 45681687 Direct Fax: 00331 – 45685655;

e-mail: photobank@unesco.org; m.ravassard@unesco.org

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Organisation des Nations Unies pour l'éducation, la science et la culture
Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
Организация Объединенных Наций по вопросам образования, науки и культуры
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b) The video(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address:

Signature : Date :

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP,

Direct Telephone: 00331 – 45681687 Direct Fax: 00331 – 45685655;

e-mail: photobank@unesco.org; m.ravassard@unesco.org

Annex III to the Biosphere Reserve Periodic Review, January 2013

The Statutory Framework of the World Network of Biosphere

Introduction

Within UNESCO's Man and the Biosphere (MAB) programme, biosphere reserves are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Co-ordinating Council of the MAB Programme, at the request of the State concerned. Biosphere reserves, each of which remains under the sole sovereignty of the State where it is situated and thereby submitted to State legislation only, form a World Network in which participation by the States is voluntary.

The present Statutory Framework of the World Network of Biosphere Reserves has been formulated with the objectives of enhancing the effectiveness of individual biosphere reserves and strengthening common understanding, communication and co-operation at regional and international levels.

This Statutory Framework is intended to contribute to the widespread recognition of biosphere reserves and to encourage and promote good working examples. The delisting procedure foreseen should be considered as an exception to this basically positive approach, and should be applied only after careful examination, paying due respect to the cultural and socio-economic situation of the country, and after consulting the government concerned.

The text provides for the designation, support and promotion of biosphere reserves, while taking account of the diversity of national and local situations. States are encouraged to elaborate and implement national criteria for biosphere reserves which take into account the special conditions of the State concerned.

Article 1 - Definition

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework.

Article 2 - World Network of Biosphere Reserves

1. Biosphere reserves form a worldwide network, known as the World Network of Biosphere Reserves, hereafter called the Network.

2. The Network constitutes a tool for the conservation of biological diversity and the sustainable use of its components, thus contributing to the objectives of the Convention on Biological Diversity and other pertinent conventions and instruments.

3. Individual biosphere reserves remain under the sovereign jurisdiction of the States where they are situated. Under the present Statutory Framework, States take the measures which they deem necessary according to their national legislation.

Article 3 - Functions

In combining the three functions below, biosphere reserves should strive to be sites of excellence to explore and demonstrate approaches to conservation and sustainable development on a regional scale:

(i) conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation;

(ii) development - foster economic and human development which is socio-culturally and ecologically sustainable;

(iii) logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.

Article 4 - Criteria

General criteria for an area to be qualified for designation as a biosphere reserve:

1. It should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.

2. It should be of significance for biological diversity conservation.

3. It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.

4. It should have an appropriate size to serve the three functions of biosphere reserves, as set out in Article 3.

5. It should include these functions, through appropriate zonation, recognizing:

(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;

(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;

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

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 carrying out the functions of a biosphere reserve.

7. In addition, provisions should be made for:

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

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

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

(d) programmes for research, monitoring, education and training.

Article 5 - Designation procedure

1. Biosphere reserves are designated for inclusion in the Network by the International Co-ordinating Council (ICC) of the MAB programme in accordance with the following procedure:

(a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4;

(b) the secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the secretariat requests the missing information from the nominating State;

(c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;

(d) ICC of the MAB programme takes a decision on nominations for designation. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

2. States are encouraged to examine and improve the adequacy of any existing biosphere reserve, and to propose extension as appropriate, to enable it to function fully within the Network. Proposals for extension follow the same procedure as described above for new designations.

3. Biosphere reserves which have been designated before the adoption of the present Statutory Framework are considered to be already part of the Network. The provisions of the Statutory Framework therefore apply to them.

Article 6 - Publicity

1. The designation of an area as a biosphere reserve should be given appropriate publicity by the State and authorities concerned, including commemorative plaques and dissemination of information material.

2. Biosphere reserves within the Network, as well as the objectives, should be given appropriate and continuing promotion.

Article 7 - Participation in the Network

1. States participate in or facilitate co-operative activities of the Network, including scientific research and monitoring, at the global, regional and sub-regional levels.

The appropriate authorities should make available the results of research, associated publications and other data, taking into account intellectual property rights, in order to ensure the proper functioning of the Network and maximize the benefits from information exchanges.

2. States and appropriate authorities should promote environmental education and training, as well as the development of human resources, in co-operation with other biosphere reserves in the Network.

Article 8 - Regional and thematic subnetworks

States should encourage the constitution and co-operative operation of regional and/or thematic subnetworks of biosphere reserves, and promote development of information exchanges, including electronic information, within the framework of these subnetworks.

Article 9 - Periodic review

1. The status of each biosphere reserve should be subject to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4, and forwarded to the secretariat by the State concerned.

2. The report will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC.

3. ICC will examine the periodic reports from States concerned.

4. If ICC considers that the status or management of the biosphere reserve is satisfactory, or has improved since designation or the last review, this will be formally recognized by ICC.

