

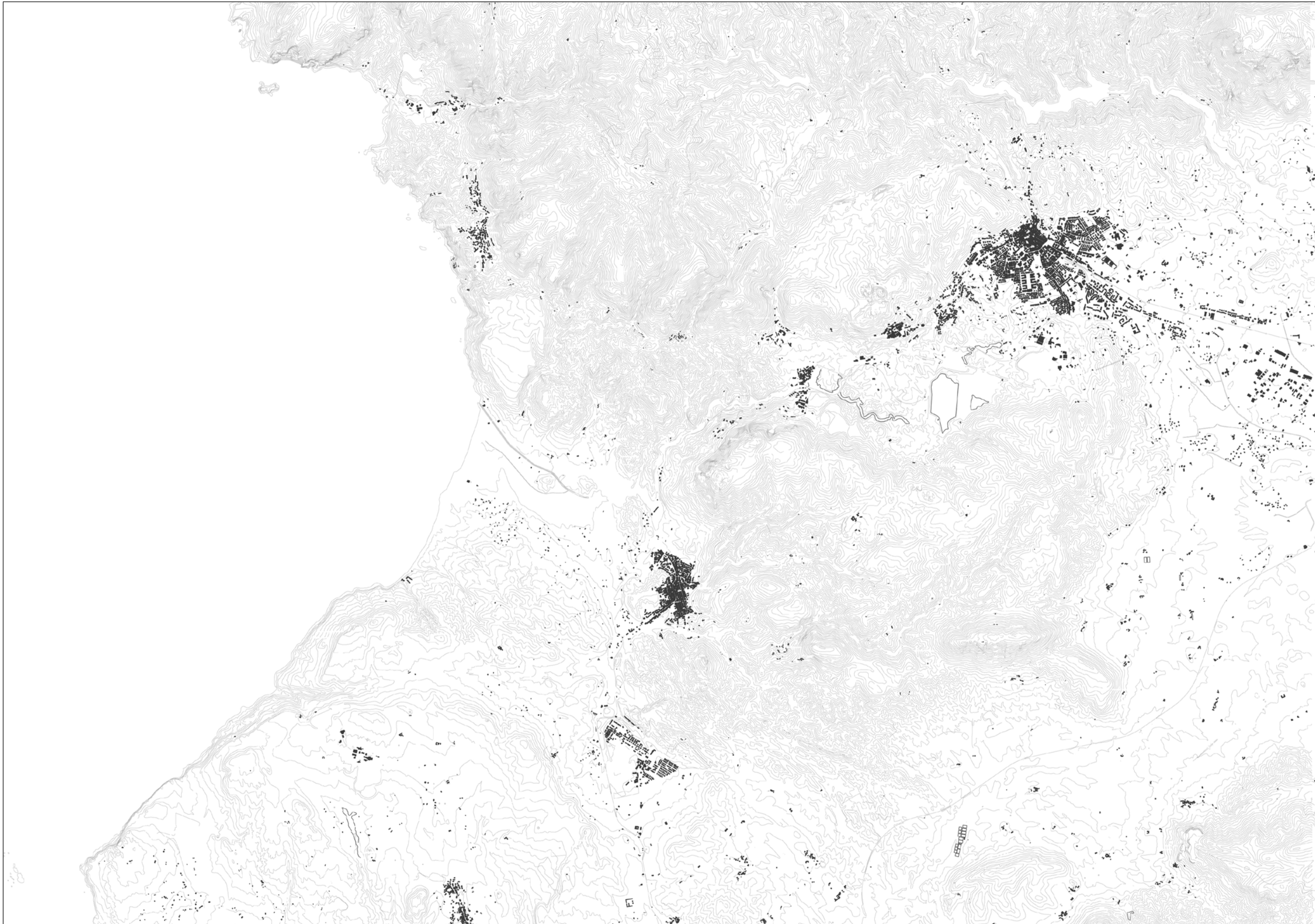
*Index*

1. Focus
2. Visible waterscape
3. Invisible waterscape
4. Typologies
5. Landscape
6. Water cycle
7. Water usage and distribution

*Focus*

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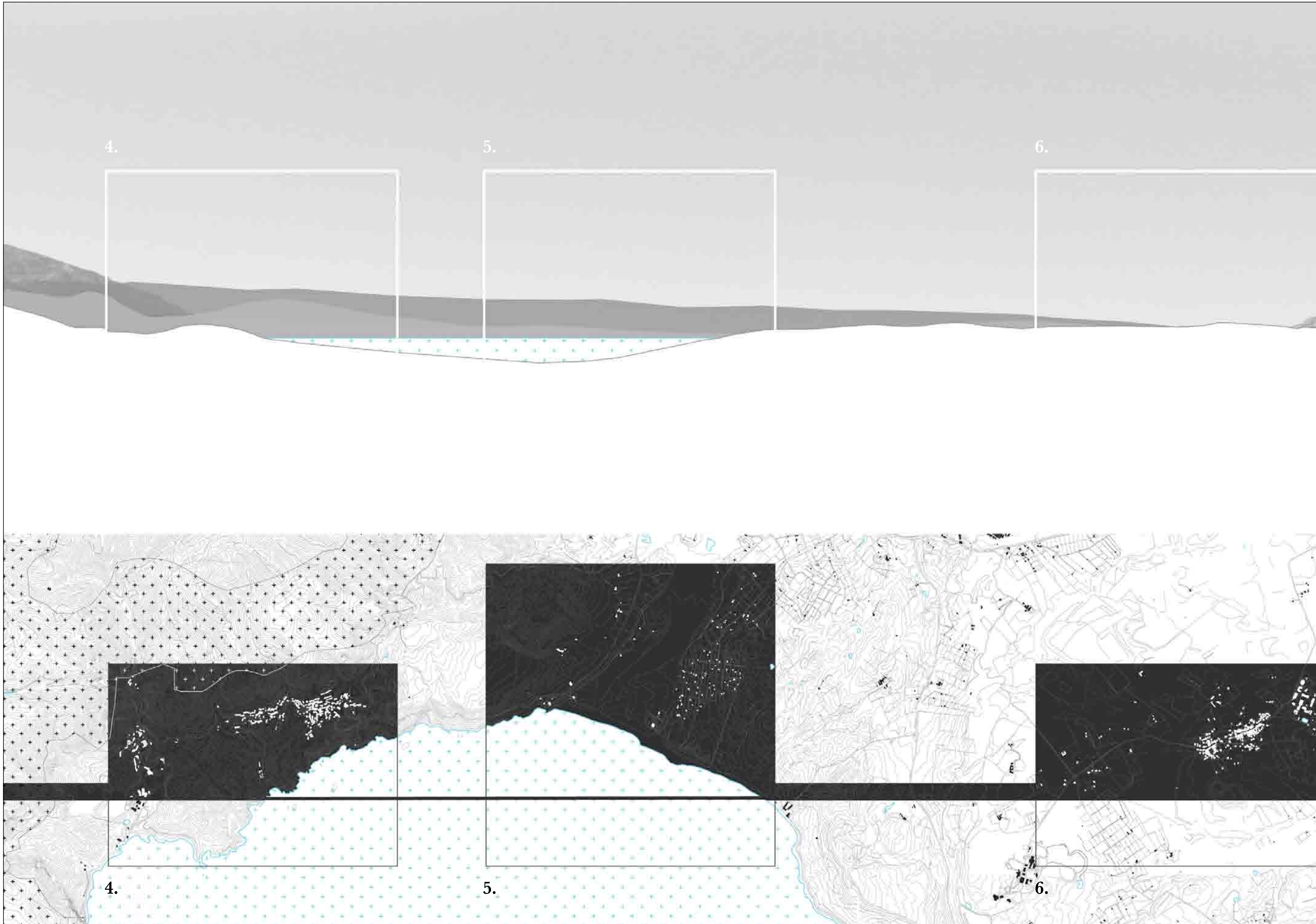
Area of interest.



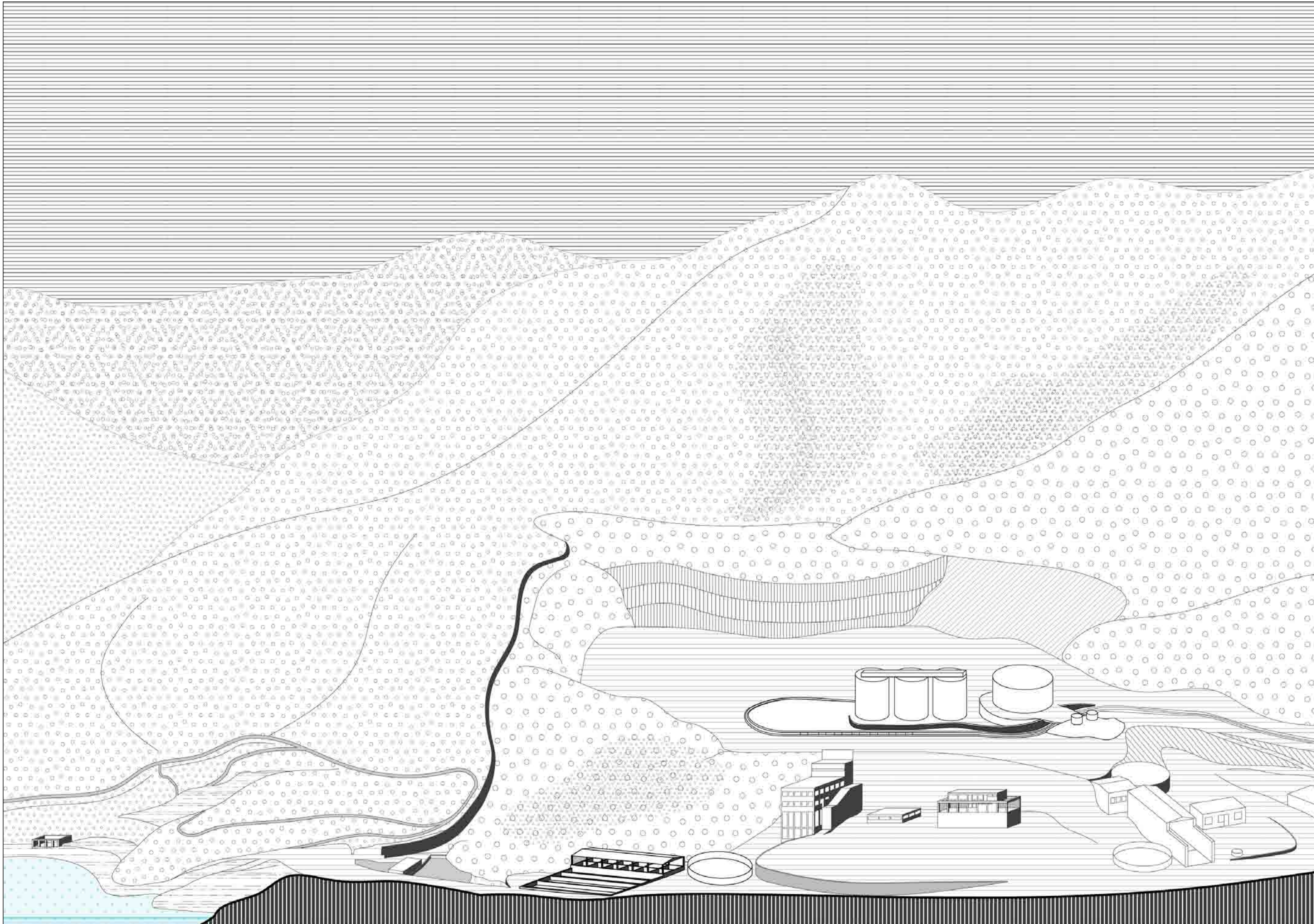
Longitudinal territorial  
section.



