

# **TIANXIAO CHEN | PORTFOLIO**

## **SELECTED WORKS 2017-2021**

SOUTHEAST UNIVERSITY

Applying For

MLA UNIVERSITY OF PENNSYLVANIA

## STATEMENT

The love for nature and customs made me pay more attention to the symbiotic relationship between man and nature in the study of landscape architecture. The undergraduate studies on traditional villages and weak groups also question me about the fairness and sharing of urban public spaces. At the graduate level, it is hoped that the issue can be solved through various means such as big data or landscape design.

## EDUCATION

09/2017-07/2022 Southeast University (SEU), Nanjing, China  
Major: Landscape Architecture  
GPA: 3.77/4.0  
IELTS: 7.0

## PRACTICE

11/2019-10/2021	<b>Study on Sustainability of Traditional Villages/ SEU</b> Literature Review «Research status and development trend of protection and utilization of traditional villages» Research Results Paper «Quantitative Evaluation and Comparative Study of Traditional Village Living Protection from the Idea of "production-ecology-life"» Responsibility: Research Method Model Construction, Field and Questionnaire Survey, Data Processing and Paper Writing, etc
08/2021-10/2021	<b>Company Internship/ Nanjing Hydraulic Research Institute</b> Cognition of Water Conservancy Engineering for Waterfront Landscape Responsibility: Restorative Landscape Design for Industrial Park, Understanding and Application of waterfront landscape engineering technology, etc
08/2020-09/2020	<b>Garden Surveying and Mapping/ SEU</b> Conservation mapping of endangered villages Responsibility: Exploration of Building Damage, Correction of Draft Errors, etc
06/2018	<b>2018 Tongji University International Construction Festival/ Shanghai, China</b> Project: Starry Weaving ——First Prize, Team Work Responsibility: Project Design, Examination of Weaving Technique, Installation Construction, etc.

## EXPERIENCE

10/2021	<b>The 4th International Digital Landscape Architecture Conference/ SEU</b> Volunteer & Organizer Responsibility: Venue Guide, Coursework Presentation, Software Testing, etc.
04/2019-05/2019	<b>School-enterprise Exchange/ SEU</b> First Event Initiator, Organizer, Planner in College Responsibility: Contact Enterprise, Long-term Academic Discussions, Promotion Activities, etc.
07/2018-08/2018	<b>Volunteer Activity in Mountainous Areas/ SEU</b> Volunteer Teacher Responsibility: Field Investigation, Recording of Survival Situation, Giving Instruction, etc.

## PRO SKILLS



## INTERESTS



## CONTENTS

1

### STONE RIVER

Water Treatment with Chronostratigraphy Exhibition | 01

Time: 03/2020

Type: Individual Academic Project

2

### SOCIAL FOOD

Broken down Class Barriers with Urban Agriculture | 8

Time: 09/2021

Type: Individual Academic Project

3

### HISTORICAL ECHOES

Soundscape Responds to Etiquette Procedures | 15

Time: 05/2020

Type: Individual Academic Project

4

### En Attendant Luehdorfia chinensis

Coexistence Conservation Planning Based on Gist | 23

Time: 06/2021

Type: Collaborative Academic Project

# 1

## STONE RIVER

Water Treatment with Chronostratigraphy Exhibition

Location: Nanjing, Jiangsu, China

Area: 80,000 m<sup>2</sup>

Type: Individual Work

Time: 03/2020

Institution: Southeast University

Tutor: Zhun Yao

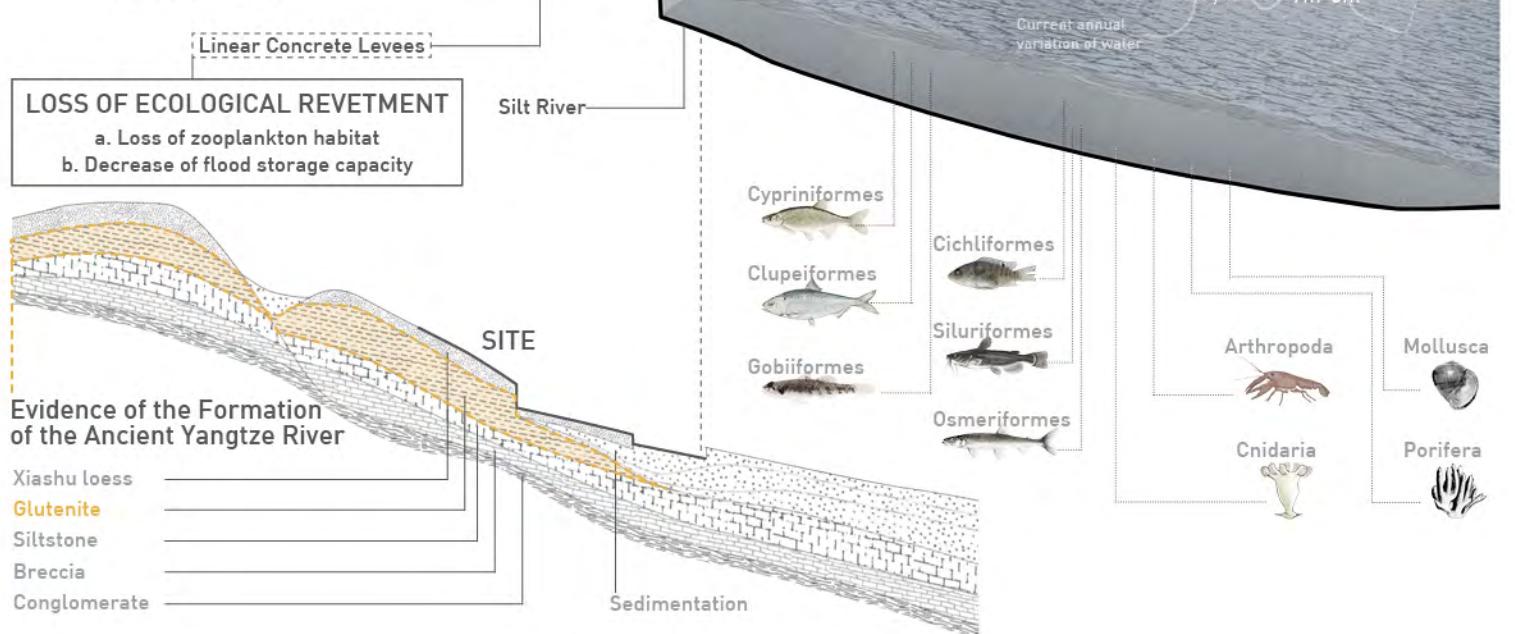
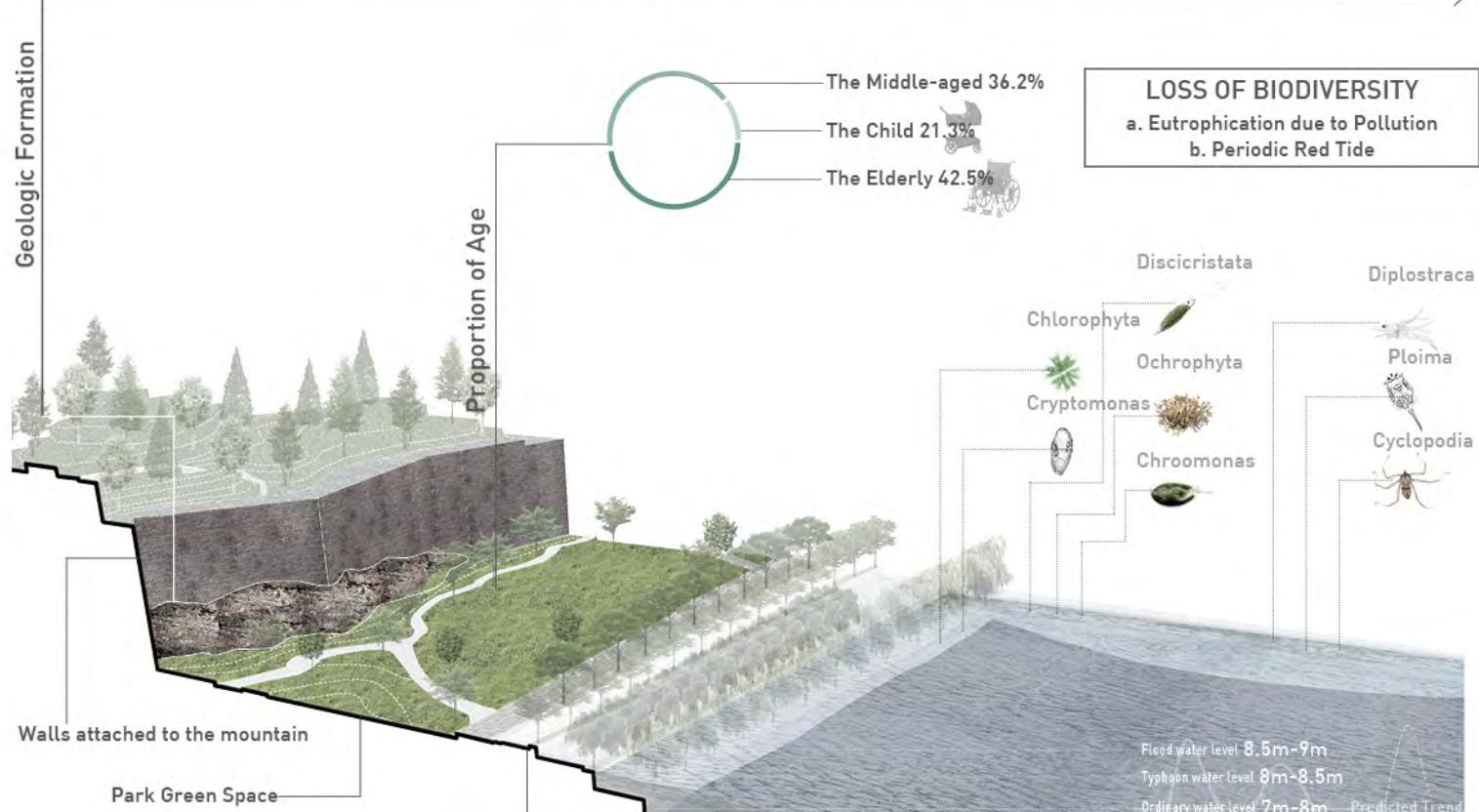
The urban renewal should not simply function as a fresh new sheet, but a palimpsest, an overlay of new and old footprint, so that the future can have the opportunity to dialogue with the past through the gap between the layers. But does the regional geological feature in the historical process have the possibility of becoming a local label?

In combination with the unique geological generation process and the problems of eutrophication and lack of biodiversity, a ecological water purification process is constructed under the city wall, and the geological states at different stages are shown by the influence of the river in this process. Finally, the ecological wetland under the city wall will be formed in a longer temporal dimension.

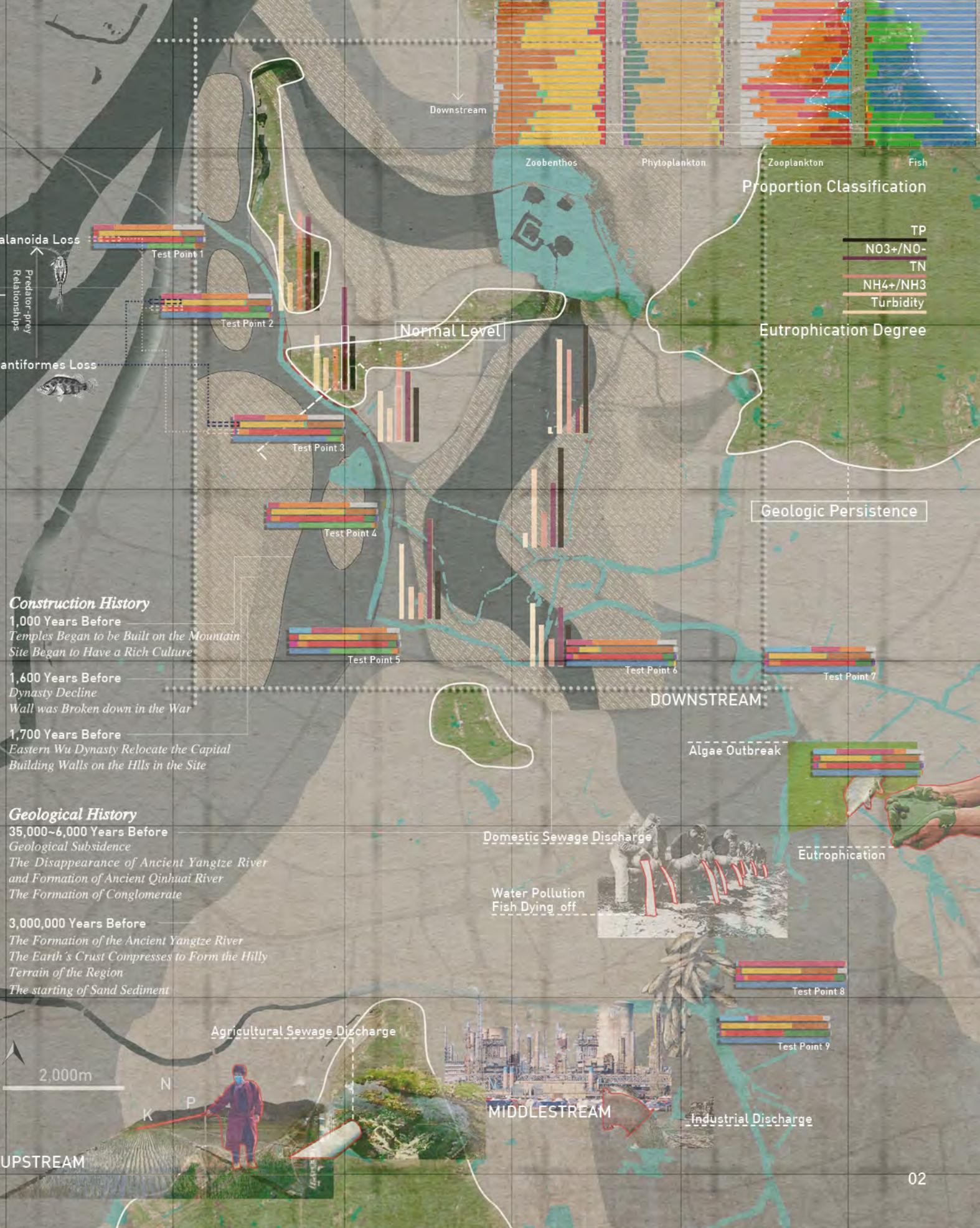
Geological Section

## EUTROPHICATION AND FORGOTTEN GEOLOGICAL HISTORY

The discharge of sewage in the river has caused serious ecological pollution to the river. Hard revetment also reduces biodiversity along the river, further exacerbating the frequency and severity of eutrophication. The geological features of the site, as evidence of the river's formation and History of city construction, are also ignored in daily use.

