



***REVIVE THE  
SPRENGENBEEK  
LANDSCAPE***

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Circular Water Stories  
02/09/2022

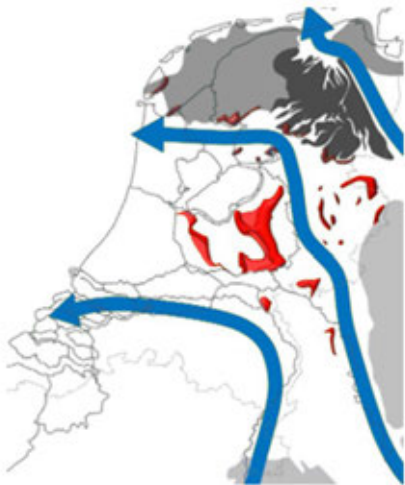
# THE STORY OF SPRENGENBEEK IN THE PSAT



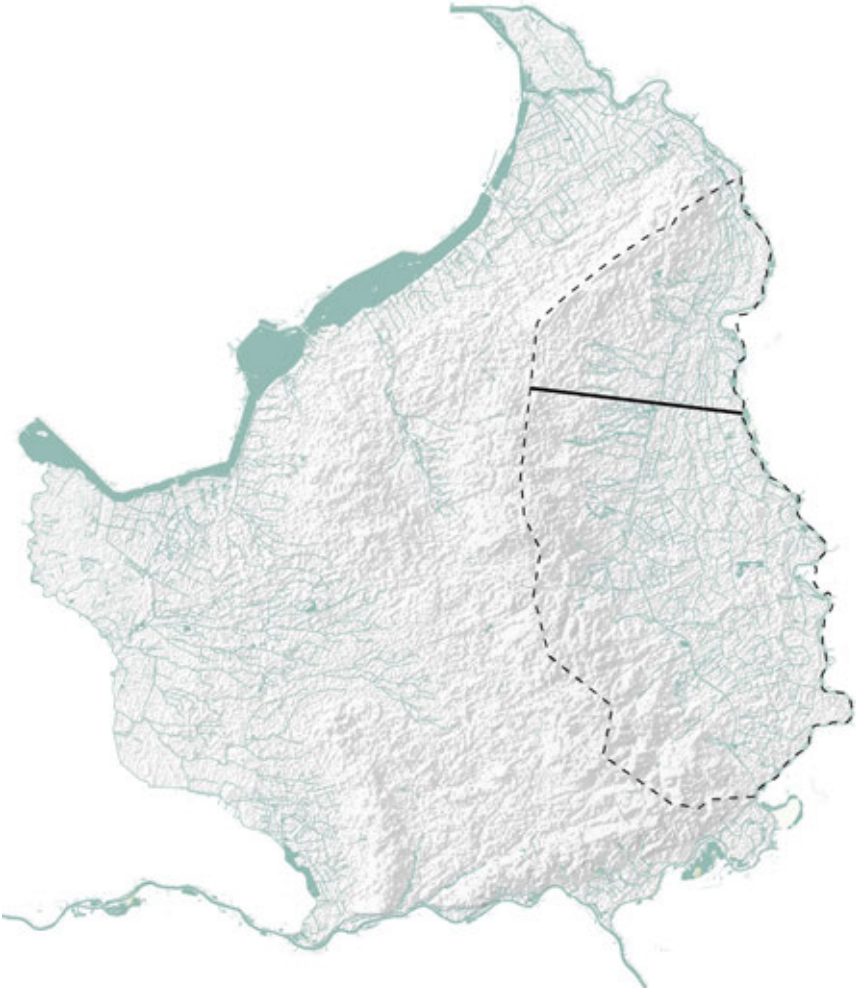
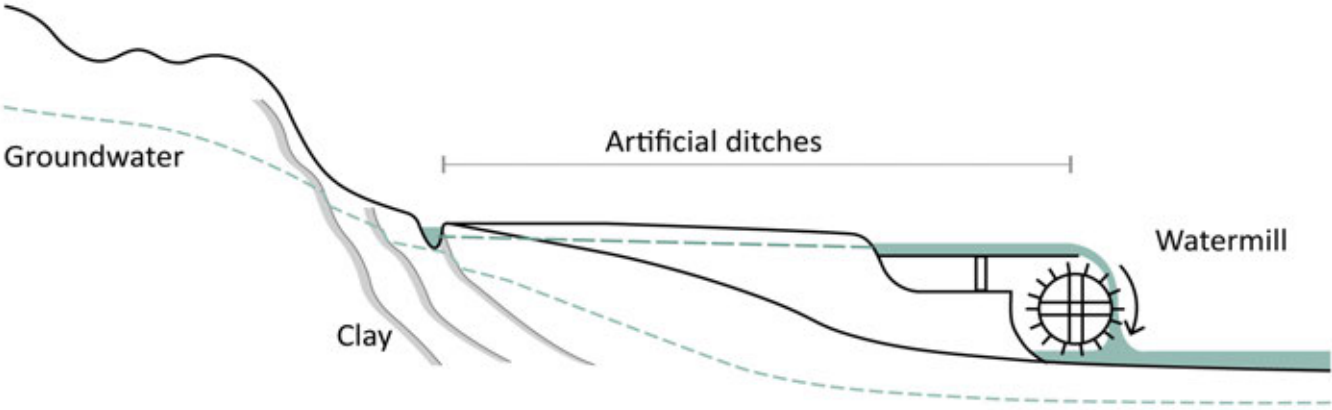
Water driven landscape



# HOW COULD THE SPRENGENBEEK EXIST?



# HOW DOSE THE SPRENGENBEEK WORK?

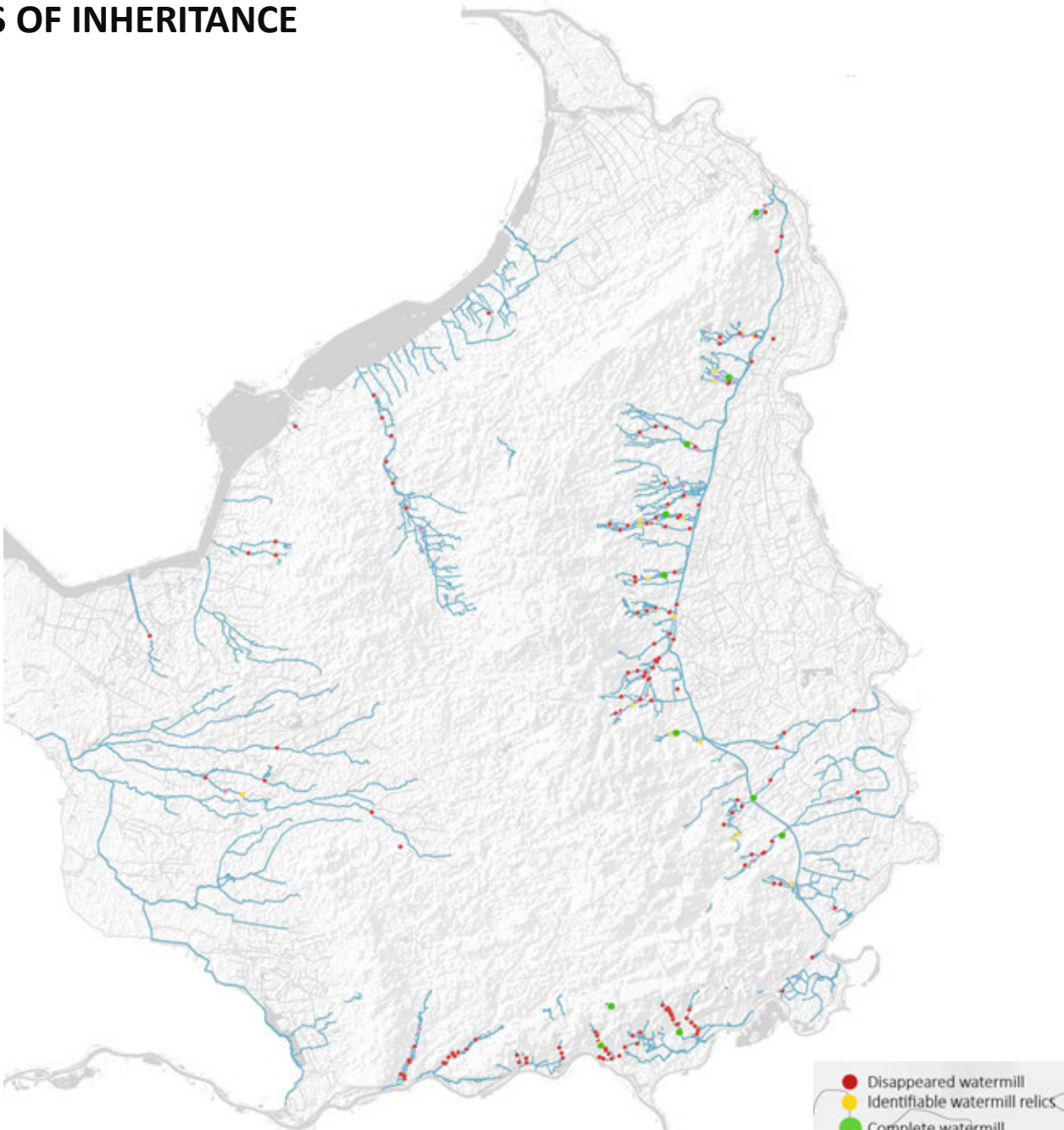


# DIVERSE SPRENGENBEEK LANDSCAPE

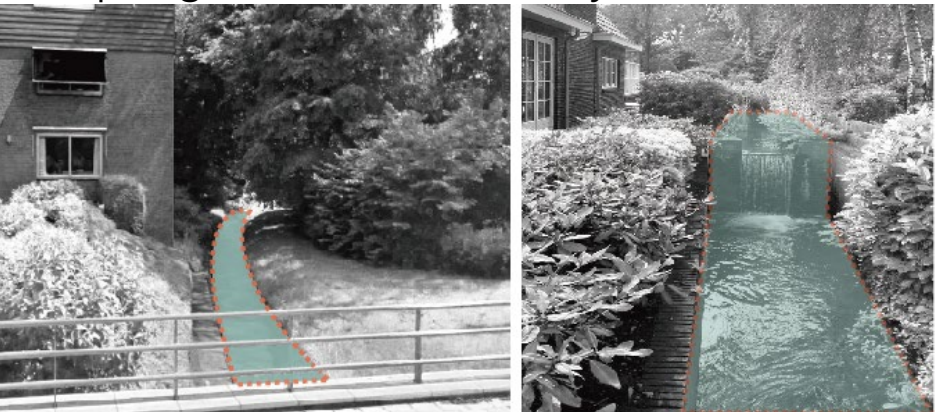


How's The Sprengenbeek Landscape Nowadays ?

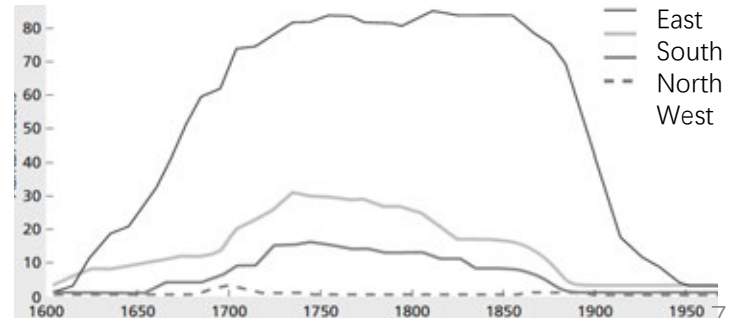
# LOSS OF INHERITANCE



1. Springs are invisible in city area



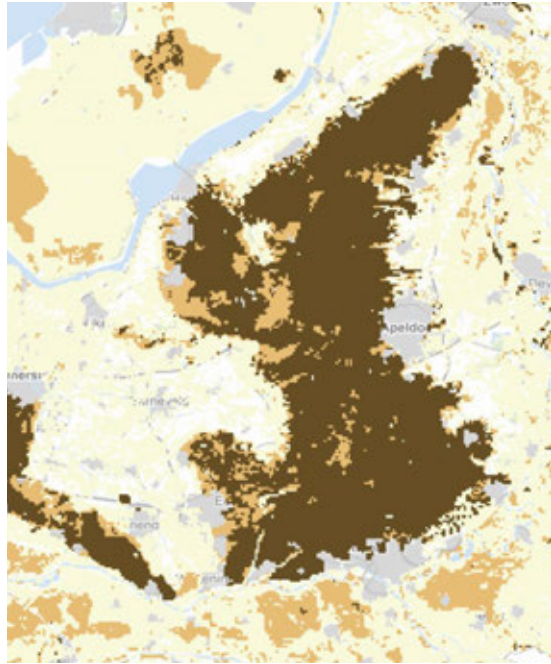
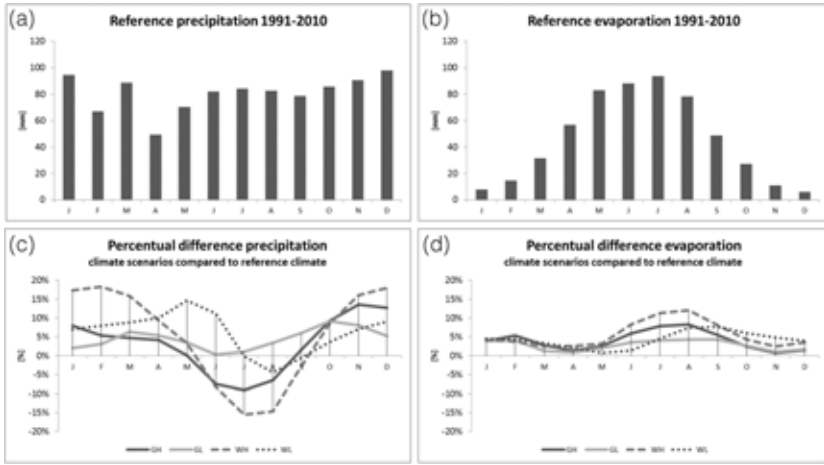
2. The watermill are demolished



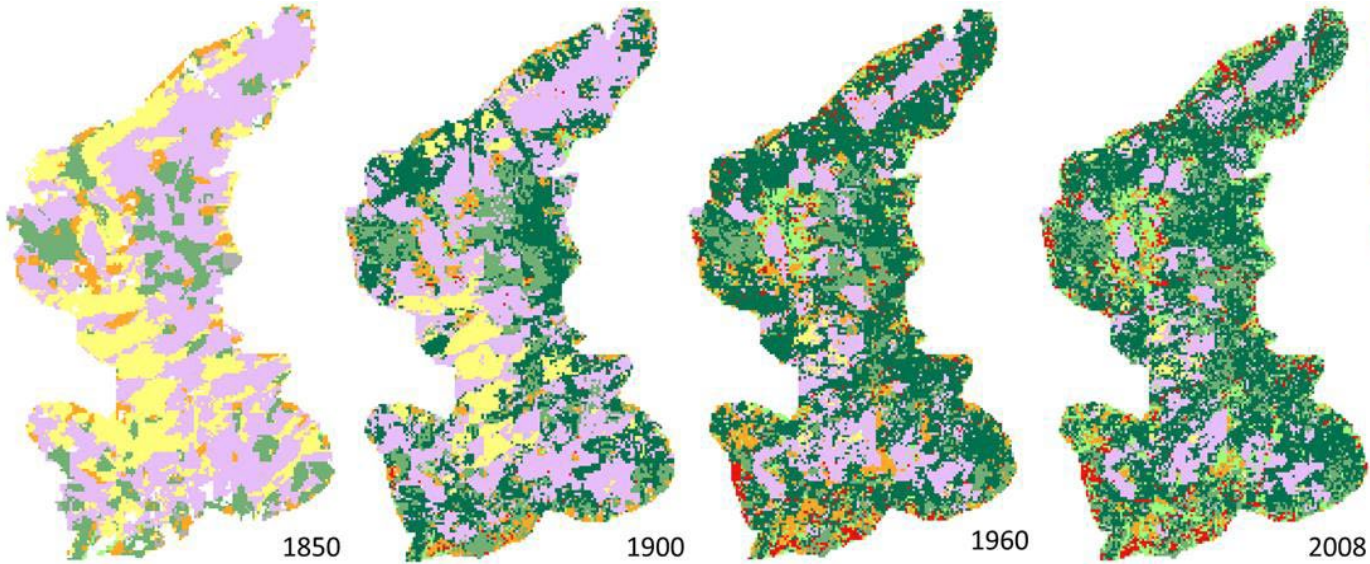
Souce: K, Nijuis (2018 )De waterbalans van de Veluwe in historisch perspectief

# DROUGHT AND FLOOD

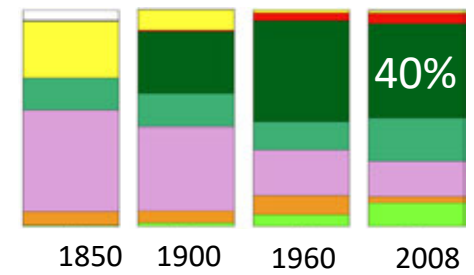
Reason 1 :Climate change



Reason 2 :Land use changes



- Bare sand
- Heath
- Deciduous forest
- Coniferous shrub
- Grassland
- Farmland
- Heritage Villa
- building



1. The dried up Sprengenbeek (Summer)



2. The Flooding Sprengenbeek(Winter)



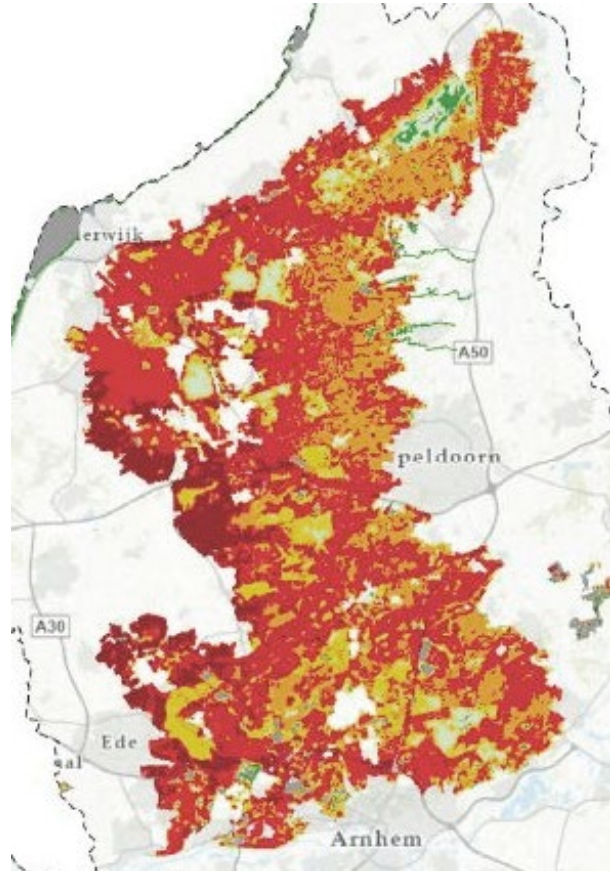


# INTENSIVE AGRICULTURE

Pasture map in Veluwe



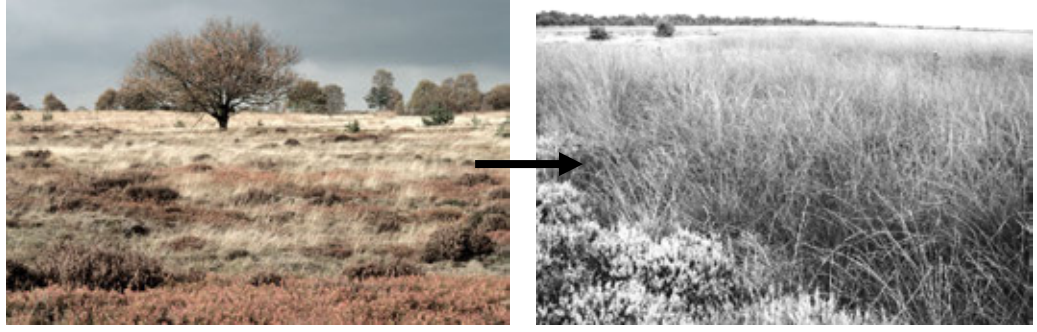
Nitrogen excess



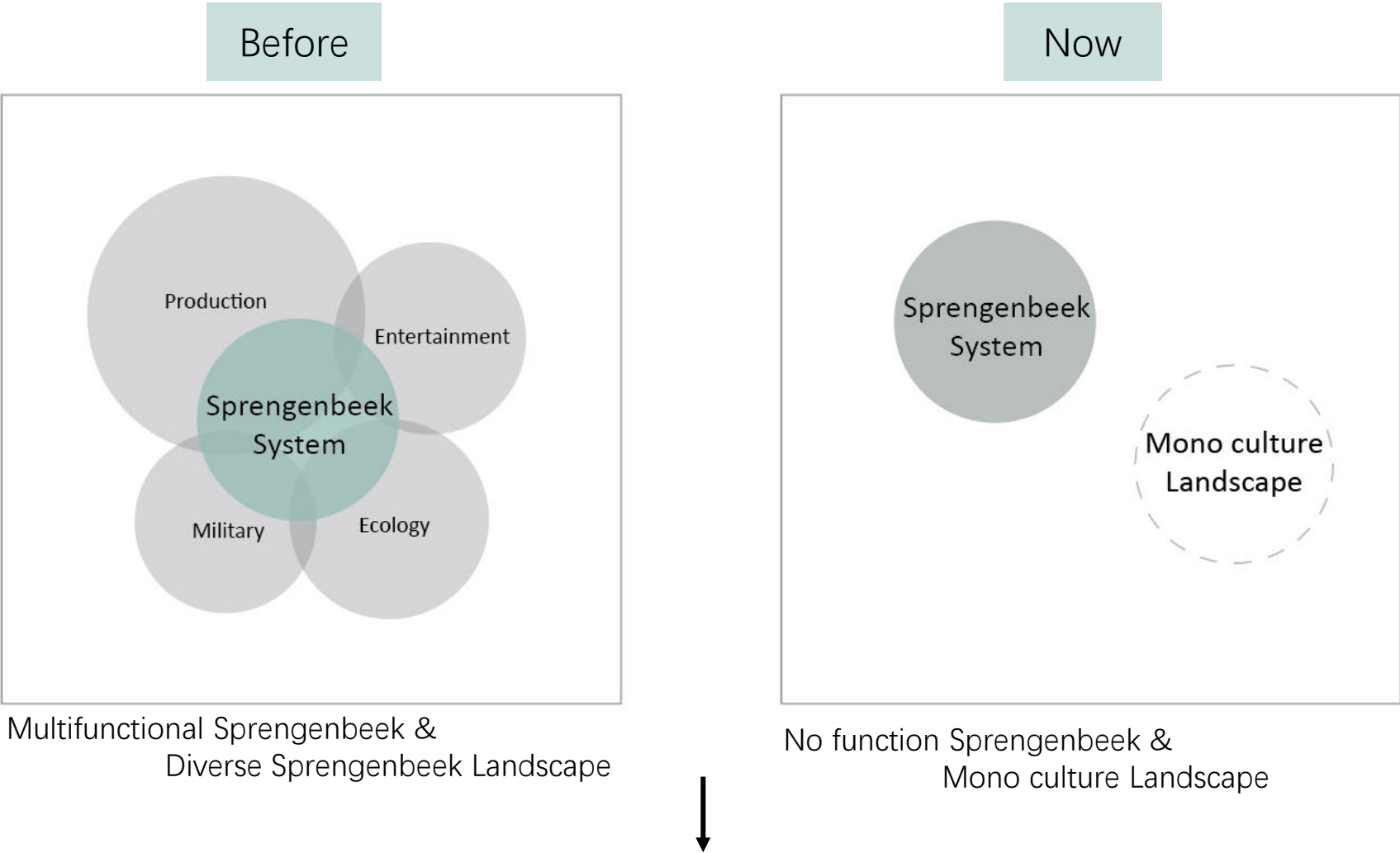
## 1. Sprengenbeek & Landscape Losing Identity



