

LEARNING FROM THE COMMON

A Learning Centre for Biodiversity at the Heart of Kalvebod Fælled

“Architecture, in short, has the capacity to both extend man’s destruction of the environment, but also, at its best but much more rarely, it retains the capacity to invent new modes of co-existence, more sustainable ways of living and more aesthetic experiences of inhabitation.”

Etienne Turpin, *Architecture in the Anthropocene*
(Turpin, 2013, p. 131)

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The starting point of this thesis project has been to question the global movement of climate strikes that have been undertaken by the youth since last year demanding governments meaningful actions towards climate change. I am not a politician who can change the law but as an architect, it got me thinking about what architecture could do in response to this high demand of action towards the climate crisis. I believe that architecture can propose effective solutions to this ongoing issue.

This thesis project investigates how architecture can have a positive impact in a vulnerable habitat and how it can contribute to the preservation of biodiversity- a task that has become fundamental in the past years for the protection of our environment.

The project is situated in Kalvebod Faelled, a unique area located next to the city centre of Copenhagen where the settlement of a new built infrastructure seems of particular relevance: the area is an intertwined story between land reclamation and military use that has been appointed by both, the Danish Society For Nature Conservation and the Natura 2000 EU project as a protected nature reserve, which is today the heaven of many endangered species. Being a protected nature reserve does not mean that people cannot have access to it and benefit from it. Indeed, new funds have recently been provided to rebrand the area in order to attract more citizens locally and regionally and to make the nature park of Amager a real asset for the Danish Capital.

The project proposes to establish a learning centre for biodiversity as an outpost program of the existing nature centre at the heart of Kalvebod Faelled. The facility will enable academic students and the local community such as ornithologists or people from the nature centre to conduct research on the fragile biodiversity of Kalvebod Faelled and give them the opportunity to be immersed for a couple of days in the environment they are investigating.

In order to create a new type of knowledge exchange that benefits all users of the area, the facility will be inclusive to all and will serve as an information point for visitors. The aim is to create situations which intensify the park's diversity of use and create a new type of knowledge exchange, focused on the preservation of Kalvebod Faelleds and Denmark's biodiversity. Moreover, the objective is for the project not only to become an asset for the nature centre and for the city, but also for the natural ecosystem. The focus will be placed on the building and will question how nature and the built environment can benefit from one another. The thesis question is therefore as follow:

How can one envision a Learning Centre for Biodiversity at the heart of Kalvebod Faelled that has a symbiotic relationship with the natural environment?

The program will go through and extensive context analysis and will present a more in-depth explanation of the different points mentioned above.



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When photographer Laura Stevens was invited by postcards from Copenhagen to the Danish Capital to create a new body of work inspired by the city, one of her immediate impressions was that wherever you are in the city, “nature is right at your doorstep.” (Laura Stevens, 2018). This is an impression that I felt as well when discovering Copenhagen for the first time. There seems to be a sense of calm and peacefulness that is striking in the Danish Capital.

When one looks at a map of Copenhagen, one can notice its close proximity to the water and the presence of green areas in the city. One area comes out in particular: located between the sea, a highway and suburban houses, one could imagine that this area enclosed between such definite borders is the next area to be used as part of the expansion plan of the Danish capital. Surprisingly, it isn't. This has raised my particular interest and that's why I have chosen to look deeper into this area and its potential.

The project started out by questioning and investigating Kalvebod Faelled, a natural gem, overlooked by many, that offers “unique natural and outdoor experiences less than half an hour away from Copenhagen City Hall Square.” (Danmark. & Naturstyrelsen., 2014, p. 5). Over the past weeks, I have made myself a visitor in this immense and breathtaking landscape with the aim to assess what could best support this hidden gem. Field trips, desk research and interviews with different experts related to the area have made me realise the complexity and uniqueness of this site.

This program has been divided into two parts. The first part will dive into the context, the program and the themes that have led to the formation of the thesis statements. The first section will end by outlining the relevance of the subject of study. The second part is a ‘Toolbox’ that will explain how the thesis question will be investigated over the course of the project.

I.

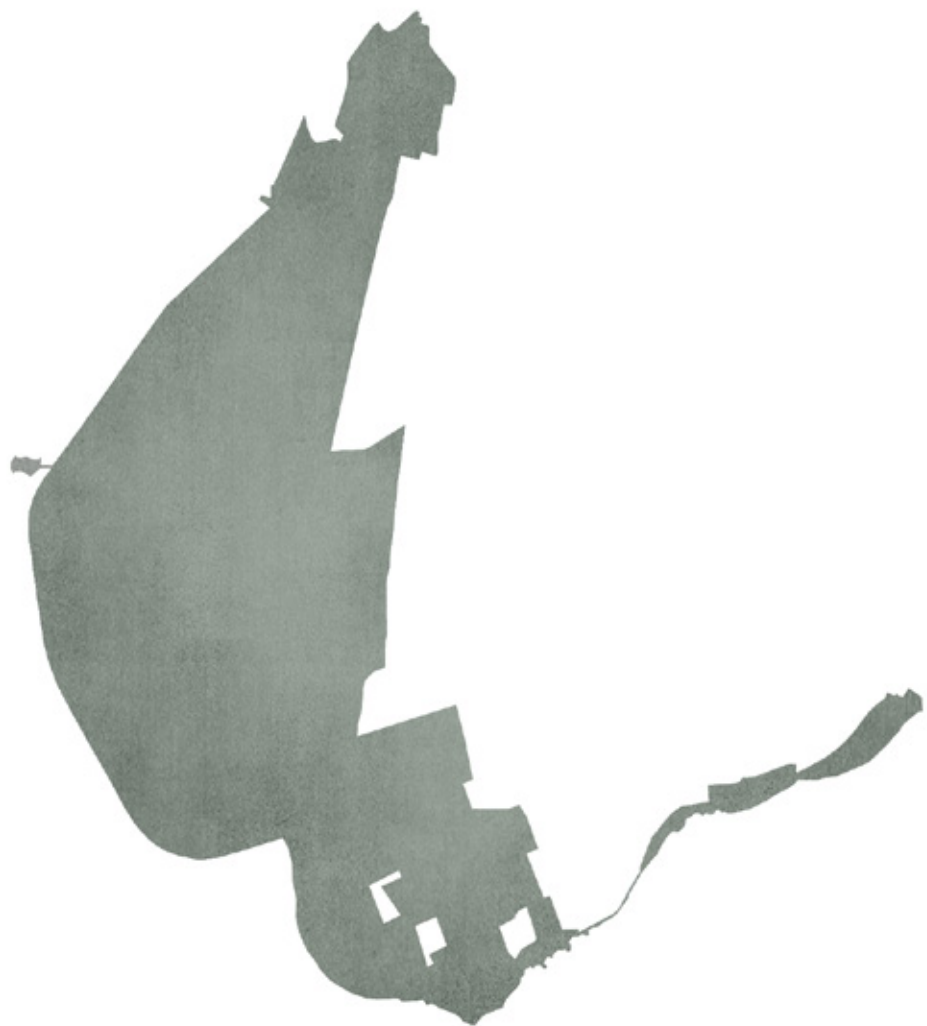
WHERE?