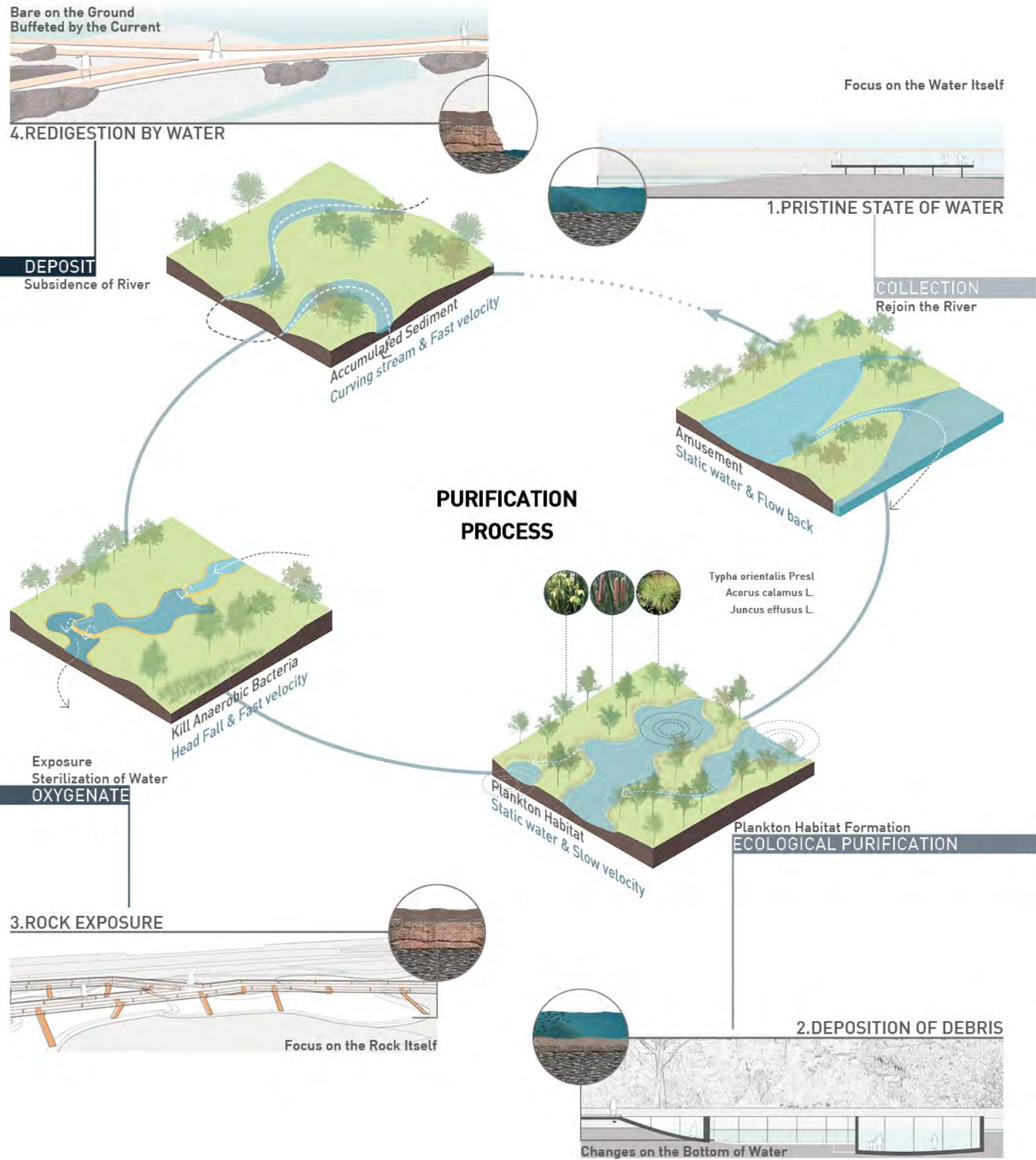


## A CITY WHERE RIVERS PILE UP

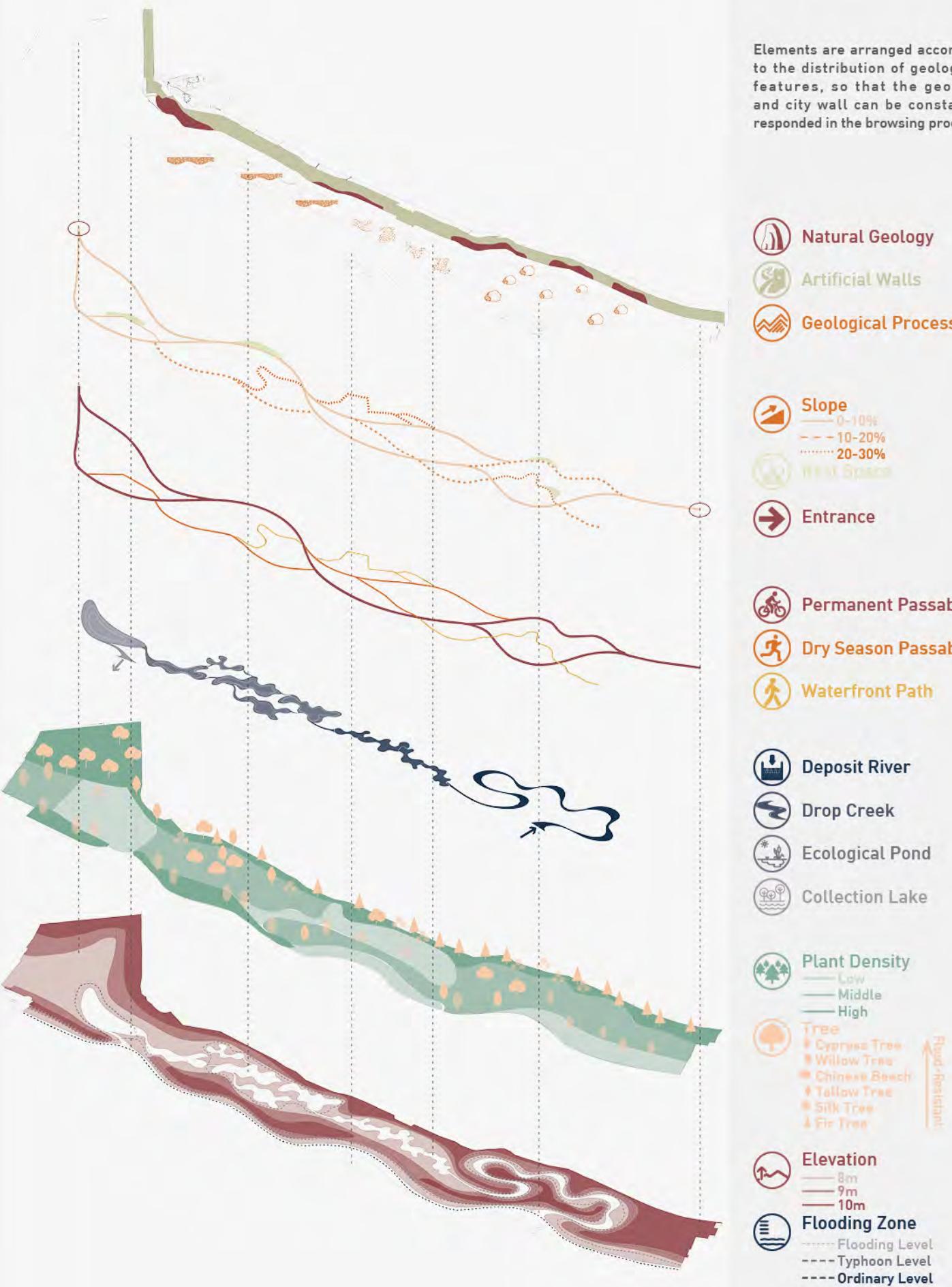


## ECOLOGICAL REMEDIATION + GEOLOGICAL MEMORIES

The **soft revetment** is restored along the river to carry out ecological renovation, and **ecological water purification program** is constructed to play a role in **flood diversion** and to create a wetland to **restore ecological diversity**. And the **evolution of geological state** combined with ecological procedures for linear display.

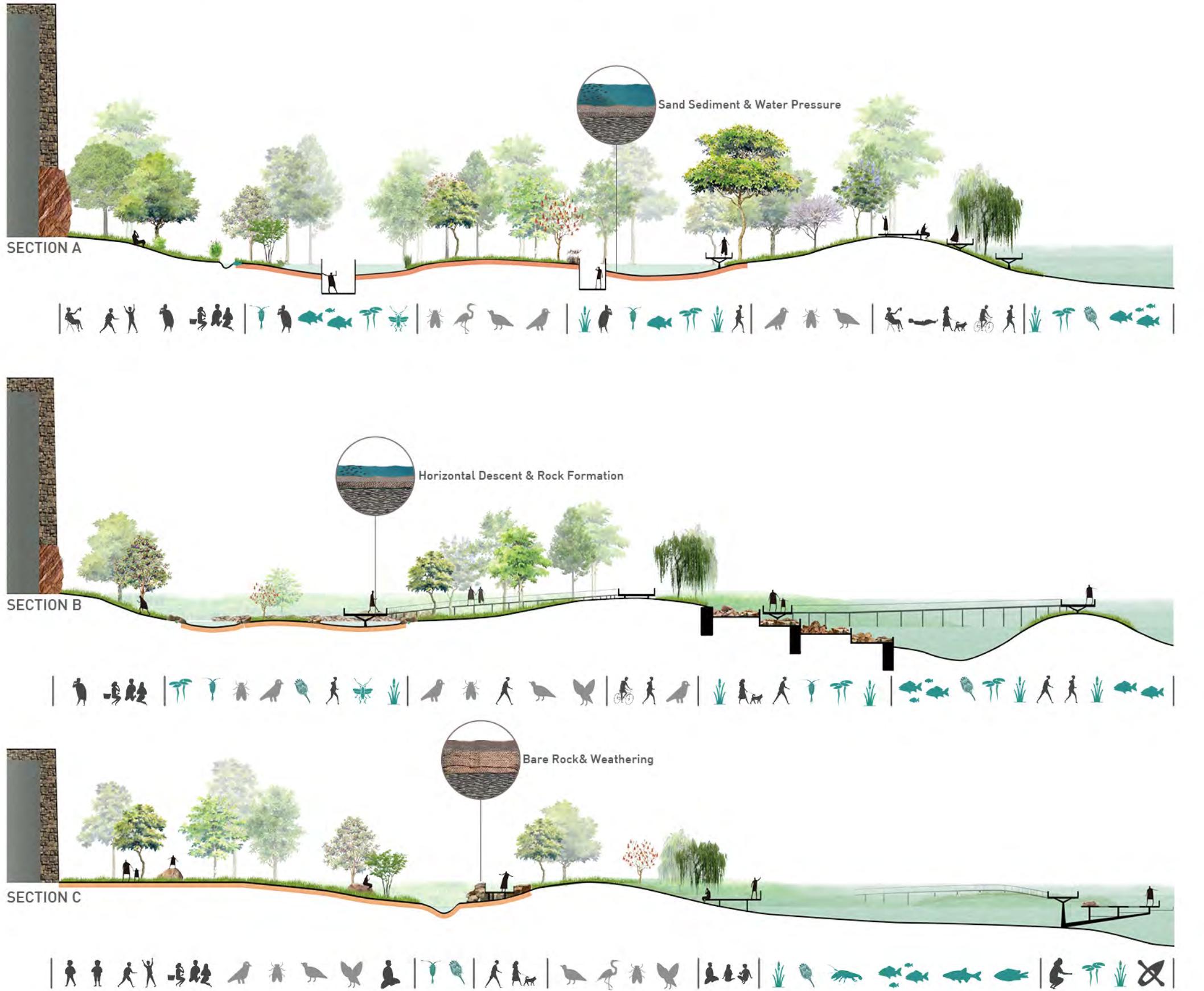


Elements are arranged according to the distribution of geological features, so that the geology and city wall can be constantly responded in the browsing process.