## 2. Acidified soil & Lose of biodiversity



# PROBLEMS STATEMENT

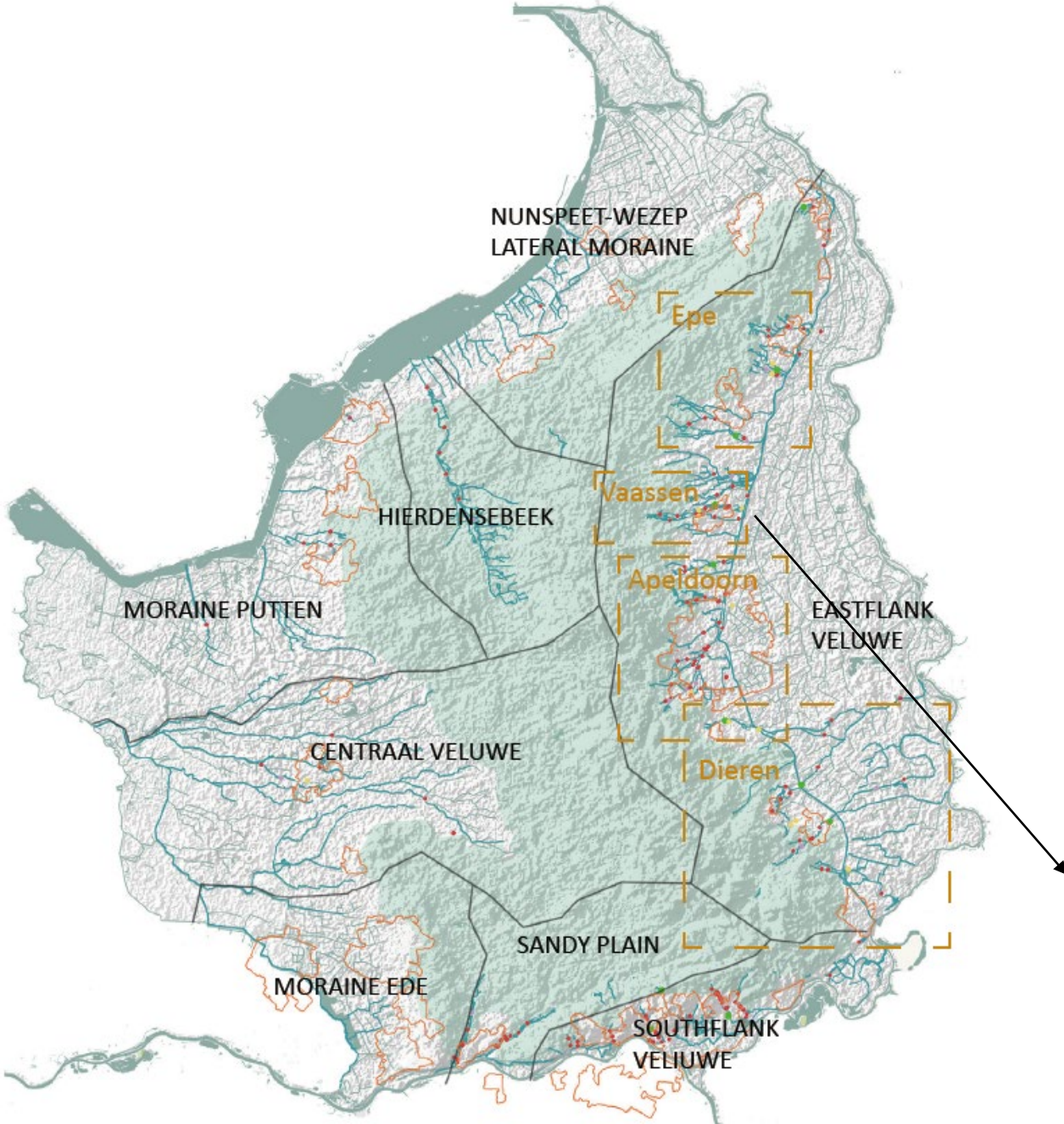


The Sprengenbeek System used to be multifunctional and has been strongly connected with the local cultural landscape. However, nowadays the Sprengenbeek is facing loss of Inheritance, risk of flood & drought, and it is also no longer linked to the landscape context which is monoculture.

## RESEARCH QUESTION

"How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improve its ecological and heritage values?"

# SITE SELECTION



## Criteria - Complete Sprengenbeek landscape:

- Rich in historical elements
- Urban areas
- Rural areas



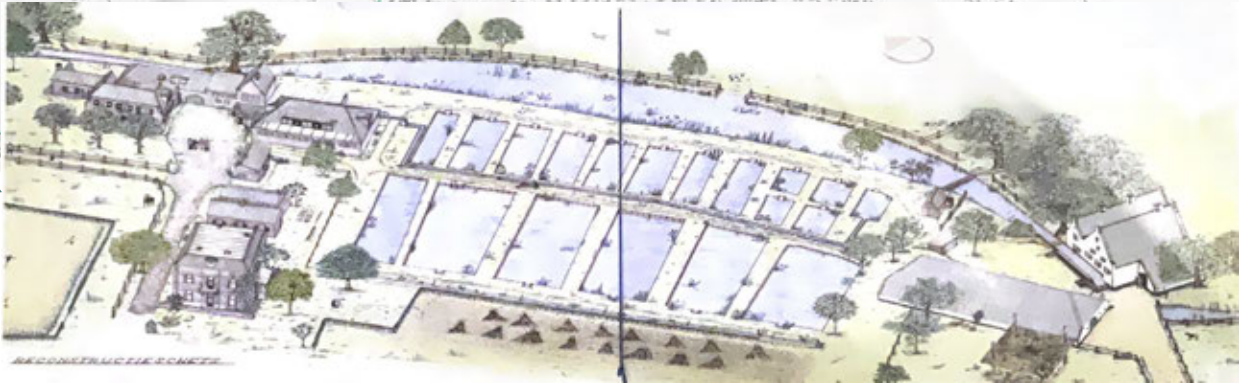
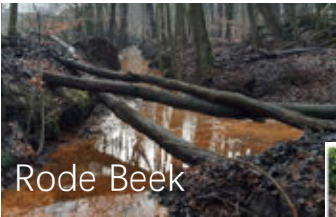
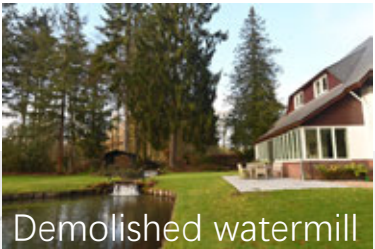
# SPRENGENBEEK WATER SYSTEM



- Hartense molenbeek
- Geelmolense molenbeek
- Rode beek
- Nieuwe beek
- Dorpse beek
- Peilsloot
- - - Old disappeared beek
- Artificial beek
- Separate ponds
- Disappeared watermill
- Identifiable watermill relics
- Complete watermills



**HISTORICAL ELEMENT**



# ECOLOGY VALUE



bullhead fish



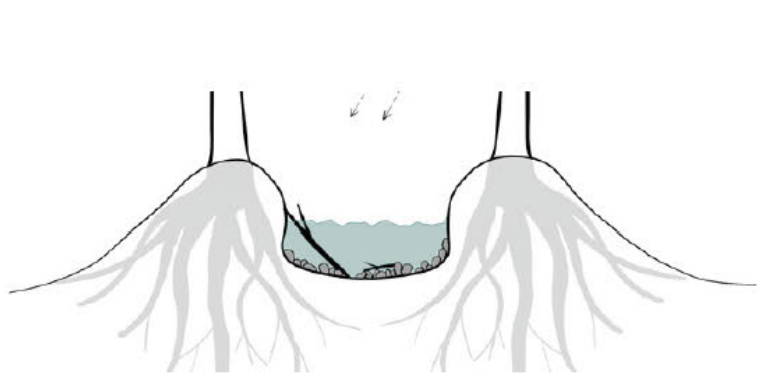
brook lamprey



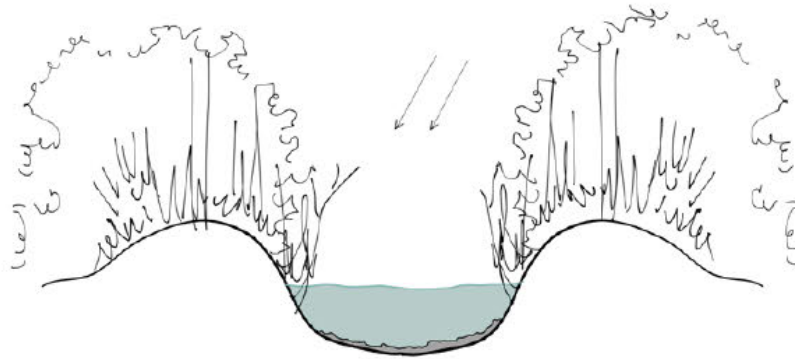
kingfishers



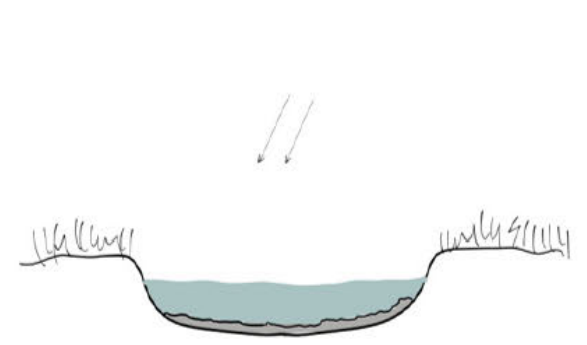
sandpipers



Upstream artificial stream section



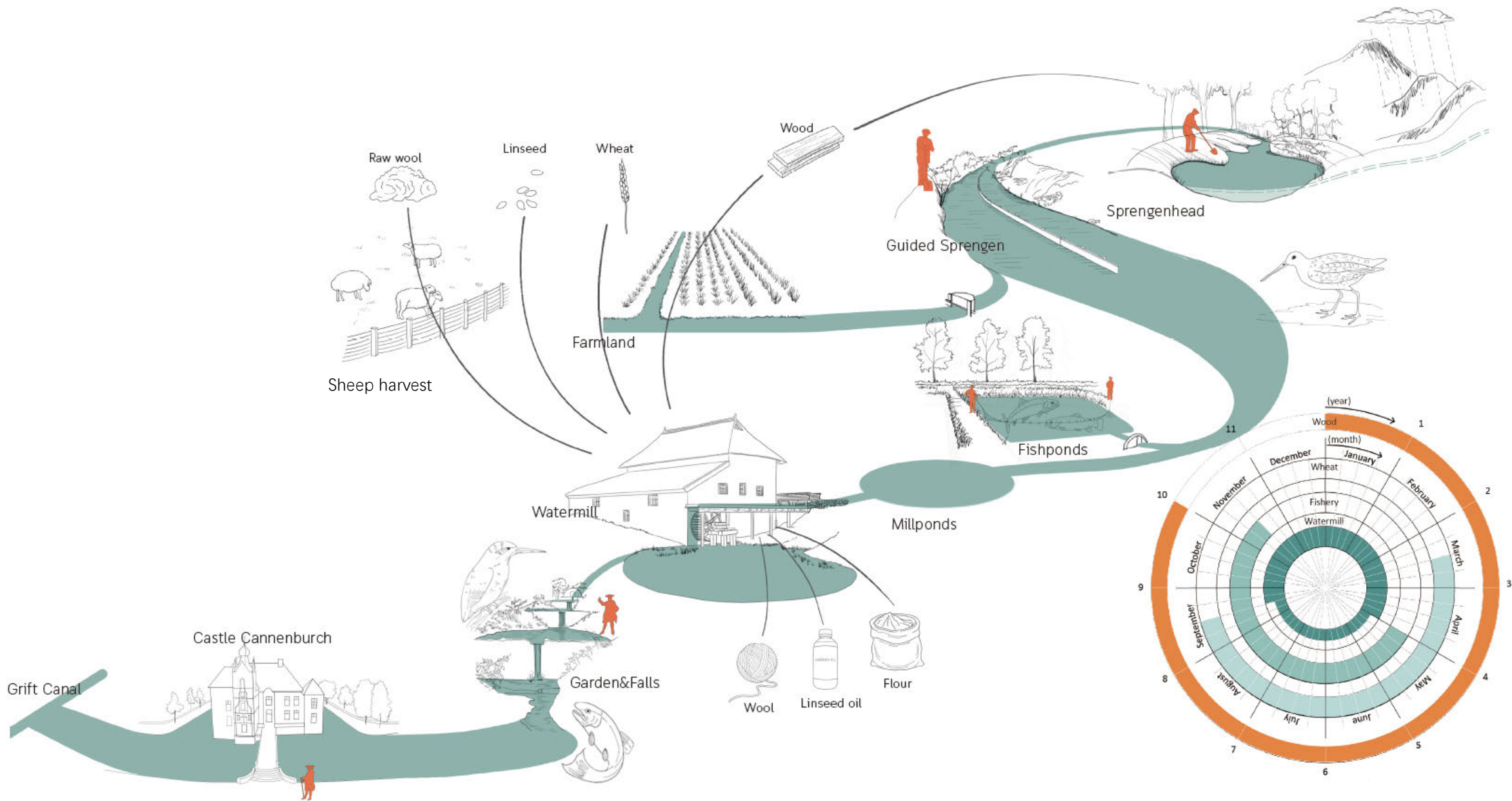
Middlestream artificial streamsection



Natural bank section

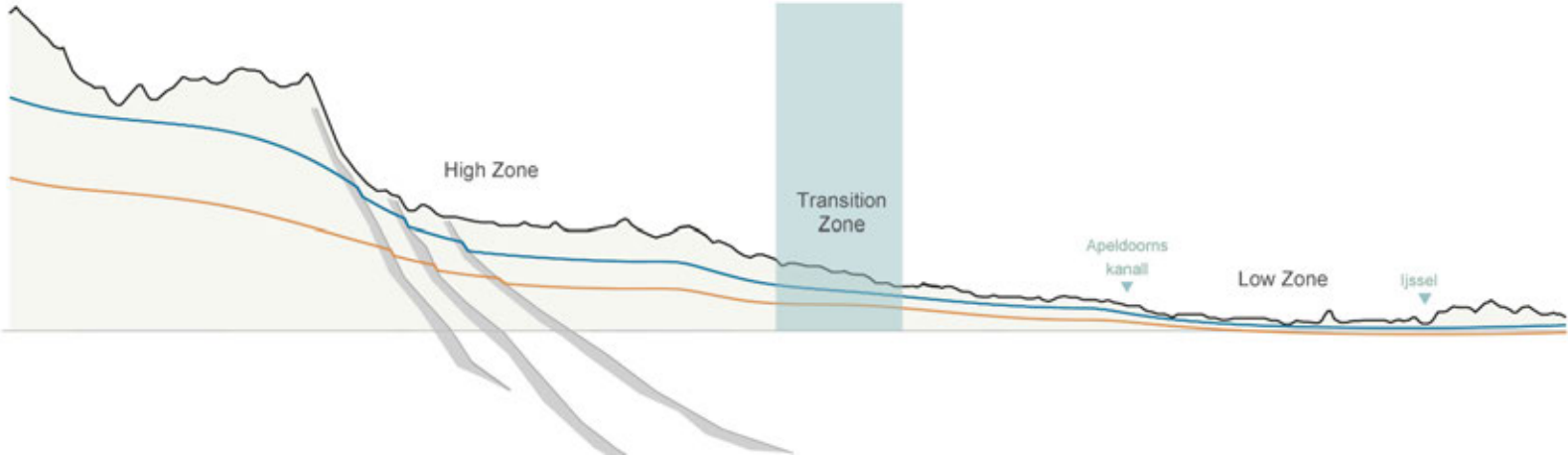


# CIRCULARITY





# RISK: FLOOD AND DROUGHT

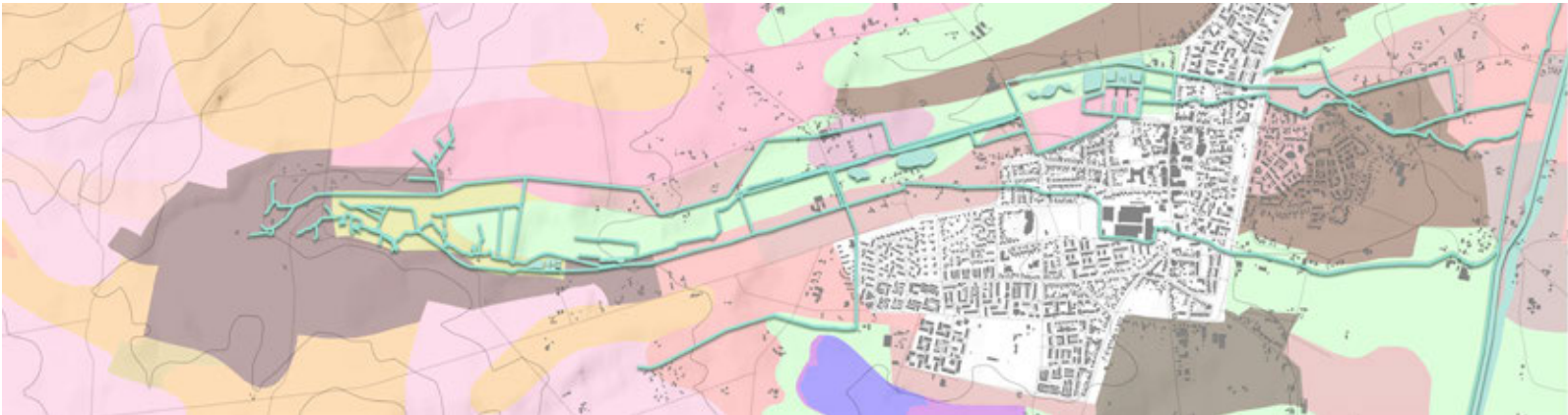


# LANDSCAPE LAYERS



Geomorphology layer

- Glacier moraine
- Glacier moraine slope
- Dry valley
- Funnel-shaped dry valley
- Slope of snowmelt water deposits
- Curves in snowmelt water deposits
- Plain of snowmelt water deposits
- Land dunes with associated plains and lows



Soil layer

- Laarpodzolgronden
- Holtpodzolgronden
- Haarpodzolgronden
- Veldpodzolgronden
- Veldpodzolgronden
- Beekerdgronden
- Gooreerdgronden
- Hoge zwarte enkeerdgronden

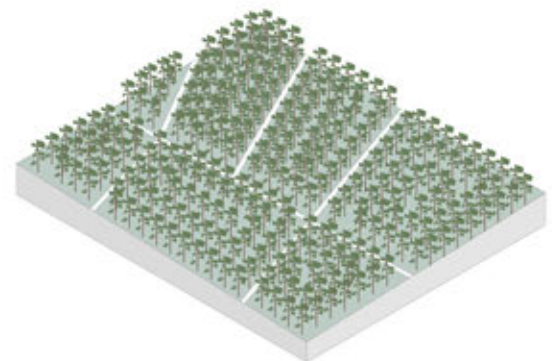
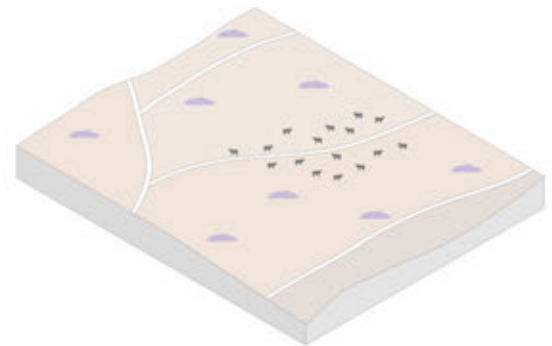


Land use layer

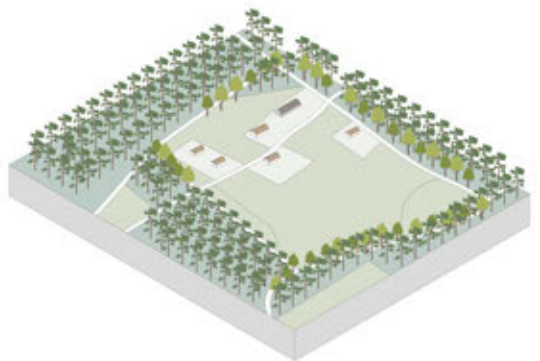
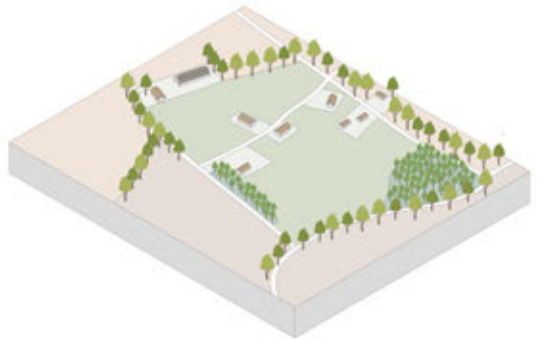
- Pasture
- Complex agriculture pattern
- Peri - urban
- Mixed forest
- Coniferous forest
- Heathland

# LANDSCAPE TYPES

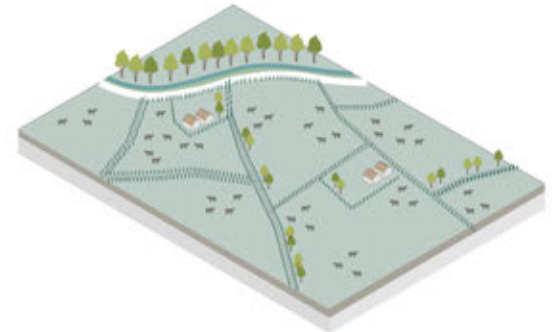
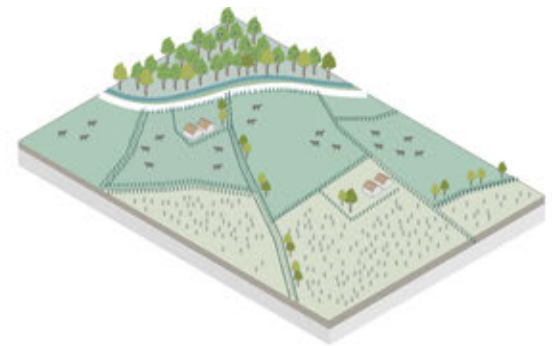
Veluwe forests