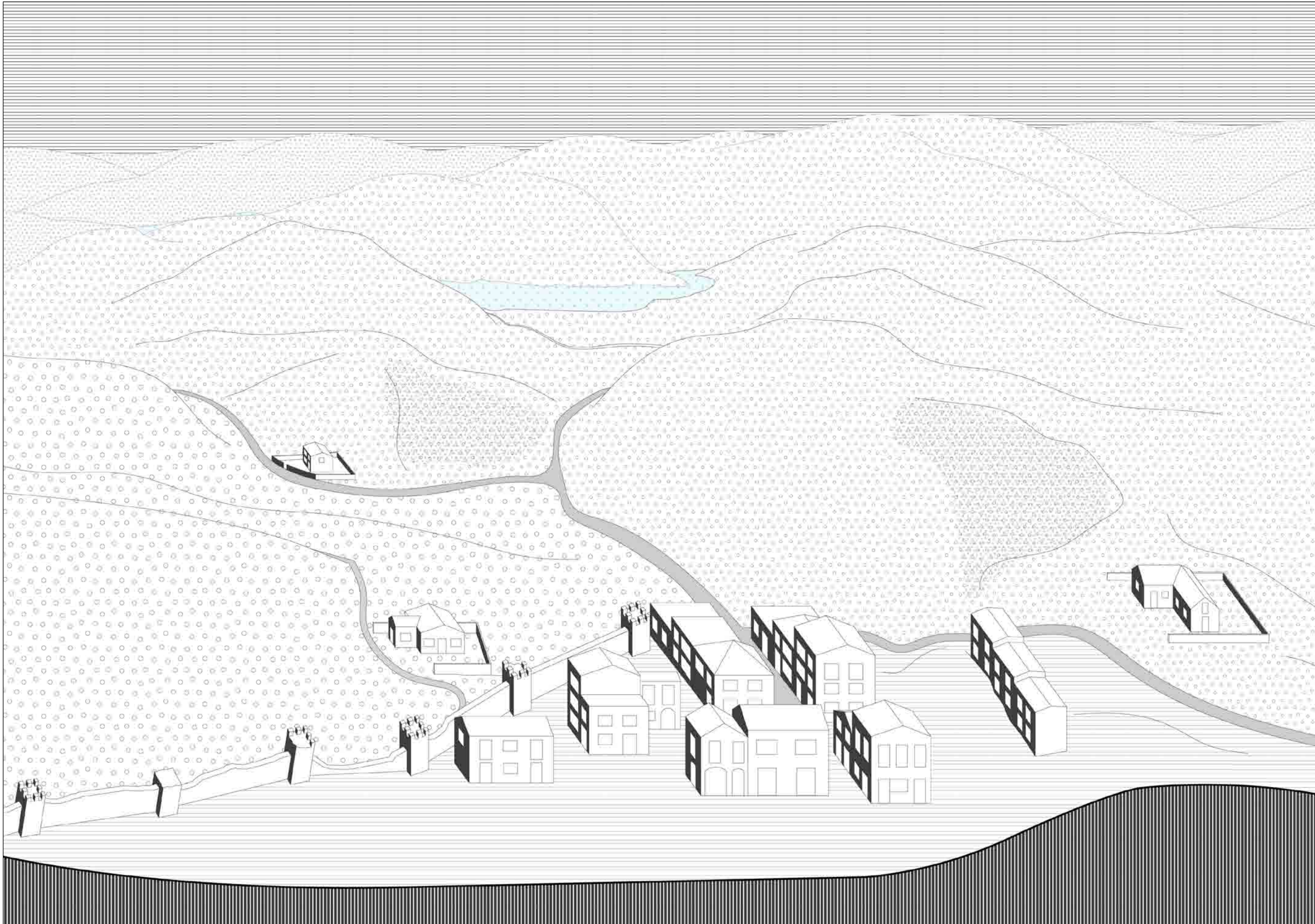
Longitudinal territorial  
section.



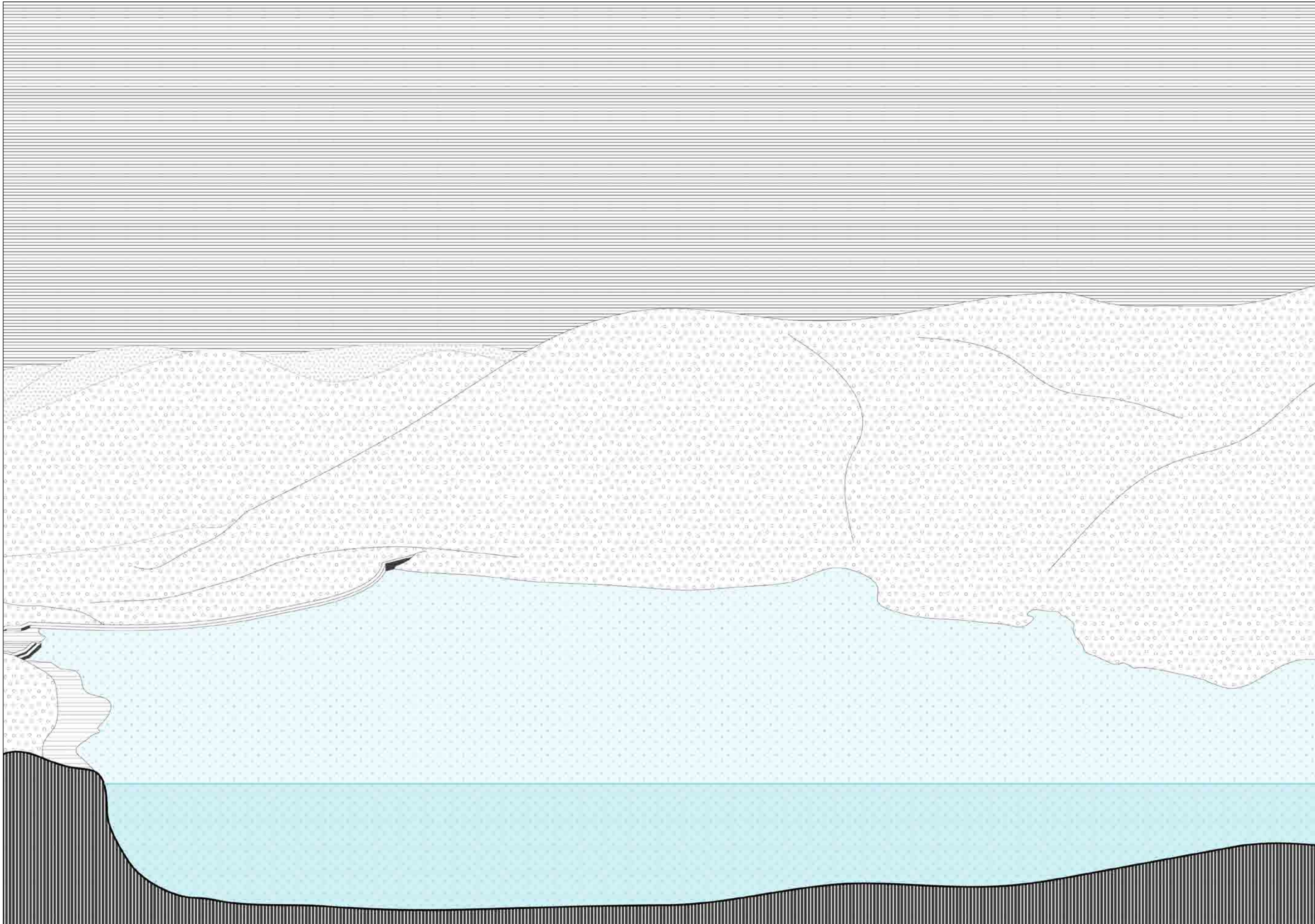
View from section AA/1.



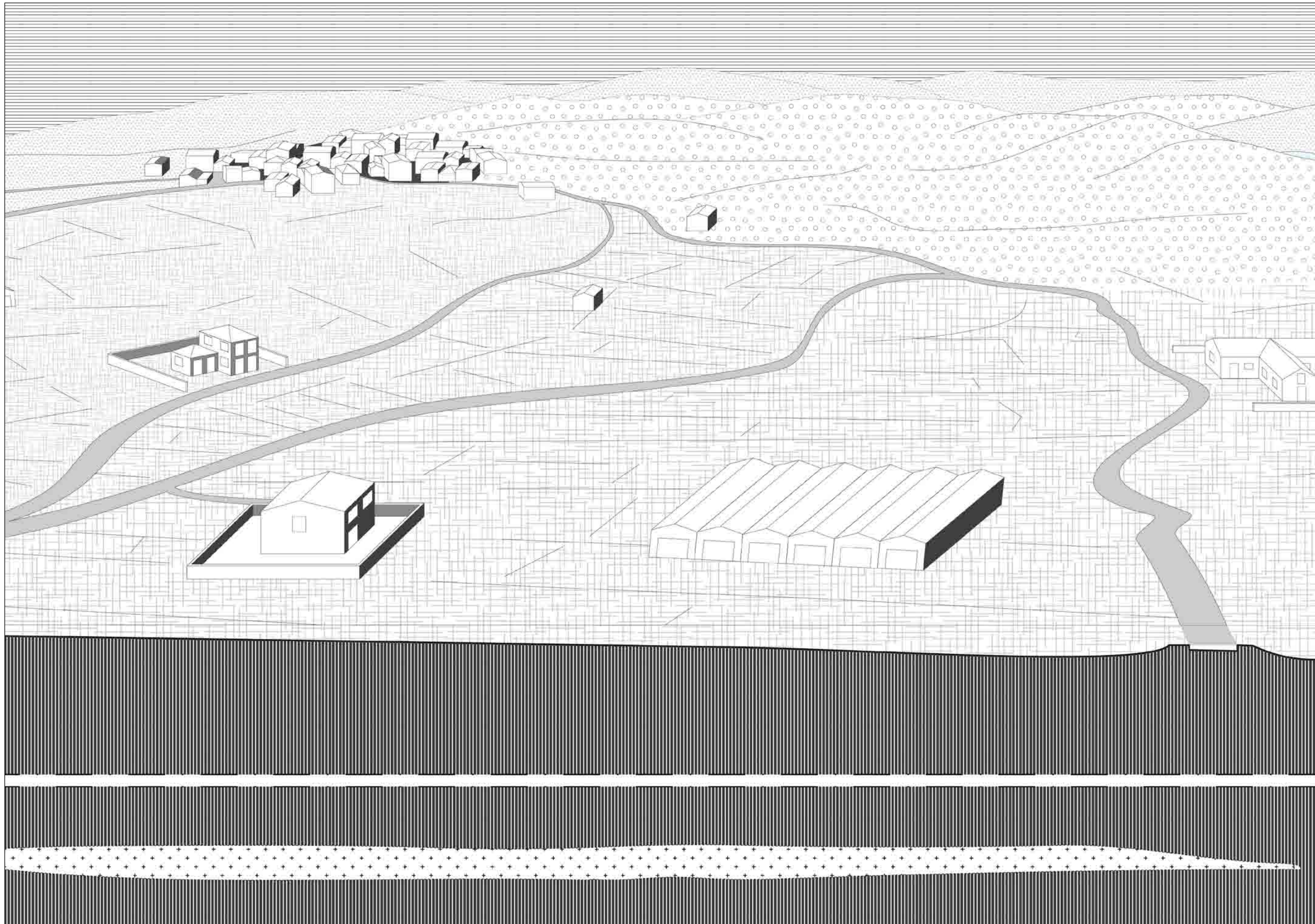
View from section AA/2.