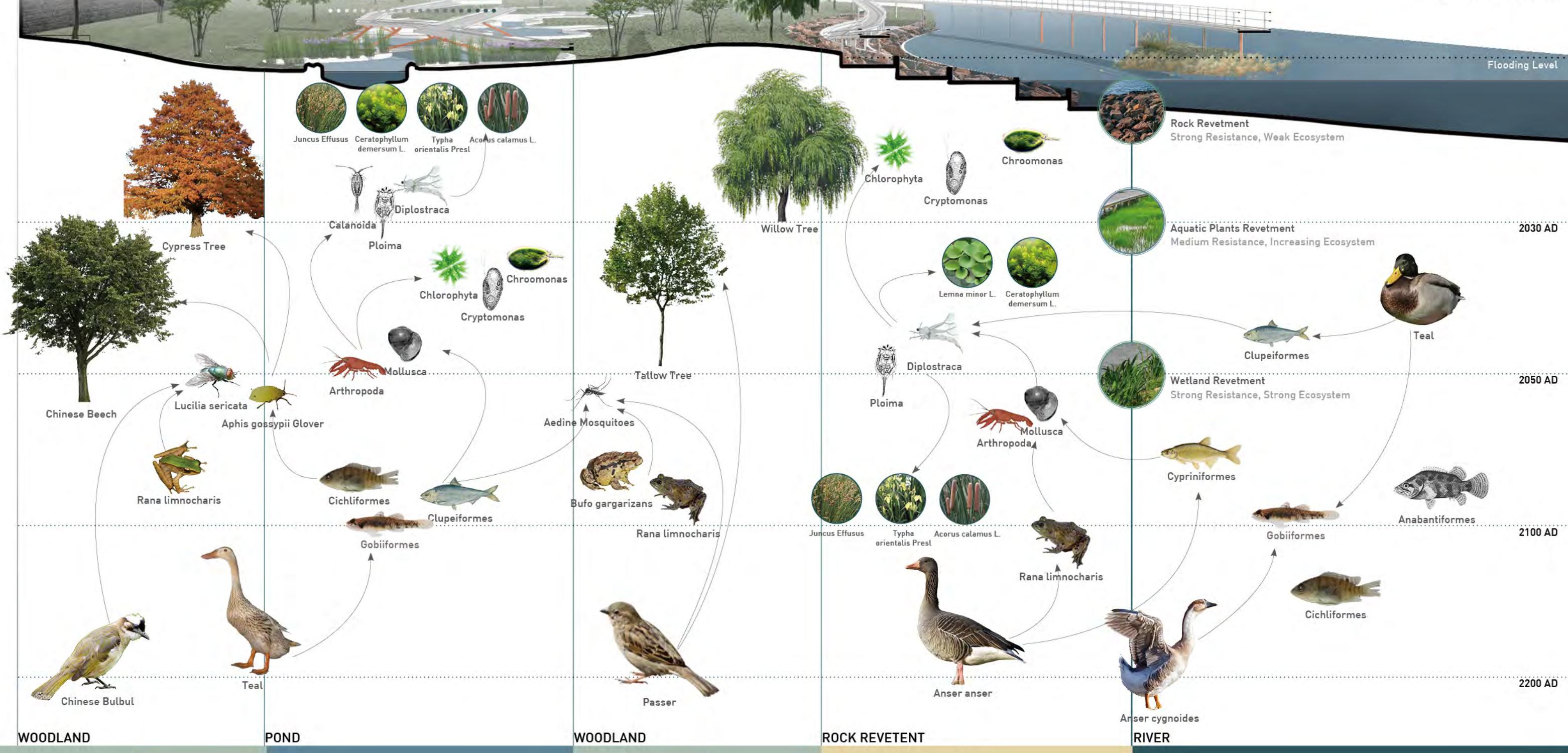
## WATER TREATMENT EXHIBITION AND CHRONOSTRATIGRAPHY

According to the relationship between geological processes and water, the relation between the man's height of sighting line and geological layer are changed accordingly. According to the illumination and biological environment required by different water purification processes, the surrounding environment and planting design are constructed literally.



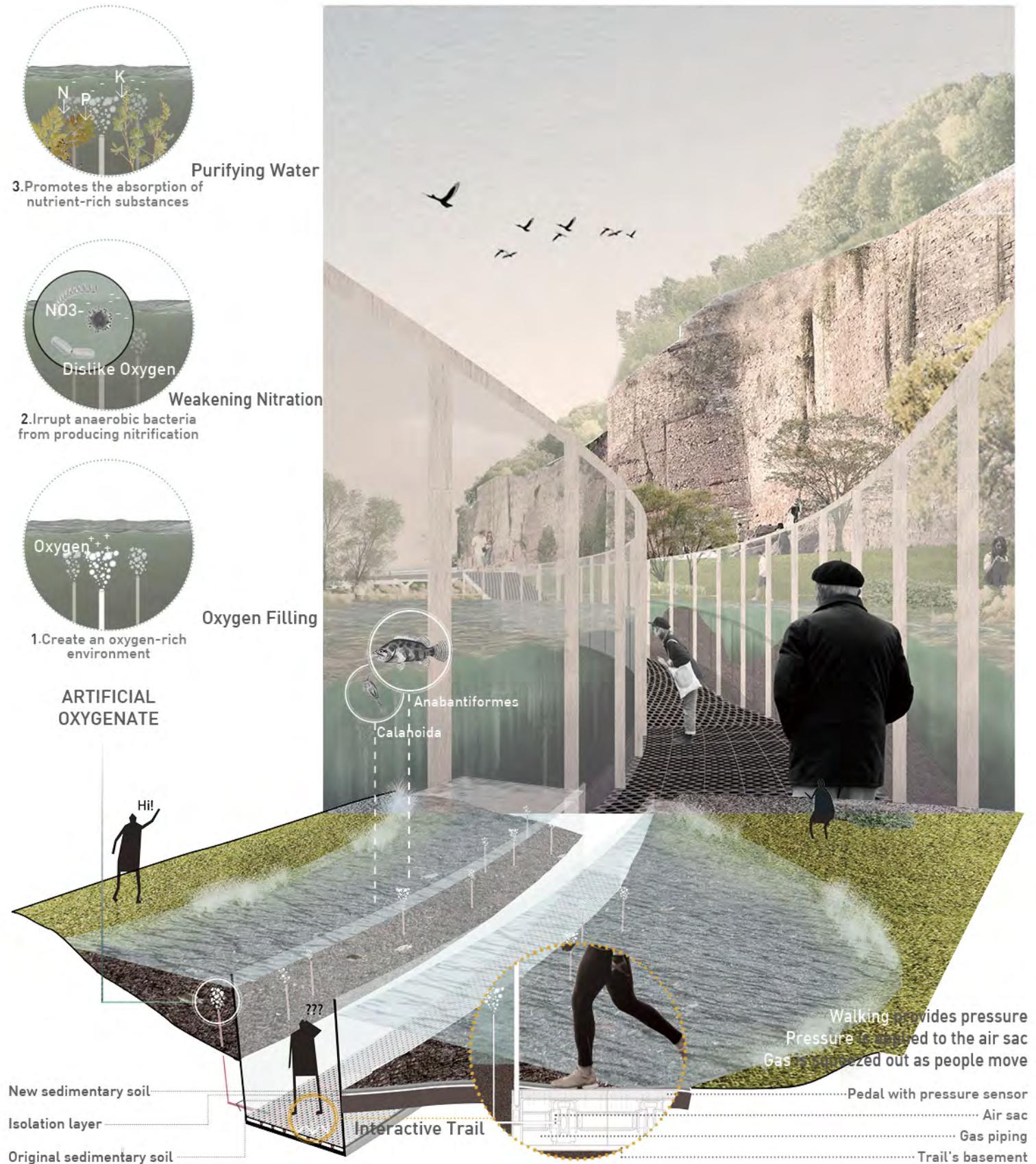
## FROM GEOLOGY TO ECOLOGY

Over time, the stone in the site is transformed into a **base for plant growth**. As sea levels rose, a new round of geological formation began again. The site will gradually change into an **ecological wetland**, and the relationship between the river and the  wall will return to the state it was 3,000 years ago eventually.



## INTERACTIVE LITHOLOGY

Through the combination of walking and oxygenating, people can see the geological layer and create an oxygen-rich environment in the water to promote the absorption of eutrophic elements at the same time. The impact of water flow accelerates rock erosion, contributing to increase recognizable changes in the temporal dimension of the landscape.



## CHRONOSTRATIGRAPHY DYKE

Through the combination of stone and hard revetment, the rock can weaken the water erosion of revetment. In this process, eroded rock fragments are collected by rigid construction to form the soil base for planting waterfront plants. It will gradually evolve into a **soft revetment** and also became a **habitat** for aquatic animals and plants.



## 2

## SOCIAL FOOD

### Broken down Class Barriers with Urban Agriculture

During urbanization, the social stratification of the landscape is happening inexorably. All participants in urban activities have unconsciously become recipients of that information, leading to the spontaneity of the people involved in public activities. More and more vulnerable groups lost their right to live freely and had to follow the direction of the social hierarchical order implied by the established space.

Spatial justice is an important basis for the autonomy of the unheard. Therefore, the rediscovery of the existing urban space should give a new meaning to the public space that was considered as low value. By combining urban agriculture and transportation trails, I created re-employment for lost-land farmers and offered the possibility of a space for all people to engage in activities that eliminate class differences.

Location: Fuzhou, Fujian, China

Area: 40,000 m<sup>2</sup>

Type: Individual Work

Time: 09/2021

Institution: SA

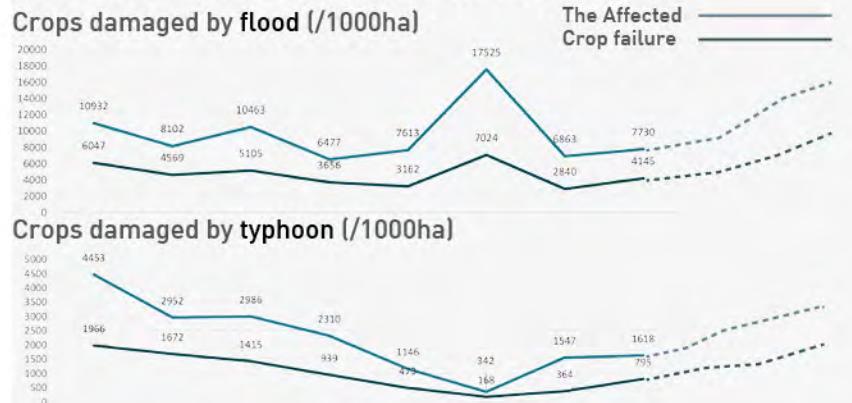
Tutor: Shirley, Joyce Zhu



## FOOD CRISIS CAUSED BY URBANIZATION

Decrease of cultivated land and increase of land-lost farmers bring potential problems. The shortage of food in the city, employment and quality of life of the new citizens can not be guaranteed. With the outbreak of COVID-19, self-help for urban residents has become a new point in the post-epidemic era.

### INCREASING AGRICULTURAL DISASTERS



### SOCIAL STRATIFICATION

Change in Production Mode & Lack of Spatial Justice

### HIGH LOGISTICS COST

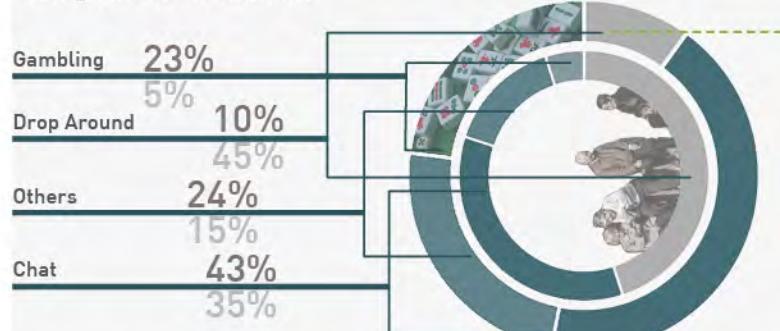
Intensive Production & Long Distance Transportation

### HIGH PRODUCTION RISK

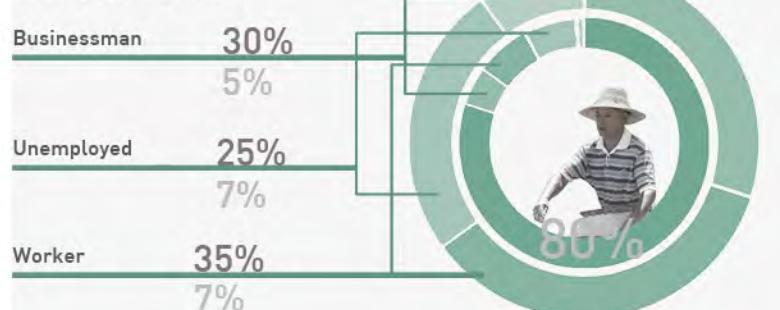
Meteorological Disasters & Emergency Situation