Enclaves

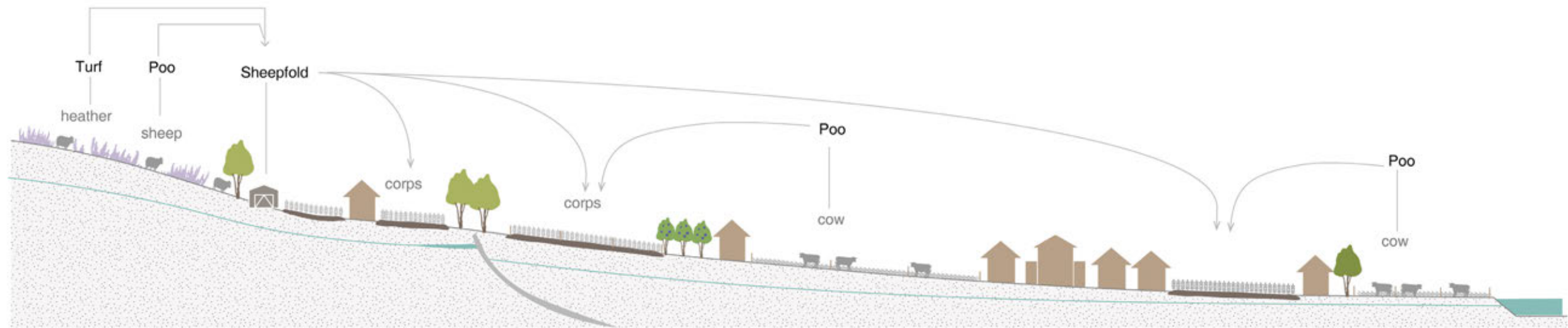


'Kampen' landscape

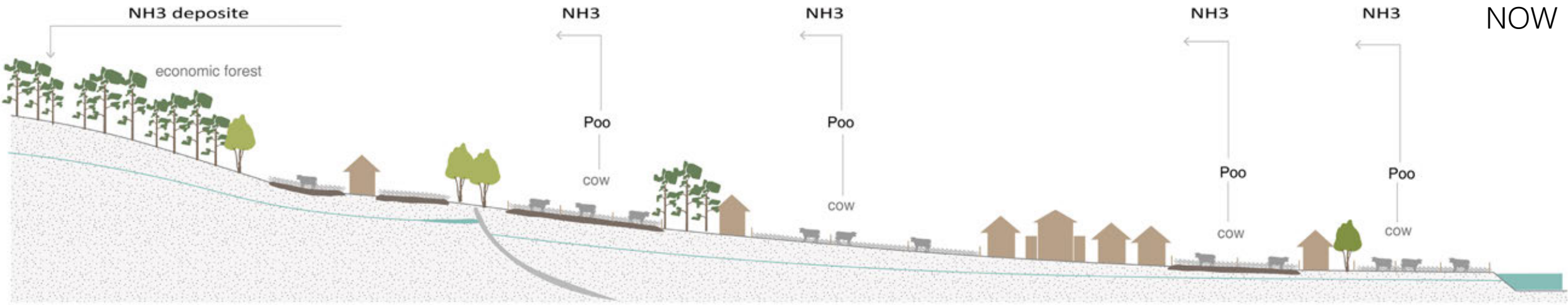


# AGRICULTURE SYSTEM

BEFORE



NOW



Heathland reclamation | Veluwe enclaves | Kampen landscape | City | Kampen landscape

- Elevated fertile soil
- Sandy soil
- Caly

# DESIGN CONCEPT

EXISTING :

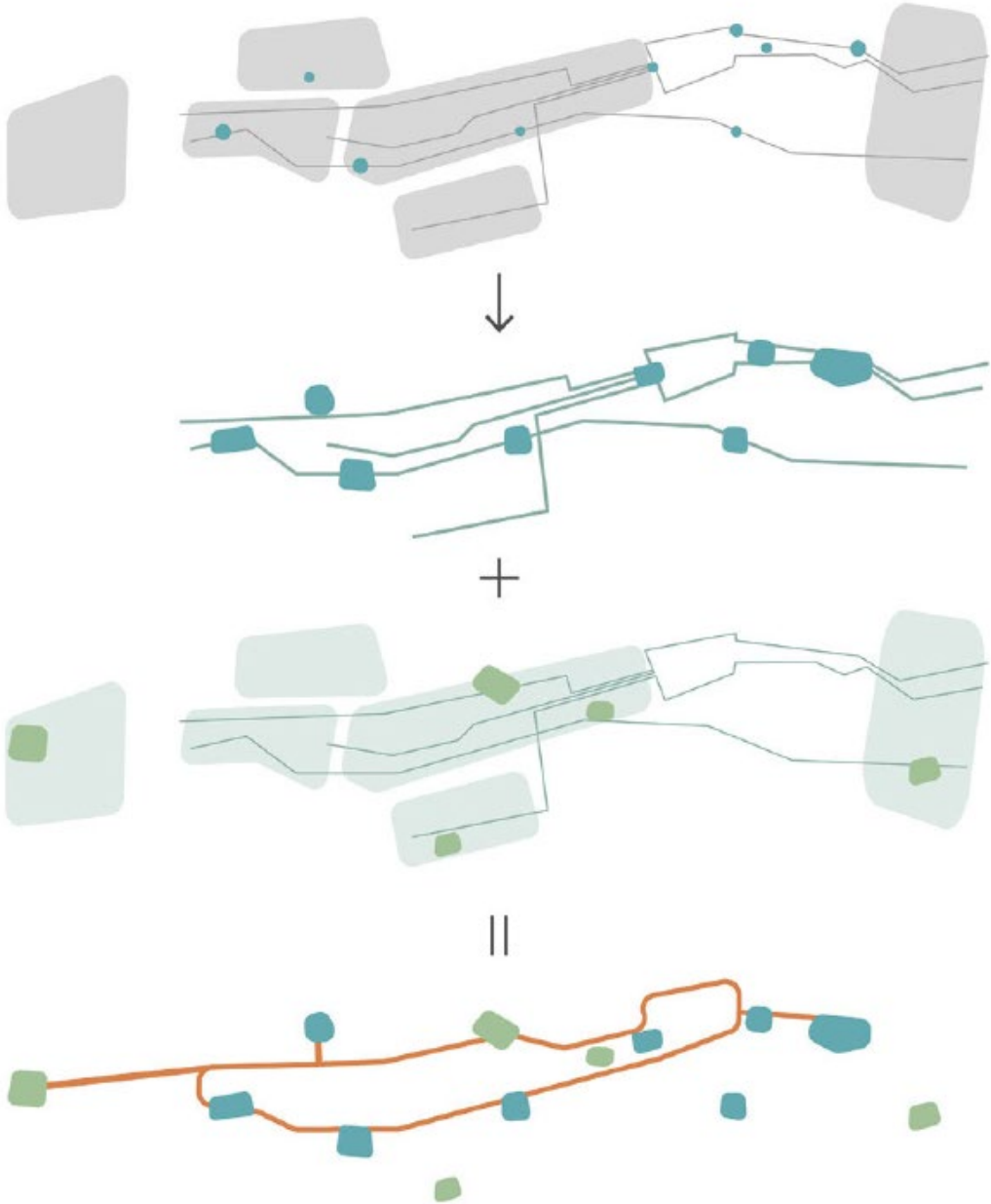
- 1. Heritage Lost of inheritance
- 2. Drought & flood of Sprengenbeek
- 3. Unsustainable Agriculture

PRINCIPLES :

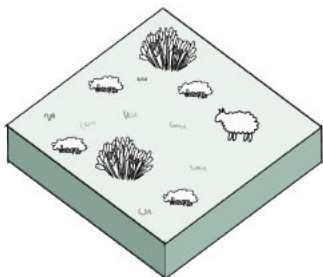
- 1. Water management measures for the resilient and clean sprengenbeek
- 2. Narrative landscape design
- 3. Transformation of agriculture form

GOAL:

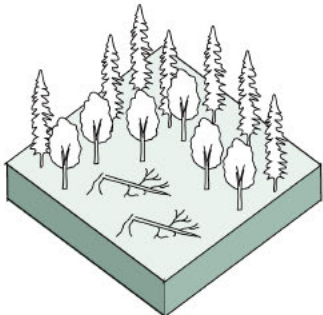
A sustainable & diverse Sprengenbeek landscape that can be explored through a routing system



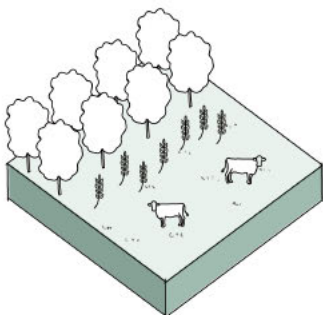
# STRATEGY



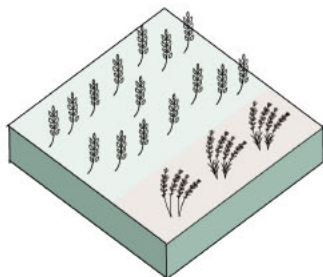
Heathland farming



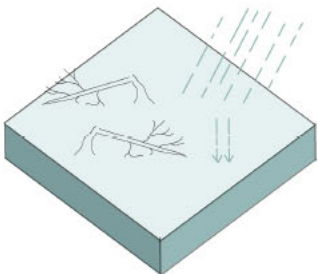
Diverse forest



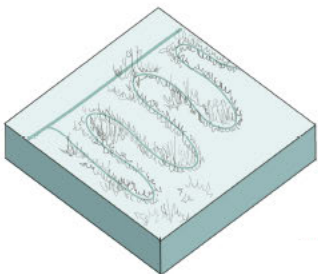
Agroforestry



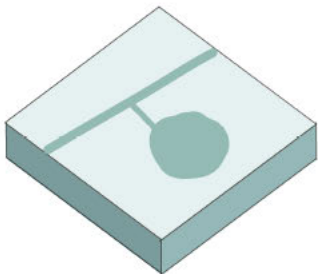
Adapted crops



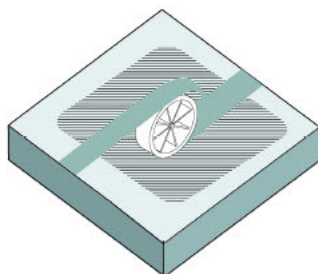
Increase infiltration



Increase water quality



Retain water



Sprengenbeek public space design

# FRESH KILLS PARK

## Site Phasing & Its Objectives



the existing site is a closed landfill, without public access or amenity

2005



within a few years, areas of the site can be reclaimed as useful public landscapes



soon thereafter, new park drives can connect Richmond Avenue to the West Shore Expressway and allow access around the park



larger areas of the park will be reclaimed as public parkland over time



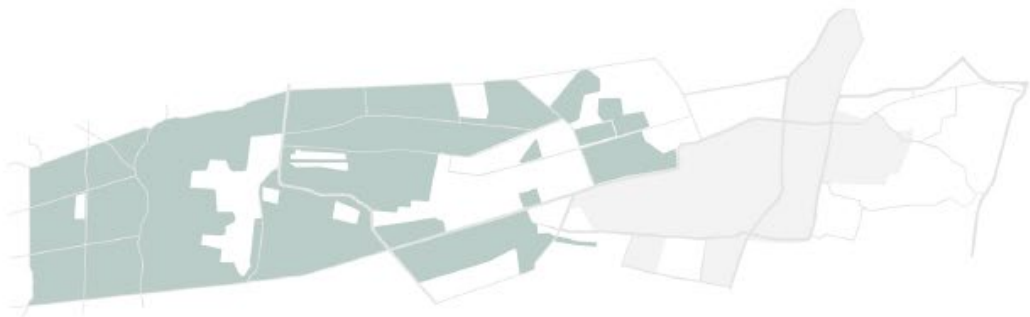
restaurants, cultural facilities, sports amenities and other recreational uses will activate the site



a mature biomatrix within the next 30 years, Fresh Kills Park may be transformed into a fully sustainable, living park

2035

# STRATEGIC DEVELOPMENT- Forest Layer



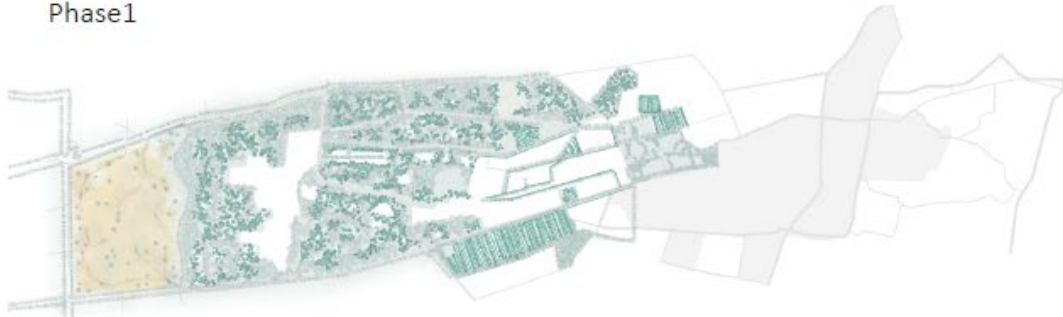
Existing forest



Phase1



Phase2



Phase3

## Land Use Changes



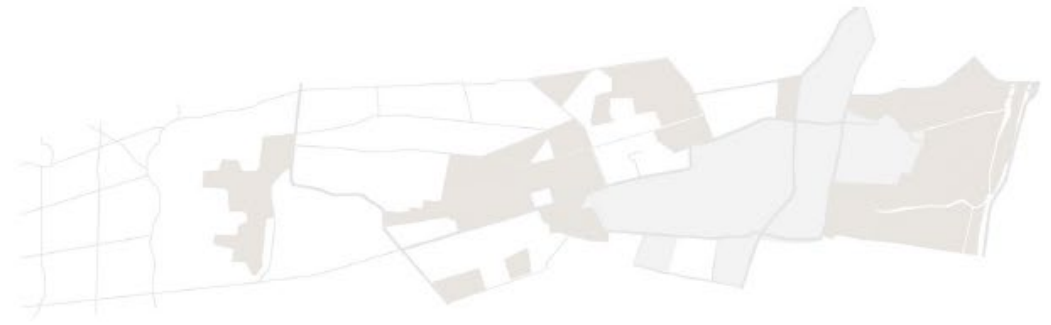
Existing artificial forest



Overlap with other layers



# STRATEGIC DEVELOPMENT - Agriculture Layer



Existing forest



Phase1



Phase2



Phase3

## Land Use Changes



Existing pasture



Strip forestry on the edge of pastures

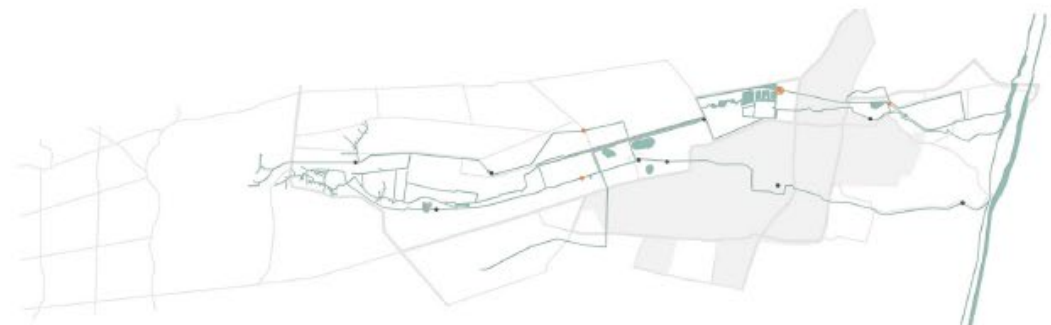


Adapeted cropland

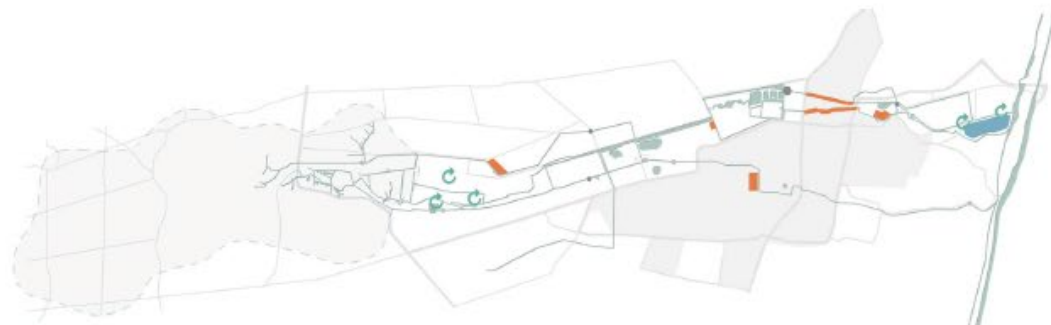


Overlap with other layers

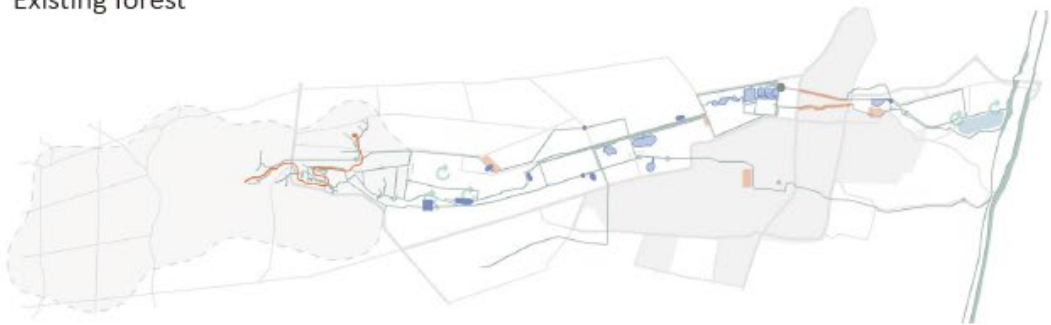
# STRATEGIC DEVELOPMENT - Sprengenbeek layer



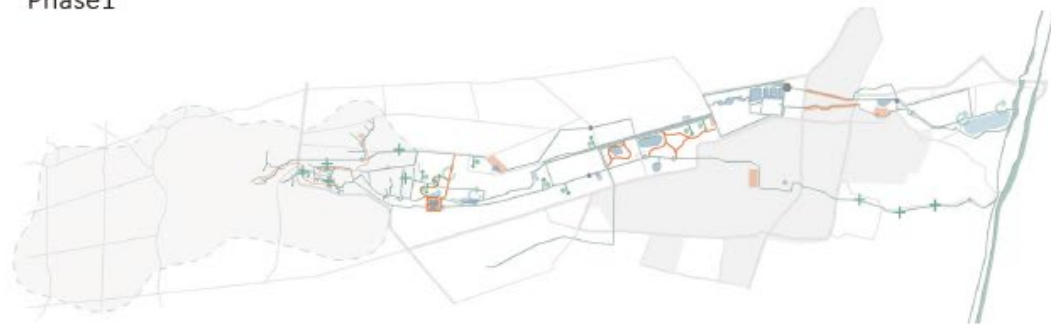
Existing forest



Phase 1



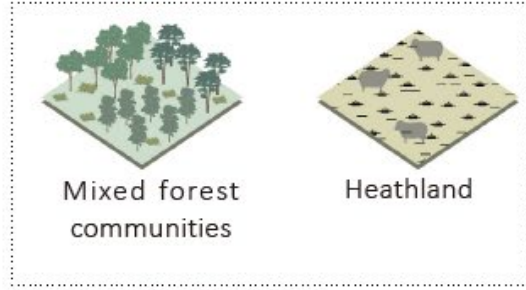
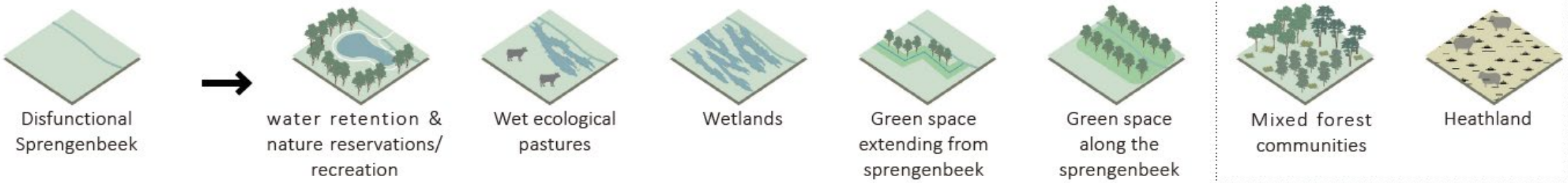
Phase 2



Phase 3

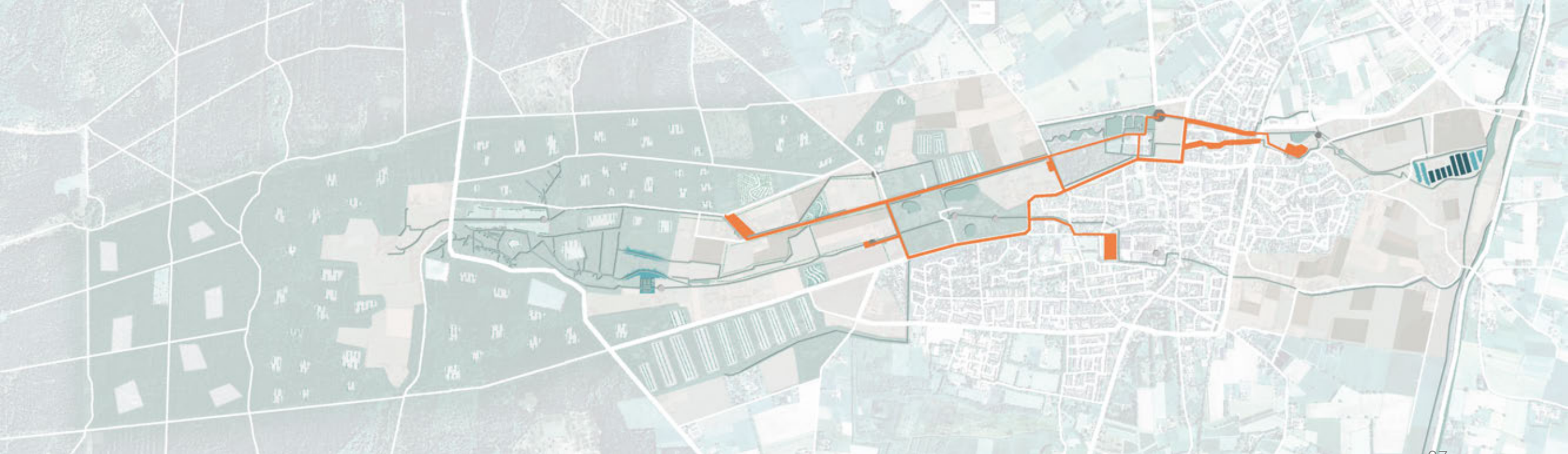
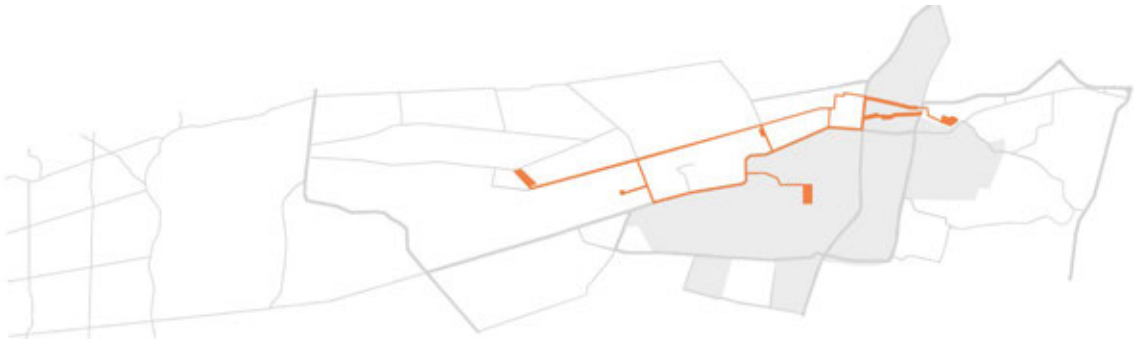
- Purification
- New fishponds
- Water retention
- Increased biodiversity
- Leaked sprengenbeek
- Public space