View from section AA/2.



View from section AA/3.





View from section BB/1.







*Visible waterscape*

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*Visible waterscape*

---

*Visible waterscape*

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- Sea
- Rivers
- Lakes
- Swamps



*Visible waterscape*

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Coastline types

 Flooding planes

 Coastline humid areas

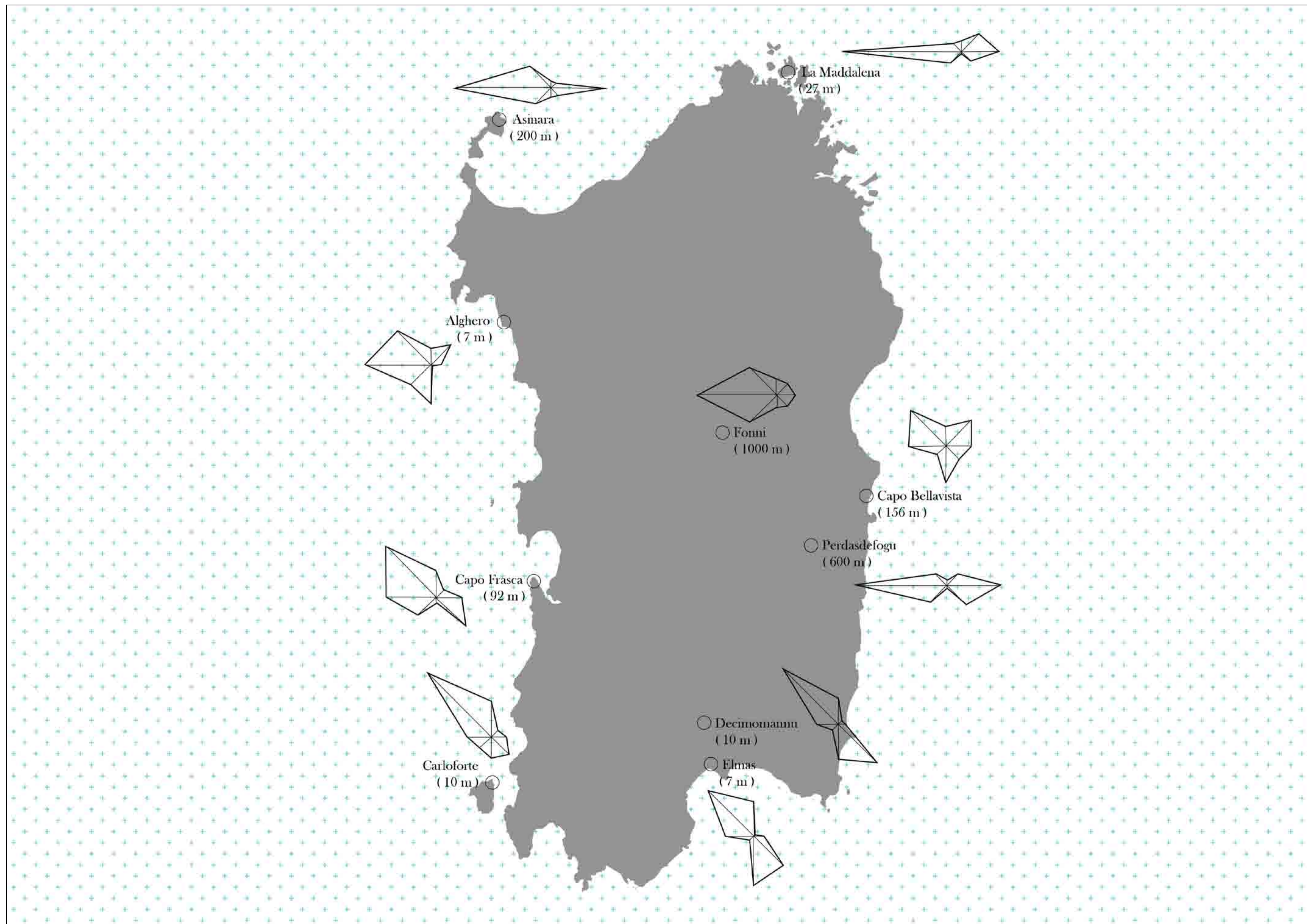
 Dune fields

 Low-rise cliffs

 Mid-rise cliffs

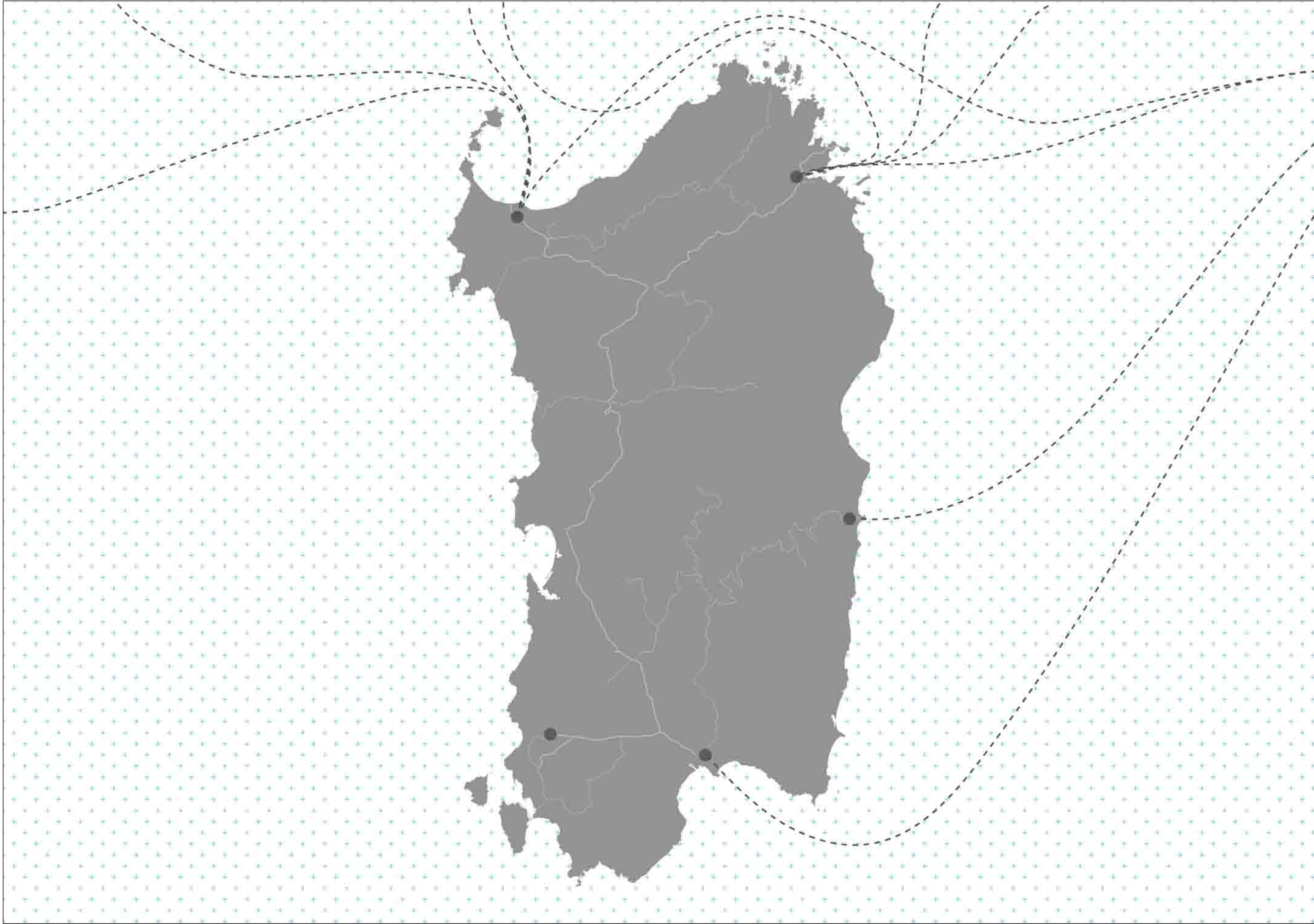
 High-rise cliffs





Wind

Connections













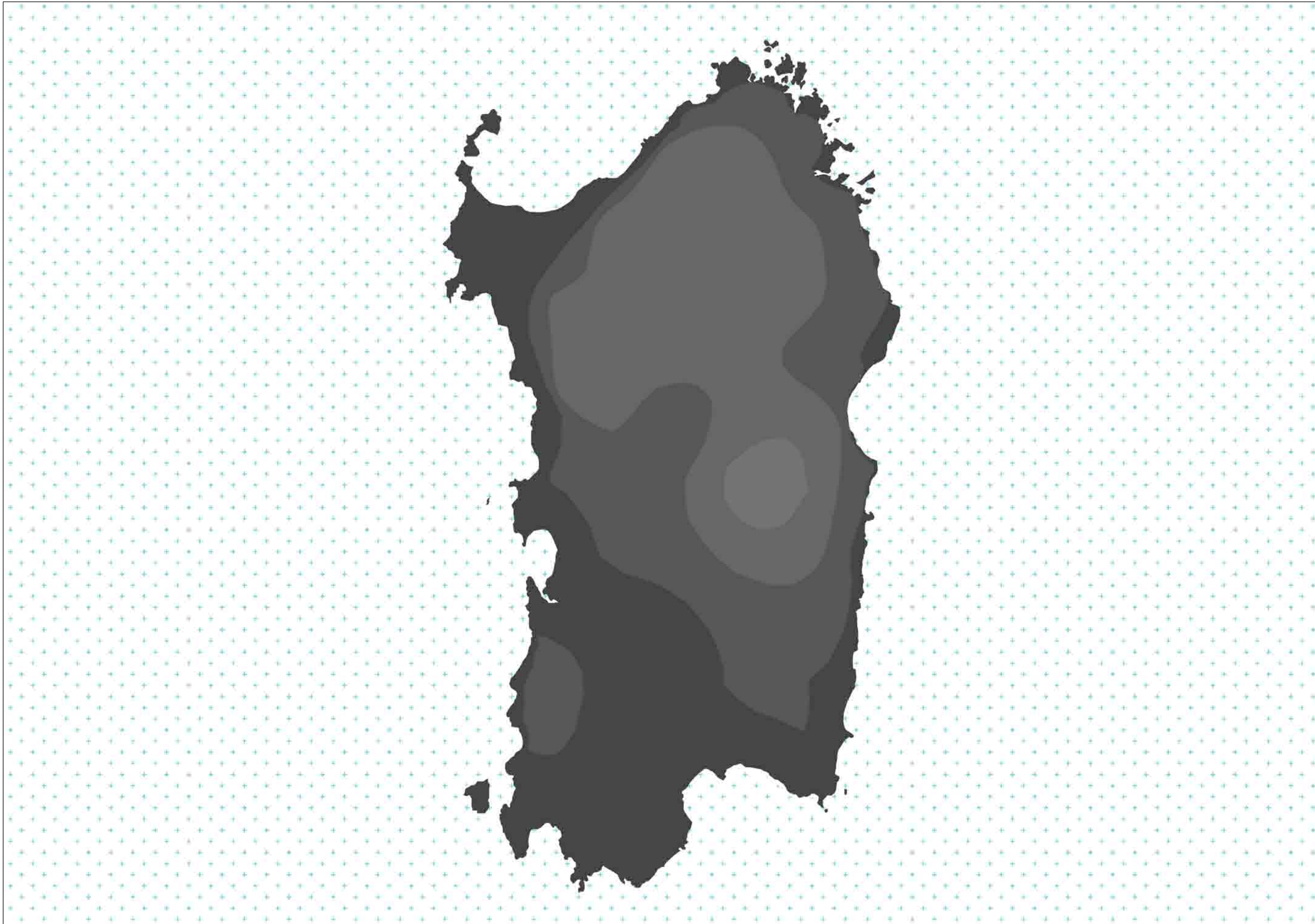
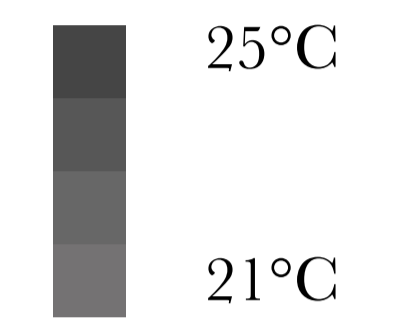
Seasonality  
*January average temperature*