WHAT?

WHY?

A. NATURE PARK AMAGER

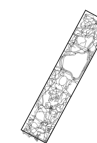
Kalvebod Fælled is part of the “Naturpark Amager”, a unique nature area of 3500 ha, easily accessible and close to the city centre of Copenhagen that offers an immersive experience in nature and is therefore a great destination for many citizens (Danmark. & Naturstyrelsen., 2014). Kalvebod Fælled is more than three times the size of Dyrehaven, almost four times the size of Copenhagen’s city centre and 10 times bigger than Central Park in New York City.



Naturpark Amager
3500 ha.



City Centre, Copenhagen
898 ha.



Central Park, N.Y.
341 ha.



Jaegersborg Dyrehave.
1100 ha.



_ BECOMING A NATURE PARK

It is in 2015 that the Danish Nature Agency together with the municipality of Copenhagen, Tårnby, Dragør and Ørestad (By & Havn) entered into a partnership in order to formally appoint four existing nature areas in Copenhagen that were physically connected with one another (Amager Fælled, Kalvebod Fælled, Kongelunden and Dragør) to what is now known as 'Naturpark Amager'. What is unique about this nature park is that the areas differ from each other and propose different experiences through a variety of nature types and infrastructures:

With a size of 223 ha, **Amager Fælled** is the area furthest North that is closest to the urban environment and is thereby the most known by the citizens. The area is composed of bogs, meadows, lakes, reed forests, varied plants and animal life. (Danmark. & Naturstyrelsen., 2014)

With a surface of 2377 ha, **Kalvebod Fælled** is the largest of the four. The area is composed of different natural elements going from open meadows to a birch forest. The area is unique for its biodiversity and rare bird species that come to breed in the spring. (Danmark. & Naturstyrelsen., 2014)

Kongelunden, an area of 724 ha. is known for its oak forest with trees of more than 150 years old. Similar to Kalvebod Fælled, it contains traces of military practices such as Kongelundsfortet, a fortress built during World War I to protect the city of Copenhagen. Today, it is open to the public as a historical attraction. (Hjorth Rasmussen, 2019)

Dragør Sydstrand is a landscape of 176 ha that is constituted of sandy beaches and reeds, beach ramparts, lagoons and meadows. Similar to Kalvebod Fælled the area has a rich and unique birdlife. This is also a place where people can kite and wind surf. (Danmark. & Naturstyrelsen., 2014)

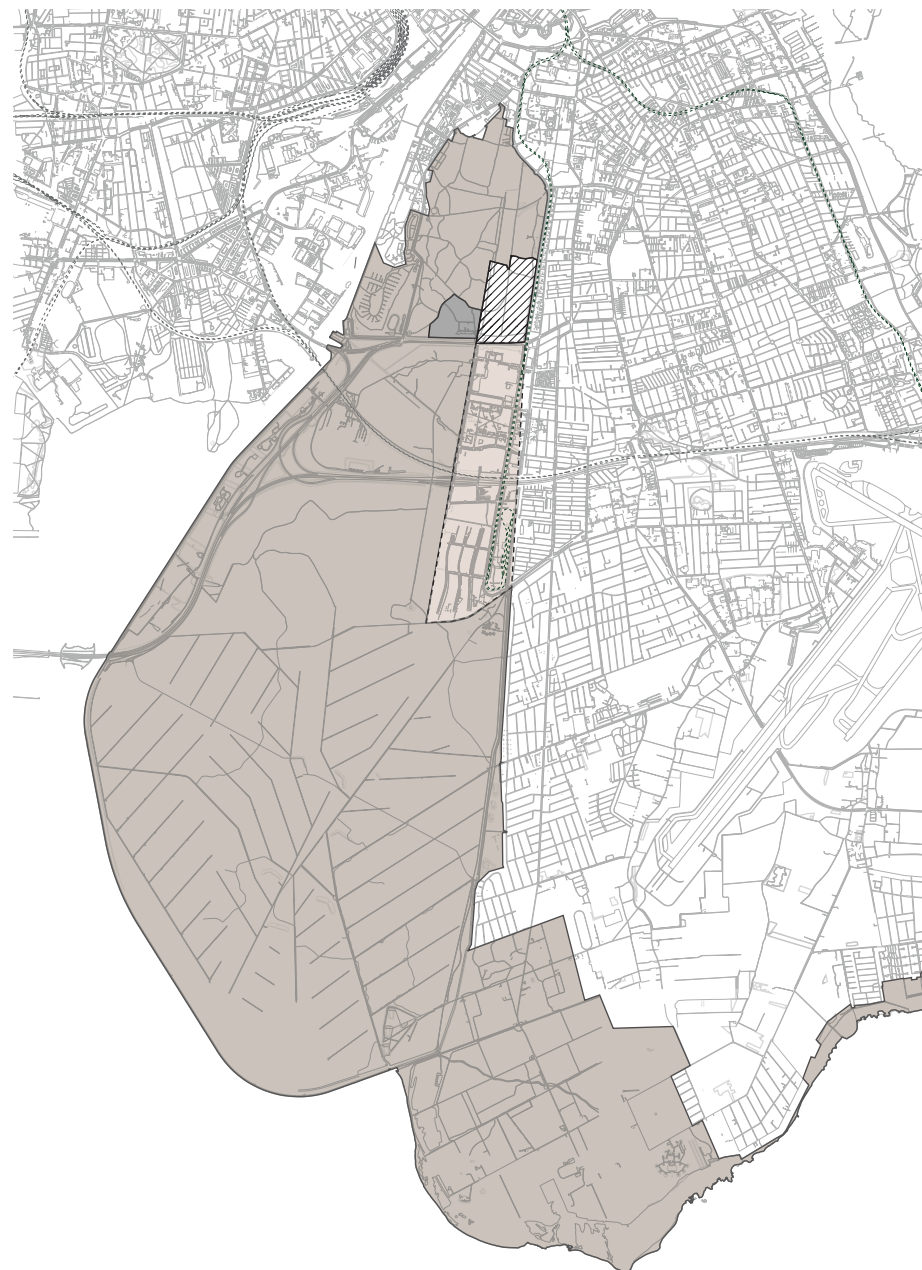
_ VISION OF NATURE PARK AMAGER

As Jes Aagard, member of the Danish Nature Agency and nature supervisor of the nature park, puts it, “pointing out the four nature areas as one single entity was a way to establish the area in Copenhagen, to advertise for it and create a narrative around it for the citizens of the capital.” (J. Aagaard, personal communication, January 28, 2020).

The nature park of Amager is today what you would call a ‘hidden gem’. Most citizens in Copenhagen don’t realise that they have a nature opportunity of this size in such close connection with the urban environment and would probably first think about the Dyrparken if they wanted to be immersed in nature.