## Land Use Changes

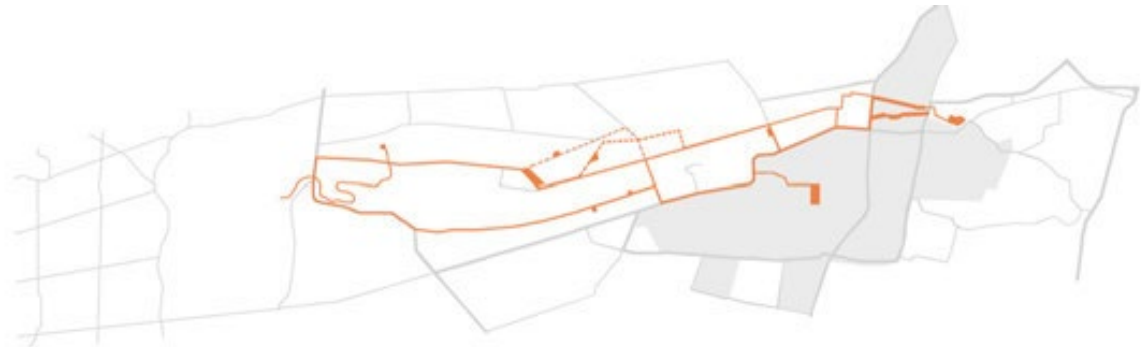


# STRATEGIC DEVELOPMENT- Phase1 :Seeding & constructing

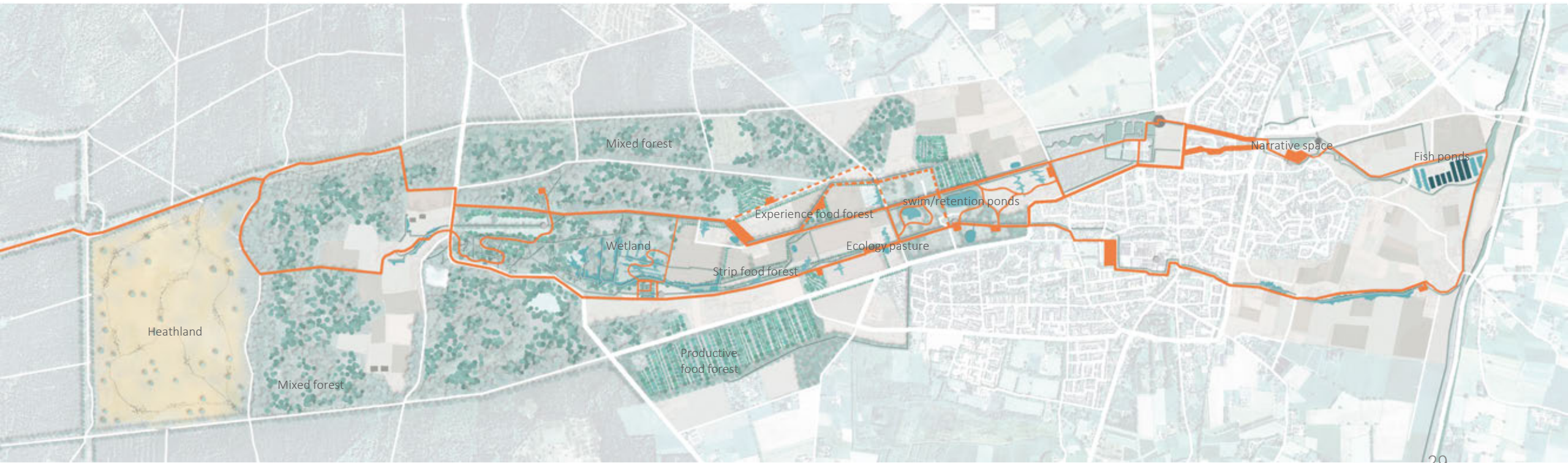
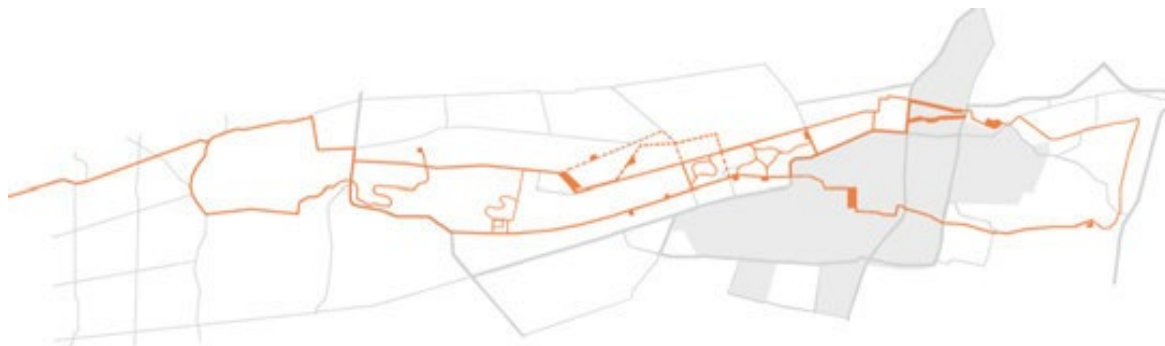
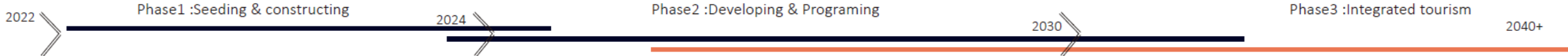
2022 > Phase1 :Seeding & constructing 2024



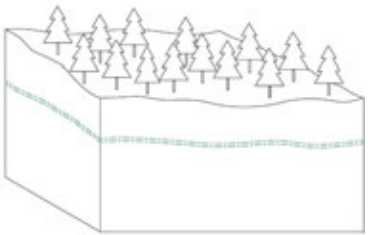
# STRATEGIC DEVELOPMENT - Phase2 :Developing & Programing



# STRATEGIC DEVELOPMENT - Phase3 :Integrated tourism



# LOCAL IMPLEMENTATIONS



Infiltration area



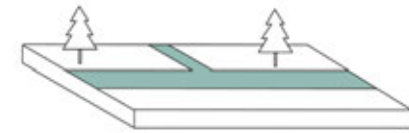
Upper stream



Middle stream



Urban area

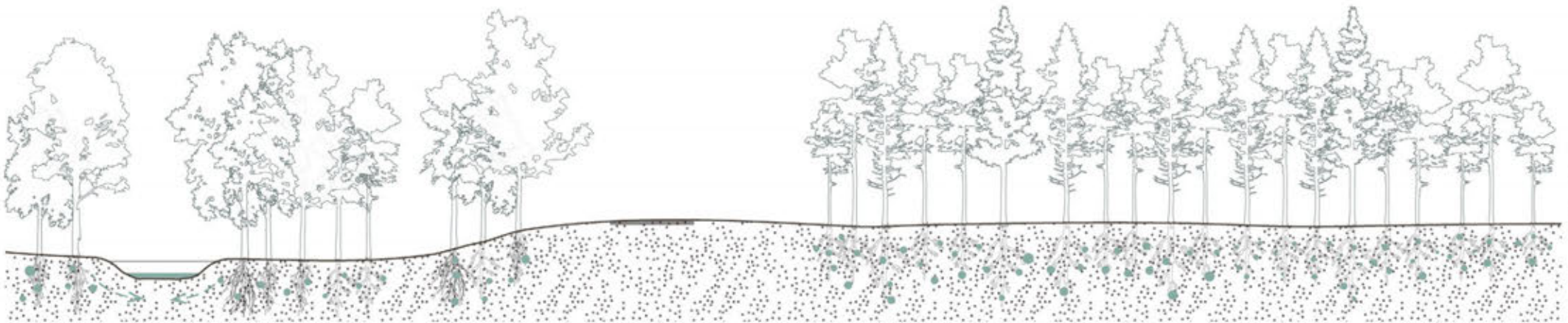
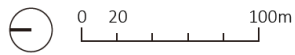


Down stream



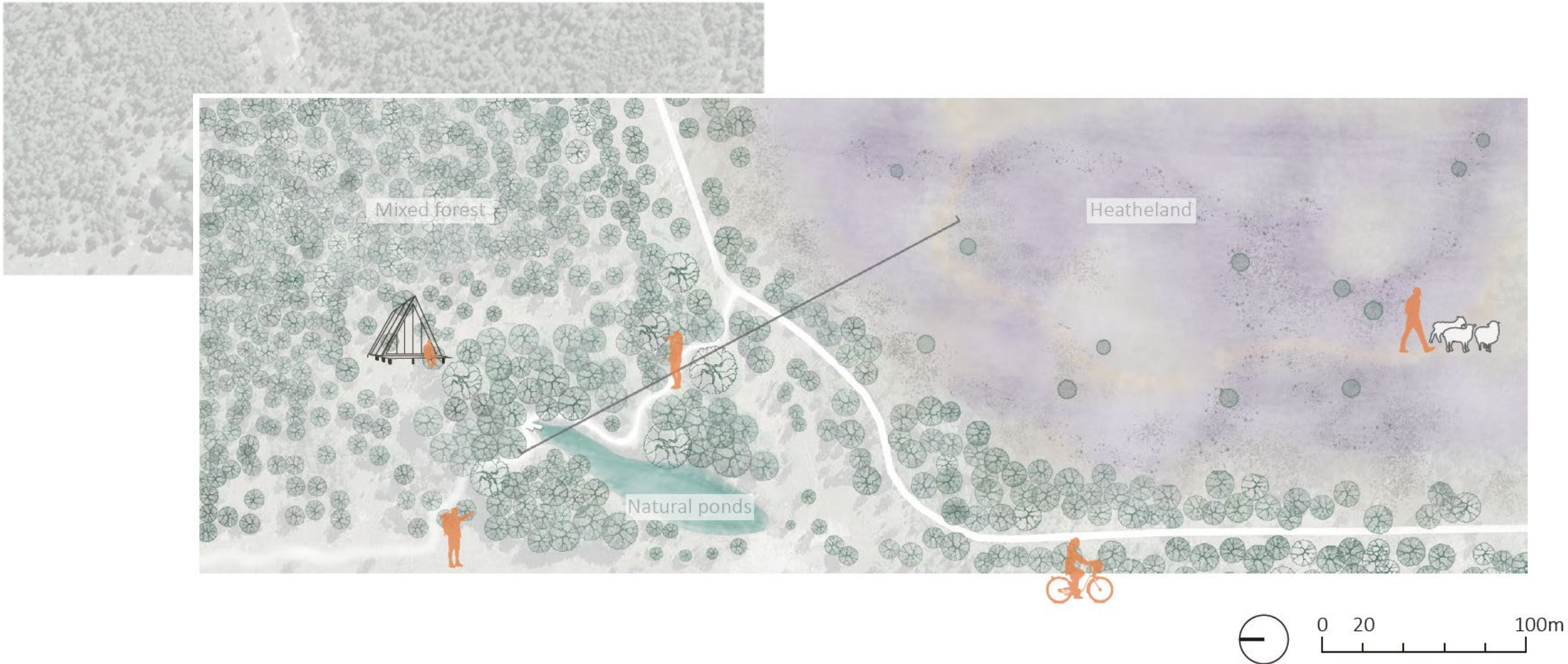
# 1. INFILTRATION AREA DESIGN

## Current



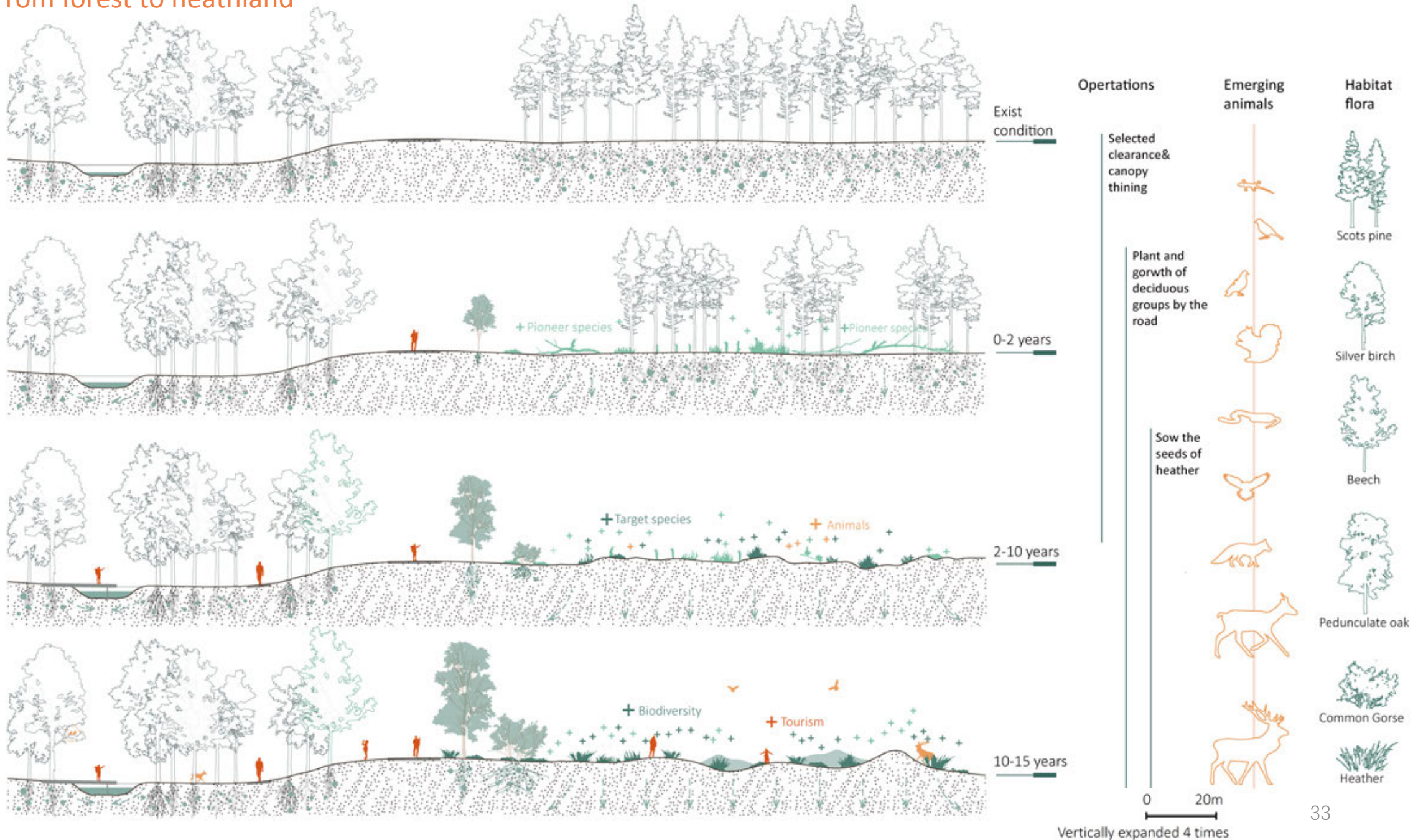
# 1. INFILTRATION AREA DESIGN

## Proposed

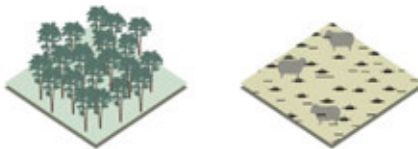




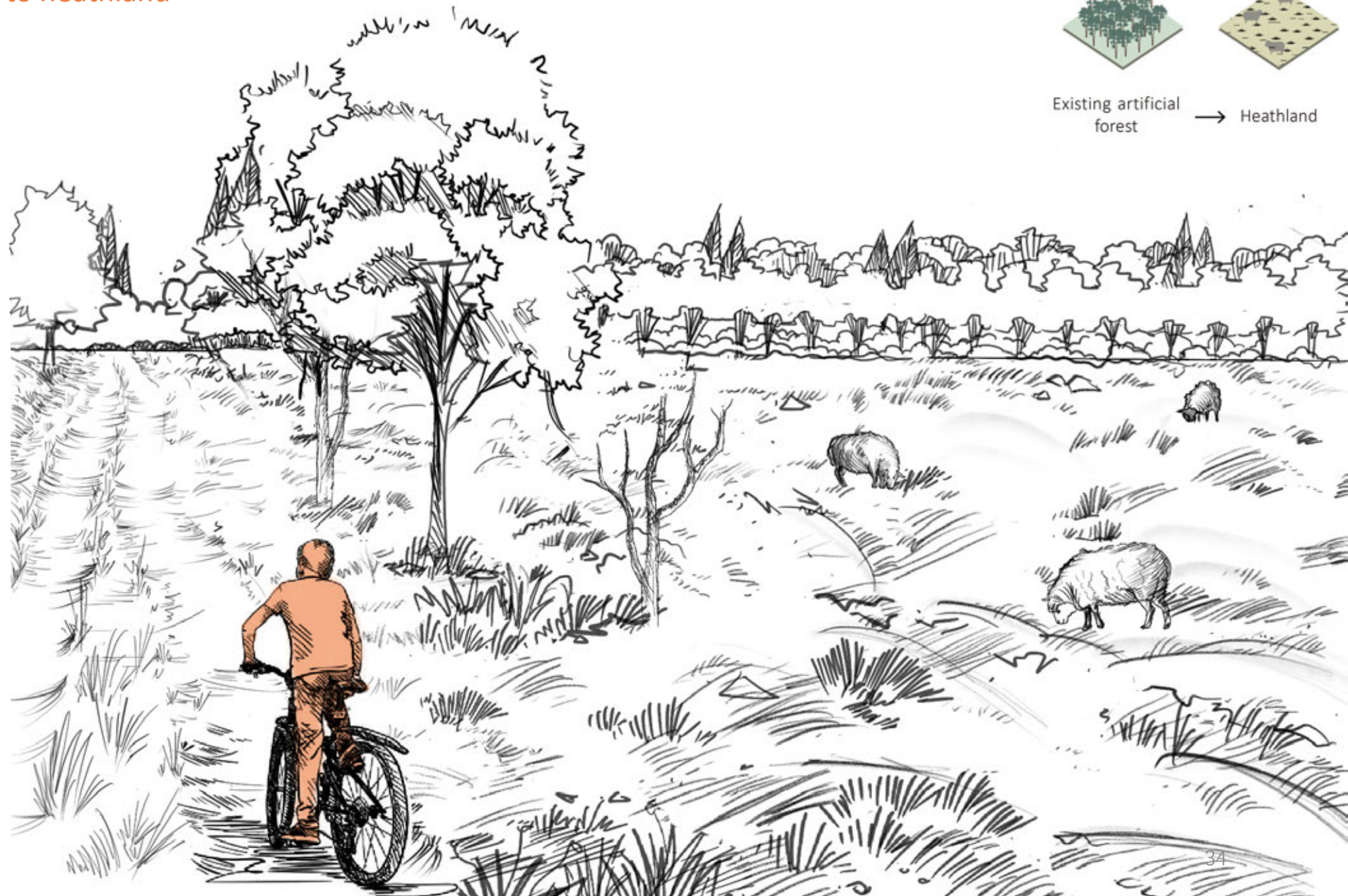
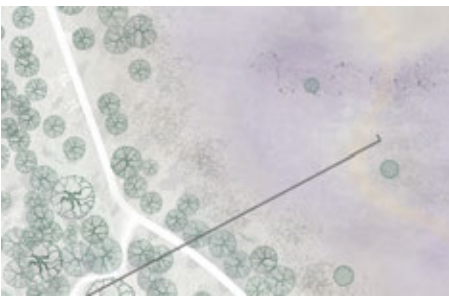
# Section : From forest to heathland



Experience : From forest to heathland

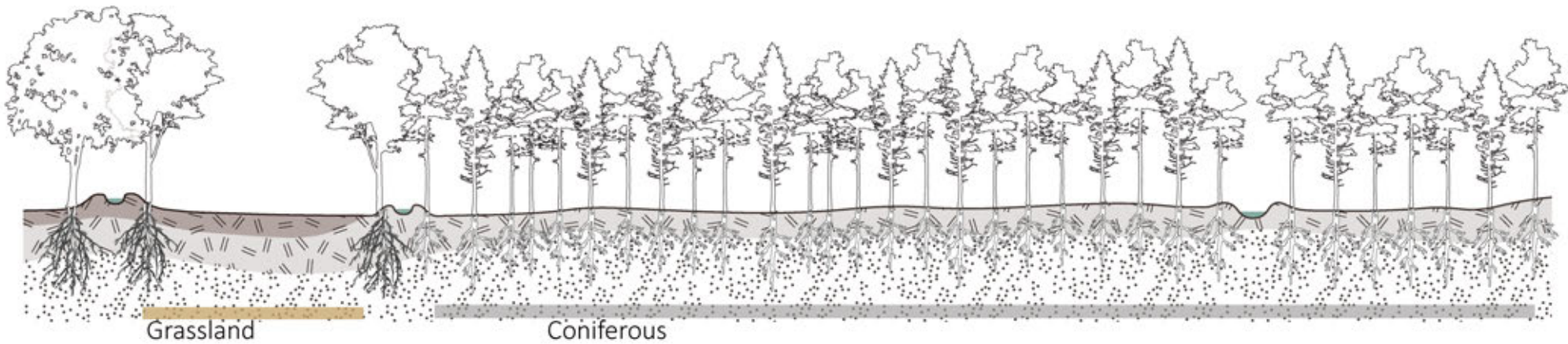
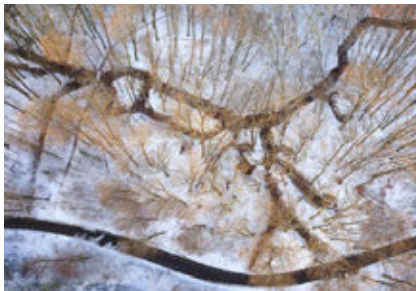