### BEHAVIOR AND OCCUPATION SURVEY

Change in Entertainment



Change in Career



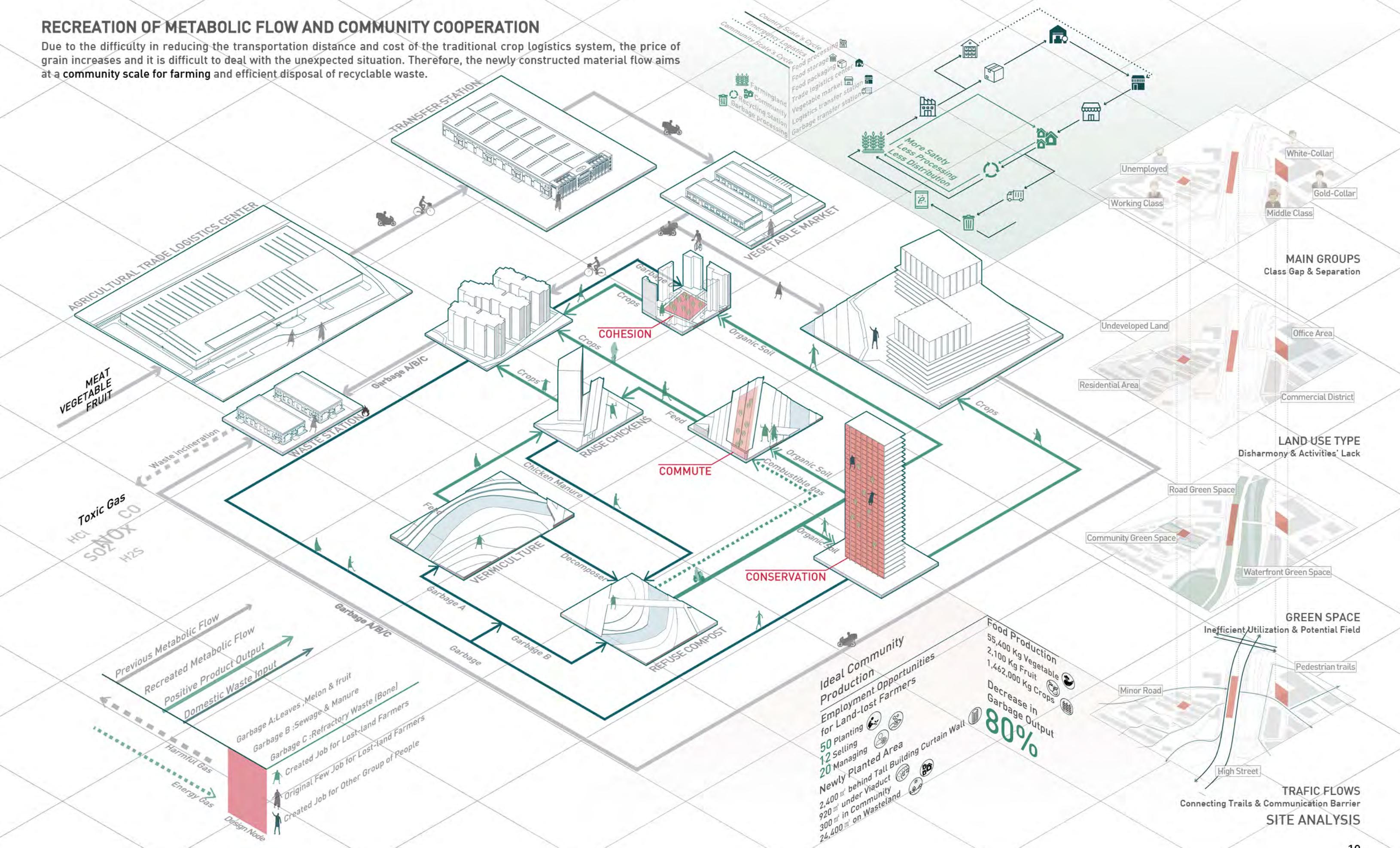
### COUNTRYSIDE

Lineage Society  
Ritual Activity  
Farming Life



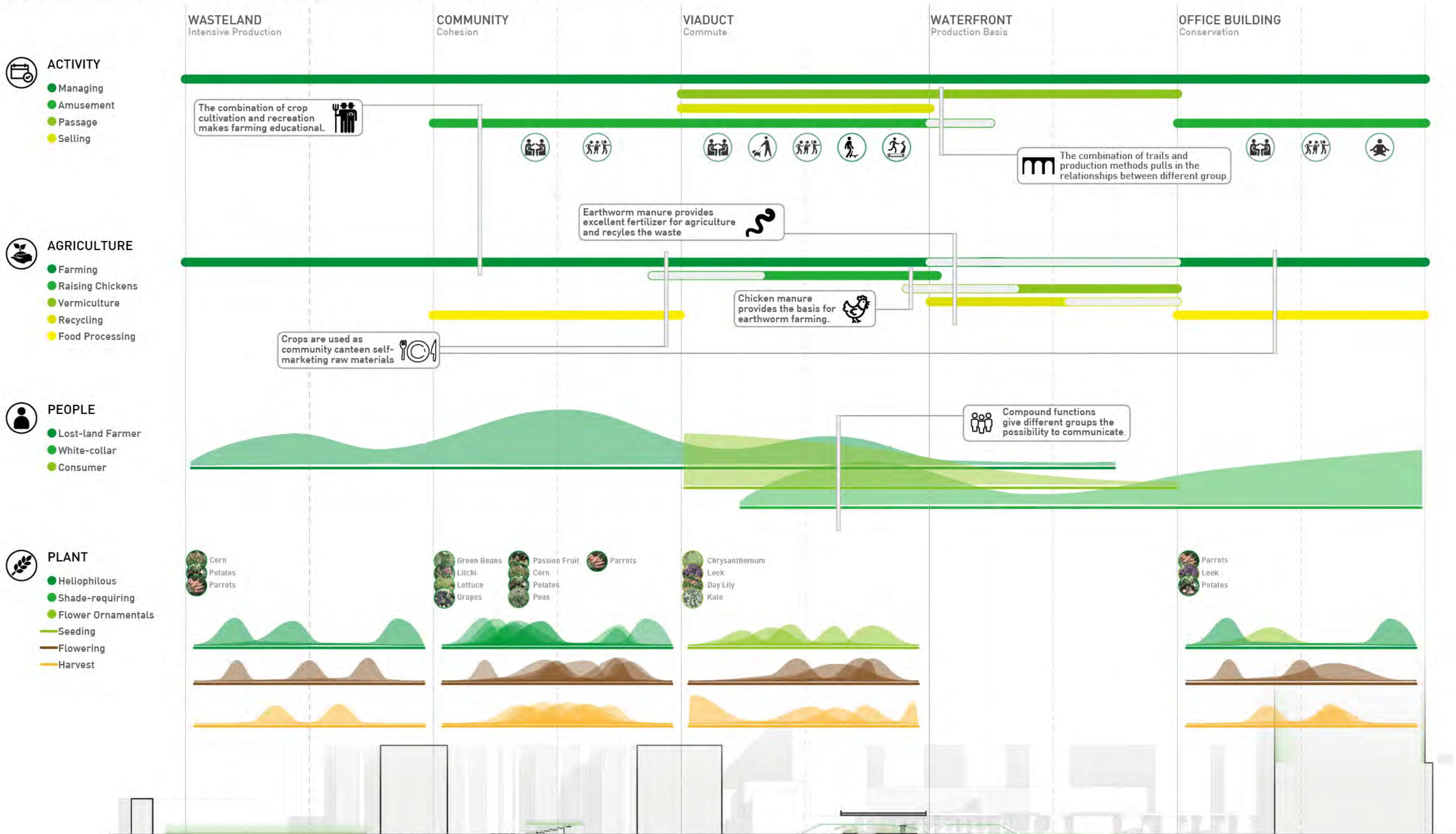
## ~~RECREATION OF METABOLIC FLOW AND COMMUNITY COOPERATION~~

Due to the difficulty in reducing the transportation distance and cost of the traditional crop logistics system, the price of grain increases and it is difficult to deal with the unexpected situation. Therefore, the newly constructed material flow aims at a **community scale for farming** and efficient disposal of recyclable waste.



## INFLUENCE AT URBAN SCALE

In urban agricultural design, it can not only meet the needs of **community cohesion**, **safe passage**, **shading** and **reducing energy consumption** of indoor temperature control, but also alleviate the problems of food shortage in communities and **re-employment of land-lost farmers**. The extendable design also offers the possibility of reaching more communities.



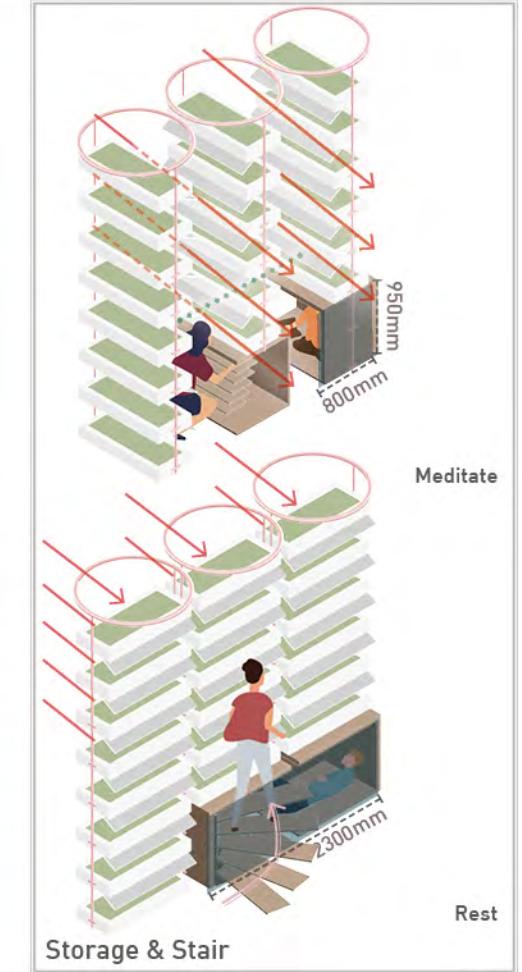
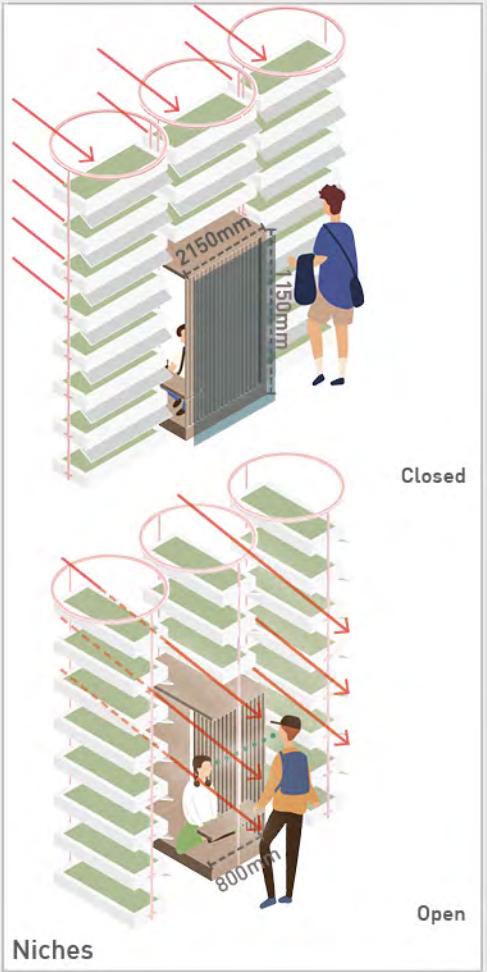
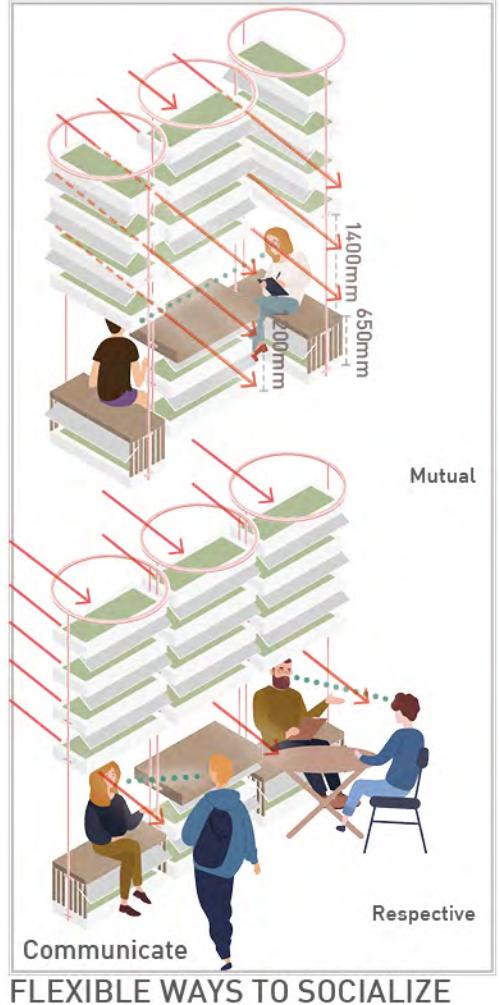
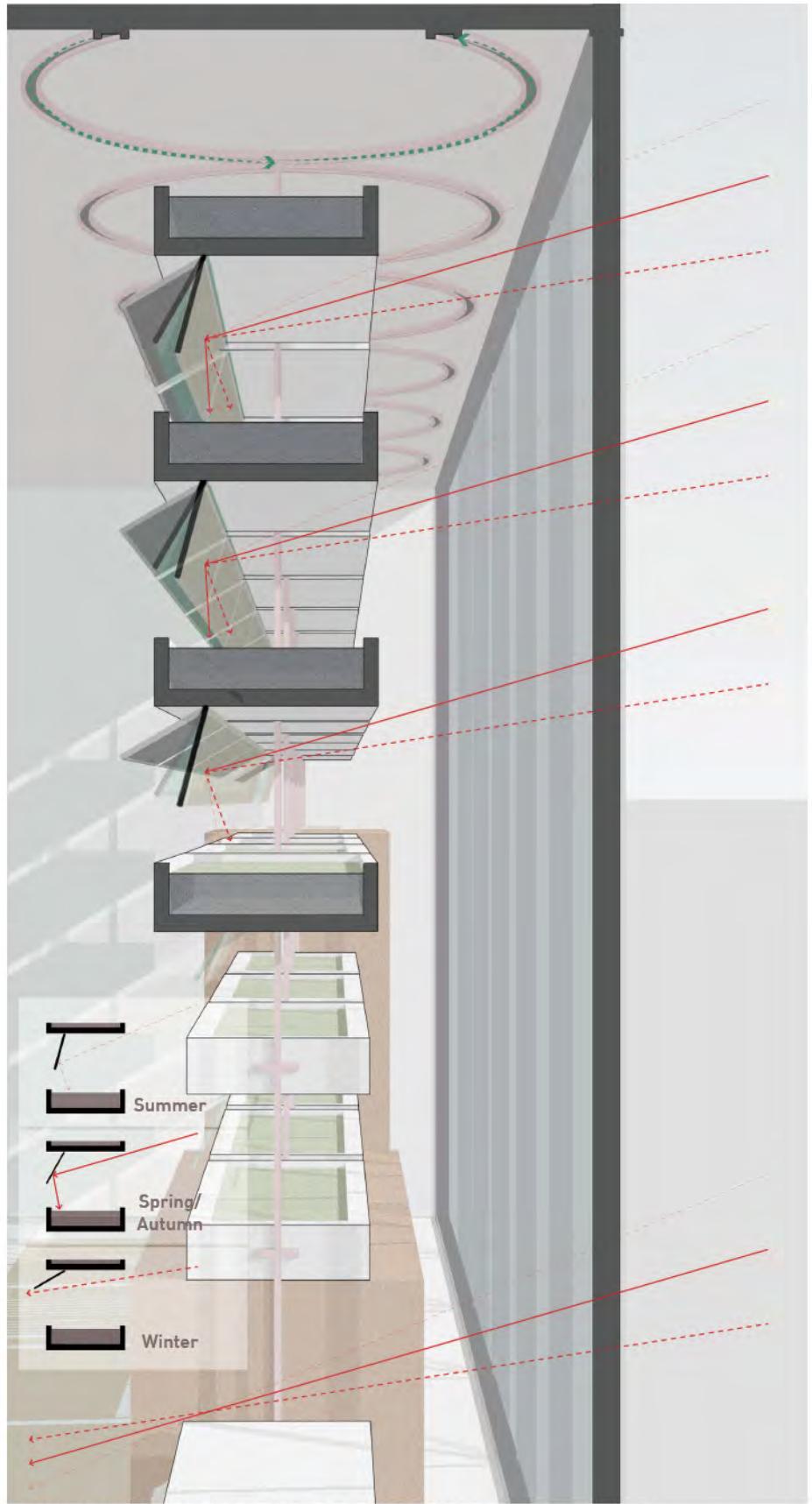
## COMMUTE: VERTICAL AGRICULTURE UNDER VIADUCT