*Invisible waterscape*

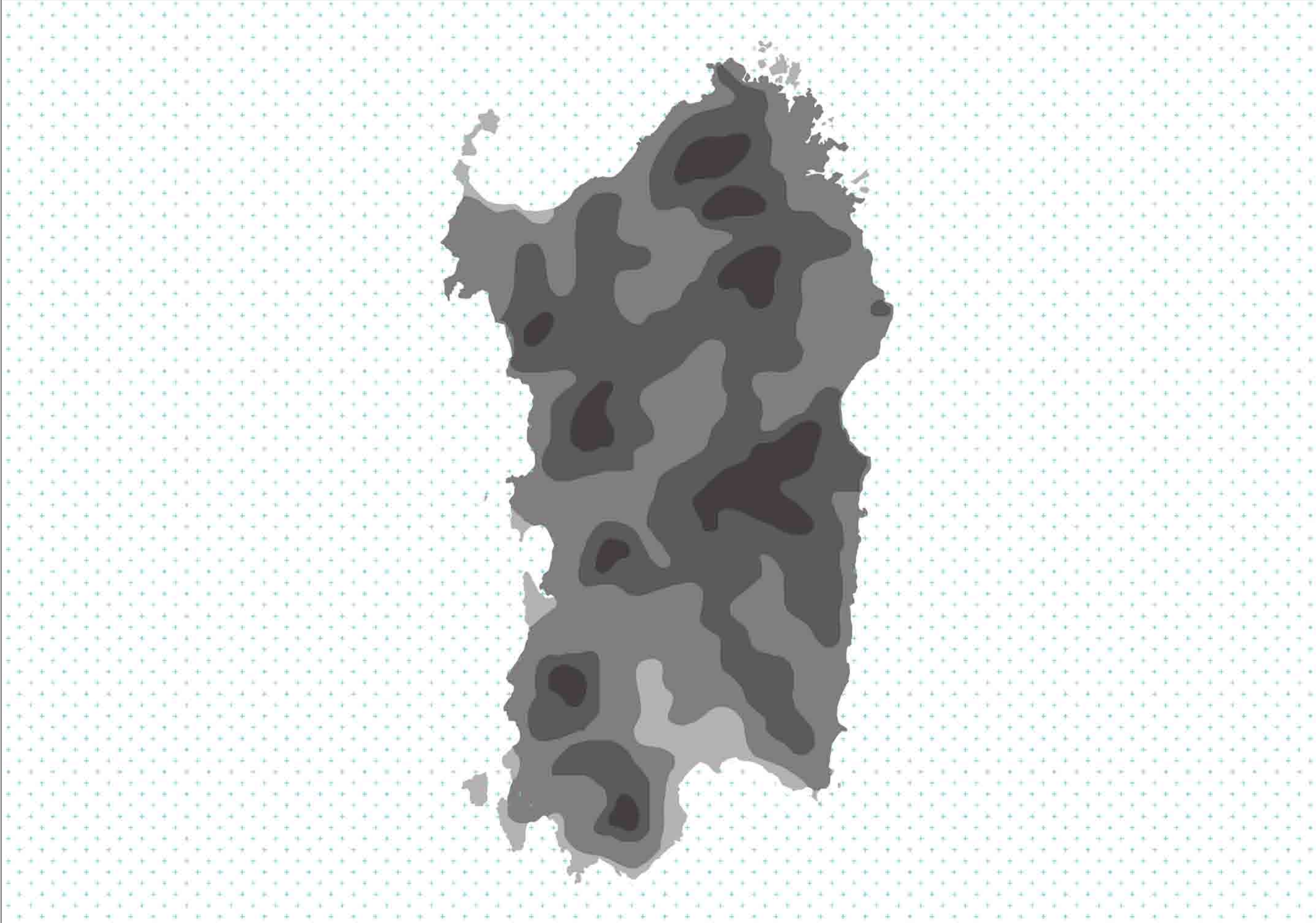
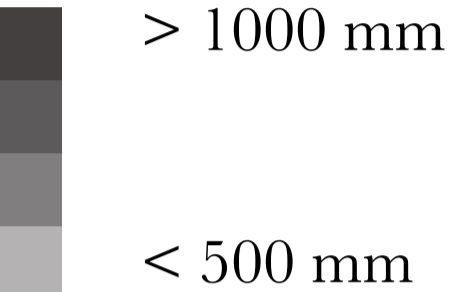
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Seasonality  
*July average temperature*



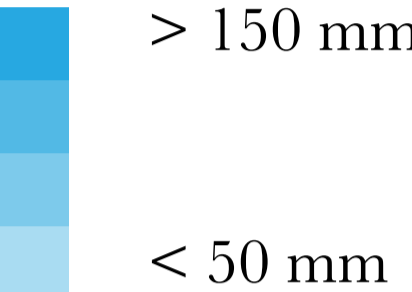
*Invisible waterscape*

Average annual amount of rainwater in Sardinia



*Invisible waterscape*

Average amount of  
rainwater in January  
in Iglesias



Aquifers

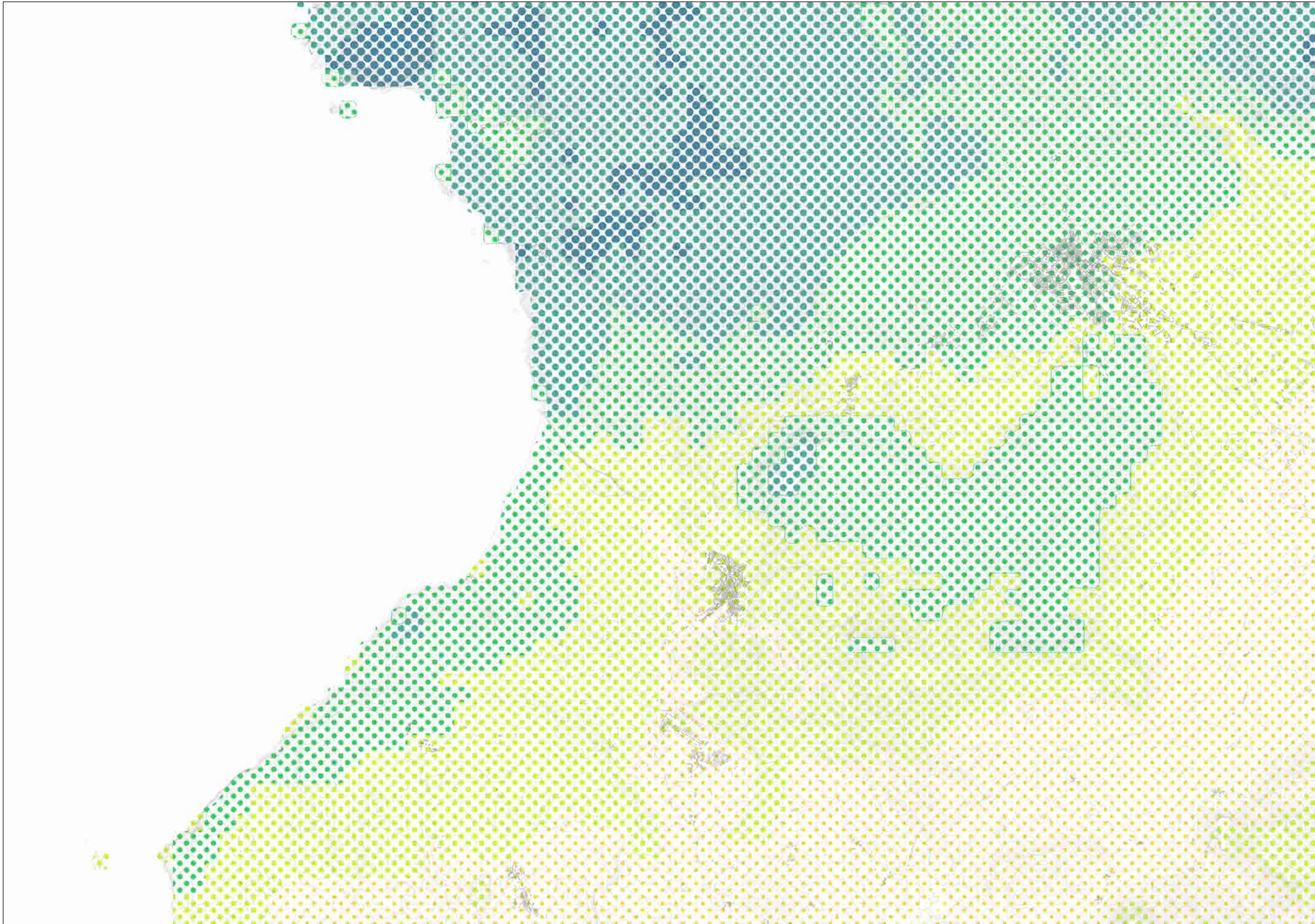
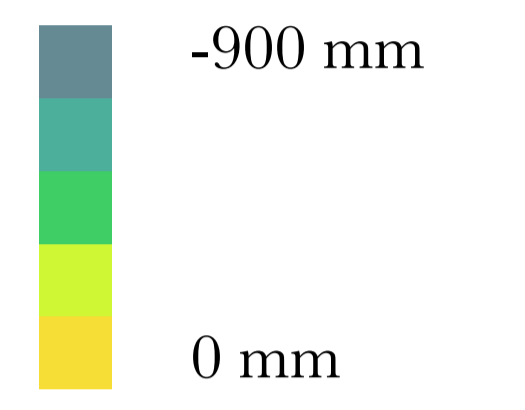