Existing artificial forest → Heathland



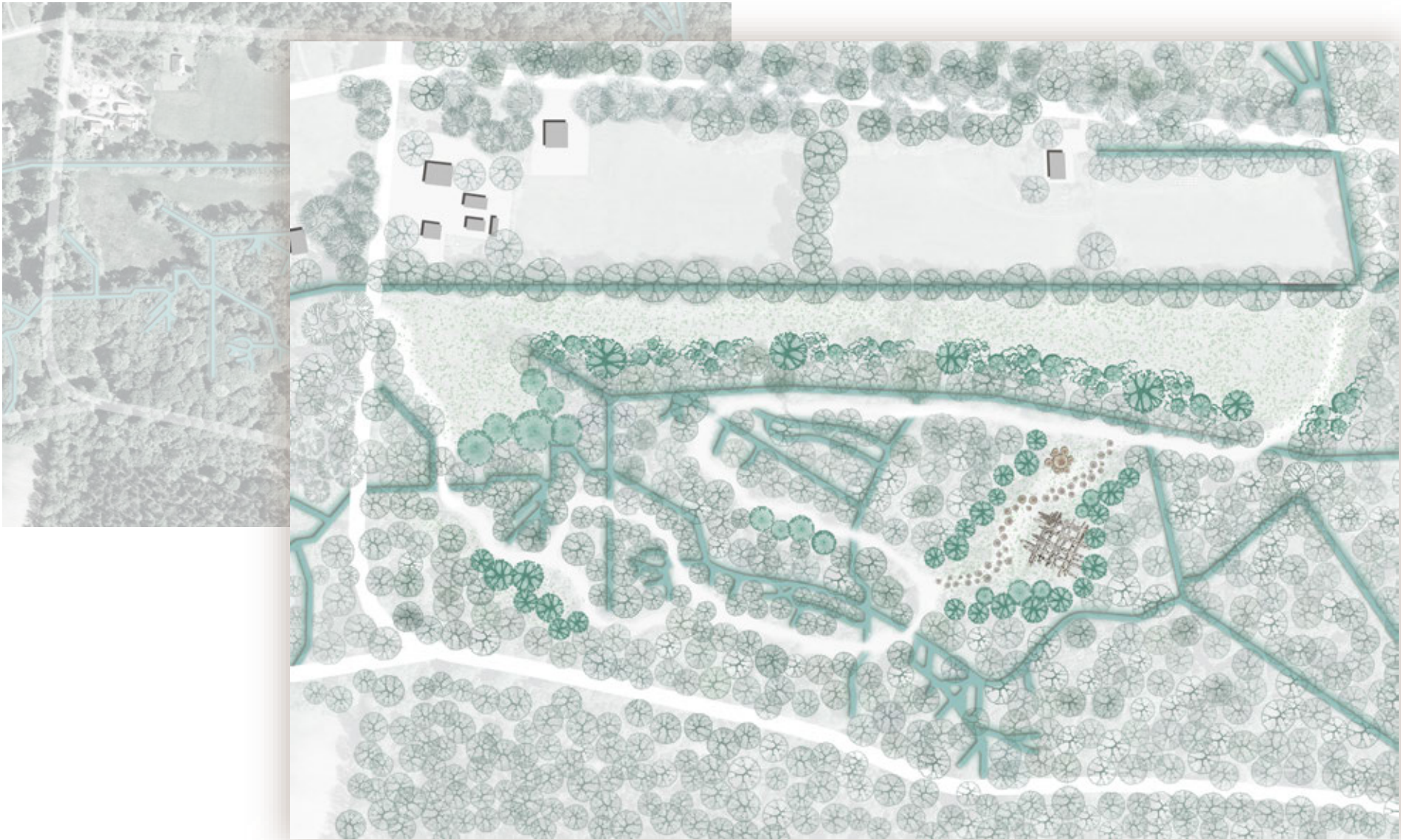
# 2. SPRENGEN SOURCE DESIGN

## Current

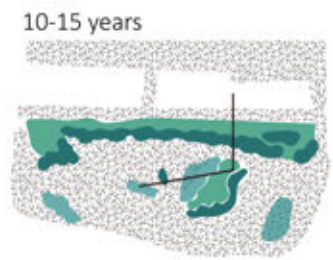
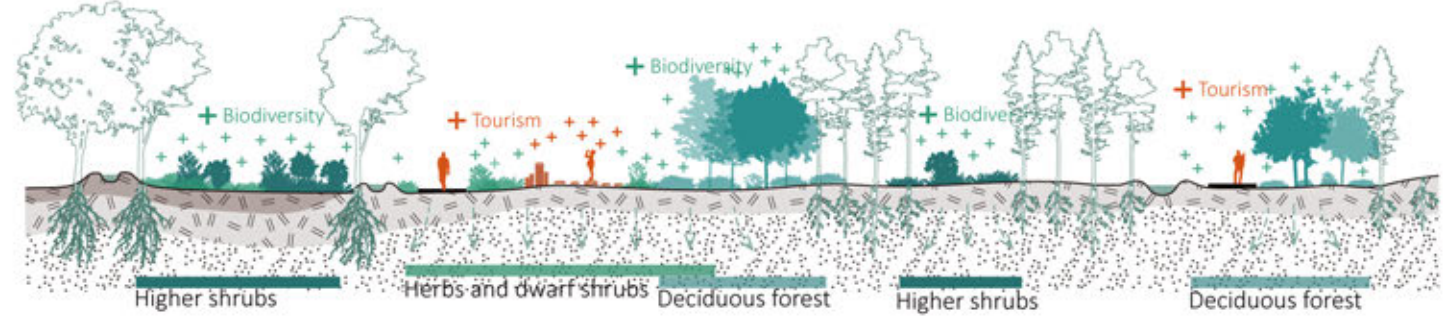
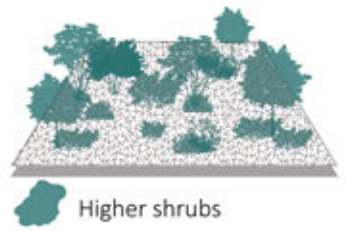
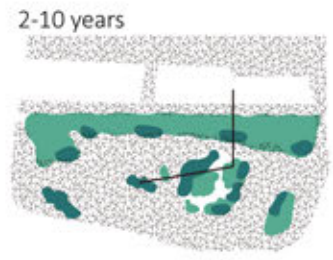
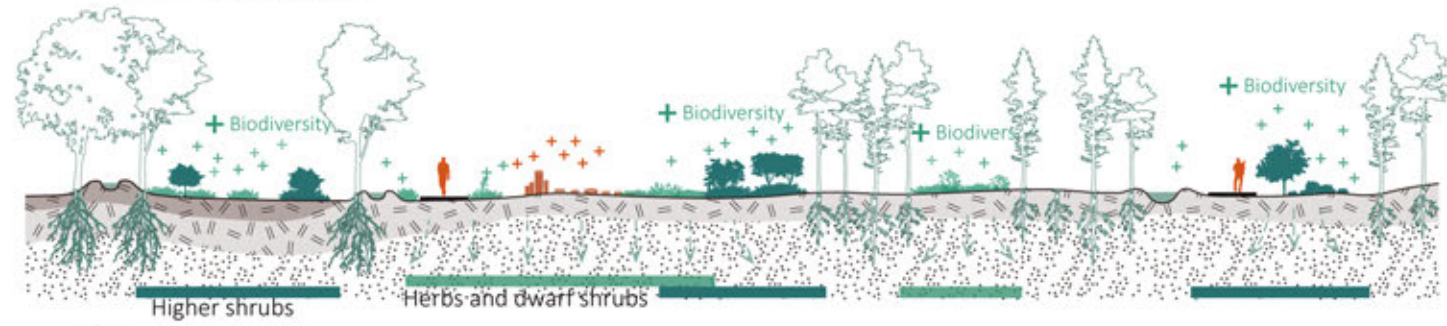
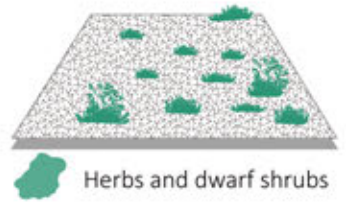
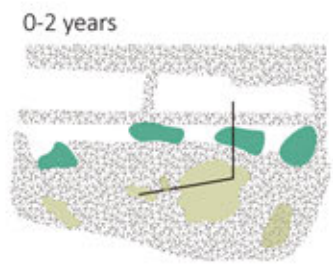
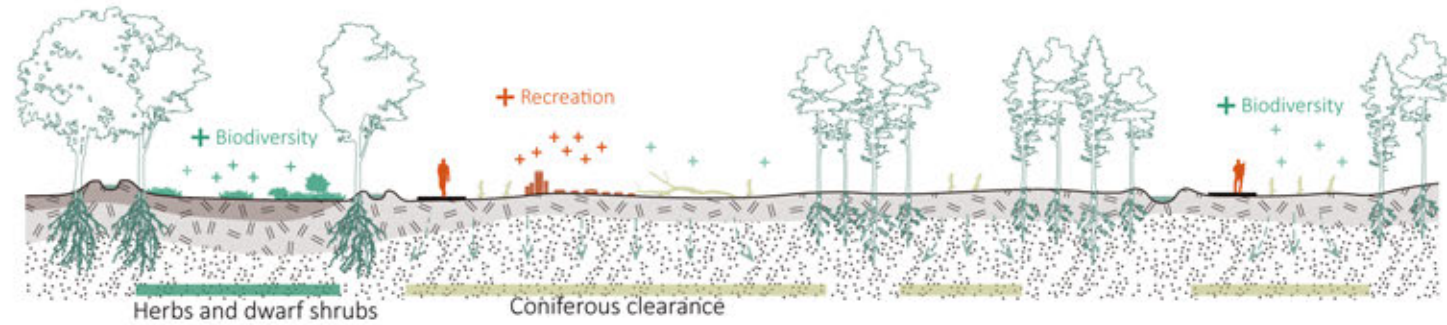
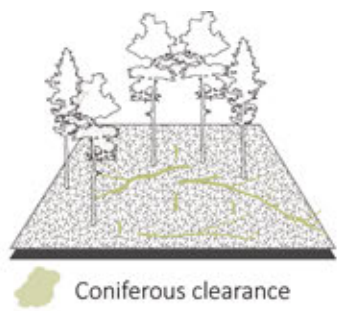
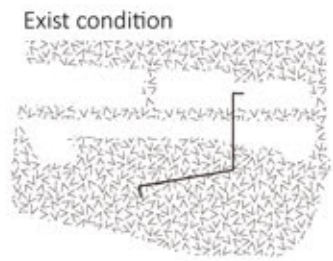
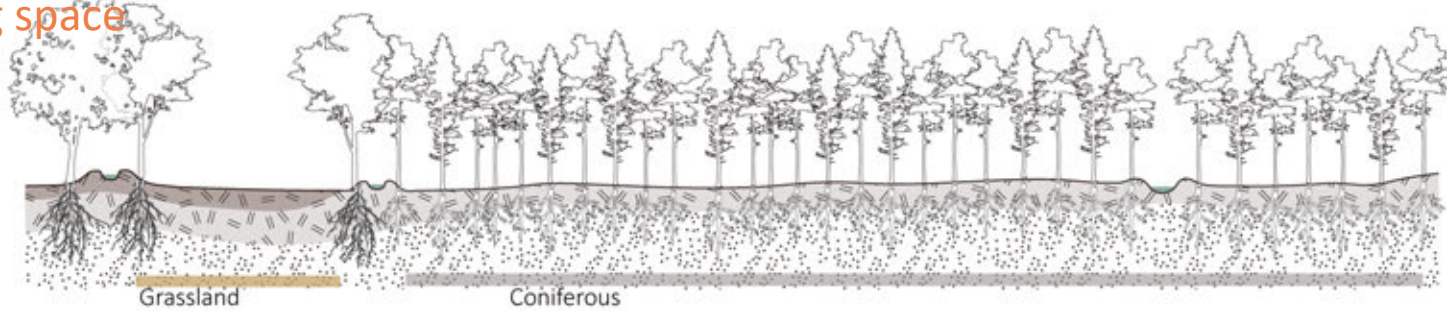


# 2. SPRENGEN SOURCE DESIGN

Proposed

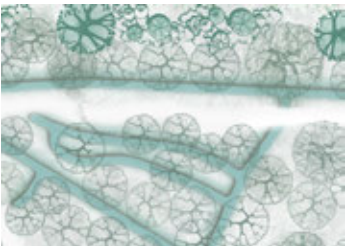
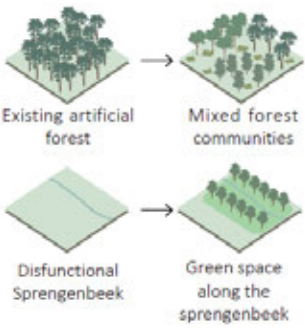
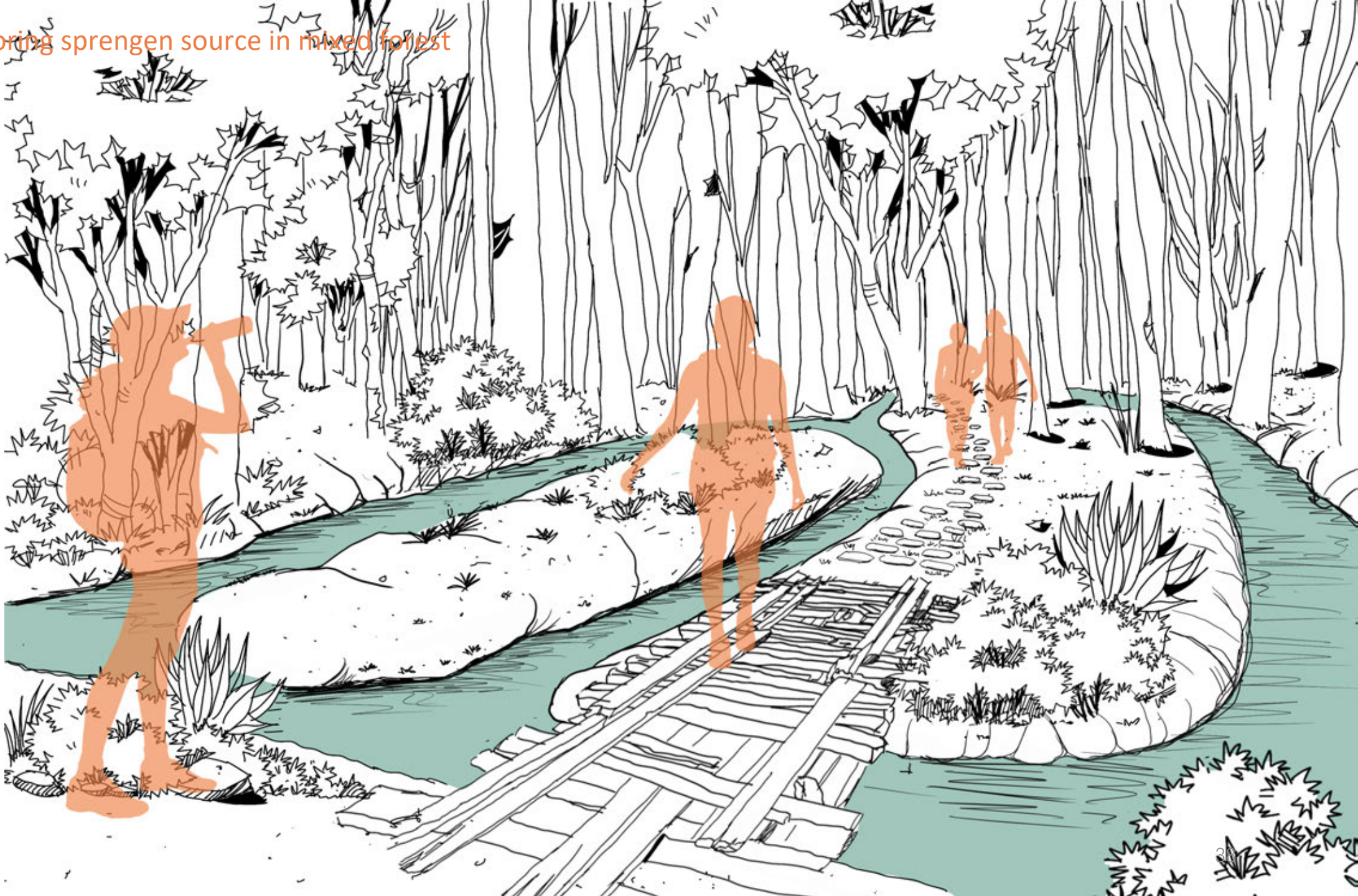


# Section : EMixed forest succession & Exploring space

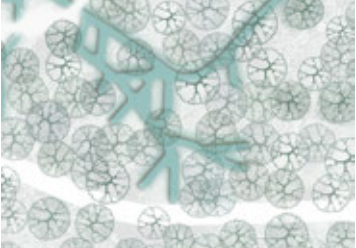
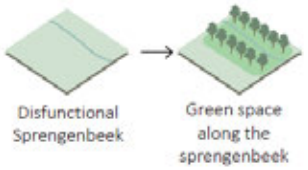
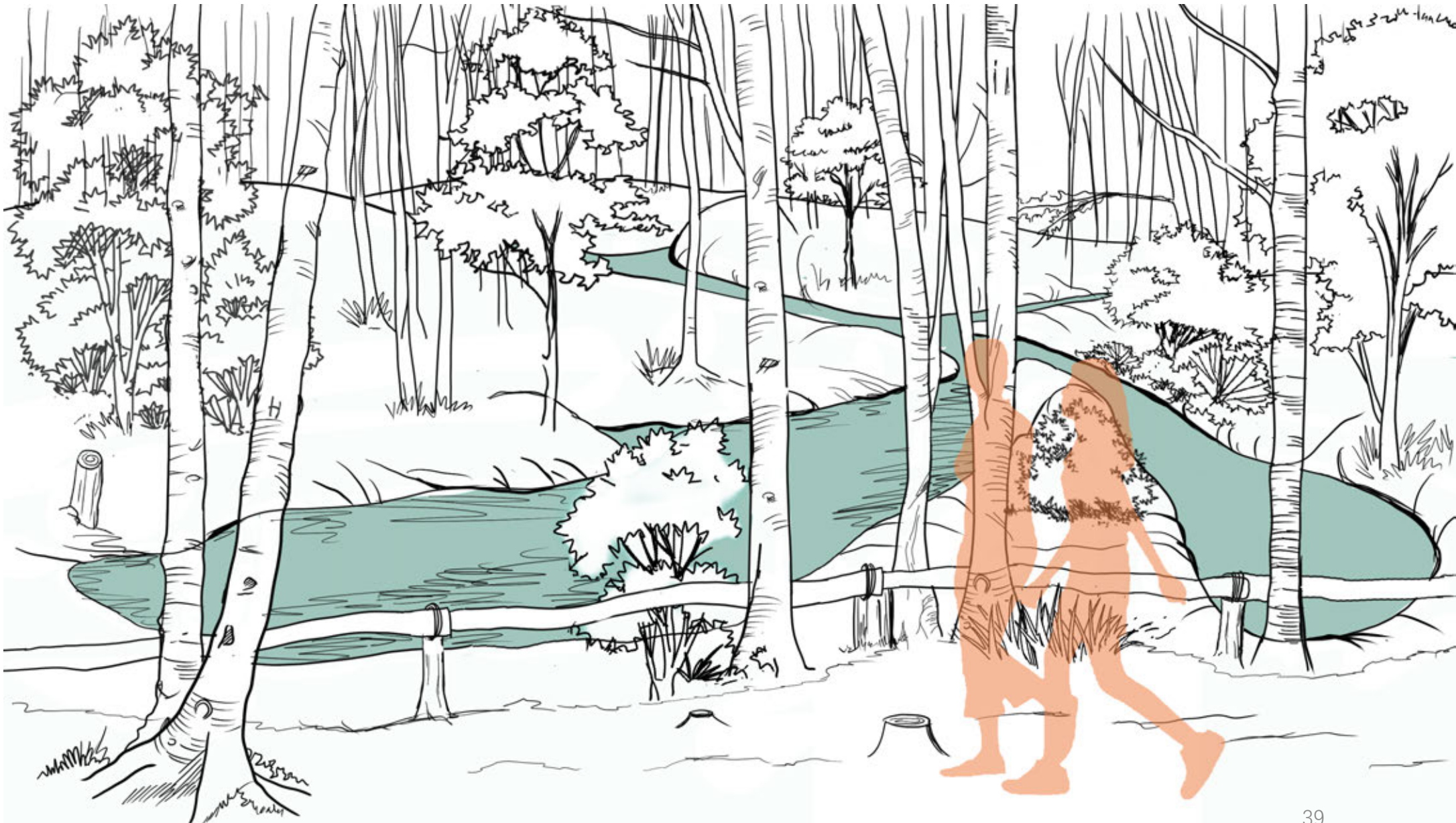


Middle humic & Low Loamy sand  
 Slightly humic & Weak loamy  
 Sandy soil

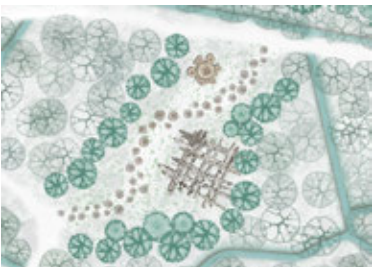
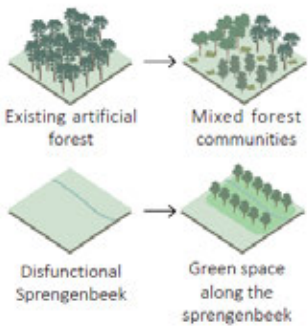
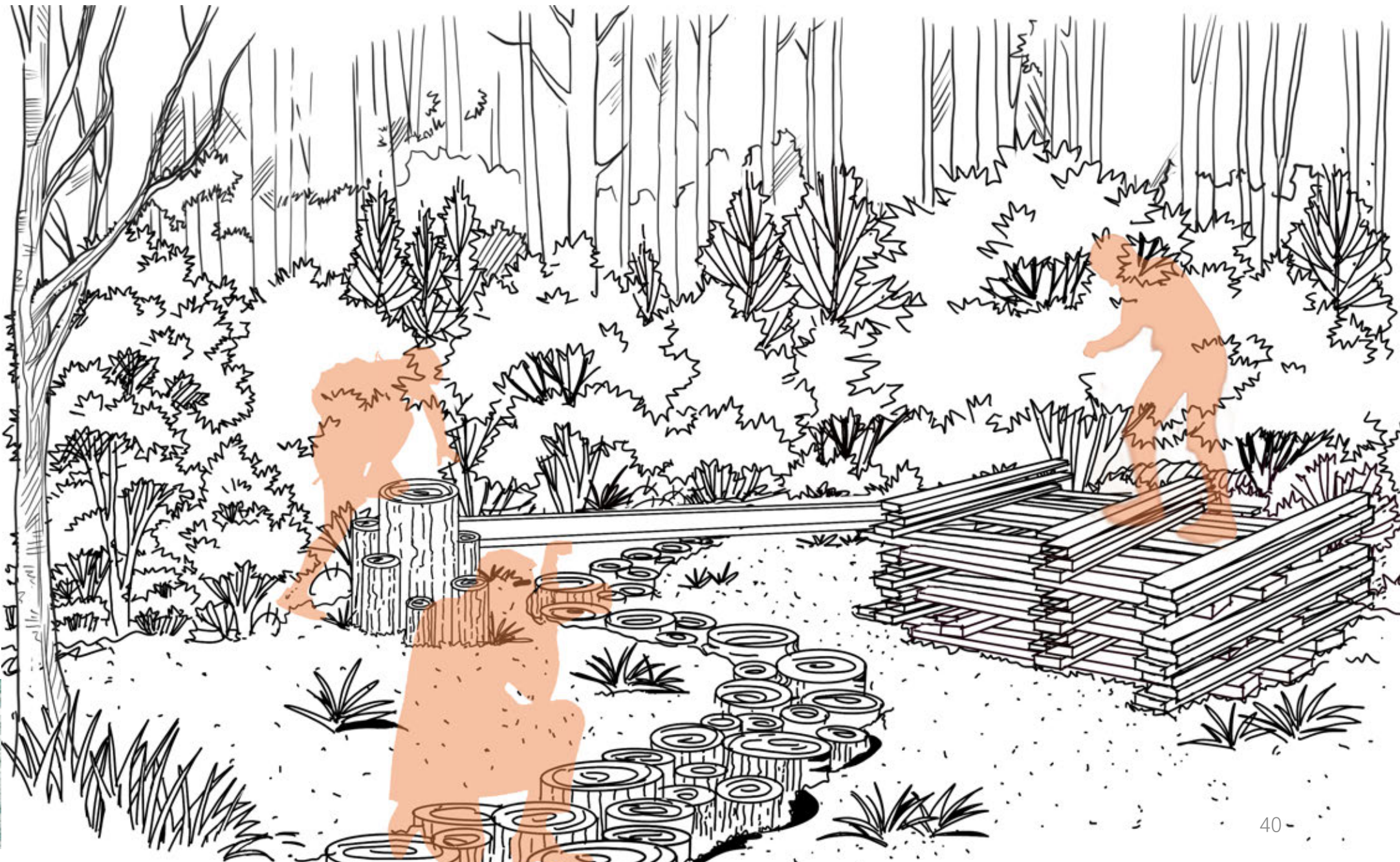
Experience : Exploring sprenge source in mixed forest