Artificial lighting technology makes the operation of agriculture free from the restriction of sunlight, and the agricultural development of abandoned space under the overpass is also possible. Combining agricultural activities with human activity space, a corridor under the bridge suitable for people of different classes to join activities is constructed.



## CONSERVATION: ECOLOGICAL SHUTTERS WITH SOLITUDE

Vertical agricultural planting is used instead of traditional shutters, which not only uses sunlight more efficiently, but also reduces the temperature control energy consumption brought by the glass curtain wall. Space combined with agriculture also provides an opportunity to communicate and draws in the distance between people and food.



FLEXIBLE WAYS TO SOCIALIZE



## COHESION: URBAN TERRACE WITH SHARED KITCHEN

Aiming at the problems of **empty nesters** and lack of communication among the land-lost farmers in the community, the reconstruction of agricultural activities is taken as the base point to establish the **afforestation transformation** of the community integrating entertainment activities, agricultural production and shared restaurants.



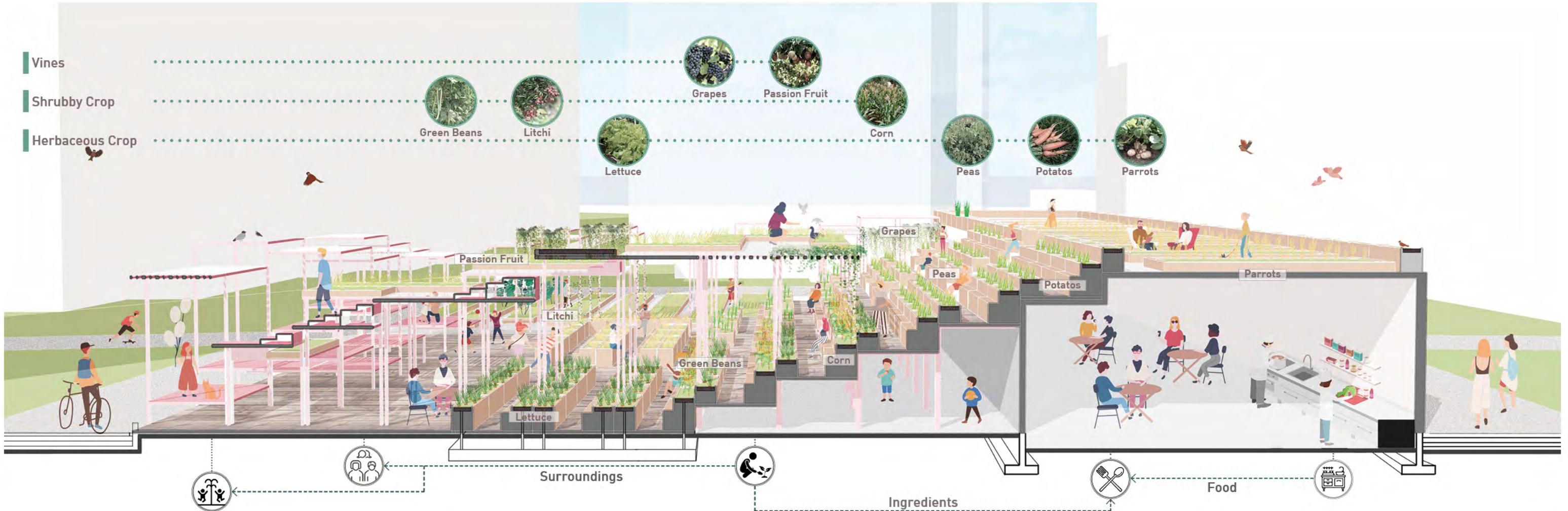
AIR TERRACE ; SHARING ENTERTAINMENT



SHARED PLANTING ; COMMUNITY THEATRE



COMMUNITY RESTAURANT ; SHARED KITCHEN





# 3

## HISTORICAL ECHOES

Soundscape Responds to Etiquette Procedures

Location: Nanjing, Jiangsu, China

Area: 20,000 m<sup>2</sup>

Type: Individual Work

Time: 05/2020

Institution: Southeast University

Tutor: Yang Shen

As Amos Rapoport said, "The environment is also temporal and therefore can also be seen as temporally organized, reflecting and influencing the actions that take place in time." And the landscape in this process is like a window that builds up a temporal connection, reflecting the transparent superimposed relationship of different historical processes.

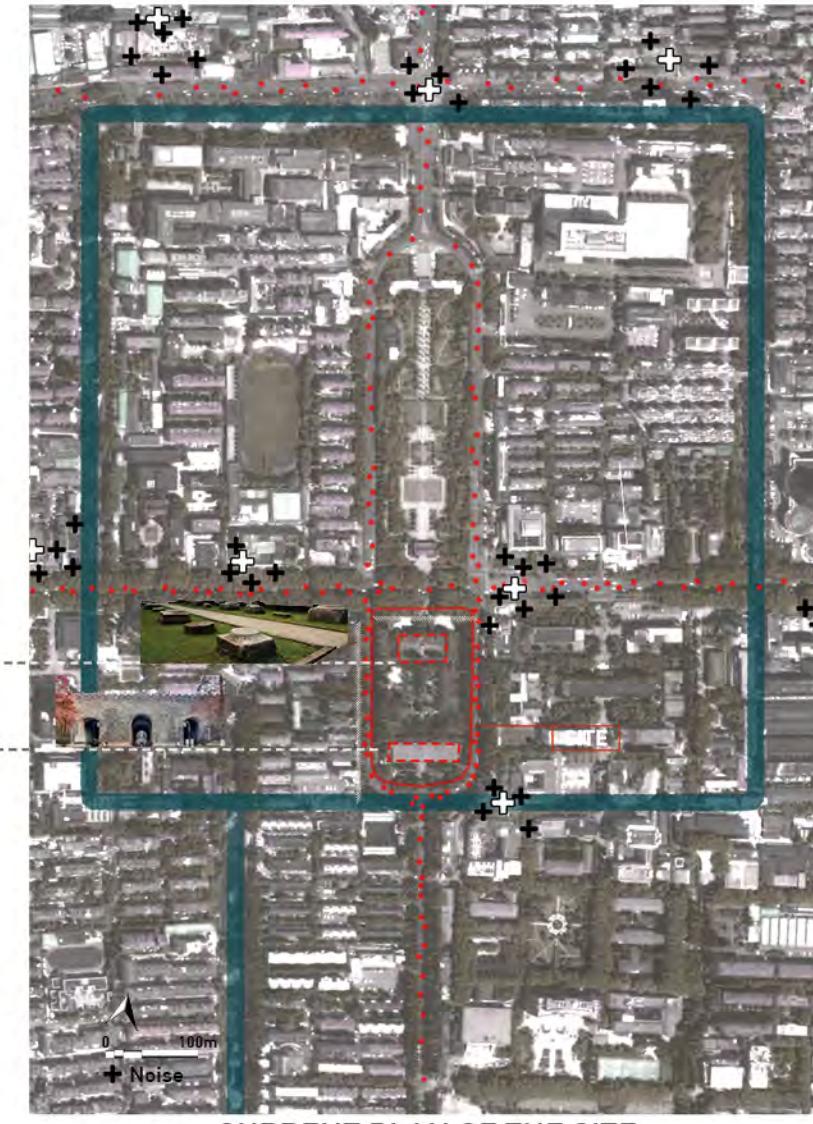
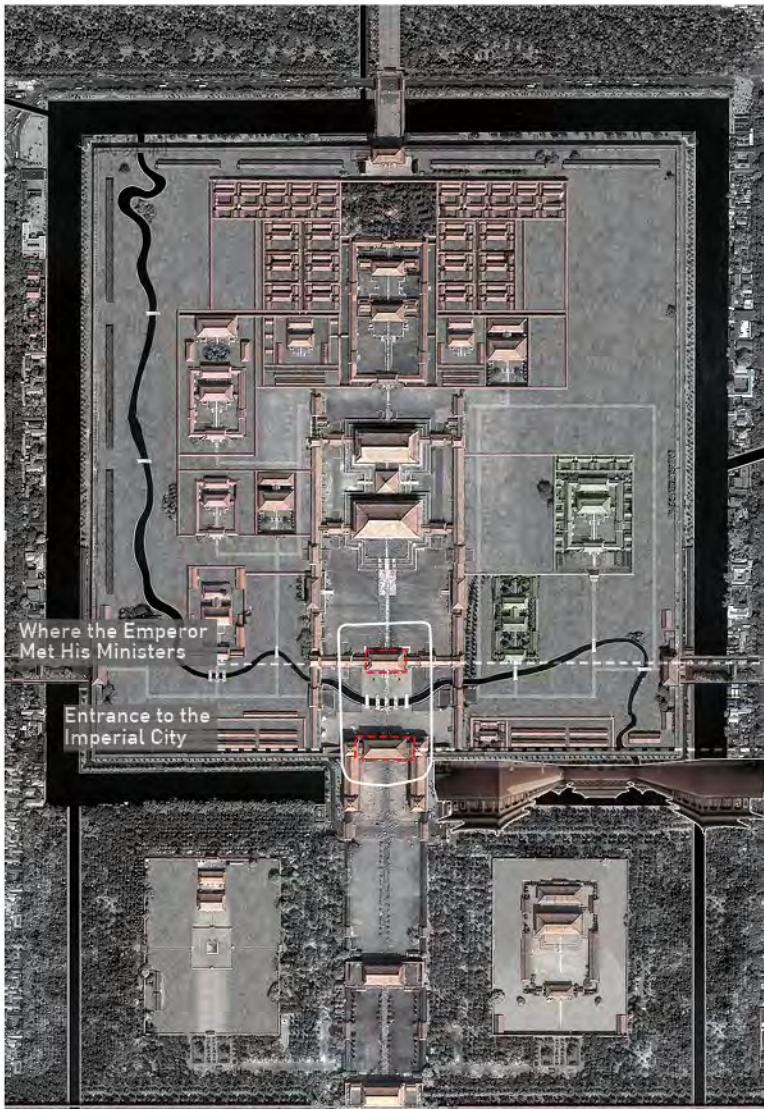
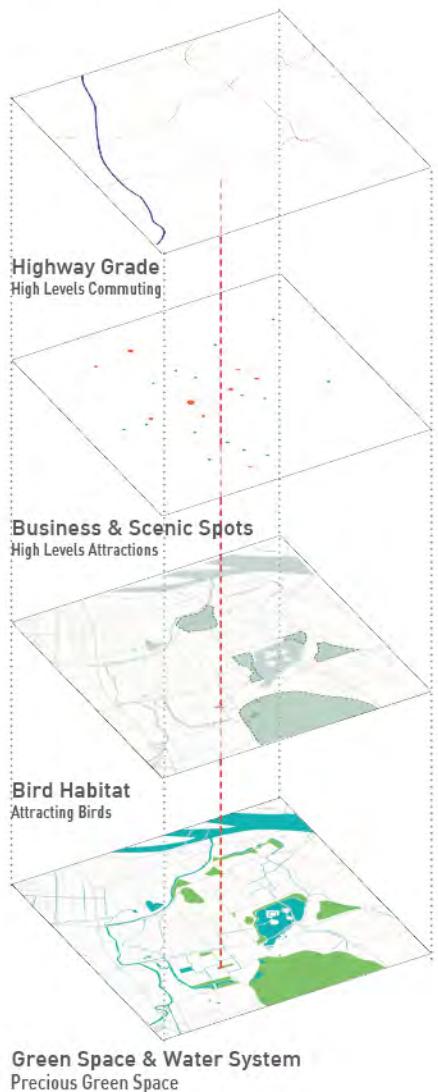
In the design of the Palace Ruins Park, I used sound as the starting point, and through the secondary transformation of the sound generated by the users' activities at present, I built a temporal connection with the sound generated by the ritual procedures that took place in the past palace, and therefore reveal the transparency of the site in the temporal dimension.