5. If ICC considers that the biosphere reserve no longer satisfies the criteria contained in Article 4, it may recommend that the State concerned take measures to ensure conformity with the provisions of Article 4, taking into account the cultural and socio-economic context of the State concerned. ICC indicates to the secretariat actions that it should take to assist the State concerned in the implementation of such measures.

6. Should ICC find that the biosphere reserve in question still does not satisfy the criteria contained in Article 4, within a reasonable period, the area will no longer be referred to as a biosphere reserve which is part of the Network.

7. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

8. Should a State wish to remove a biosphere reserve under its jurisdiction from the Network, it notifies the secretariat. This notification shall be transmitted to ICC for information. The area will then no longer be referred to as a biosphere reserve which is part of the Network.

Article 10 - Secretariat

1. UNESCO shall act as the secretariat of the Network and be responsible for its functioning and promotion. The secretariat shall facilitate communication and interaction among individual biosphere reserves and among experts. UNESCO shall also develop and maintain a worldwide accessible information system on biosphere reserves, to be linked to other relevant initiatives.

2. In order to reinforce individual biosphere reserves and the functioning of the Network and sub-networks, UNESCO shall seek financial support from bilateral and multilateral sources.

3. The list of biosphere reserves forming part of the Network, their objectives and descriptive details, shall be updated, published and distributed by the secretariat periodically.

Annex IV

2020 Business Plan for the Biosphere Association.

Ratified by the board 2019-11-22.

The Operating Plan is a summary of planned operative activities in 2020. It is a tool for the board and employees, as well as a supporting document for follow-up work throughout the year. As the year progresses, changes may be made to the operating plan, based for example on the allocation of project funding.

A common goal of the UNESCO biosphere programme, set for 2025, is for the biosphere reserves to be well functioning model areas for sustainable development, jointly contributing to the fulfilment of the UN global goals and those of the Agenda 2030 (the Lima Action Plan). A biosphere reserve must:

- *conserve* biological and cultural diversity, ecosystems and landscapes.
- *develop* society in a way that is sustainable in the long term.
- *support* demonstration projects, research and knowledge development.

The goals of the Lake Vänern Archipelago and Mount Kinnekulle Biosphere Association for 2025 are to:

- communicate knowledge and promote ecosystem services.
- improve opportunities to easily lead a sustainable everyday life.
- create the conditions necessary for a sustainable business sector.

The board of the association makes decisions regarding the strategic direction and evaluation of operations. The working committee holds a meeting before every board meeting.

The Biosphere Office manages the operations of the association. The Biosphere Office employs two people, with working hours equivalent to 1.5 full-time employees. The association procures services externally as needed.

Activities in 2020

The operative activities for the year are divided into the three goals of the Biosphere Association, the horizontal goals, as well as the categories ‘networks’, ‘monitoring’ and ‘miscellaneous’.

Spreading knowledge of and promoting ecosystem services

Activity	Content
PROJECT **Inclusion with the help of community guides**	Implementation project based on the preparatory study of the biosphere reserve as an arena for diversity. Application for grants from Postkodsstiftelsen, Leader Nordvästra Skaraborg med flera. Decision in spring of 2020.

PROJECT **Ecosystem services**	Project to promote and increase the visibility of ecosystem services. Application for grants from LONA, decision expected in spring of 2020.
Project development	Development of new projects within the target area. Conducted alongside other stakeholders, such as those within the network Naturnytta biosfär

Increasing opportunities to easily lead a sustainable everyday life

Activity	**Description**
Biosphere Challenge	Work to make the Biosphere Challenge a national event, with national-level funding. Collaboration with other biosphere reserves in the country.
Mini ambassadors	Throughout the year, our ambition is to review the materials for teachers, update them and also market the project, for instance through a conference. We will also develop collaboration with the Platåbergen Geopark around this concept. At least five pre-schools should be training mini ambassadors.
PROJECT **Communication on invasive species**	We participate in a project organised by the Swedish University of Agricultural Sciences, to communicate the risk classification of invasive garden species.
Project development	Development of new projects within the target area. Conducted alongside other stakeholders.

Create conditions necessary for sustainable business

Activity	**Description**
PROJECT **Sustainable tourism industry in the Lake Vänern Archipelago and Mount Kinnekulle area**	Implementation project alongside Destination Läckö Kinnekulle and the Mariestad Tourism Office. Project duration: November 2019 - June 2021.
PROJECT **Preparatory study, community entrepreneurship**	Preparatory study to investigate conditions for the establishment of more community entrepreneurs within the biosphere reserve. Collaboration with various stakeholders.

Project management **Off Season Art Gardening**	Management of an international project with the following partners: Mariestad Municipality, Skövde University, Ukmerge Municipality in Lithuania and Sense of Place in Holland. The project concerns collaboration and exchange on cultural entrepreneurship, business models and the decoration of public spaces in dialogue with citizens, among other things. Project duration: September 2018 - May 2021
Project development	Development of new projects within the target area. Conducted alongside other stakeholders.