The aim of the different municipalities since 2015 has been to rebrand the area in order to attract more citizens locally and regionally and to make the nature park of Amager a real asset for the Danish Capital. Some of the goals the municipalities want to achieve are for example the creation of a good connection to the nature park’s recreational value, the development of new opportunities, experiences and events within the park and a better way of communicating information about the area with for example the development of new support points. One point of particular relevance was to develop the park as “the city’s largest classroom both for primary schools and as a case and inspiration for students in for example, architecture, science, history and pedagogy.” (Danmark. & Naturstyrelsen., 2014, pp. 28)





- Nature Park Amager
- Ørestadt since 1992
- Area that people wanted to keep untouched
- New zones to be constructed as compensation

_ BECOMING A PROTECTED NATURE RESERVE

Between Preservation of Land and Development plans

Naturpark Amager is protected under a very special set up. Unlike other countries where natural zones would be in the hands of politicians and public administrations, Denmark has specially appointed an NGO organization called 'The Danish Society For Nature Conservation' to point out areas in Denmark that should be conserved and protected as natural environments. This has been done in order to prevent natural land from being taken by the city for new development projects. This, however, did not always work:

In 1990, The Danish Society For Nature Conservation claimed what today is known as Naturpark Amager as an area that should be preserved. Even though a legislation was made and agreed upon with the politicians that year, it did not prevent development plans to be made in the area two years later. In 1992, the same politicians, with the agreement of the NGO, took about 400 ha. of land out of the conservation land and planned a development zone today known as Ørestadt.

More recently, controversial political discussions have taken place around a new construction project planned in Amager Faelled. The project was initially launched as a compensation for keeping another area untouched. The masterplan, won by Henning Larsen, has been very disputed by the green NGO's and the citizens. Many political discussions are currently going around this new proposed masterplan (J. Aagaard, personal communication, January 28, 2020).



Graphic 06 (left): Map showing the different development projects in the past years
Graphic 07 (right): People striking against new development plan in Amager Faelled

_ NATURA 2000, AN EU PROJECT TO PRESERVE EUROPE'S BIODIVERSITY

The case of Amager Faelled shows that even if an area is protected by a national NGO organization such as The Danish Society For Nature Conservation, development projects can still happen. This is however not the case for the rest of the nature park because it has been pointed out as a Natura 2000 site by the European Commission and is therefore not only protected on a national but also on an international level.


The Natura 2000 project identifies areas across the 27 member states where the habitat and/or species are considered unique and under threat. The project's mission is to protect Europe's biodiversity. Stretching over 18% of the EU's land area and almost 6% of its marine territory, it is today the largest coordinated network of protected areas in the world (European Commission, 2019).

Why should we care?

Preserving our biodiversity is today one of the biggest challenge of our time. In the last 50 years, we have reduced the population of wild habitats by 60 percent (Fothergill & Scholey, 2019). In Europe, The number of flying insects has dropped by 75 percent (Fothergill & Scholey, 2019) and at least 32% of its 500 wild bird species are currently under threat (European Commission, 2019). This loss of biodiversity can have dramatic consequences globally since all species on earth (including ourselves) live and depend on one another.

In the origin of men, nature was the one who would determine the fate of men's survival. With the age of the Anthropocene (Defined by Etienne Turpin in 'Architecture in the Anthropocene' (2013) as this "yet-to-be formalized term designating an epoch in which human impact is considered to be significant enough to constitute a new geological era for its lithosphere". (Turpin, 2013, p. 12)), we now determine nature's survival and ultimately ours.



 Natura 2000 Area



_ THE RIGHT BALANCE BETWEEN CONSERVATION AND SUSTAINABLE USE

A protected zone does not mean that people cannot have access to it and benefit from it. Even if the park has been for the most part appointed as a Natura 2000 area, it does not mean that people cannot enjoy the benefits of immersive experiences in nature. On the contrary, it is important that society gets to experience, enjoy and learn from this natural environment in order to feel concerned about the area and care after it. (Danmark. & Naturstyrelsen., 2014)

“Natura 2000 is not a system of strict nature reserves from which all human activities would be excluded. While it includes strictly protected nature reserves, most of the land remains privately owned. The approach to conservation and sustainable use of the Natura 2000 areas is much wider, largely centred on people working with nature rather than against it. However, Member States must ensure that the sites are managed in a sustainable manner, both ecologically and economically. (...) The key often lies in the sensitive planning and wise use of resources to ensure they do not end up destroying the very thing upon which they are based.”(European Commission, 2019)

Recreational activities can therefore be developed, as long as they do not affect negatively the habitats and species. This goes along with the vision and mission of the Danish Nature Agency together with the four municipalities taking care of the Amager natural park area. They want to develop the area for more people to enjoy it but they want to do so in a “common suitable framework for the development and conservation of the areas where use and protection go hand and hand, giving new opportunities to experience and understand nature at home” (Danmark & Naturstyrelsen, 2014, p. 6).

B. KALVEBOD FAELLED

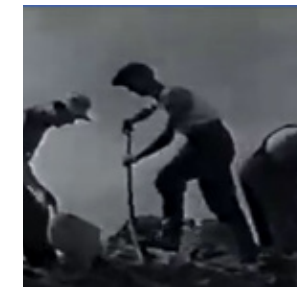
_ A UNIQUE HISTORY

Kalvebod Faelled is not only impressive in terms of its size (2377 ha which is more than half of the nature park's total surface) but also in terms of its unique history. The area is an intertwined story between military use and reclaimed land. If people hadn't built the dike and draining canals, the area would still be under the sea.

Kalvebod Faelled is one of the largest areas that has been reclaimed by people in Denmark (T. Hjorth Rasmussen, personal communication, January 28, 2020). In Denmark, a land would normally be reclaimed by landowners of fields who would pay for a reclamation of land. Kalvebod Faelled was not reclaimed by landowners but by the state for military purposes. The area would probably not be a haven for bird life and a natural reserve today if it would have experienced the 'usual' type of land reclamation by landowners.

In 1939 the legislation authorized the construction of a Dike all around Amager down to Kongelunden and pumped the area dry with a pump station and a system of draining canals. The land was reclaimed from 1941-1943 and was used for military purposes in the early 50's until 1984. The area became open to the public in 2010 when all the grenades were removed from the fields. Some of the grenade impacts and the shooting ramparts can still be seen today as one walks through the asphalt roads that used to serve for the transportation of munitions and tanks. Today, the draining canals and the pumping station are still essential to the survival of this landscape since they regulate the water level year round. If the pump station would stop working, the whole area would be flooded again.