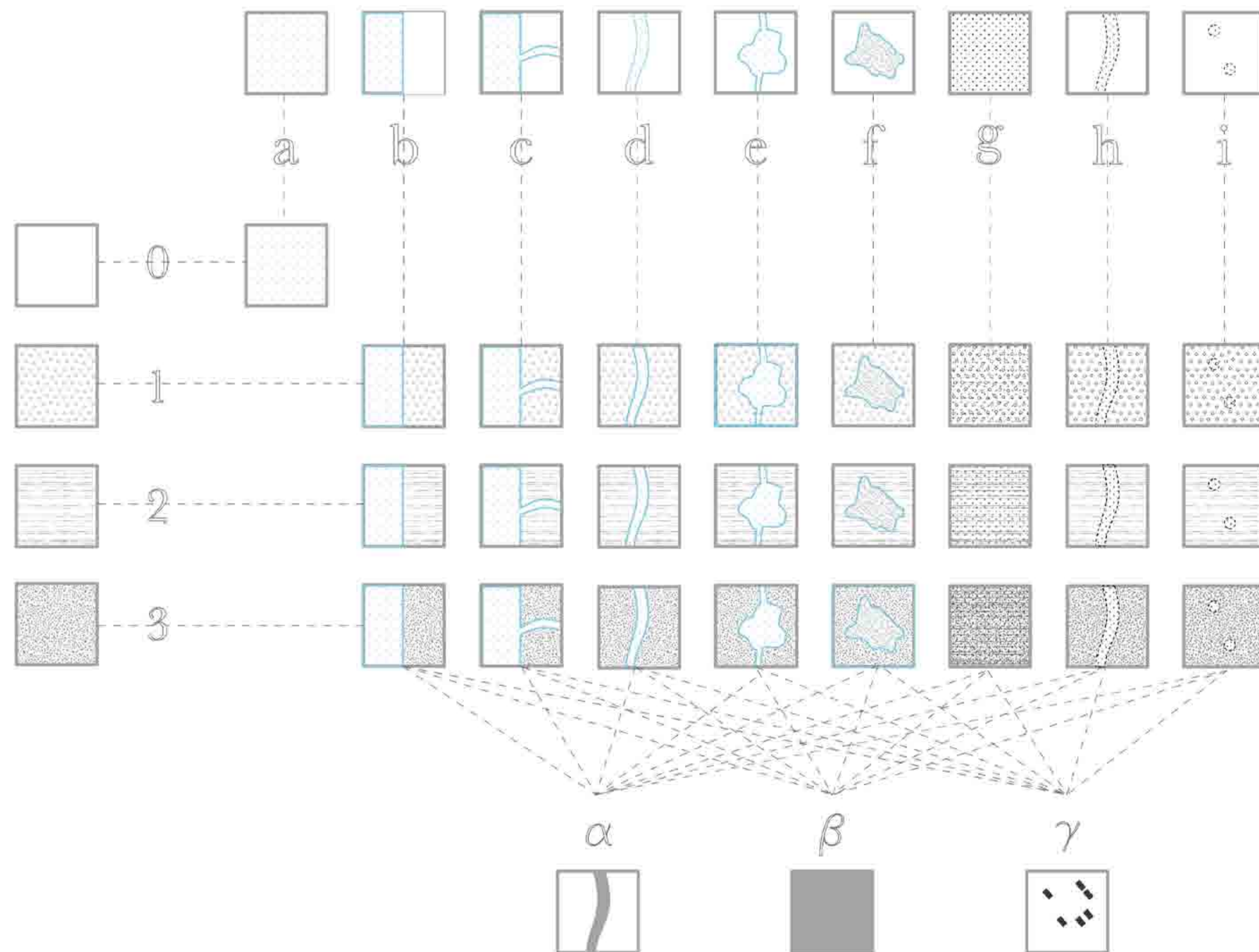
*Invisible waterscape*










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Hydroclimatic fluctuation

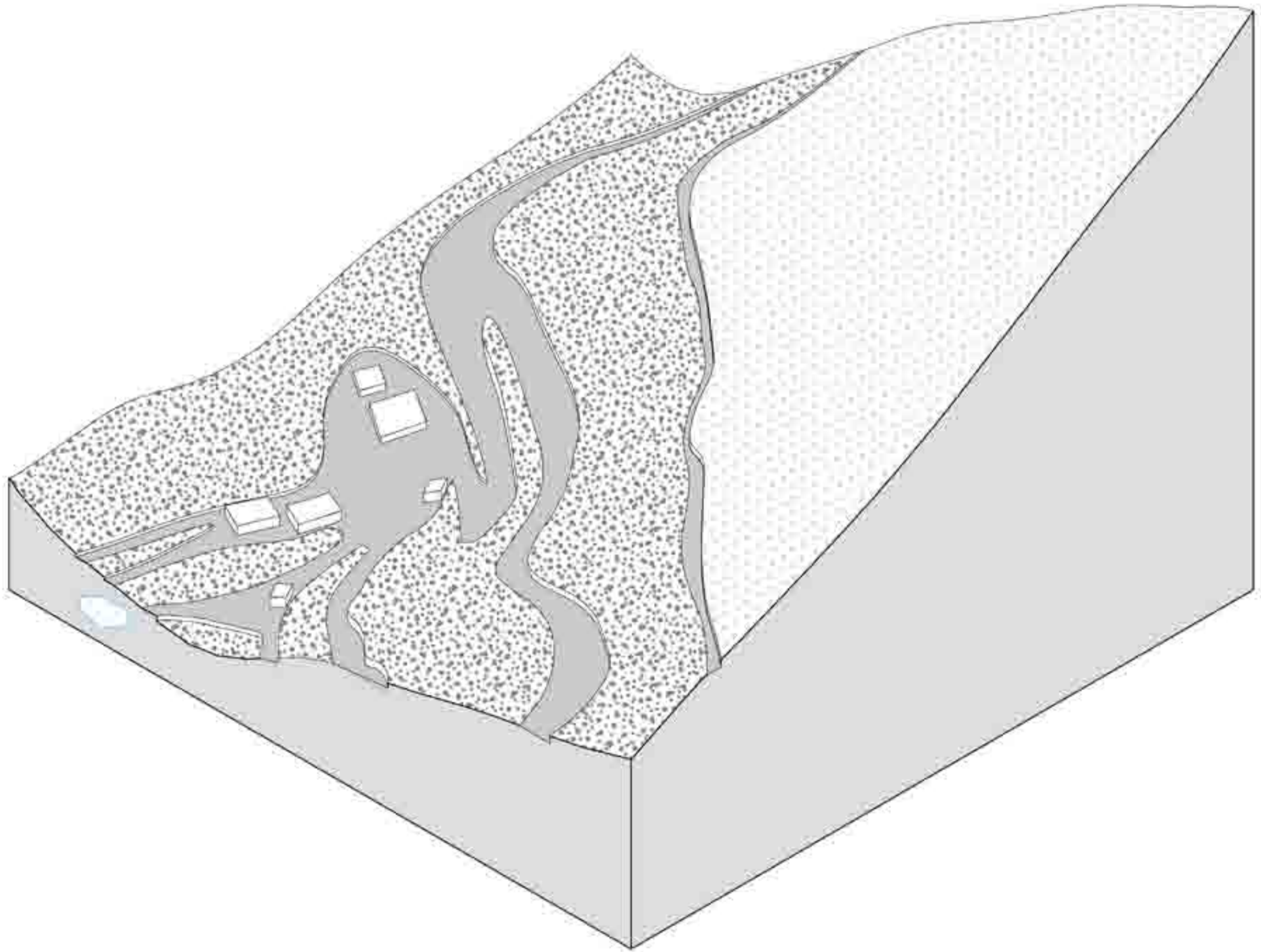
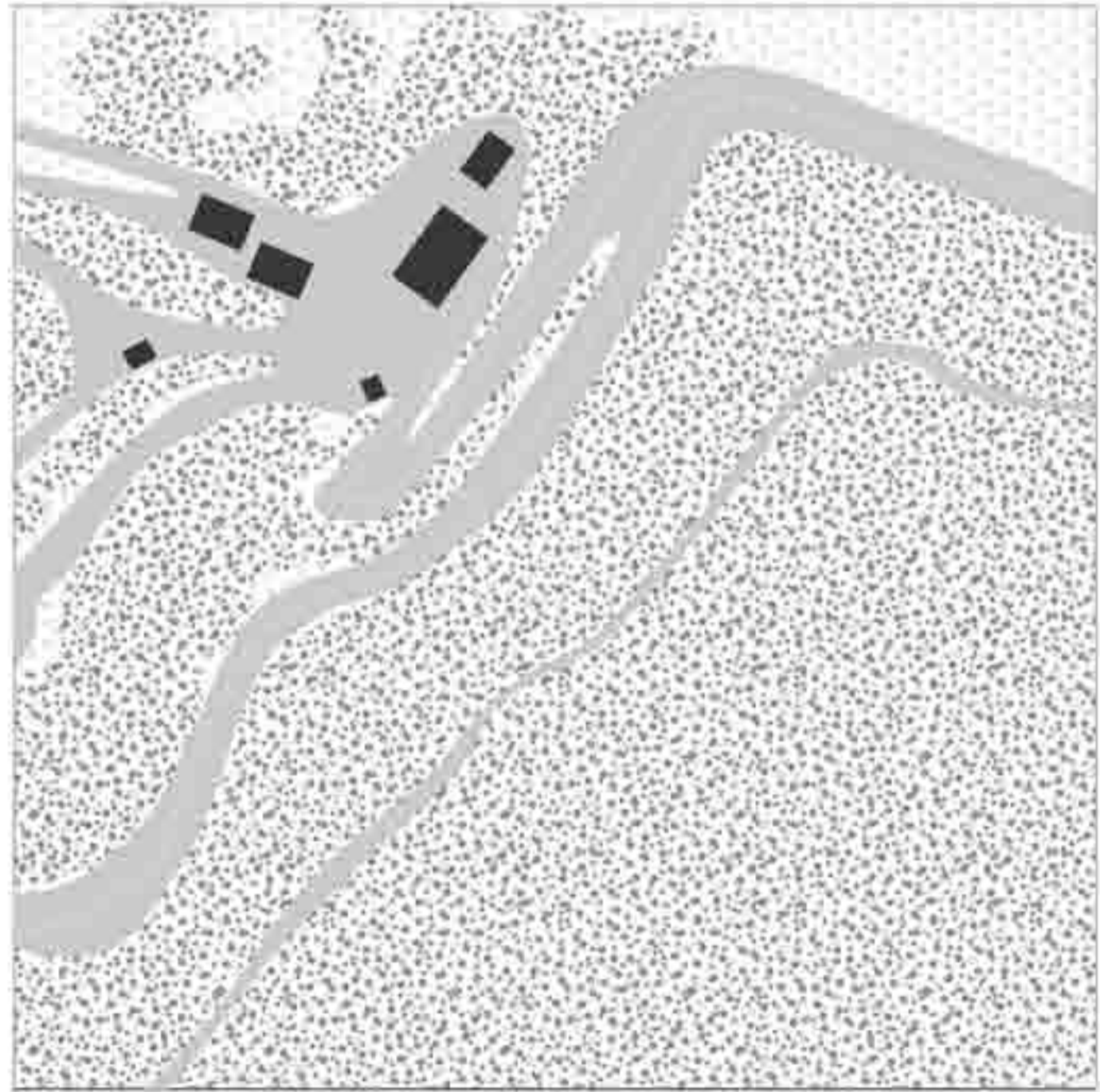