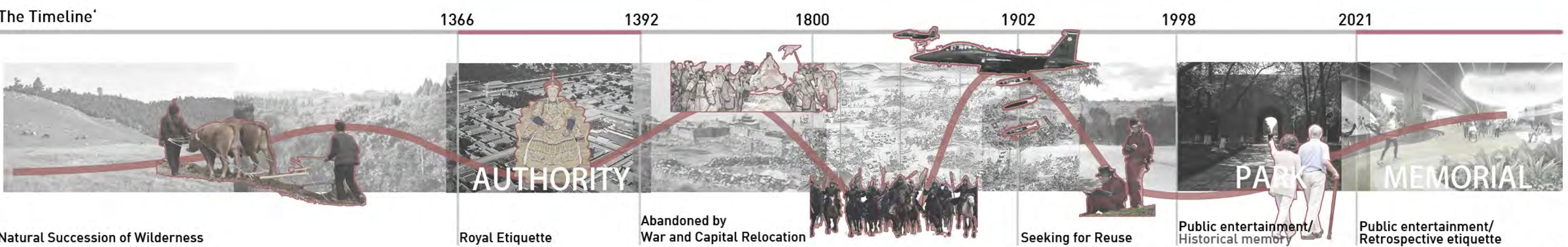
—Photographed in the Field Investigation in 2019

## REMNANTES OF HISTORY IN THE HUSTLE

The site is the ruins of an imperial city. Few historical relics lead difficulty to feel the authenticity of history in the site. Bustling city roads make it difficult to immerse in the park's history. The site has also been transformed into a civic park from the original ceremonial process before the Court, and the disappearance of history is happening sadly.

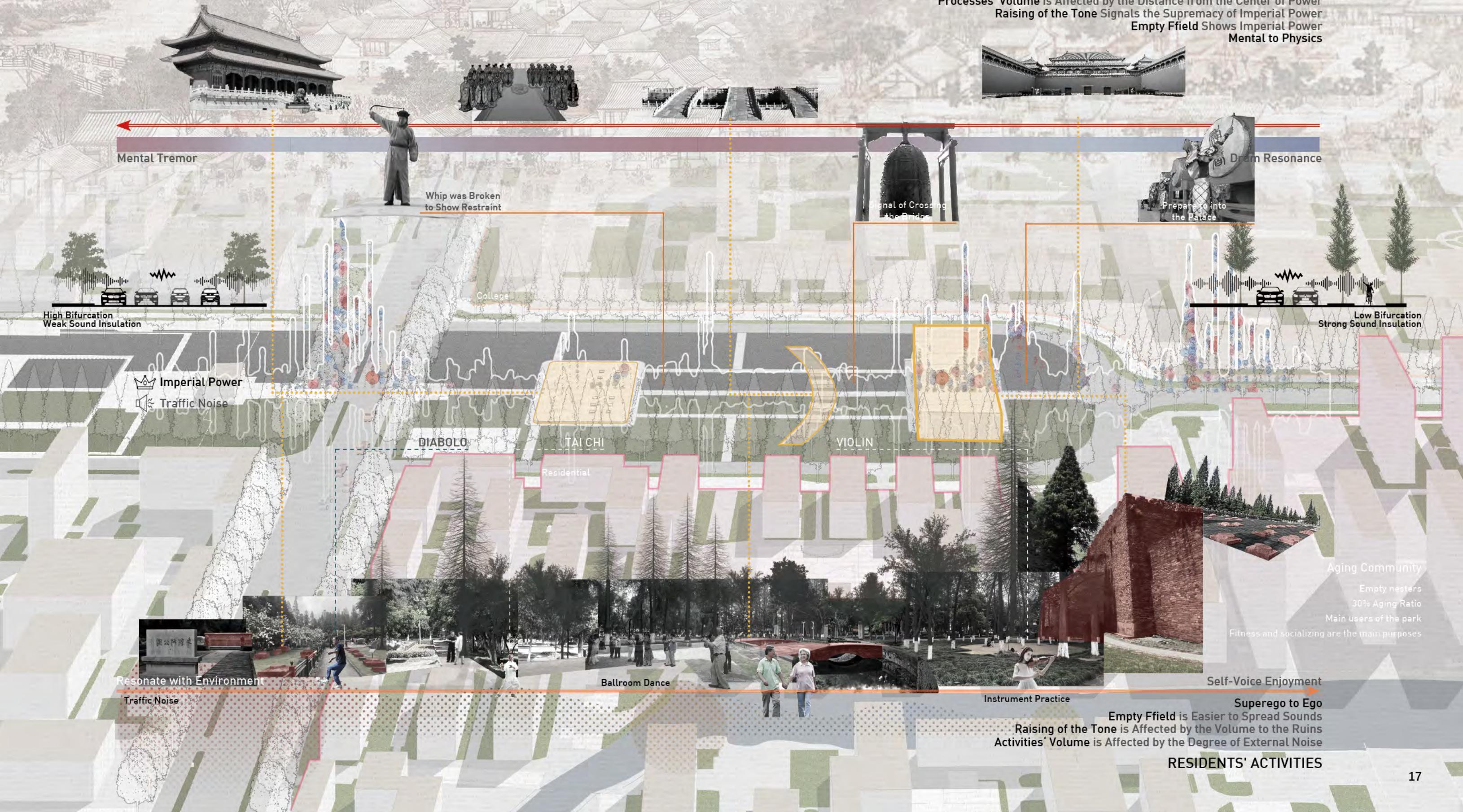


## The Timeline'



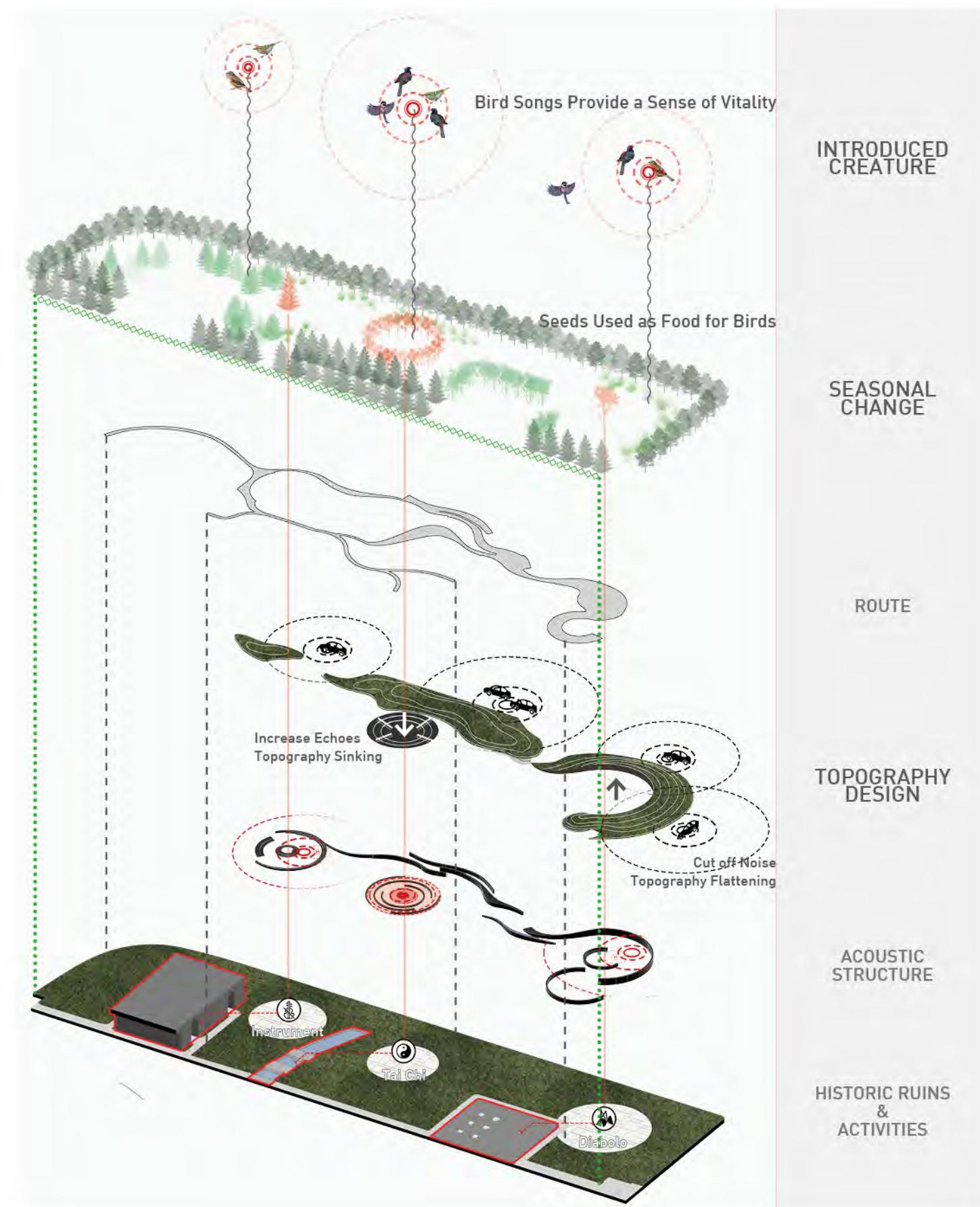
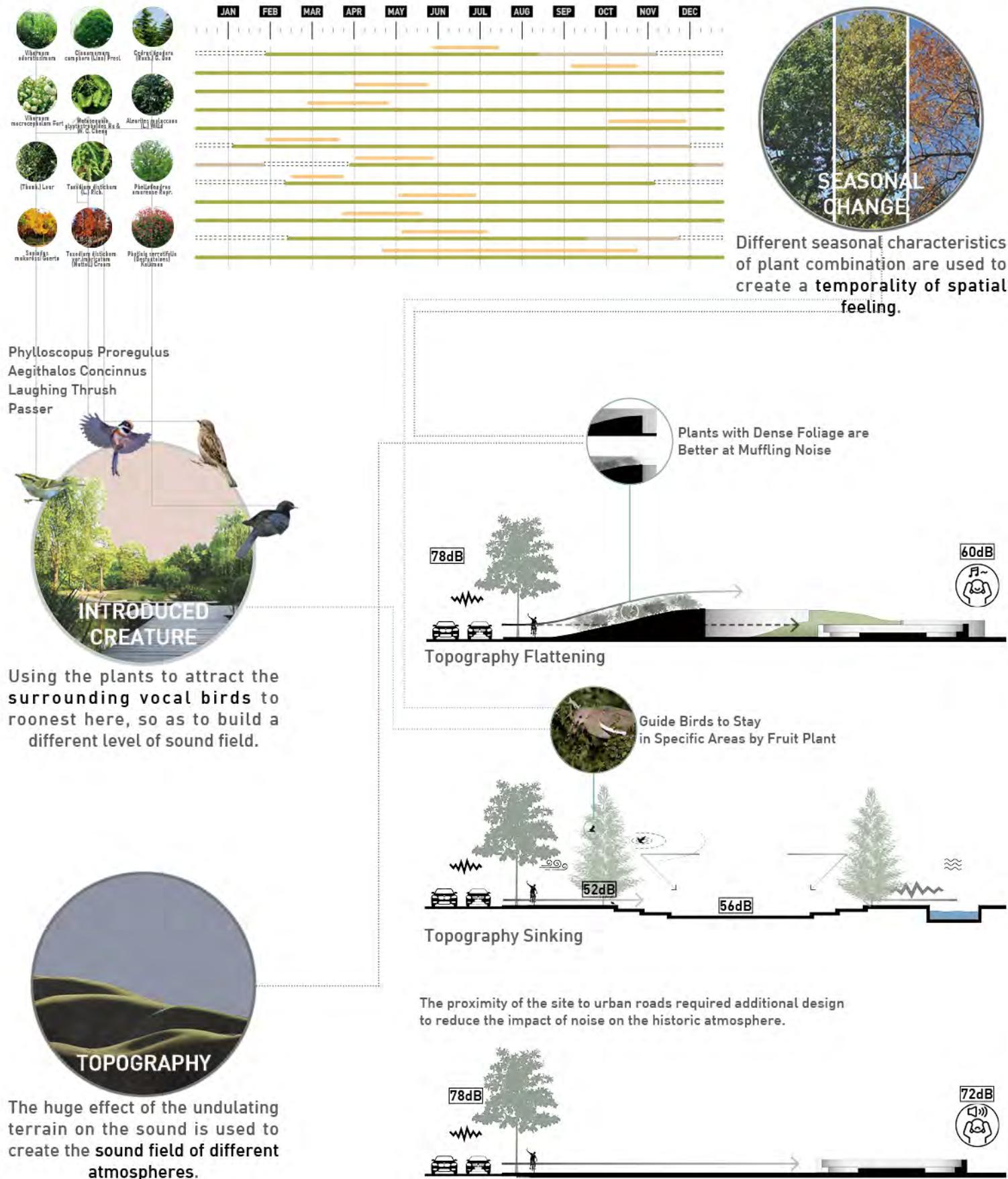
## HISTORY IN SOUNDSCAPE

The historical memory of the site park is forgotten. In the past, the park served as the place for ceremonial procedures. Therefore, the design takes sound as the medium and designs the soundscape for the atmosphere needed by human activities to respond to the sound in the program, so as to build the temporal connection.



## CONSTRUCTION OF SOUNDSCAPE

In the construction of sound field, there are two parts: blocking external noise and connecting the site with the sound generated by activities in the site. Plants, animals and echo structures are introduced in accordance with the site atmosphere needed by the crowd in daily activities and the acoustic environment needed by the site.