# Experience : Exploring sprenge source in mixed forest



# Experience : Exploring sprengen source in mixed forest



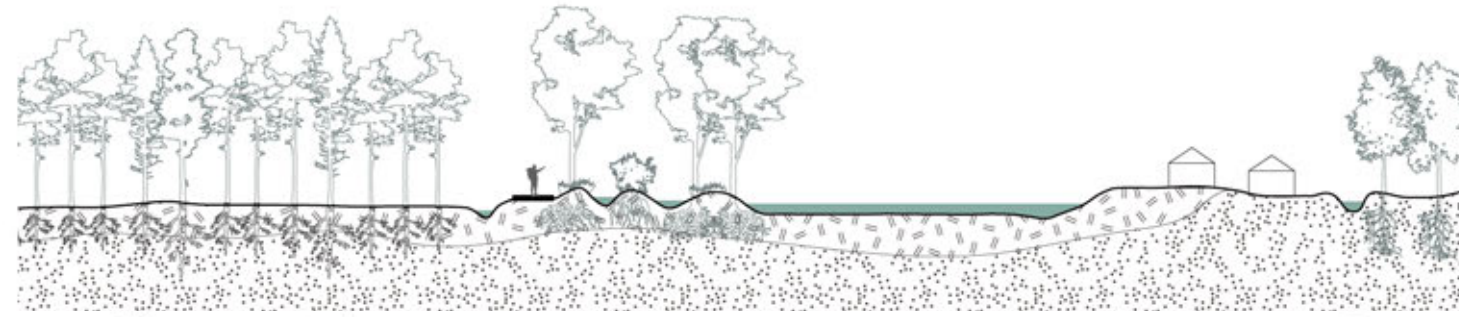


### 3. SPRENGEN STORING & USING IN RURAL

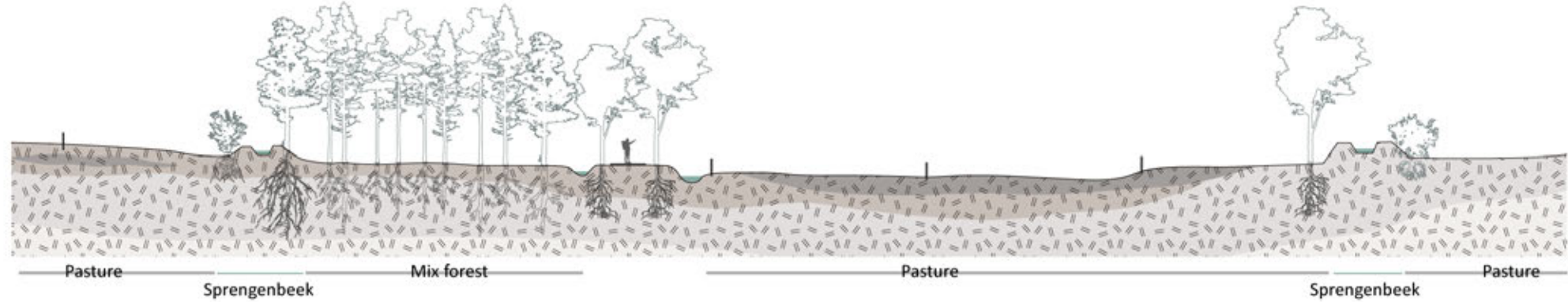
Current



section1

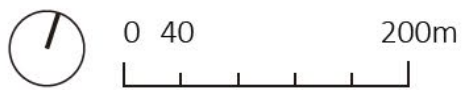
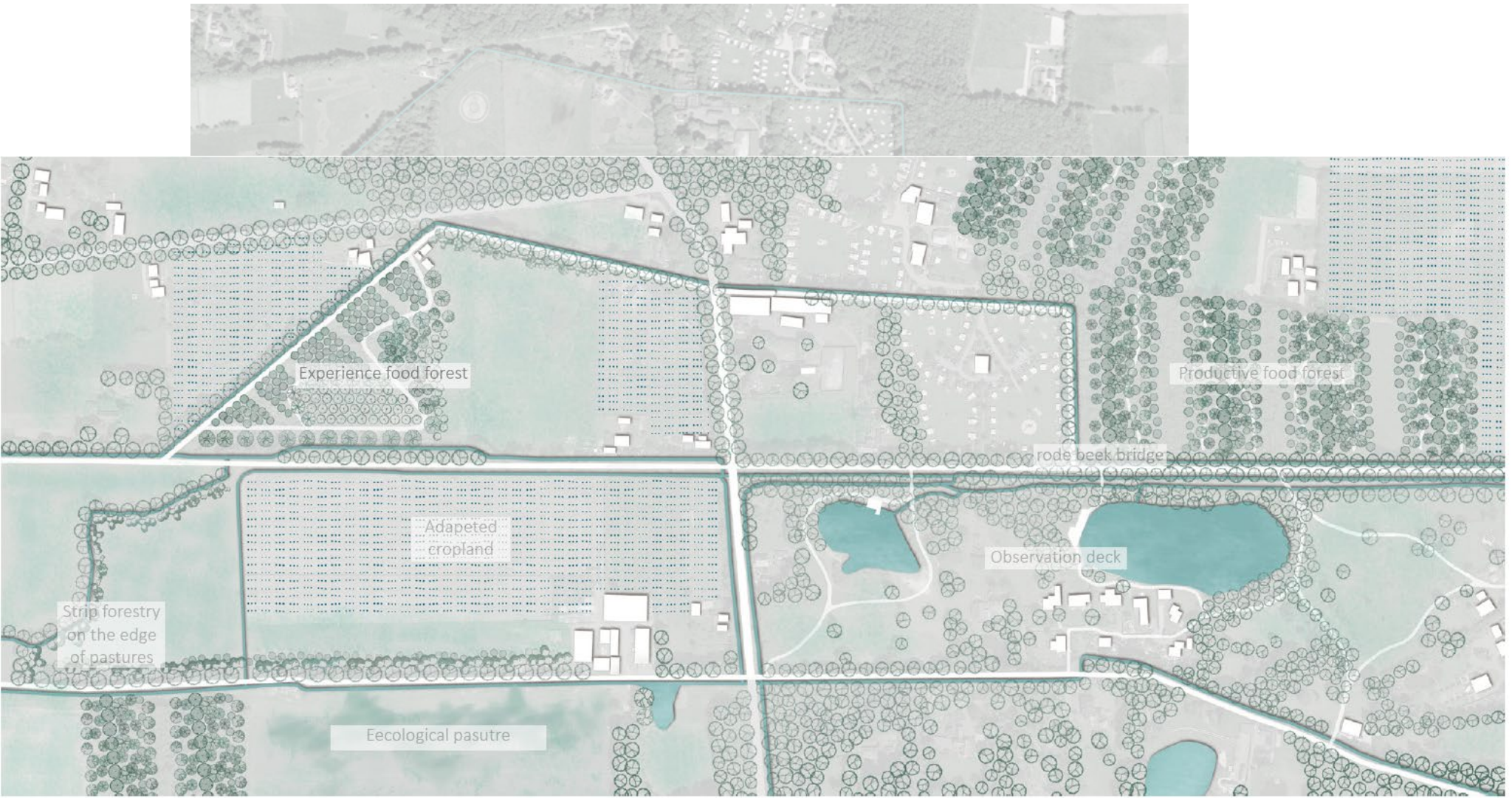


section2

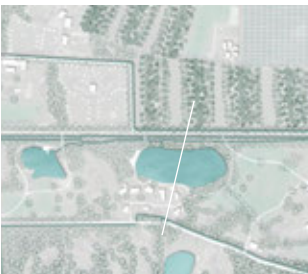
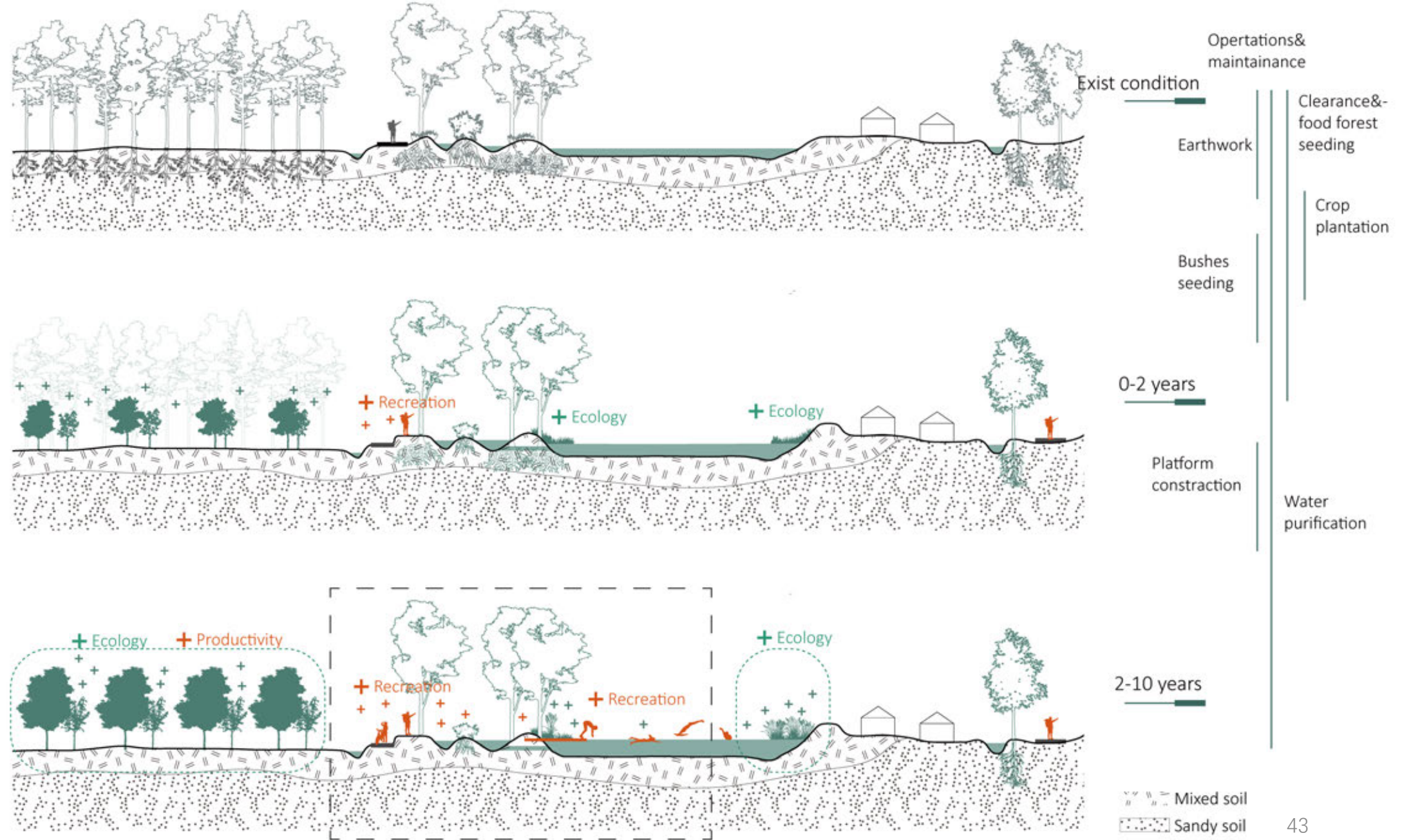


### 3. SPRENGEN STORING & USING IN RURAL

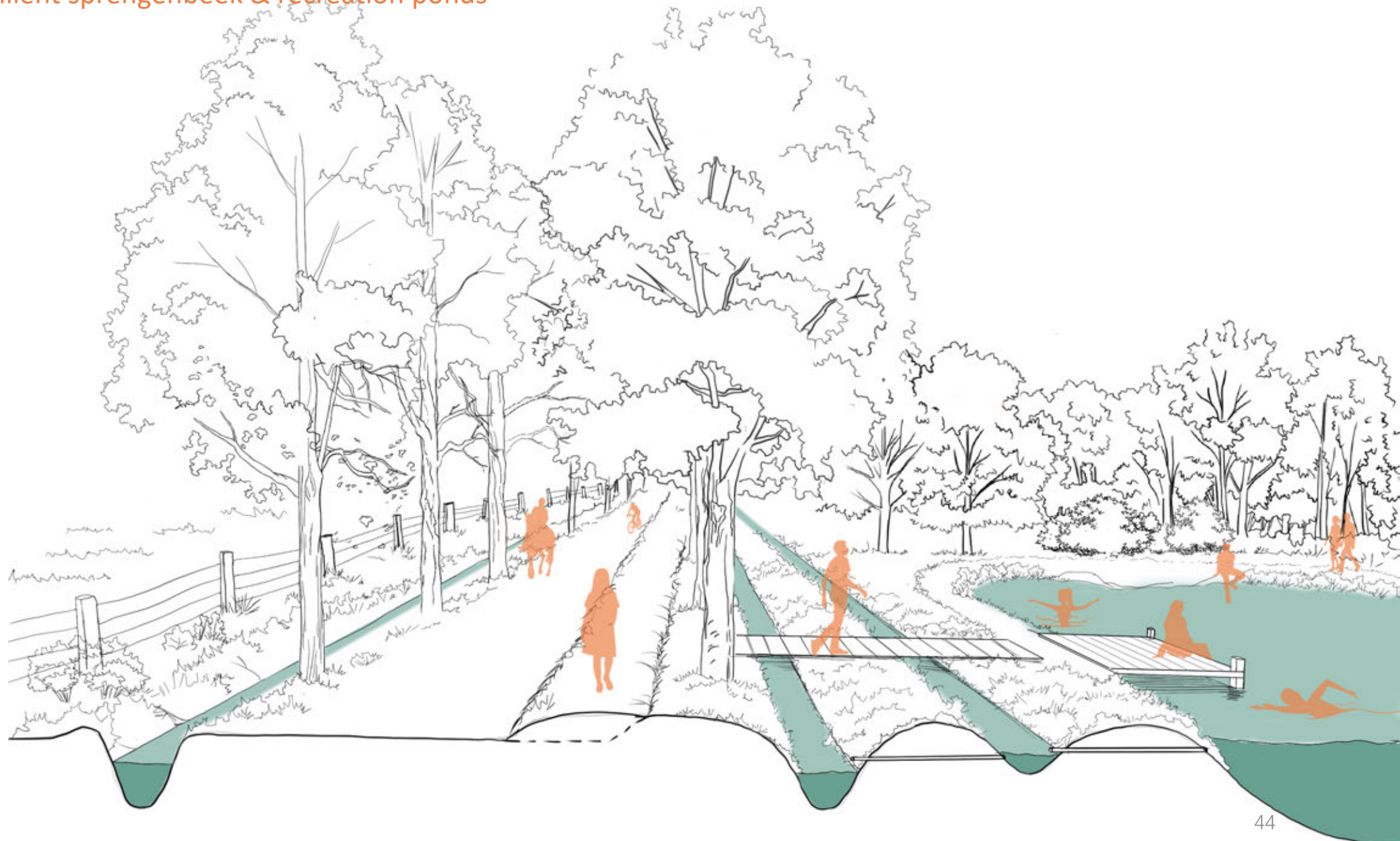
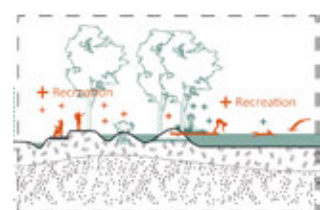
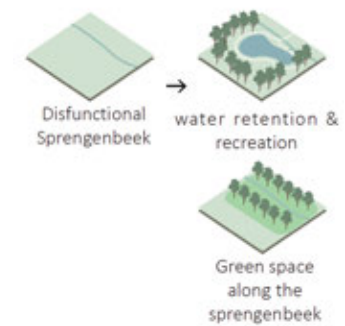
Proposed



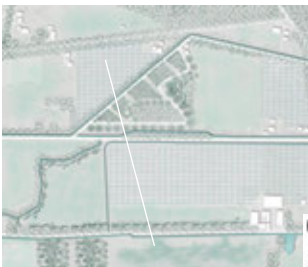
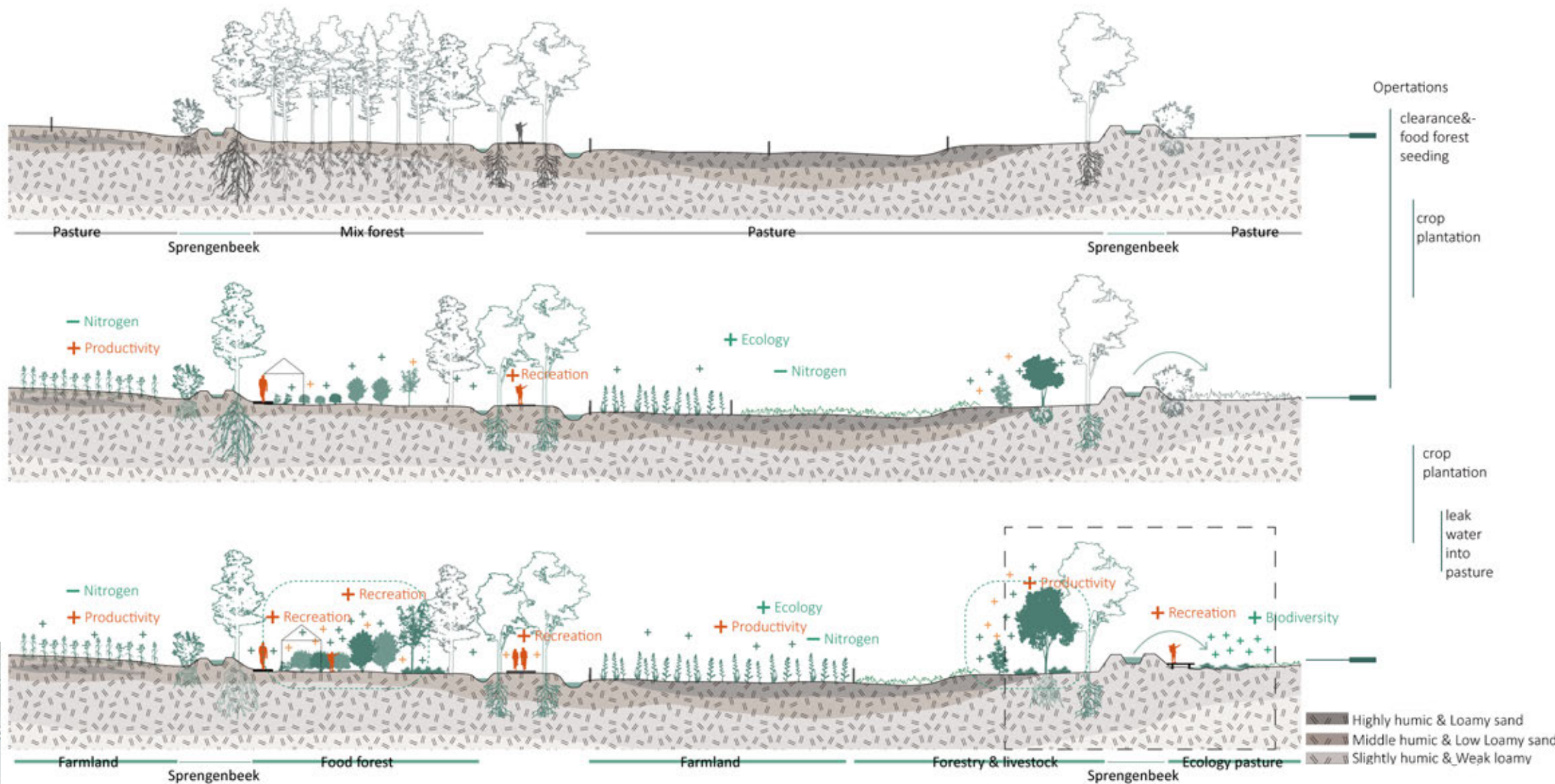
# Section1 : Sprengenbeek in Kampen landscape



# Experience: resilient sprengbeek & recreation ponds

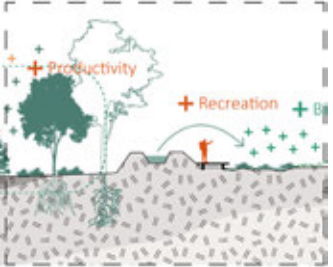
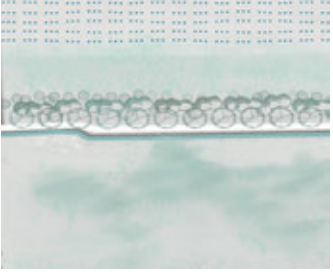
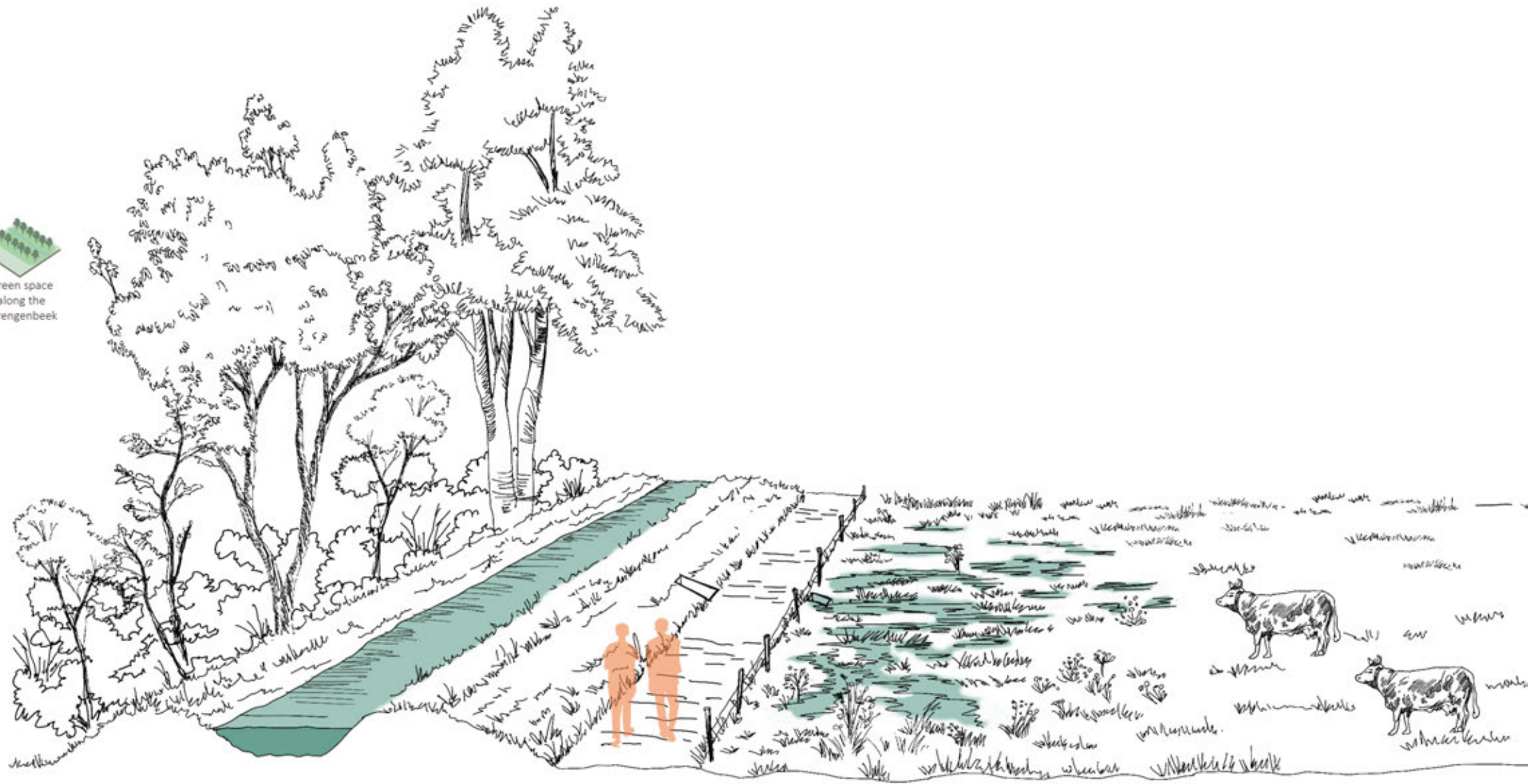
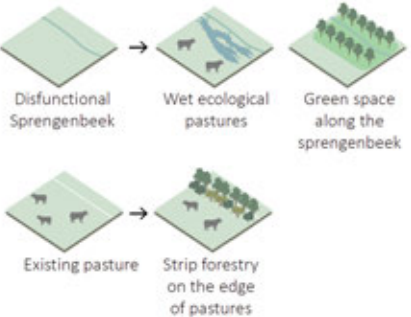