*Typologies*

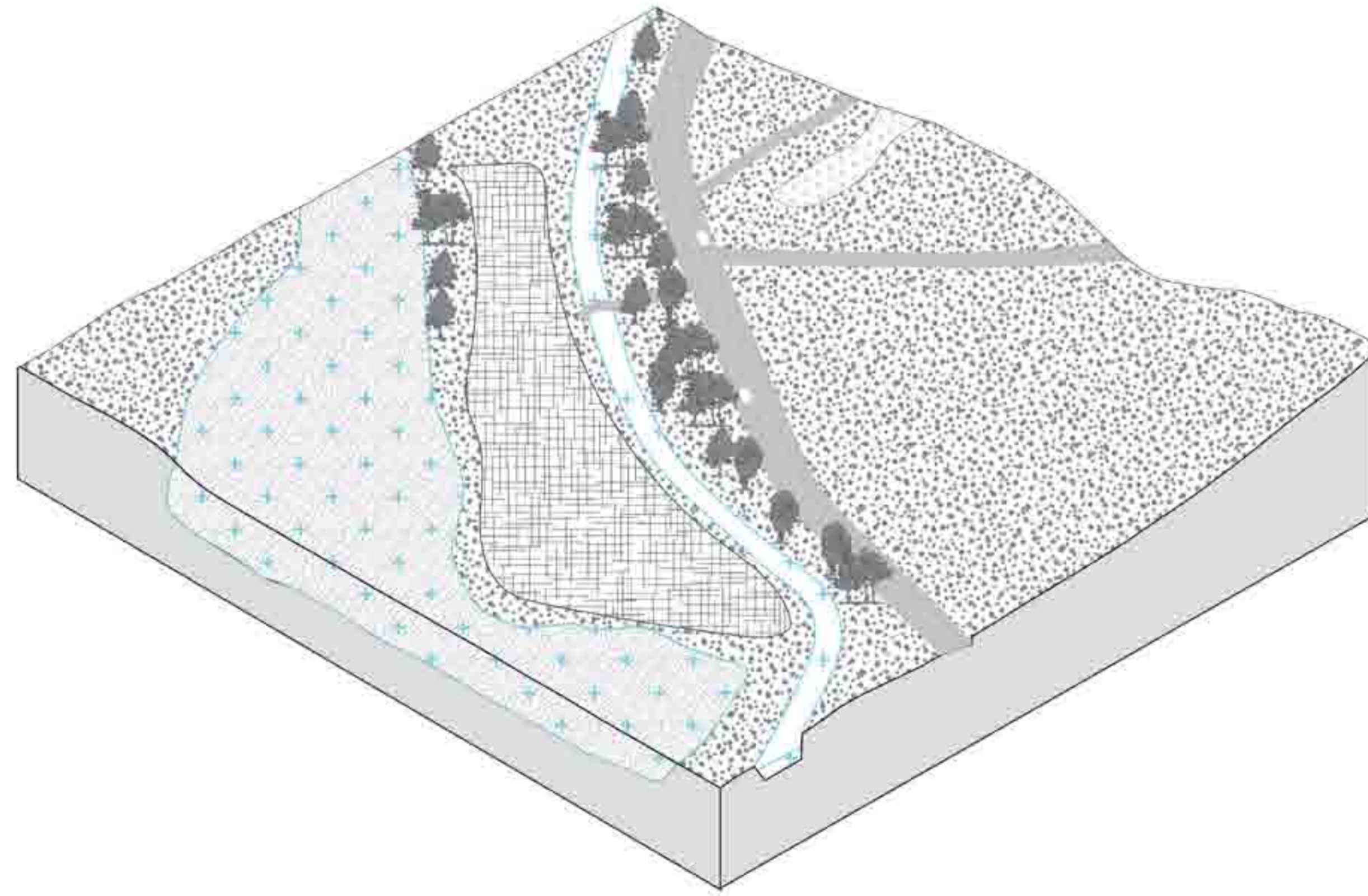
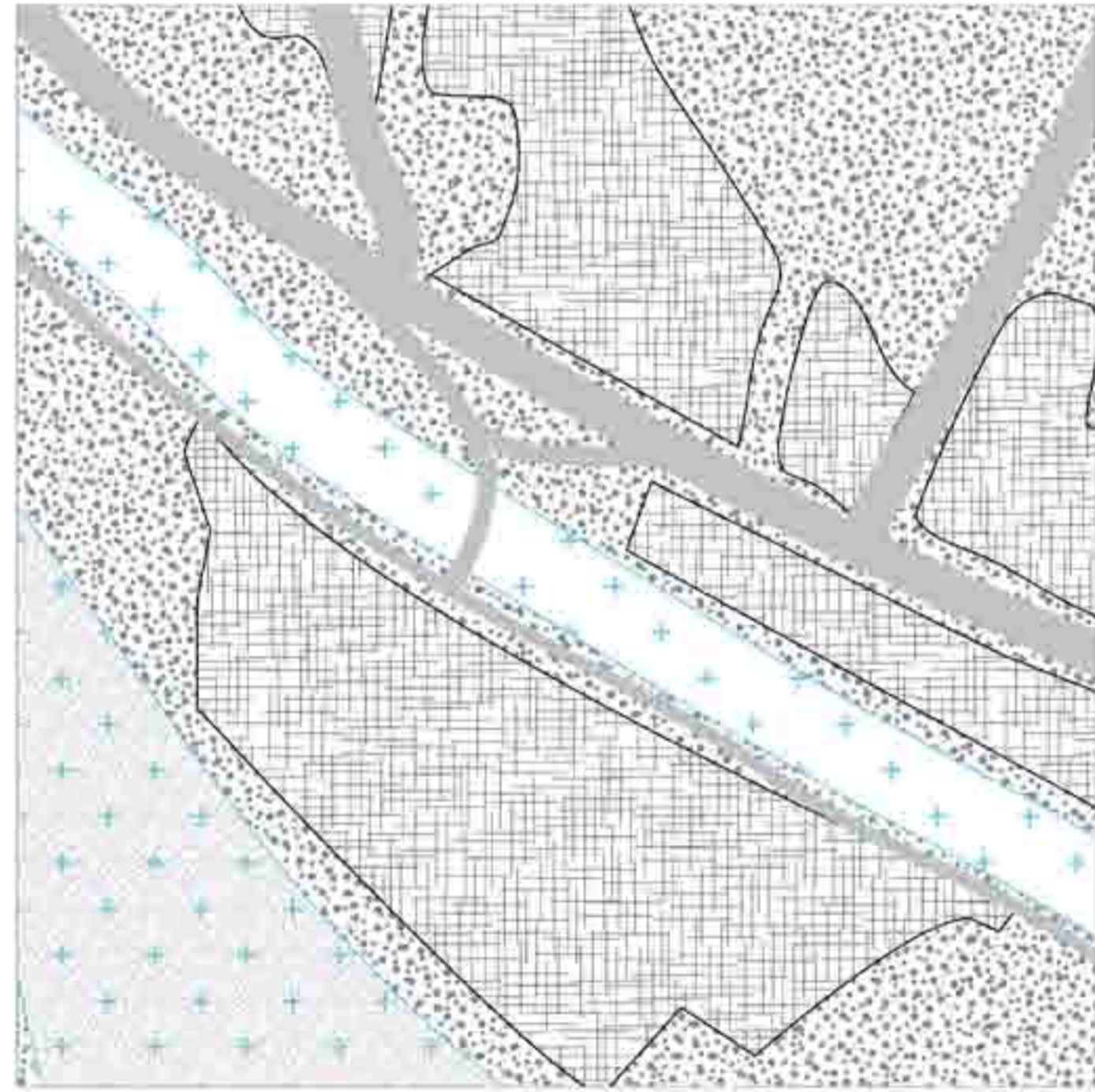


-  constructions
-  street
-  swamp
-  vegetation
-  agriculture
-  rock
-  sand
-  water
-  aquifer

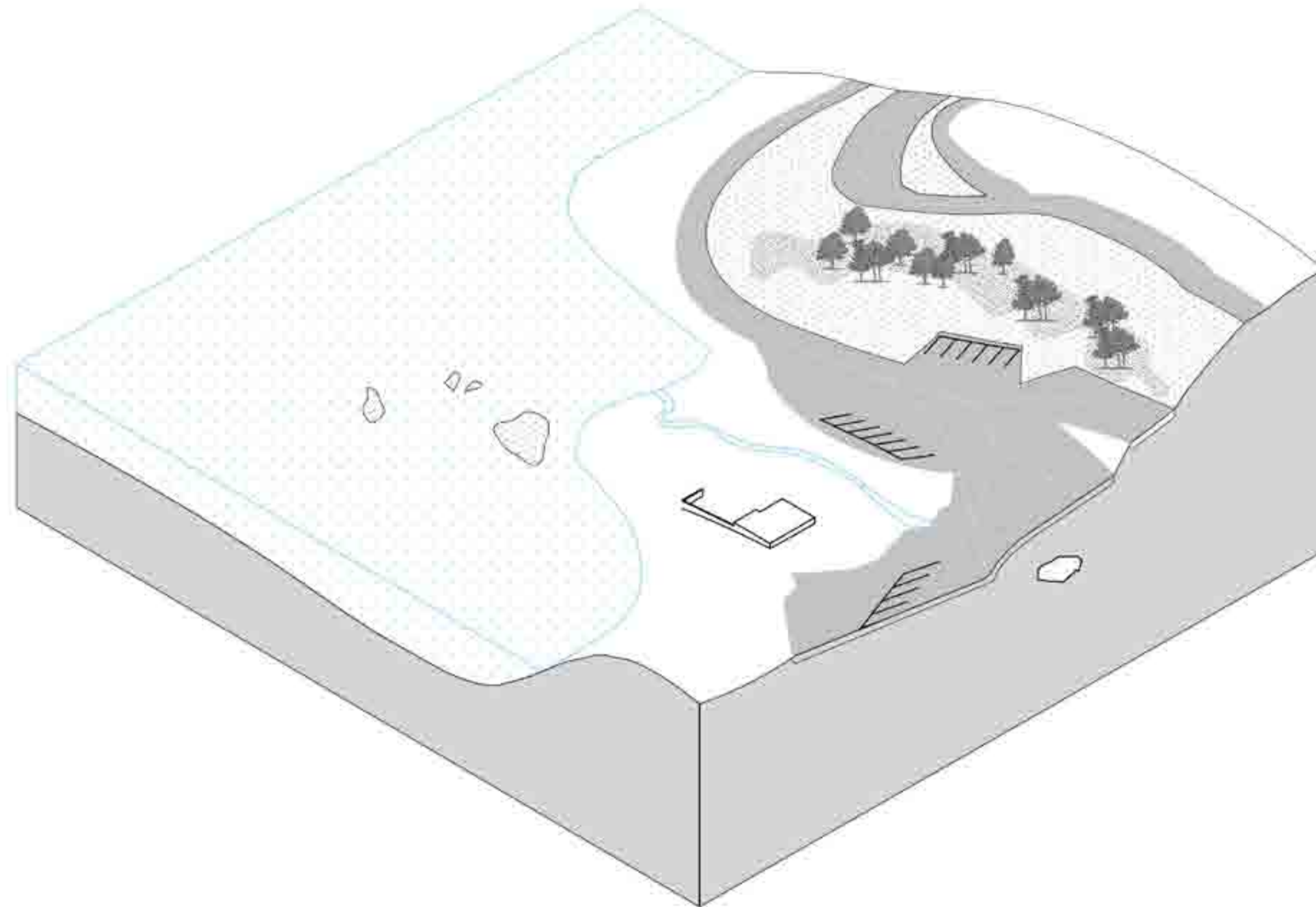
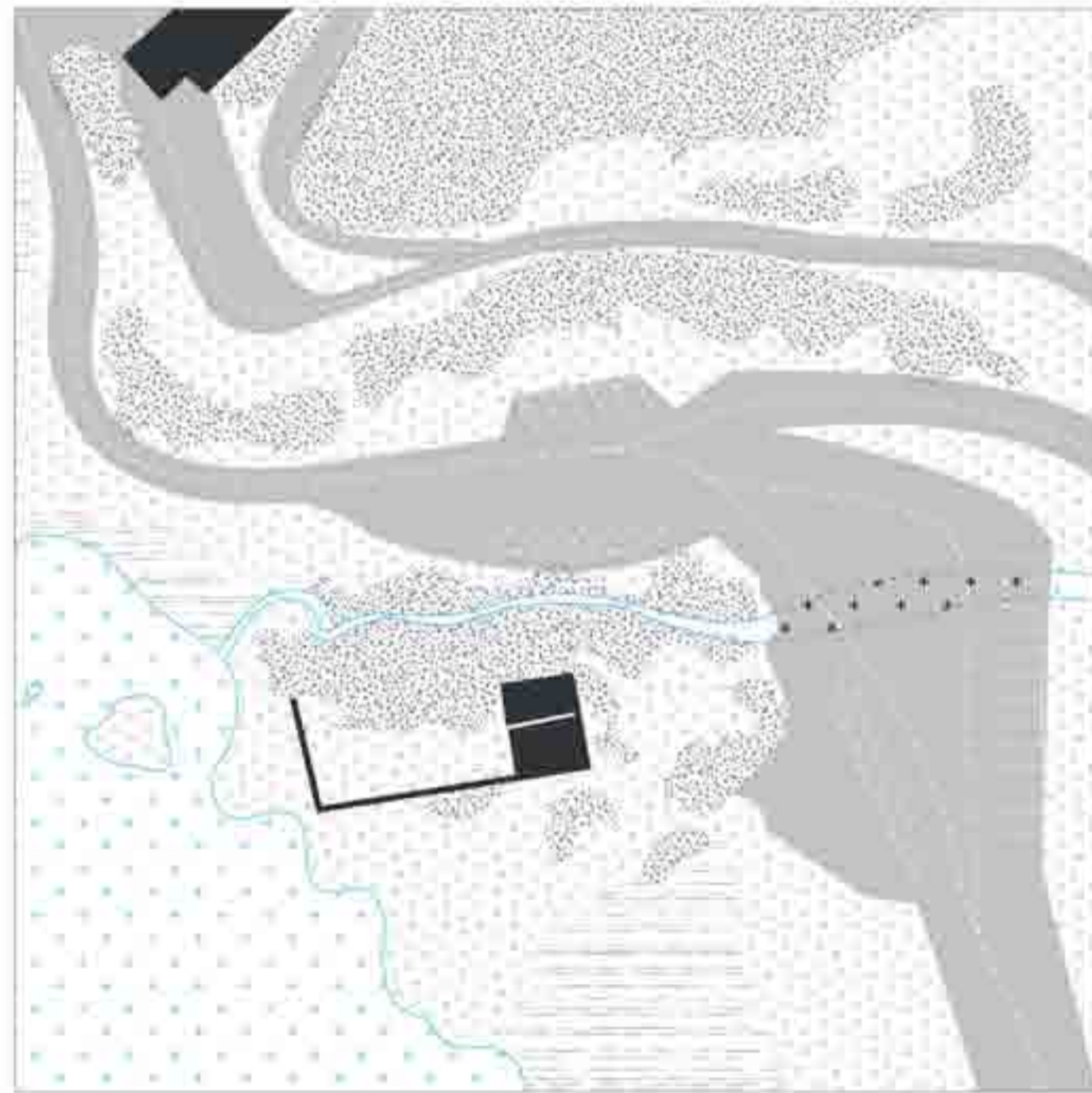
Combination:  $\alpha\gamma$  (h1+h3)