## SEASONAL SYMPHONY

Under the influence of plant status and residents' activities in different seasons, the soundscape of the site will change correspondingly in different seasons. The historical atmosphere of the site will also change periodically during the change of soundscape, giving people more thinking about time.

### TERRAIN

The terrain is modified to make the sound more directional and change the size of the sound.



Impact of site acoustic structure

### ACTIVITIES

The frequency and type of activity occurring in different seasons affects the sound produced.



The sound of the residents' activities

### PLANTS

The seasonal leaves of plants change the reflection of sound in different seasons.



The degree of site's opening and narrowing

### BIRDS

Different fruiting times of plants attract birds to stay at the site at different times.



The ability of plants to reflect sound

The degree of birds' song

Noise of the Outside

Echoed Sound of the Field

Song of Birds

Faint Sound of Water

Wind through the Gate

## ECHO TO THE HISTORIC SITE

Combined with the historical sounds and civic activities in different places, the low noise of diabolo is reflected and echoed back to create a historical meditation; The sound of tai Chi site is integrated with the sound of plants, birds and water, creating a feeling of time with relatively isolated atmosphere; Practice Musical Instruments under the gate to form a dialogue with the gate in the form of echo theatre.



# 4

## En Attendant Luehdorfia Chinensis

Coexsitence Cnservation Planning Based on Gist

Location: Nanjing, Jiangsu, China

Area: 50,000,000 m<sup>2</sup>

Type: Collaboration Work

Time: 06/2021

Institution: Southeast University

Tutor: Yuning Chen, Zhe Li, Yangyang Yuan

Work: Anaylsis and Planning based on Collaborative Gis Basis Drawings

With the urbanization, the relationship between cities and green space has changed from "surrounded" to "surrounding". As islands in the ecological sense, large green Spaces in cities become the last refuge for biodiversity.

The site, as one of the few habitats for the rare tiger phoebe to survive is the first consideration. In the planning and design, human activities are integrated into the site under the premise of meeting the migration pathway of the tiger phoebe, which is realized by the continuity of the bush, and therefore brings back the just spatial relationship.



## LOSS OF ENDANGERED BUTTERFLIES' HABITAT

The special growth habit of Tiger swallowtail worsen the situation that it lose its growing environment gradually in the process of urbanization. As a small number of large areas of habitat, Niushou Mountain is also gradually affected by pollution and update function. Reconstruction of butterfly habitat is imminent.

### Luehdorfia Chinensis *ENDANGERED!*

**Appearance Features**  
The butterflies have yellow wings and there are black horizontal stripes, like tiger spots.

**The Hatch of Egg**  
It takes about a week for all the eggs to be laid and more than 130 eggs are laid. The larvae hatch about late April, and the eggs on the same leaf emerge at about the same time.

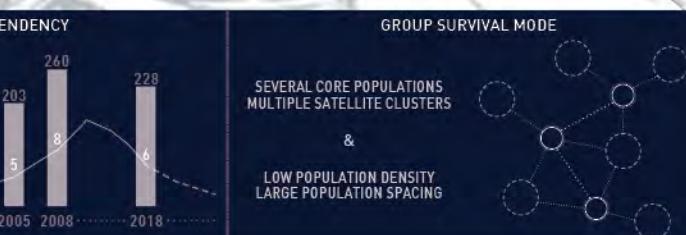
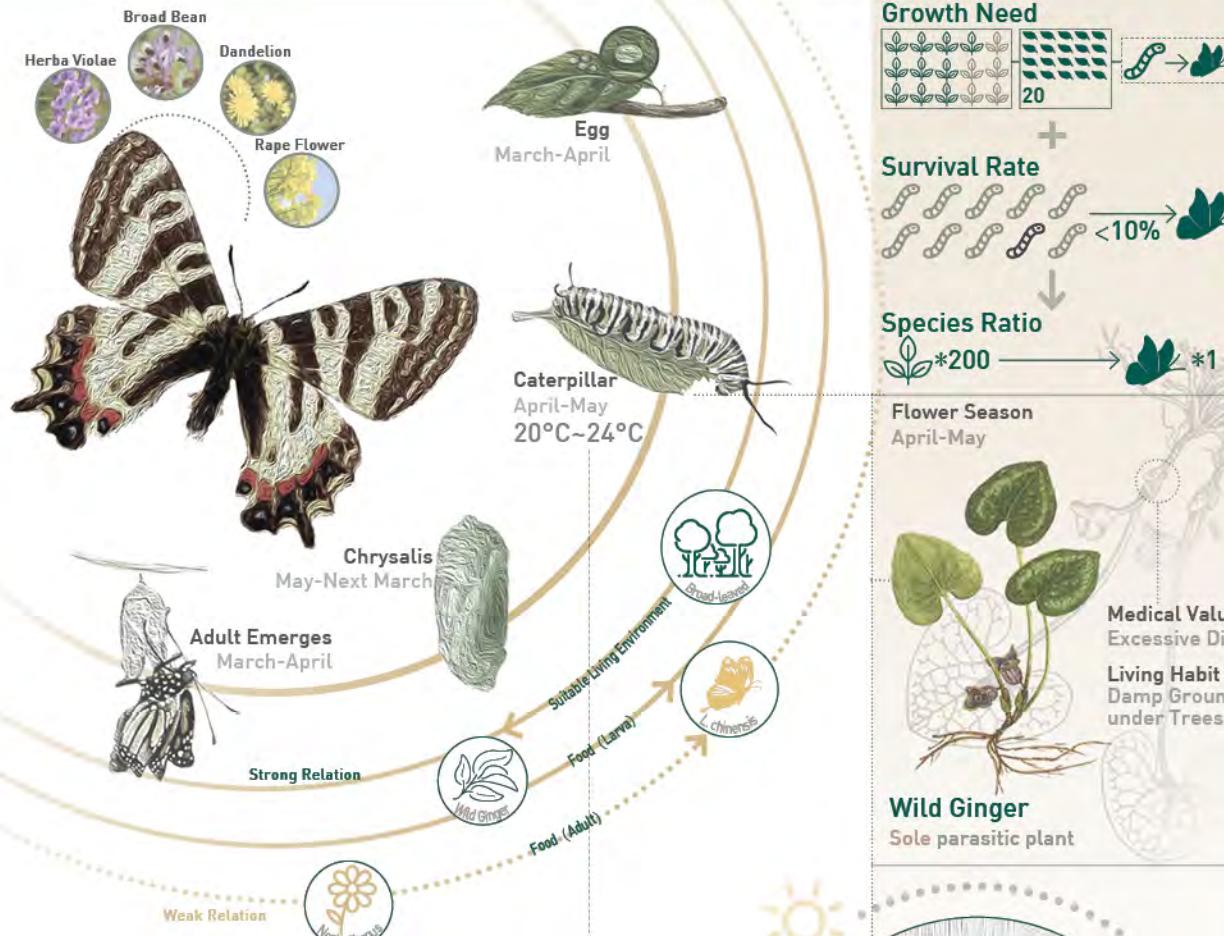
**The Habitat of Caterpillar**  
In the larval stage, they naturally keep individual distances to forage. In order to get enough food to pupate, they will travel farther to the feeding grounds, even if the risk is higher.

**The Location of Chrysalis**  
Usually found under tree bark, in crevices in rocks and in piles of dead leaves.



#### LIVING HABITS

- Strong Sunlight
- Suitable Temperature
- Forest Edge
- Rest in the hay of marshy
- Fly along Hillside to the Top
- Weak Flying Ability



#### Temperate and Tropical Broad-leaved Forests

Weak Ecological Resistance  
Strong Biodiversity

#### Serious Mountain Soil Damage

Serious Ecological Damage  
Worse Ecological Sensitivity  
Habitat Change of Animals

Faster Growing Coniferous Forests  
Artificial Secondary Succession  
Strong Ecological Resistance

#### Artificial Mountain Protection

Habitat Damage  
Soil Acidification  
Weak Soil Conservation

#### Economic Vegetation

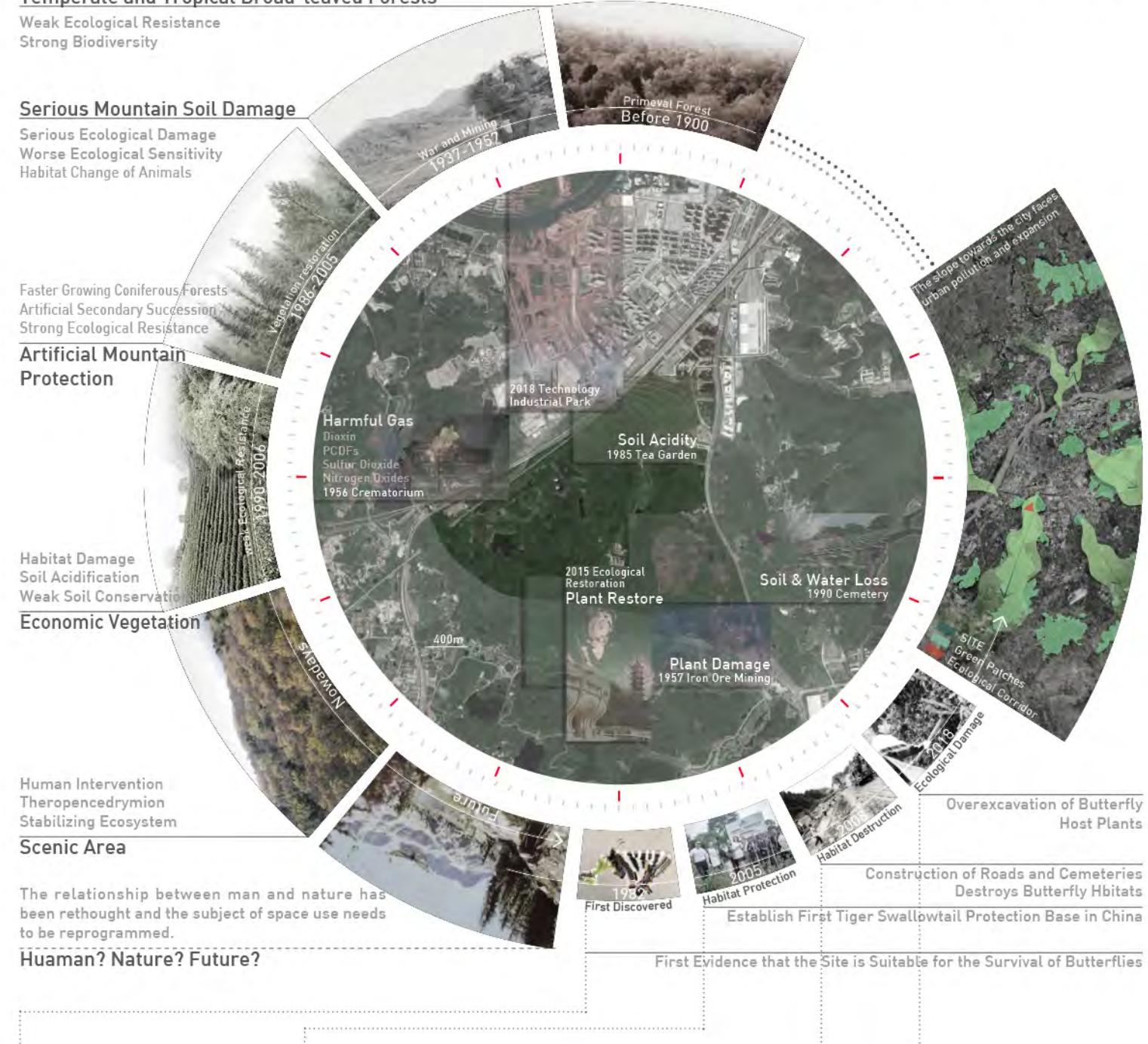
Human Intervention  
Theropenedrymion  
Stabilizing Ecosystem

#### Scenic Area

The relationship between man and nature has been rethought and the subject of space use needs to be reprogrammed.

Human? Nature? Future?