# Section 2 : Sprengenbeek in Kampen landscape



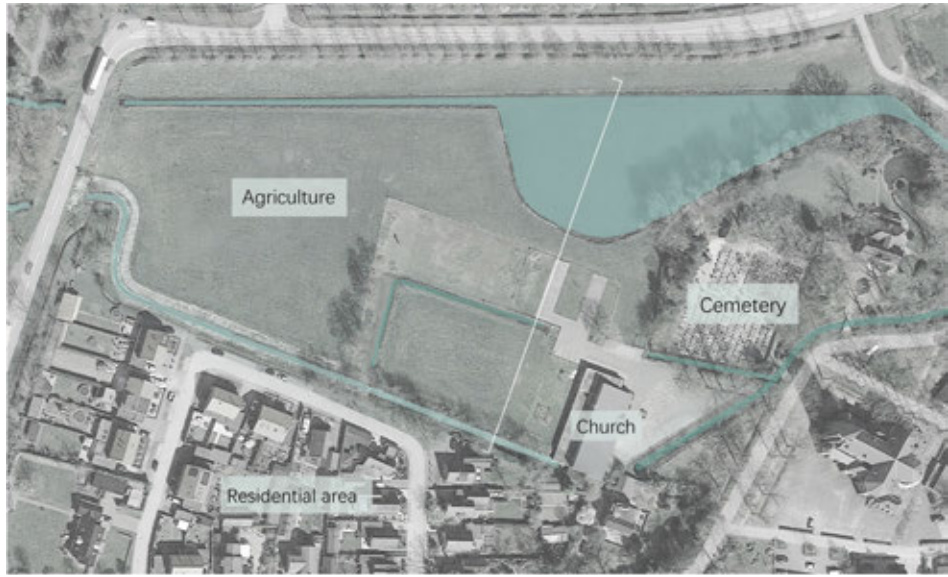
0 25m  
Vertically expanded 5 times

# Experience: Ecological pasture & Sprengenbeek & strip forestry



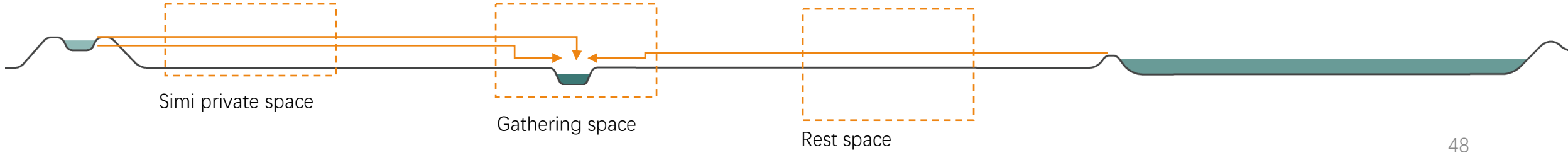
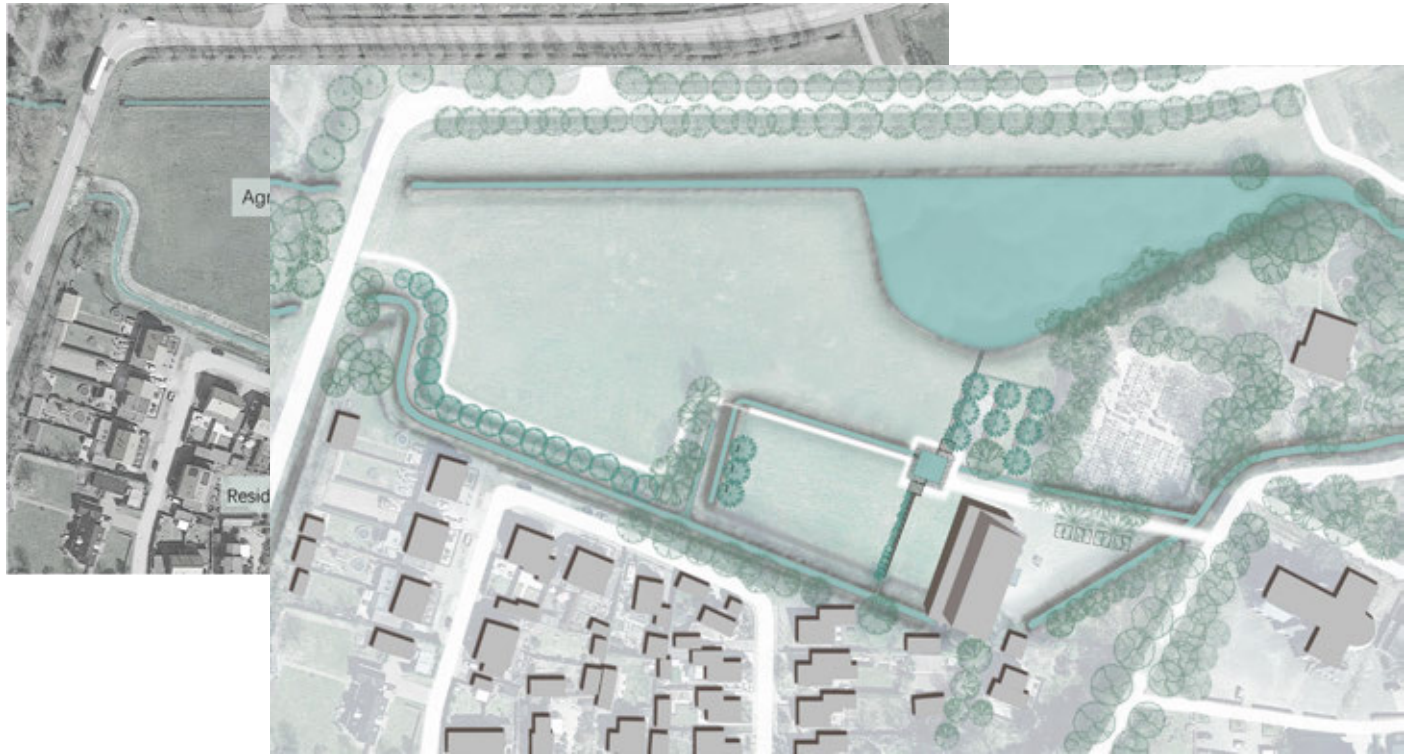
# 4. SPRENGEN STORING & USING IN URBAN

## Current



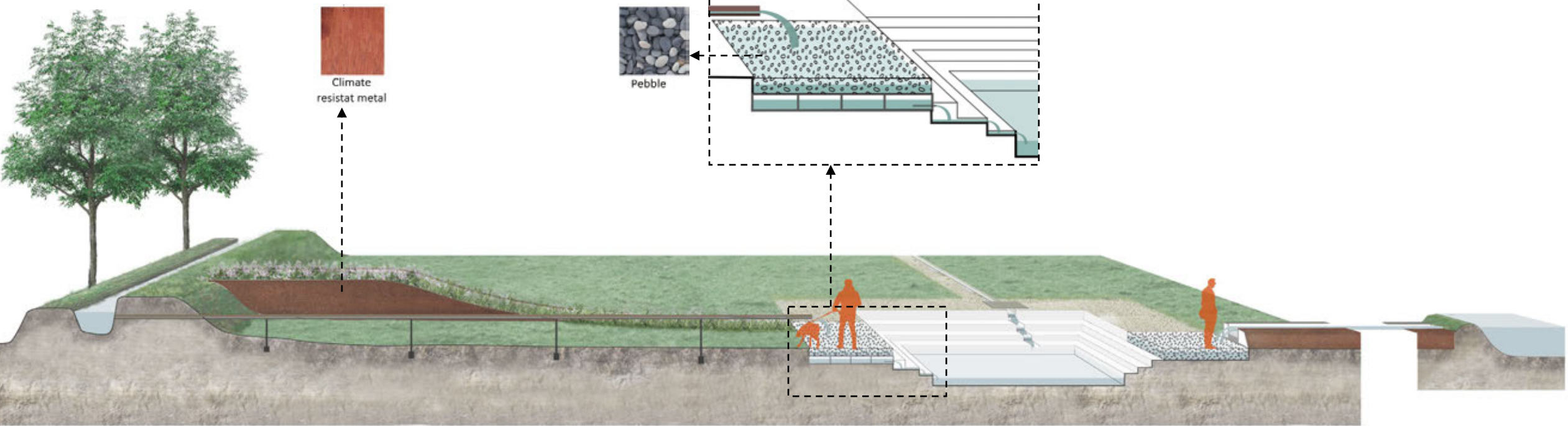
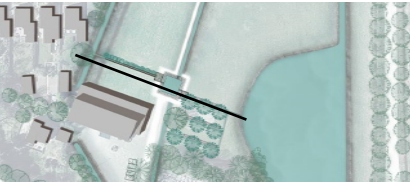
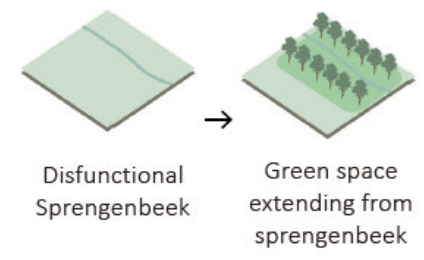
# 4. SPRENGEN STORING & USING IN URBAN

## Proposed

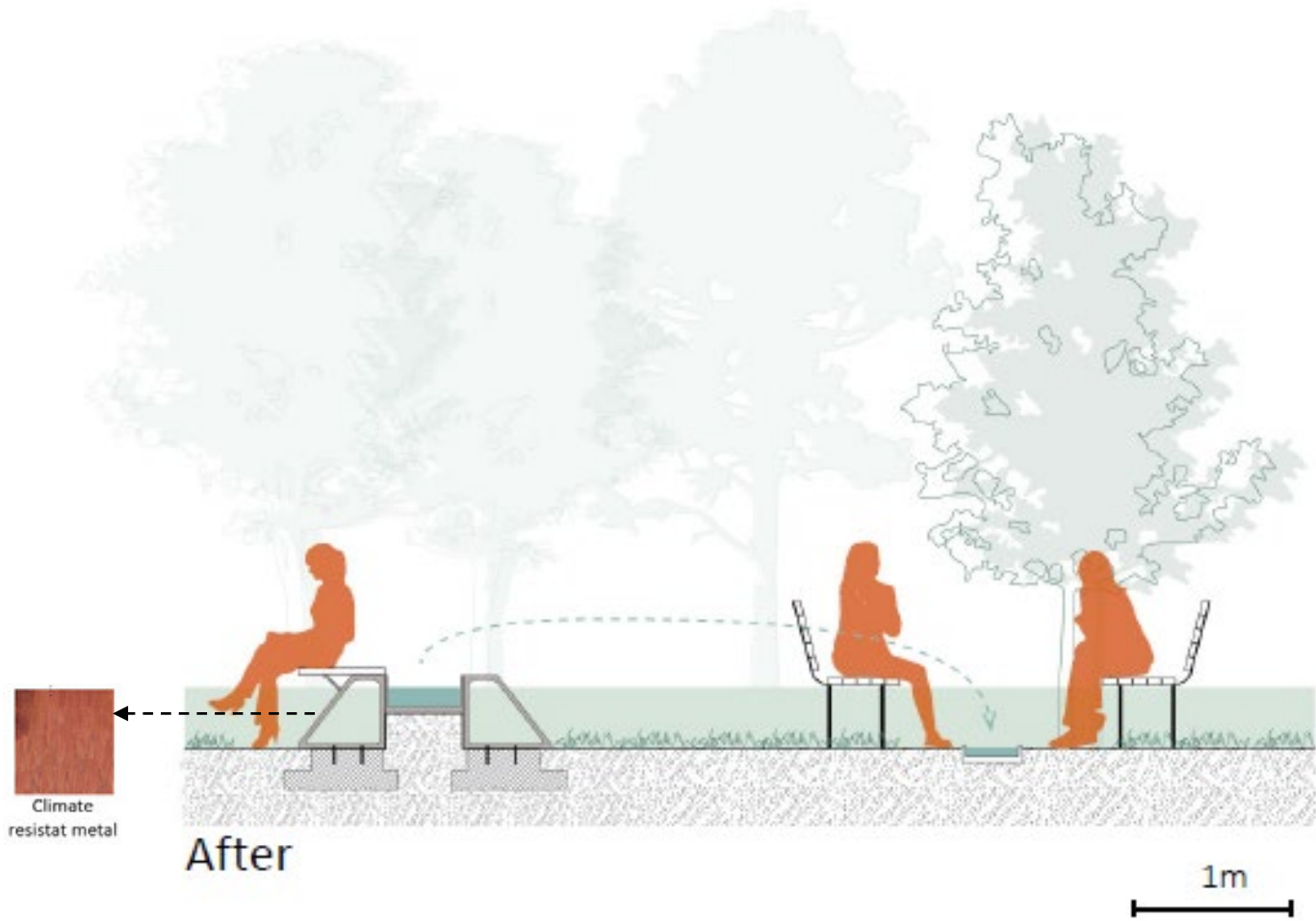
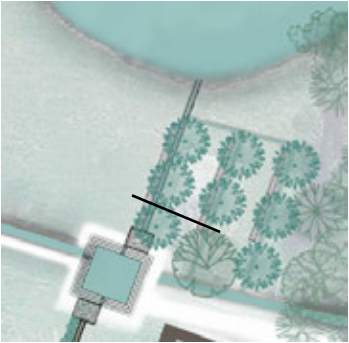
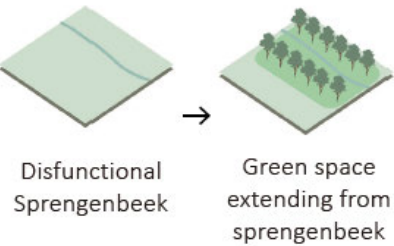




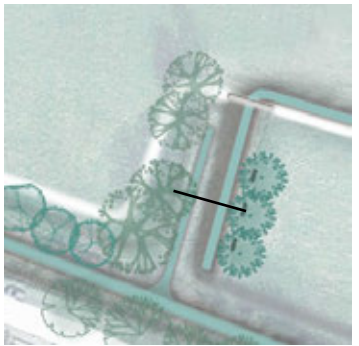
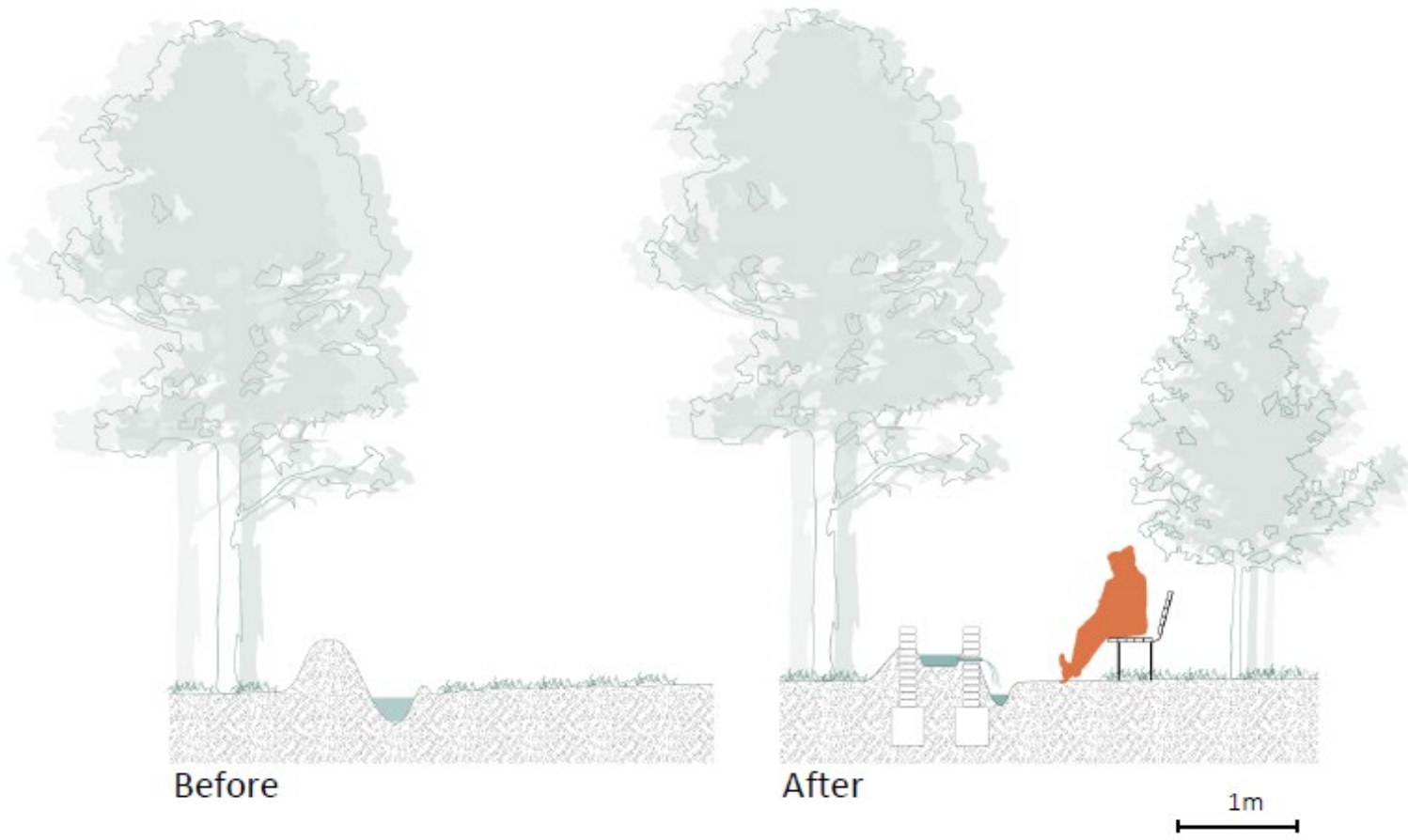
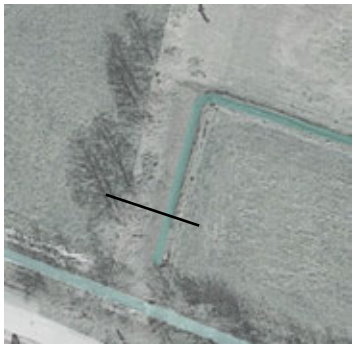
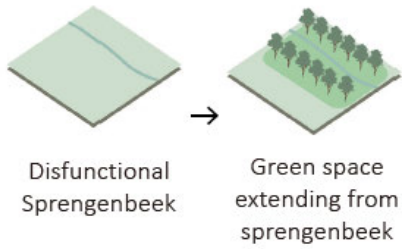
# Section1 : Narrative space - Gathering space



# Section 2 : Narrative space - Rest Space







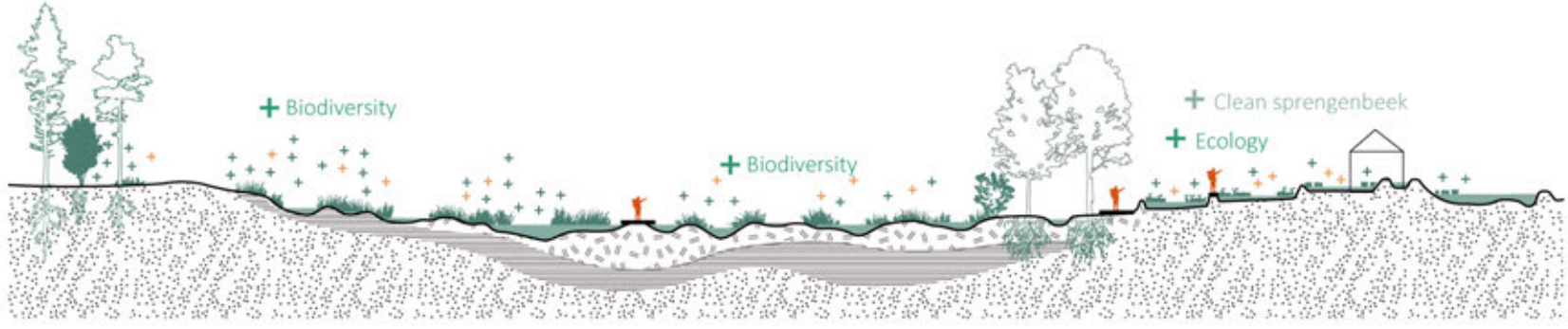
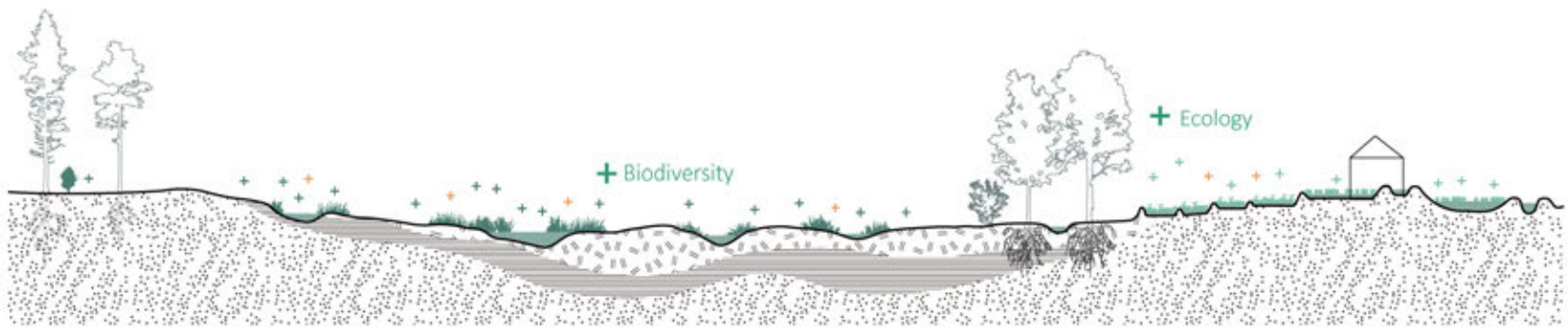
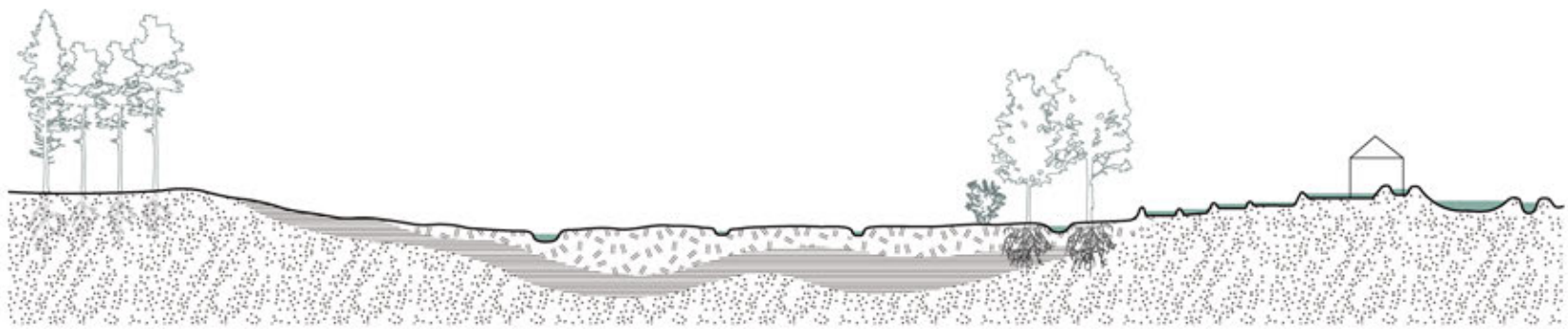
# Section 3 : Narrative space - Semi private Space