Graphic 10 & 11: Building the new dike Kalvebod Dige. Still frames from the film *Amager bliver større - Ministeriet for Offentlige Arbejder* (1941) about the reclamation of Kalvebod Faelled



Graphic 12: Picture of Amager taken between 1922 & 1939 before the reclamation of Kalvebod Faelled



Graphic 13: Picture of Amager taken between 1922 & 1939



Graphic 14: Picture of Amager taken in 2018



Graphic 15: Picture taken in 1960. Kalvebod Fælled is used for military purpose



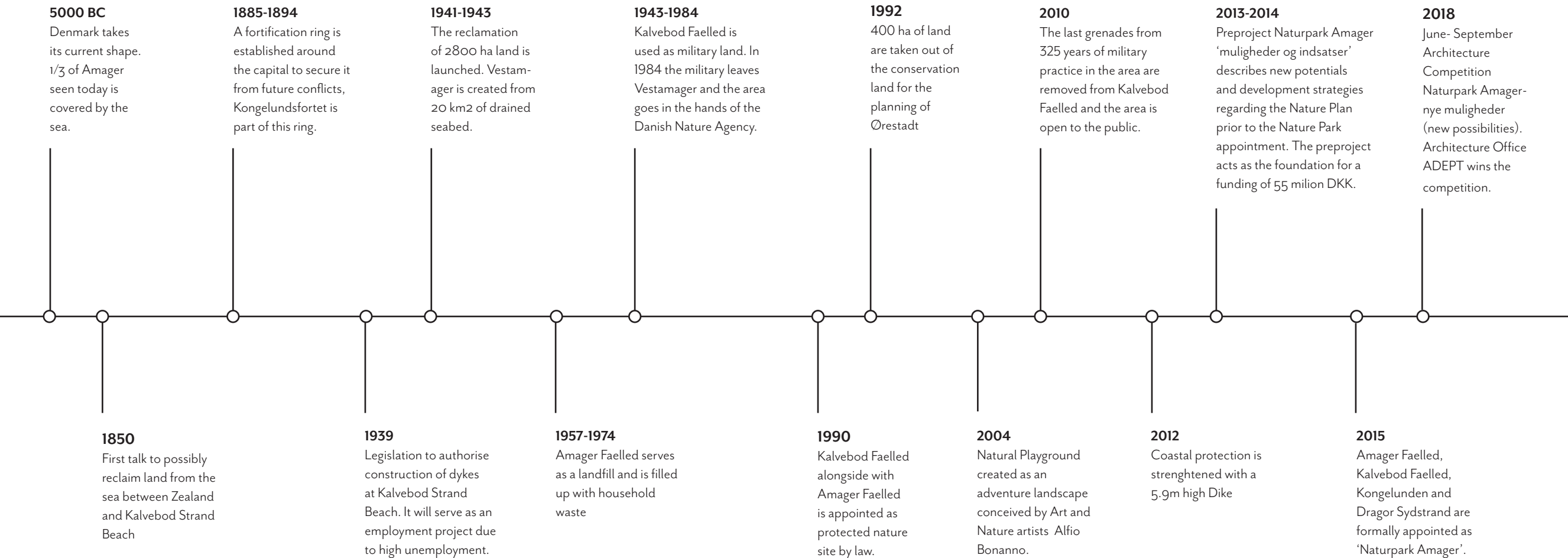
Graphic 17: Old grenade impacts from the Second World War



Graphic 16: Picture taken during the military use of Kalvebod Fælled



Graphic 18: Today, the space is used as a storage space by the Nature Centre



Graphic 19: Brief History Line of Kalvebod Faelled



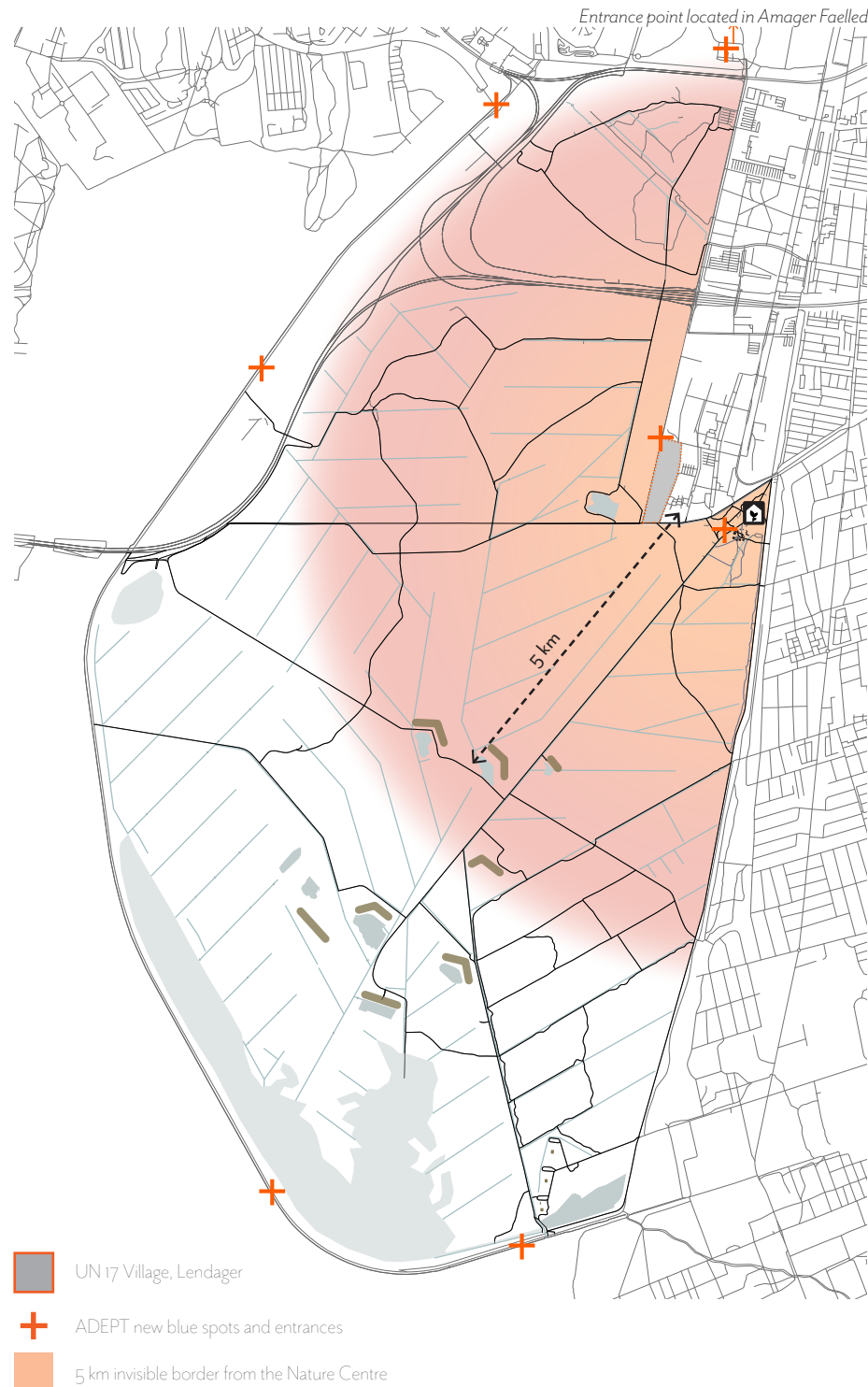
_ A FRAGILE LANDSCAPE

Today, we can already start to feel the effects of climate change. Between the rising sea levels and the dryer seasons, Kalvebod Faelled is under threat.

As a consequence of the rising sea levels, the area is endangered of being swallowed by the sea. In 2012, a coastal protection project took place and strengthened Kalvebod Dige. New dikes will soon have to be built along Kongelunden to improve the protection of the area even further.