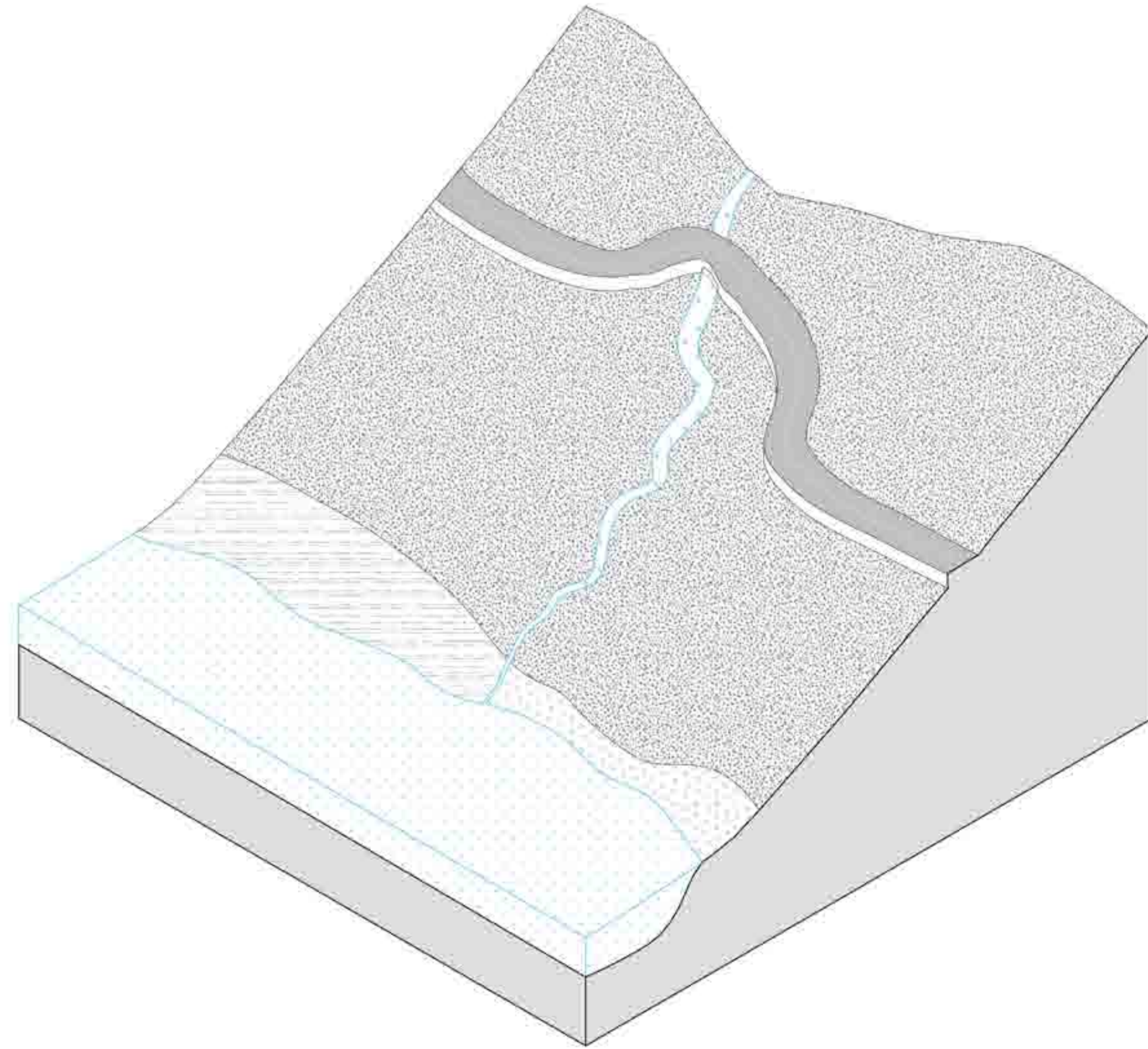
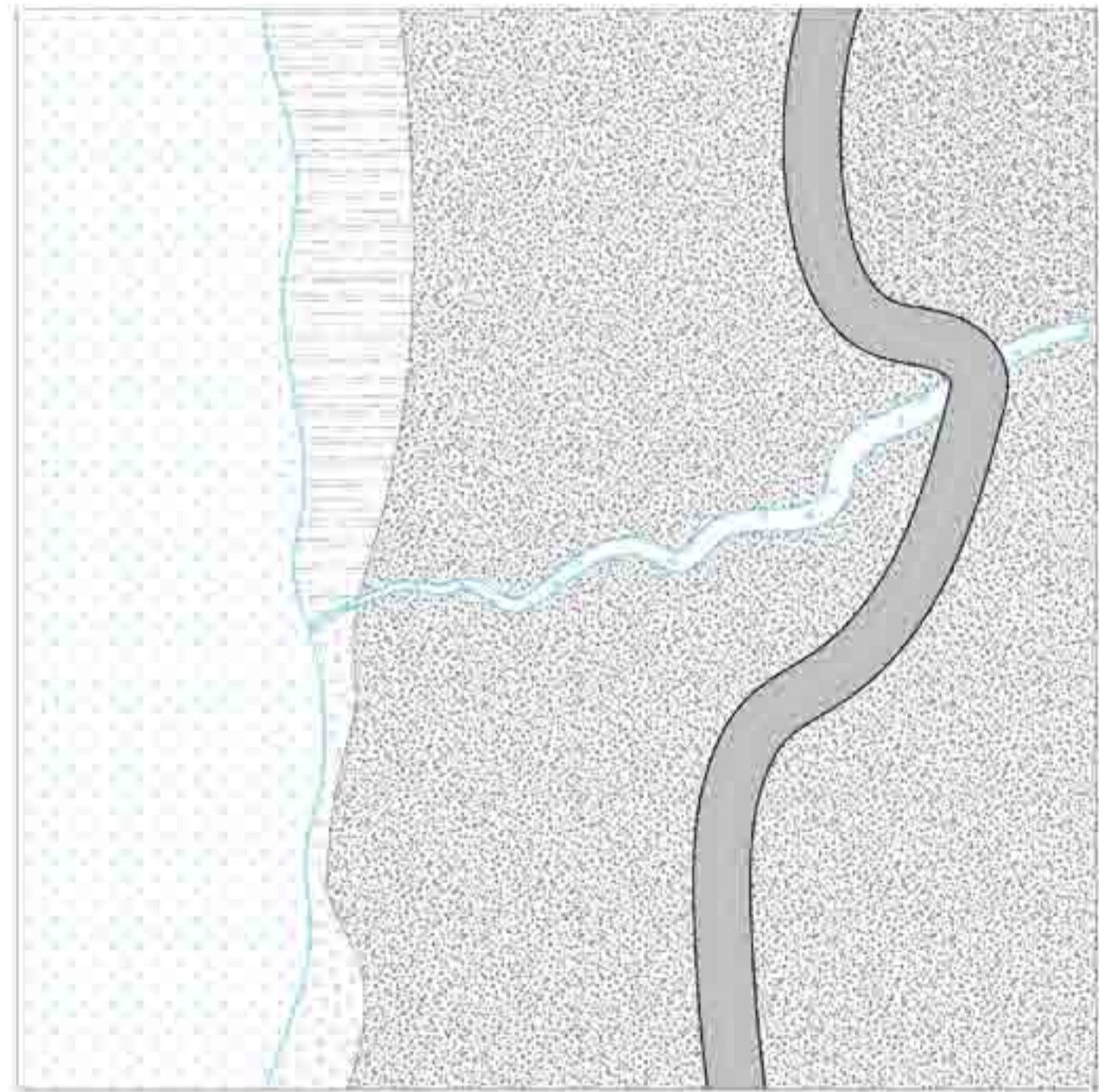
Combination:  $\alpha\gamma$  (f3 + d3)