# SECTION - Previous fishponds



-  Cuscuta epithymum
-  Sundew
-  Bell gentian
-  Beenbreek



Opertations & maintainance

water purification

remove topsoil

remove topsoil

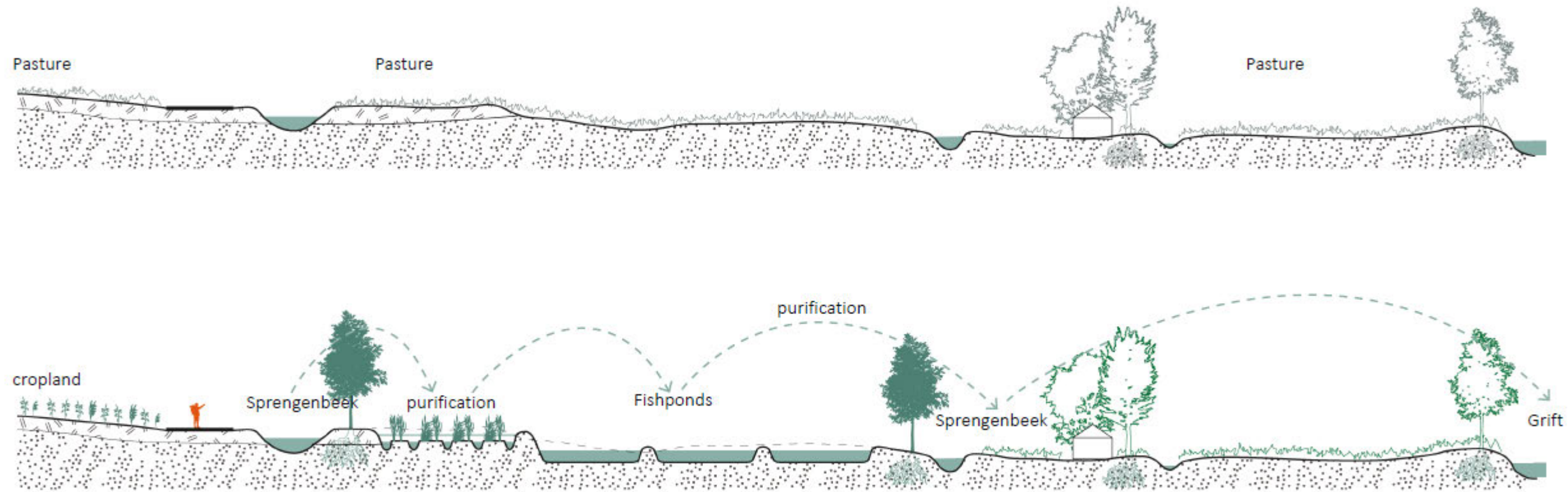
Emerging animals

Mix soil

Clay

Sany soil

# SECTION – New fishponds

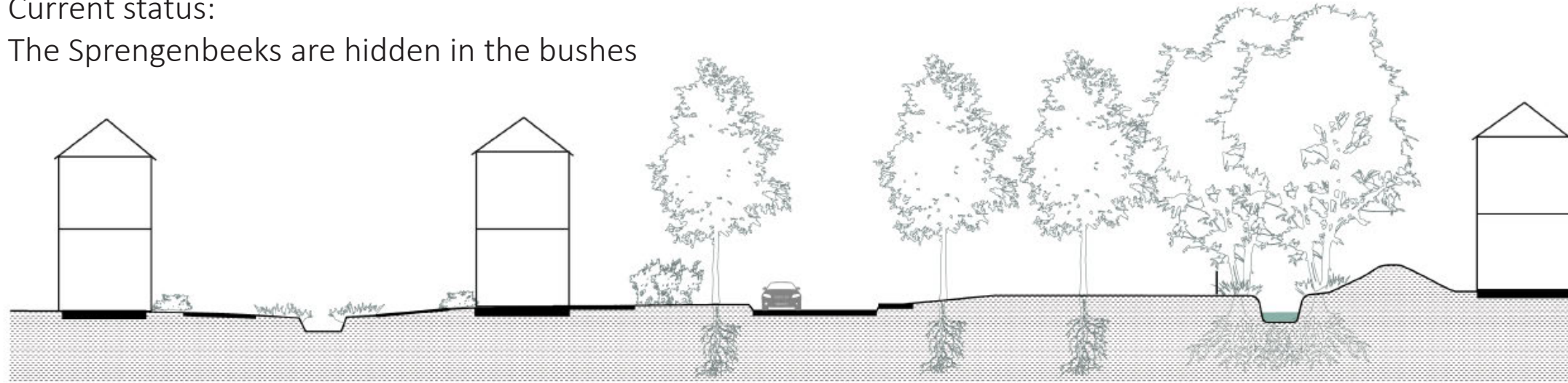


20m  
Vertically expanded 5 times

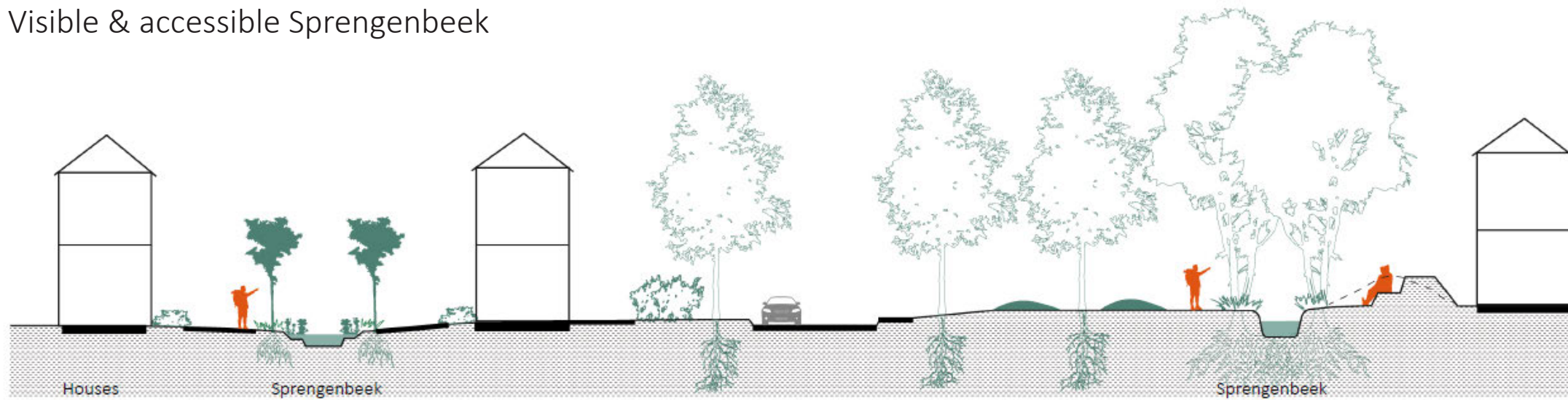
# SECTION – The Sprengenbeek in residential area



Current status:  
The Sprengenbeeks are hidden in the bushes



After design:  
Visible & accessible Sprengenbeek



Houses      Sprengenbeek      Sprengenbeek

10m

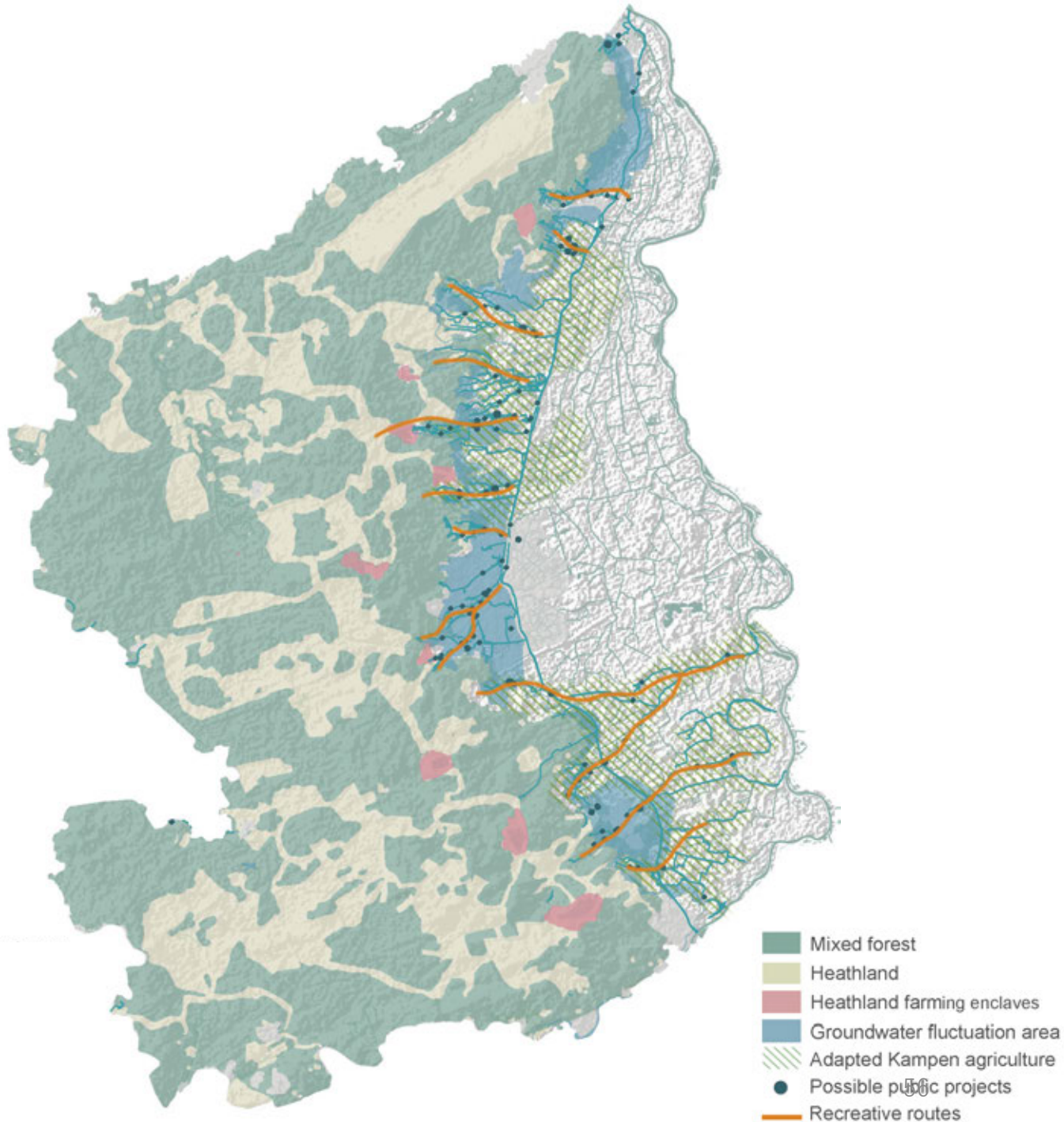
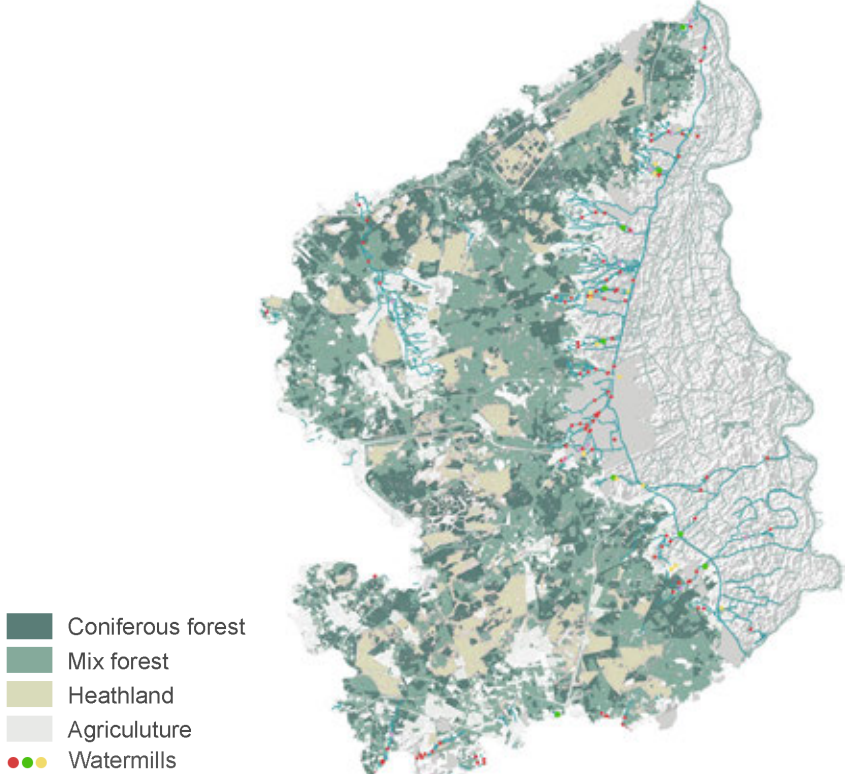
Vertically expanded 3 times

Aerial view



# REGIONAL FRAMEWORK

- 1. Promote infiltration by transforming coniferous forest
  - Mixed forest & heathland
- 2. Nature management by heathland farming
  - Heathland farming enclaves
- 3. Circular living
  - Adapted kampen landscape
- 4. Response to Groundwater Fluctuations
  - multifunctional buffer zone
- 5. Visible Sprengenbeek in rural and urban
  - Possible public projects
- 6. Fewer paths in the central, more paths on the edge
  - reorganize the recreative routes





## CONCLUSION

How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improving its ecological and heritage values?

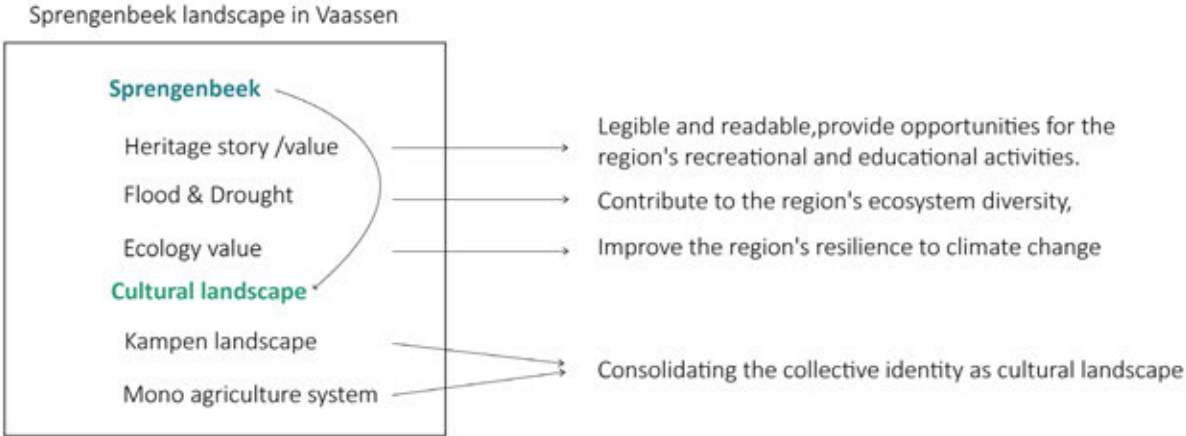
1. What is the **characteristic & values** of the Sprengenbeek landscape in selected area?



# CONCLUSION

How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improving its ecological and heritage values?

## 2. What **it the roles of the Sprengenbeek landscape** in the future?



# CONCLUSION

How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improving its ecological and heritage values?

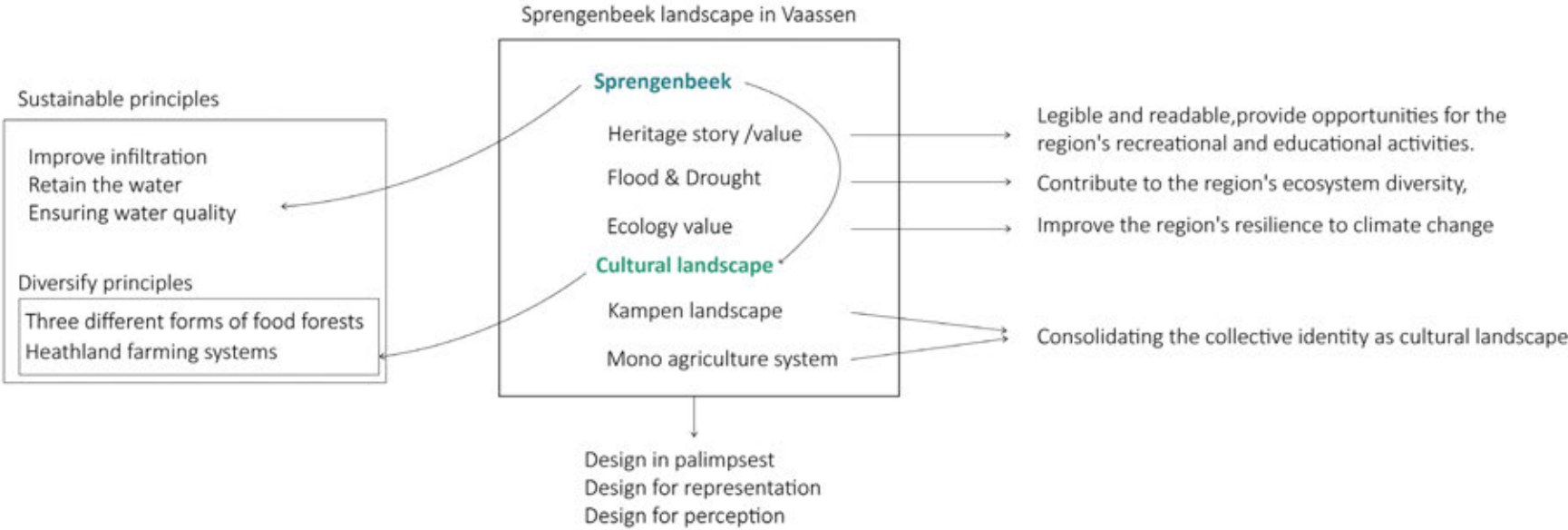
3. How to make the Sprengenbeek landscape more **sustainable and diverse**?



# CONCLUSION

How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improving its ecological and heritage values?

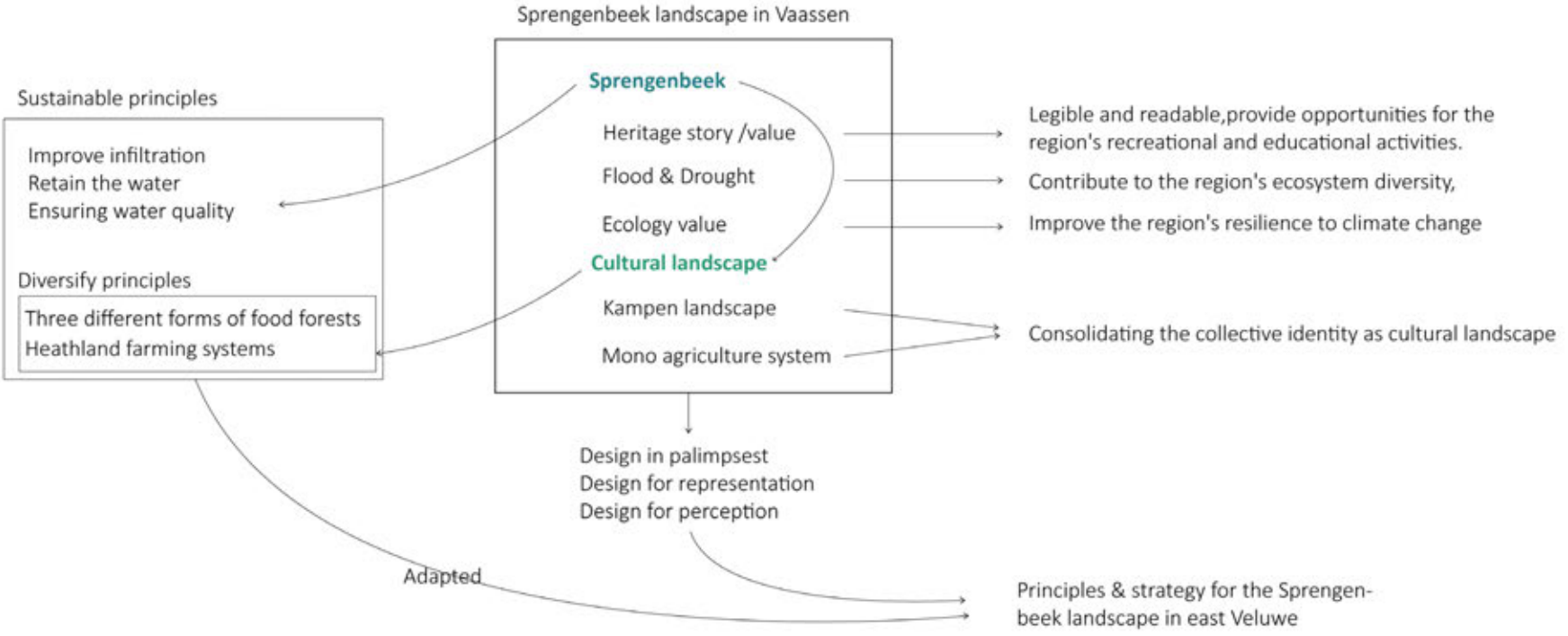
4. How to make the heritage of the Sprengenbeek System and the identity of cultural landscape become more **spatial recognizable**?



# CONCLUSION

How to enhance the identity & spatial quality of the Sprengenbeek landscape, and at the same time, improving its ecological and heritage values?

5. Can we find **common design principles and strategy** for the Sprengenbeek landscape in east Veluwe?



An aerial architectural rendering of a park or urban development. The scene features a central river or waterway with a winding path along its banks. The area is densely populated with various types of trees, including tall evergreens and shorter deciduous trees. There are several large, open green spaces and what appear to be sports fields or playgrounds. The overall color palette is muted, with greens, browns, and greys, giving it a soft, illustrative feel. The text 'THANK YOU' is overlaid in the center in a dark, bold, sans-serif font.

**THANK YOU**

Yunshu Jiang  
Circular Water Stories  
02/09/2022