Not only is water being pumped out, it is also being pumped into the land for the preservation of the wading birds, one of the target species of the Natura 2000 plan. Since no water is coming into the area besides natural rain, the safety of the wading birds can be endangered if a season is drier than usual. Indeed, the breeding success of this species depends on the meadows: when they hatch from their eggs, the offspring are not being fed by their parents; they have to find the food themselves in the mud zones between water and land. Water is therefore a crucial element for this endangered species during the breeding season. (J. Aagaard, personal communication, January 28, 2020)

The different points mentioned above highlight the vulnerability of Kalvebod Faelled and the strong relationship created over the years between people and the environment. This also shows that this 'natural' landscape was actually artificially made and is still today artificially preserved.



_ VISION AND CHALLENGES

One could easily walk in Kalvebod Faelled and not realise the fragility, history and unique features of this immense landscape. Many of the cultural historical traces are not directly visible and one could take an old shooting rampart for a simple land deformation.

Another challenge pointed out by Jes Aagaard was that most of the people visiting the park would only do so in a range of 5 km from the Nature Centre. The immense landscape and the long straight roads make it hard for people to want to go all the way to the end and grasp the full dimension of the site. Recently, new funding was provided for the creation of new infrastructures. In 2018, five architectural teams were selected to participate in an architectural competition called Naturpark Amager– nye muligheder and asked for a proposal of three new main entrances and four new blue spots across the nature park with the aim to connect better the park with the sea and the city. The competition was won by Adept Architects and the project is currently underway.

It is in this context that I started to think about **what more** could be brought to the table.

When pointing out the existing and developing projects on-going in the area, I noticed that all projects were located at the outskirts of Kalvebod Faelled but that, so far, nothing had been proposed at the centre of it. Even though providing a better access to the area of Kalvebod Faelled is a crucial part of its development, bringing visitors **out** to discover the variety and full dimension of the landscape is also essential.

“Sometimes, it is very hard for me to take people from the nature centre out ‘here’ (showing the southern end of Kalvebod Faelled), because you have this distance, the landscape is so open that it becomes easily very inaccessible. If you walk in a forest and the way is curvy, you always need to go to the next point to see what is behind the hill. Here you have this open area. For a family... this is ‘unendable (...) Kalvebod Faelled needs a space that brings people more into the depth of the landscape “ (J. Aagaard, personal communication, January 28, 2020).



Graphic 21: Example of Path in Kalvebod Faelled. These testify the military use as well.

Graphic 22 (left): The 5km invisible border and the new development areas



C. A PROJECT AT THE HEART OF KALVEBOD FAELLED

In the management plan of Kalvebod Faelled, a facility zone was placed at the crossroad between Svenskeholmvej and Granatvej (J. Aagaard, personal communication, January 28, 2020). Several factors make me believe that a built infrastructure on this site can become a real asset for Kalvebod Faelled:

- . The zone is not part of the Natura 2000 area.
- . By being at a crossroad between two main roads that go in perpendicular directions through Kalvebod Faelled, the site is located in an area with a lot of circulation.
- . It is located near the remains of two shooting ramparts Svenskehøj and Granathøj and could inform the passing visitors on the unique history of Kalvebod Faelled.
- . This zone is a very interesting articulation point both physically and visually.

Visually, one can look back to the city and its infrastructure while on the other side, the immense landscape is being laid out.

Physically, the Granatvej road going from the Nature Centre down to the bird sanctuary is about 5.5 km long. Having an information point along the way will invite visitors to discover the area further out. The zone is also located between two different types of landscape, the 'Faelled', a large grazing area and the 'Pinseskoven' forest. In the future, a new lake will be established next to the old shooting rampart of Svenskehøj which will create a new interesting bird area.

- . One of the points mentioned in the planning of the nature park was to “spread the activities and thereby ease the pressure from some of the most used areas and provide users more space for experiences” (Danmark. & Naturstyrelsen, 2014, p. 28). By placing a new facility at the heart of Kalvebod Faelled, activities will be spreaded more inwards the land and consequently, diminish the pressure of the future development projects along the coast.



Graphic 24: Site Picture, one of the main roads



Graphic 26: Site picture, entrance



Graphic 25: Site Picture, crossroad



Graphic 27: Site picture, on the area

_ AN OUTPOST PROGRAM

Nature Centre Amager was built in the 90's back when Kalvebod Faelled was pointed out as a nature area. The fragmented configuration of the nature centre and the fact that different organisations with various activities are present in the same area can, at first sight, seem quite confusing to a visitor that wouldn't be familiar with it. With the recent development projects happening around the nature centre and Kalvebod Faelled, the building has the risk of becoming outdated in the next years.

Proposing a new facility as an 'outpost program' of the Nature Center Amager will not only support the existing infrastructures, it will also add value to it. In line with the vision of the different municipalities that seek to enhance the branding of the nature park and attract new visitors, my project will introduce a new type of use.

The centre is owned by the Danish Nature Agency but different organisations take part in it and propose different types of activities to different users. These different organisations are the municipality of Copenhagen, the municipality of Tårnby and the Forest Assistants.

In order to propose a new type of use, it was important to first assess the activities taking place in the Nature Centre. The next page shows the different activities that take part in the centre with the different organisations linked to it.



Graphic 28: Existing picture of the nature centre.

Graphic 29: The relation between the nature centre and the project



1. The Forests Assistants are an eco-social program that provides work and education for young people with special needs.
2. Traktørstedet is a small restaurant that can be rented for private events.
3. The municipality of Copenhagen proposes a nature school for young children of the municipality.
4. A Storage- Depot space
5. Toilet facilities accessible to everyone
6. Forest guard house- Staff Room
7. The municipality of Tårnby has also a nature school that serves the primary schools of the municipality. Today, they are bringing a new focus into the nature centre by extending their nature school for children in the kindergarten (0-6 years old).
8. The open-air house is the main attraction point for visitors and is run by the Danish Nature Agency. The facility gives information to visitors about the nature park, ideas for activities and allows them to rent equipment such as bikes and outdoor gear.
9. A Playground was recently built in 2004 as an adventure landscape by artist Alfio Bonanno
10. A small riding club is also available nearby

#FridaysForFuture

_ INTRODUCTION OF A NEW USERGROUP

Currently, the Nature Centre proposes education facilities for kindergarten and for young children. However, there is no facility at the disposition of academic students who are eager to find solutions to fight the negative impacts of climate change. One just has to look in the newspapers to see how the youth is today much more aware of the climate crisis and gets frustrated about how little the subject is being covered in class (Neubauer, 2019, l. 1.09). This movement started in 2018 with Greta Thunberg in Sweden, Stockholm and snowballed further into a global movement. It is in that context that #FridaysforFuture was created, a people's movement following the call from Greta Thunberg to school strike.

As described on the Global Climate Strike website, *“children are required to attend school but with the worsening Climate Destruction, this goal of going to school begins to be pointless. This young generation is mainly criticizing the inaction of the government facing the climate emergency”* (Global Climate Strike, n.d.)