#### HABITAT LOSS CAUSED BY URBANIZATION



#### CITY SITE

Functional Expansion  
No Interference

Structure Optimization  
Start Urbanizing

Urban Construction  
Industrial Development

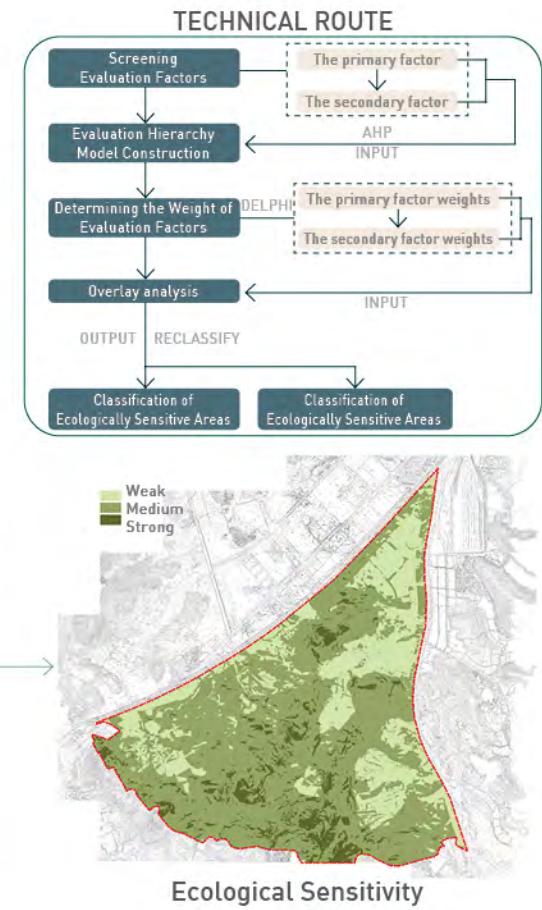
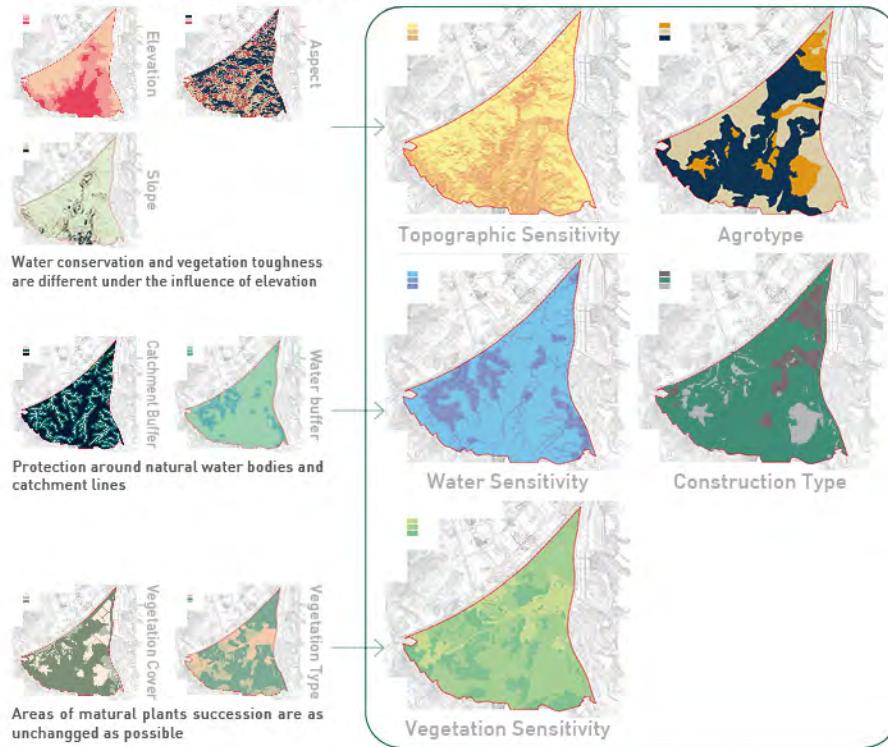
Industrial Upgrading  
Tourism Conservation



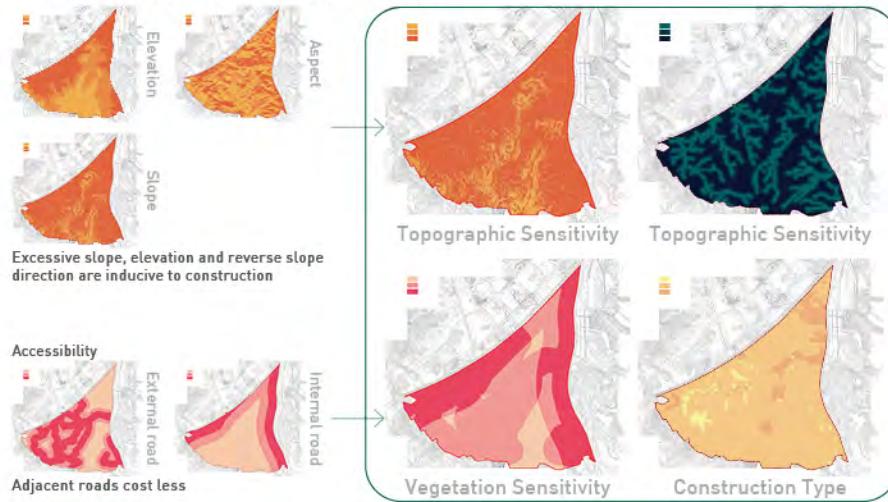
## HABITAT PLANNING AIDED WITH GIS

According to the living habits of butterflies and the requirements of plant population, the basic information of the site is screened and superimposed, so as to plan the site selection of habitat and ecological corridor.

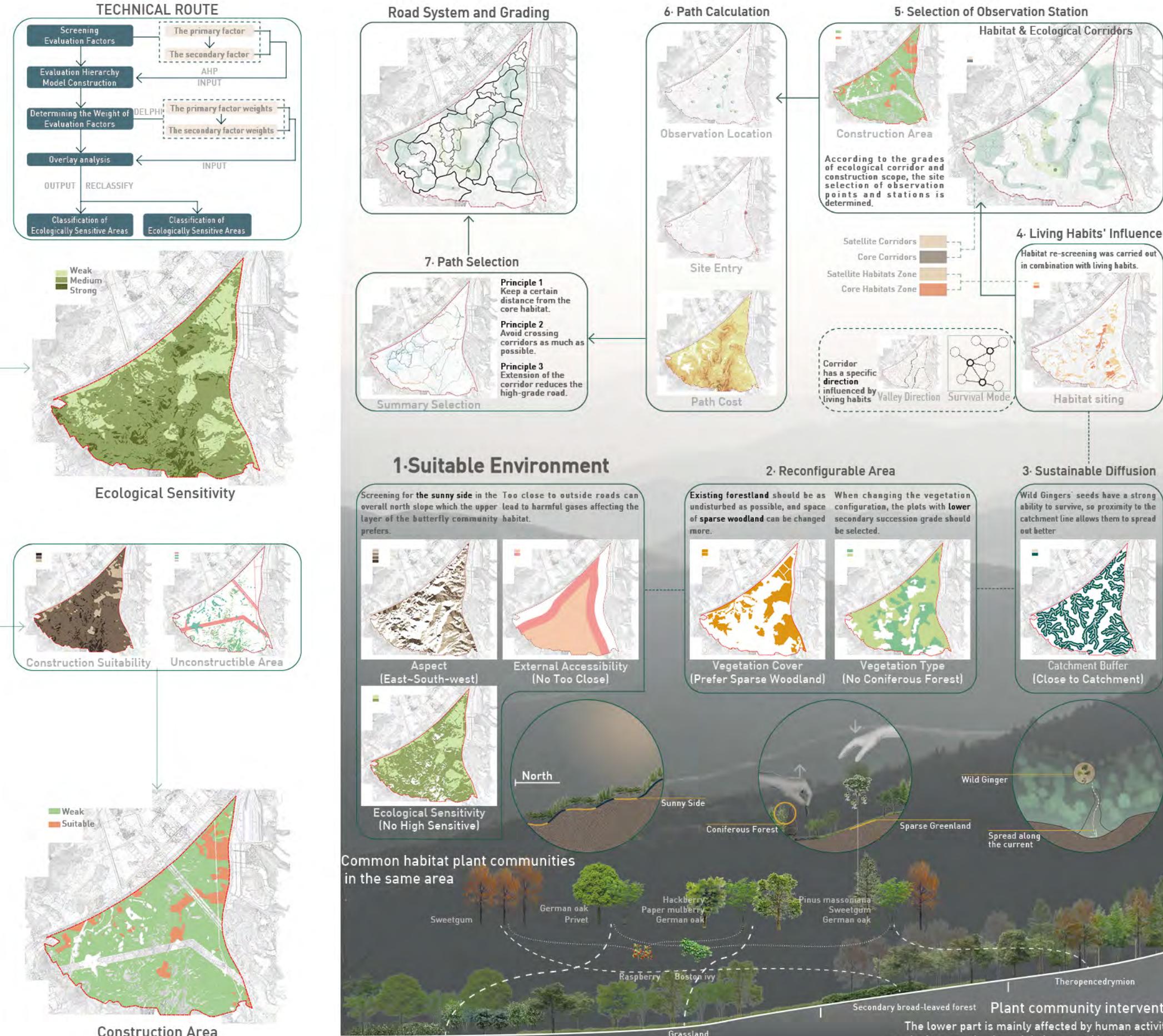
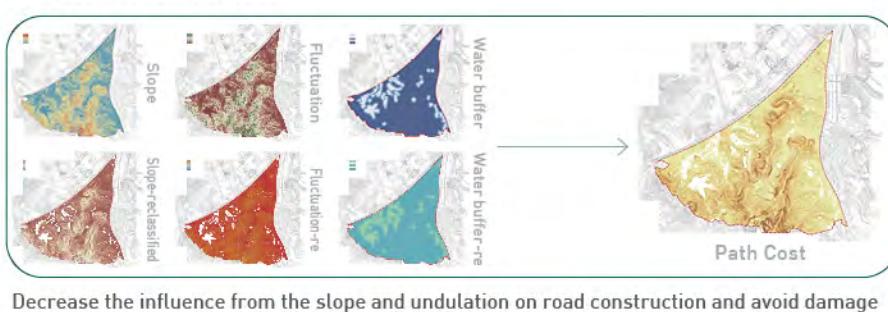
### Ecological Sensitivity Analysis



### Construction Suitability Analysis

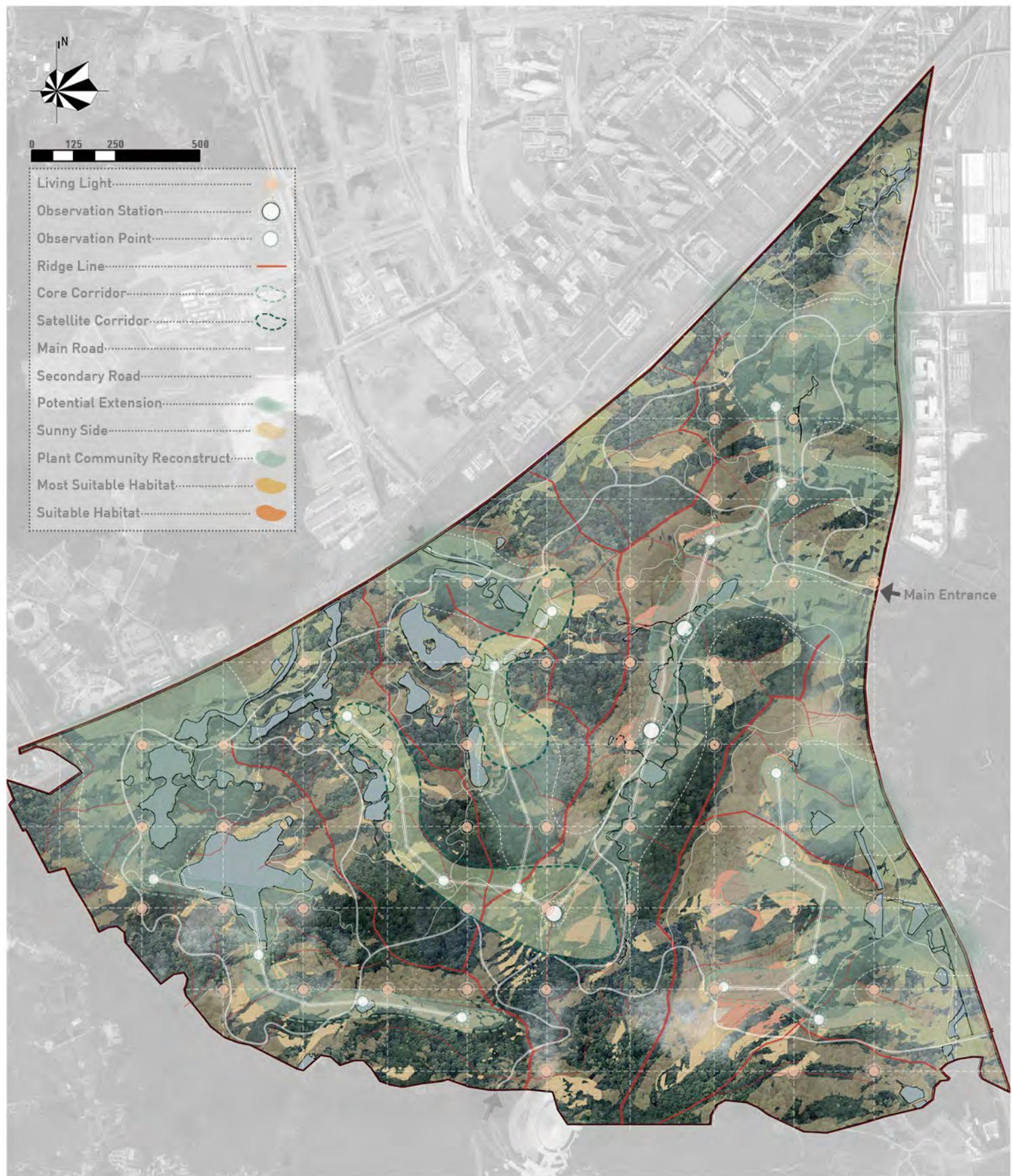


### Path Cost Analysis



## NATURE WHERE HUMAN AND BUTTERFLY COEXIST

Paths and observation points are arranged according to the planned ecological corridor, and the matrix arrangement of device for butterfly pupation in the site can be used as a medium of interaction between human and butterfly. At the same time, people can also feel a sense of awe from nature.



### Light of Fresh Air

The equipment was used to test the air quality of the butterfly habitat, and the floating balloon was used as a medium to show the habitat conditions more intuitively.

By transmitting the light output to the balloon, it's more visible in the air. Brighter the Light, Fresher the Air.

### Opacity Air Quality Monitoring

Particle density is measured using optical transport and light absorption is measured using a narrow beam passing through a flue gas pipe.



### Living Light & Observation

Reflection of the Air Quality around the Habitat  
Worse the air, Less the Brightness



### Balloon

Lightweight and Easy to Replace

### Optical Fiber

The Input of the Light on the Device is Transferred to the Balloon

### Optical Sensor

### PM2.5 & PM10

### Laser Generating

Small Device Cause Less Disturbance to Habitat

### Cultivation& Education

Public-welfare Planting Activities Play an Educational Role



### Cultured Laboratory

Artificial Efforts to Improve Scarce Butterfly Populations