Academic students are a target group that could also benefit greatly from immersive experiences in nature and could not only learn but also provide answers to ongoing problematics.

_ A LEARNING CENTRE FOR BIODIVERSITY ACCESSIBLE TO ALL

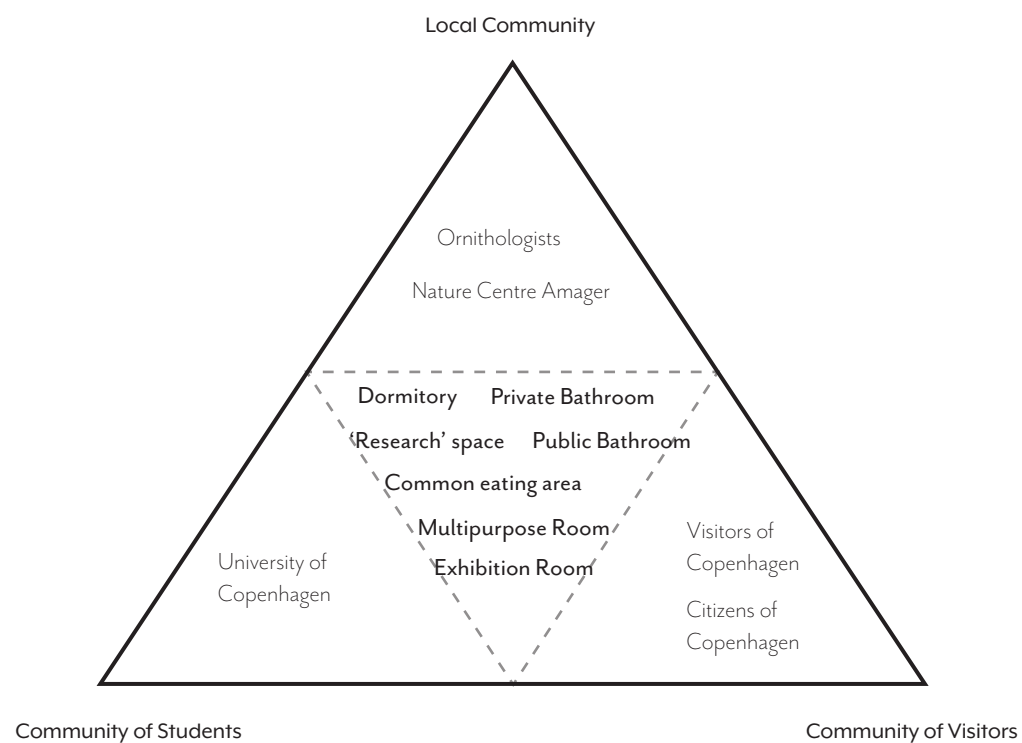
By being located along one of the important migratory routes between northern Scandinavia and Southern Europe, Kalvebod Faelled is a haven for endangered species such as the marsh harriers or the Eurasian curlews. The fact that the area was pointed out as a Natura 2000 area both in terms of its habitat and species demonstrates how fragile and unique the biodiversity is in this area.

The term biodiversity or 'biological diversity' can be defined as *"the scientific term for the variety of life on Earth that refers not just to species but also to ecosystems and differences in genes within a single species"* (European Commission, 2019)

Over the years, many documentaries have appeared to bring biodiversity and the threats it faces into the mainstream. However, it is hard to translate these documentaries into concrete actions and behavioural changes.

The project proposes to establish a learning centre for biodiversity as an outpost program of the existing nature centre at the heart of Kalvebod Faelled. Currently, the area provides outdoor shelters to spend the night but there are no facilities that can enable camps of longer stays throughout the year.

The facility will enable academic students to conduct research on the fragile biodiversity of the nature park and Kalvebod Faelled and give them the opportunity to be fully immersed in the environment they are investigating for a couple of days. At the same time, the facility will be open for visitors and for the local community such as ornithologists or people from the nature centre in order to create a new type of knowledge exchange that benefits all users of the area. The aim is to create situations which intensify the diversity of use and create a new type of knowledge exchange between different communities. This supports the vision that was set for the nature park which was to have the area developed as *"the city's largest classroom"* (Danmark. & Naturstyrelsen., 2014, p. 28).



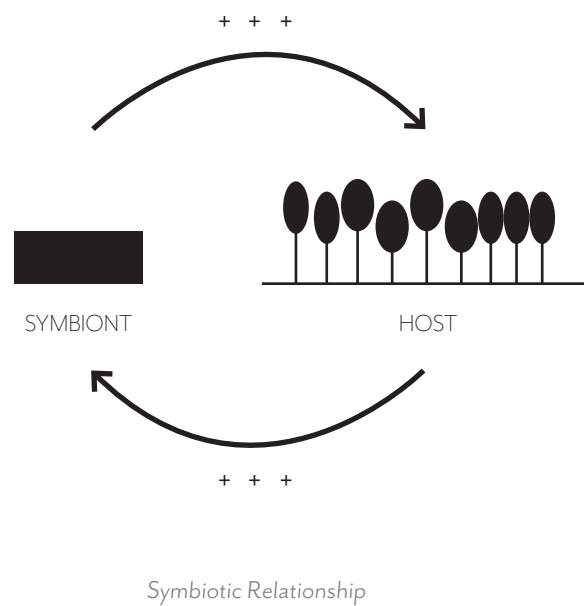
The Learning Centre for Biodiversity will propose the following facilities:

- . A multipurpose room where students, visitors and locals can meet and where small conferences and events related to biodiversity can be held.
- . Small flexible exhibition space informing visitors about Kalvebod Faelled.
- . Dormitory (capacity for 20 people)
- . Rudimentary public and private bathroom
- . Common eating area for the students and the locals that can be simultaneously used as a space to gather the day's findings before exploring them further at university.

“Architecture at its best is about providing a constructed environment which, on the one hand, contributes as little as possible to further ecological destruction, and on the other produces spatial and aesthetic experiences that enable new forms of subjectivity and new forms of social engagement to emerge. Architecture is capable of not only developing new forms of design, but also new materials that are attentive to the habitat from which they are taken, as well as the habitat to which they now contribute. This is an architecture in which humans, designers and builders, as well as inhabitants, come to acknowledge the debt they owe to the natural forces that make their endeavours possible. Such an architecture is not only possible, but actual, even though it tends to defy the usual conditions under which architecture is commissioned and built.”

Elisabeth Grosz in a conversation with Etienne Turpin (Turpin, 2013, p. 136)

In resonance to Elisabeth Grosz’s this project will gravitate around themes that investigate the relationship between architecture and the natural environment.



_ THE PROJECT AS A SYMBIONT

Symbiotic is used to describe a relationship between two different living creatures that live close together and depend on each other in particular ways, each getting particular benefits from the other. (Oxford Learner's Dictionaries, 2020)

A Symbiont, a term used in microbiology refers to an organism that is very closely associated with another, usually larger organism called a host. A Symbiont can live on, in, or sometimes very near its host. The Symbiont and the host have a symbiotic relationship and benefit from one another.

In a way, a symbiotic relationship already exists between the infrastructure created by people and the natural environment since without the system of draining canals, the dike and the pump station the area would disappear. In return, people can currently enjoy this natural environment and hold different outdoor activities.

How can the project improve this ongoing relationship and limit the constraint on the ecosystem? The project will be 'the symbiont' while Kalvebod Faelled will be considered 'the host'.



Graphic 34: Kalvebod Faelled 20.01.2019



Graphic 35: Kalvebod Faelled 20.01.2020

_ TEMPORAL ARCHITECTURE

“A region of desert is a real place of consciousness of the self. A place, like a river, where we can leave traces which will be extinguished soon.”

Robert Smithson (Smithson & Flam, 2000, p. 179)

The steps of someone walking on the shoreline of the sea disappear almost instantly. This led me to think about the notion of temporality in architecture. Nature is dynamic while architecture is static. However, while nature will constantly renew itself, architecture has a finite destiny: *“A building has a finite life, even if it extends beyond its currently living occupants; it tends to become rubble without active intervention. (...)”* (Turpin, 2013, p. 130)

How will the project relate to this notion of temporality? How will it respond to an ever changing landscape that constantly affects those that inhabit it?

These two pictures have been taken on the same day a year apart. Kalvebod Faelled is an ever changing landscape, constantly moving, changing. How does the built infrastructure respond to such type of phenomena?

_THRESHOLD SPACES: BETWEEN NATURE & BUILT ENVIRONMENT

Robert Smithson is known for representing sites and situation in “all their temporal and psychic density” (Marot & Architectural Association, 2003, p. 36).

In his work, the artist questions and gets involved with the relationship between ‘the indoor’ and ‘the outdoor’. This will lead to the dialectic in his work of ‘sites’ and ‘non sites’, the site being this “physical, raw reality-the earth or the ground that we are not aware of when we are in an interior room or studio’ and the ‘non site’ what he mentions as being “the abstract container” (Smithson & Flam, 2000, p. 178).

Using Smithson’s words and translating it into the context of the project, I find the dialectic between the man made ‘abstract-container’ and the ‘raw reality’ of the earth of particular relevance in the context of Kalvebod Faelled.

What will be the relationship between the building and the natural surroundings? How will the project mediate the transition from the external to the internal environment?





The previous elaboration on the context, the program and the themes have led to the following thesis statement:

How can one envision a Learning Centre for Biodiversity at the heart of Kalvebod Faelled that has a symbiotic relationship with the natural environment?



_ UN Goal 4 : QUALITY EDUCATION

“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (Institut for Bygningskunst og Teknologi, 2018, p. 32)

This project will provide a new type of educational space, immersed in nature, that will give the opportunity to academic students to conduct research on biodiversity and develop innovative solutions to one of the world’s currently greatest challenge: the endangered biodiversity. By being inclusive to other users of the park such as local experts and tourists, it generates a circular learning environment beneficial for all.



_ UN Goal 12 : RESPONSIBLE CONSUMPTION & PRODUCTION

“ Ensure sustainable consumption and production patterns” (Institut for Bygningskunst og Teknologi, 2018, p. 100).

“ The building industry is a major contributor to waste”(Institut for Bygningskunst og Teknologi, 2018, p. 101). Thinking about the relationship between the building and its lifespan will require to reflect on a responsible consumption and production of materials in relation to the natural environment.



_ UN Goal 15: LIFE ON LAND

“ Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss” (Institut for Bygningskunst og Teknologi, 2018, p. 126).

The project is a learning centre for biodiversity that will also raise public awareness around the biodiversity of Kalvebod Fælled and its preservation. The aim of creating a building that will create a symbiotic relationship with the environment ensures the sustainable conditions of the project and will support the fauna and flora of the site.

II.

TOOLBOX



_ PROJECT FRAMING

. The project will be around 400 m2

_ METHOD

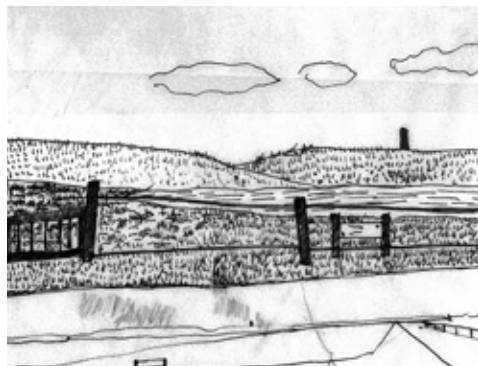
“(...) the way the artists thinks- somewhat like a dog scanning over a site. You are sort of immersed in the site that you’re scanning. You are picking up the raw material and there are all these different possibilities. (...) My non sites in a sense are like large, abstract maps made into three dimensions. You are thrown back onto the site” (Smithson & Flam, 2000, p. 181).

The process of making architecture is a lot about the non-verbal understanding. Over the course of the project, data will be collected on site and will include photographic observations, maps, material samples, sketches etc. All these will be gathered in an Atlas, or in the words of Tom Emmerson, an incomplete and subjective survey of a site. *“It bears all the naivety of the outsider’s gaze, however it is also a record, an attempt to retain something and to look more carefully for a future in what is there” (Studio Tom Emerson ETH Zürich, 2012).* The aim is to learn as much as possible from the existing landscape and be inspired by it.

Other ‘non verbal’ understandings will be used throughout the process of the project:

- . A collection of diagrams will explain the stragic aspects of the project
- . Physical models will serve as an exploration tool in terms of, for example, the building’s volumetry.
- . Perspective illustration will express the spatial aspects of the building

I will also engage with various stakeholders related to the site throughout the course of the project.



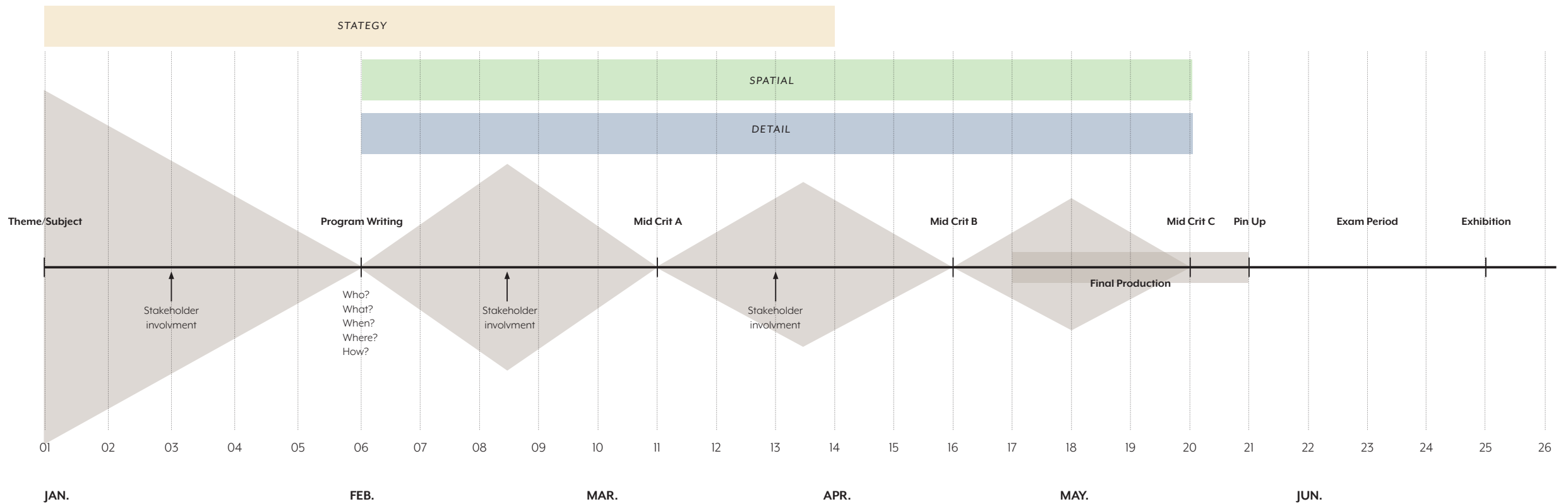
_INDICATIVE DELIVERABLES

The deliverables will present the Strategic, Spatial and Detail aspects of the project.

- . Atlas & Process booklet
- . Context Drawings (site plan & site elevation)
- . Series of diagrams expressing the concept and the strategic aspect of the project
- . Plans (1.50 plan drawings)
- . Perspective images
- . Detailed perspective section (1.20)
- . Process Table displaying process models, material samples & conceptual sketches

_ SCHEDULE

The Double Diamond Model will be used as part of the design process and will be iterated throughout the process of the project. Following the Model's process of first discovering and defining, then developing and delivering, in each iteration, there will first be a phase of divergent thinking, exploring the issues widely (discover-define). This is also a moment when the stakeholders will be involved in the process. The next phase will be focused on action and convergent thinking (develop-deliver). The strategic, spatial and detail aspects of the project will be explored simultaneously.



■ Double Diamond.

_ ACKNOWLEDGEMENT

I wish to thank Jes Aagaard for all those precious informations and insights on the nature park and Kalvebod Faelled. Thanks to Terese Hjorth Rasmussen for showing me your thesis work on Kalvebod Faelled and giving me access to those great archive pictures of the area. Also a great thanks to my supervisor Nicholas Thomas Lee for dedicated supervisions.

_ LITTERATURE

. Aagaard, J. (2020, January 28). Interview of Jes Aagaard at the Nature center of Amager [Personal communication].

. Danmark., & Naturstyrelsen. (2014). Naturparkplan 2015-2020: Naturpark Amager

. European Commission. (2019). Why do we need to protect biodiversity? Retrieved February 2, 2020, from https://ec.europa.eu/environment/nature/biodiversity/intro/index_en.htm

. European Commission. (2019). Natura 2000 Retrieved February 2, 2020, from https://ec.europa.eu/environment/nature/natura2000/index_en.htm

. Fothergill, A., & Scholey, K. (2019, May 4). Our planet. <https://www.ourplanet.com/en/video/how-to-save-our-planet>

. Global Climate Strike. (n.d.). Global Climate Strike. Retrieved January 13, 2020, from <https://globalclimatestrike.net>

. Hjorth Rasmussen, T. (2019). Absence/ Presence.

. Hjorth Rasmussen, T. (2020, January 28). Interview with Terese Sofie Hjorth Rasmussen [Personal communication].

. Institut for Bygningskunst og Teknologi, K. (2018). An Architecture Guide to the UN Sustainable Development Goals. KADK. https://kadk.dk/sites/default/files/downloads/event/un17_guidebookcover_17.12.18.pdf

. Laura Stevens: The beauty of getting lost. (2018, June 1). British Journal of Photography. <https://www.bjp-online.com/2018/06/never-have-i-felt-such-cold-water/>

. Marot, S., & Architectural Association, A. A. (2003). Sub-urbanism and the art of memory, A subversion of urbanism. AA Publications.

. Munck Petersen, Rikke., Københavns Universitet., & Institut for Geovidenskab og Naturforvaltning. (2015). Naturpark Amager—Muligheder og indsatser: Katalog. Institut for Geovidenskab og Naturforvaltning, Københavns Universitet; /z-wcorg/.

. Neubauer, L. (n.d.). Why I became a climate activist—And you should, too | TEDxYouth@München. Retrieved January 14, 2020, from <https://www.youtube.com/watch?v=WsfacjPOBlw>

. Oxford Learner's Dictionaries | Find definitions, translations, and grammar explanations at Oxford Learner's Dictionaries. (n.d.). Retrieved February 6, 2020, from <https://www.oxfordlearnersdictionaries.com/>

. Smithson, R., & Flam, J. (2000). Robert Smithson, the collected writings. University of California Press.

. Studio Tom Emerson ETH Zürich. (2012). Studio Tom Emerson: Galway Atlas 1 & 2. ETH.

. Turpin, E. (2013). Architecture in the Anthropocene. Open Humanities Press. <https://www.doabooks.org/doab?func=search&query=rid:16371>

_ MEDIA

. Amager bliver større - Ministeriet for Offentlige Arbejder (1941), Available at: <https://www.facebook.com/amagerlove/videos/851018278345666/> (Accessed: February 5th 2020)

. Kalvebod Strand inddæmmes (1940), Available at: <https://www.dr.dk/bonanza/serie/667/ugerevy/10265/kalvebod-strand-inddaemmes?fbclid=IwAR3RQYsyUWkPgmsELpDvjwMKaBz91WKgzWDyH3-Q8KnONQW5l-gHtn8tF58> (Accessed: February 5th 2020)

_ GRAPHICS

All Graphics and Pictures have been made by the author except for:

Graphic 03: retrieved from Hjorth Rasmussen, T. (2019). Absence/ Presence, p.22

Graphic 07: Bevar Amager fælled demonstration 2018. (n.d.). Retrieved February 5, 2020, from <https://www.gamle-dage.dk/2018/08/26/bevar-amager-faelled-demonstration-2018/>

Graphic 10 & 11: Still frames from Amager bliver større - Ministeriet for Offentlige Arbejder (1941), Available at: <https://www.facebook.com/amagerlove/videos/851018278345666/> (Accessed: February 5th 2020)

Graphic 12 & 13: Danmark set fra luften 1922-1939. Available at: <http://www.kb.dk/danmarksetfraluften>.

Graphic 19: History line of Kalvebod Faelled. Information retrieved from <https://eng.naturstyrelsen.dk/experience-nature/in-the-countryside/kalvebod-faelled/history/> & Hjorth Rasmussen, T. (2019). Absence/ Presence.

Graphic 15 & 16: Eskadrille 532 NIKE - www.nyluftvet.dk. (n.d.). 123hjemmeside.dk. Retrieved February 5, 2020, from <http://www.nyluftvet.dk/297379178>

Graphic 36: Tsai, E., Butler, C., & The Museum of Contemporary Art, L. A. (2004). Robert Smithson. University of California Press. Retrieved p.27