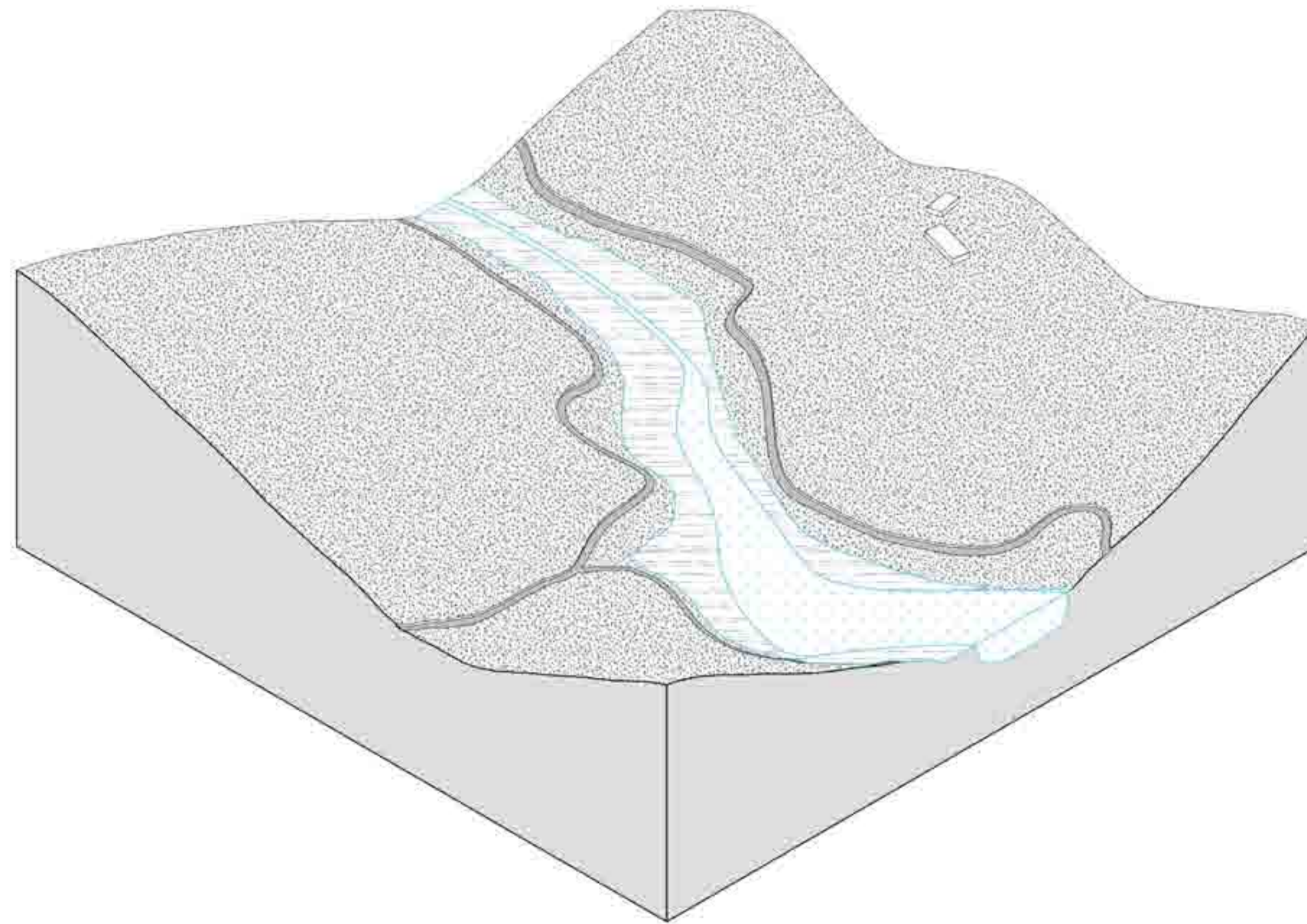
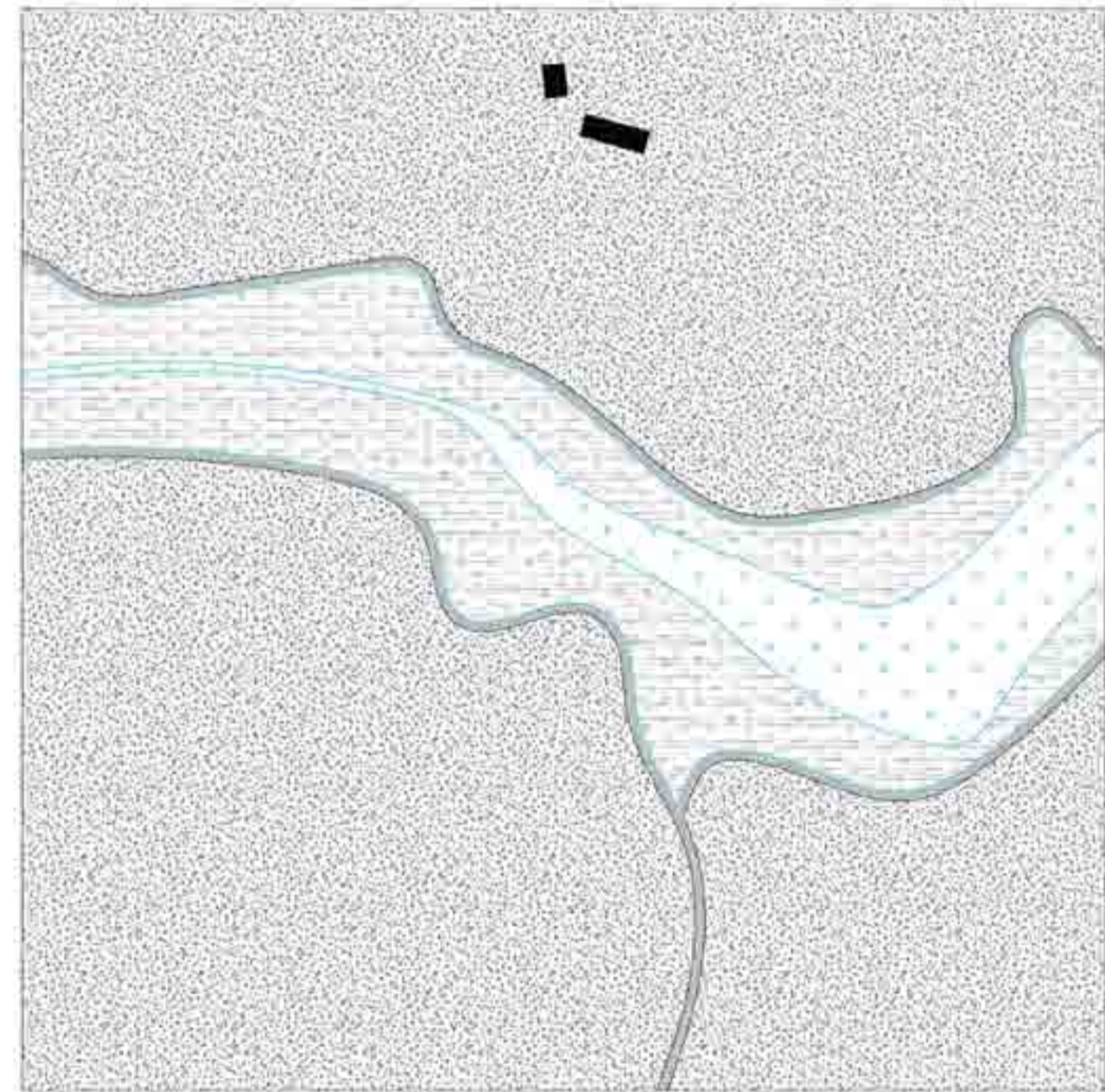
Combination:  $\alpha\beta\gamma$  (c2 + h2)



Combination:  $\alpha$  (c1 + c2 + c3)









Combination:  $\alpha$  (e1 + e2)



*Landscape*

---

Pedology

-  Clayey-sandy
-  Surfacing clayey-rocks
-  Permeable-sandy
-  Lightly deep clayey-rocks
-  Deep clayey-rocks
-  Urban settlements



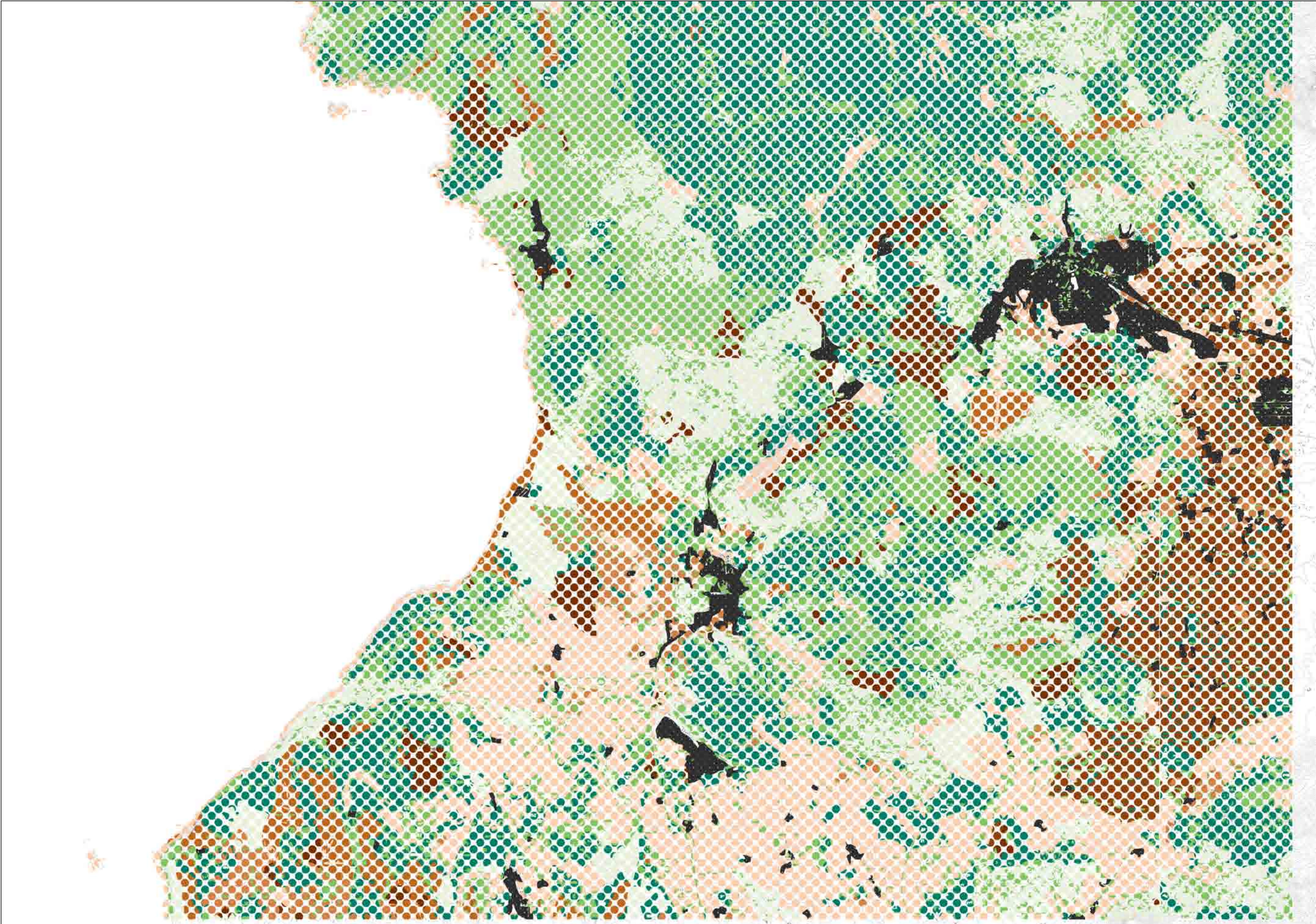


*Landscape*

---

Vegetation



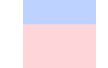


- Extraction areas
- Agriculture
- Dune areas
- Garigue
- Conifer woods
- Mediterranean scrub
- Broadleaf woods

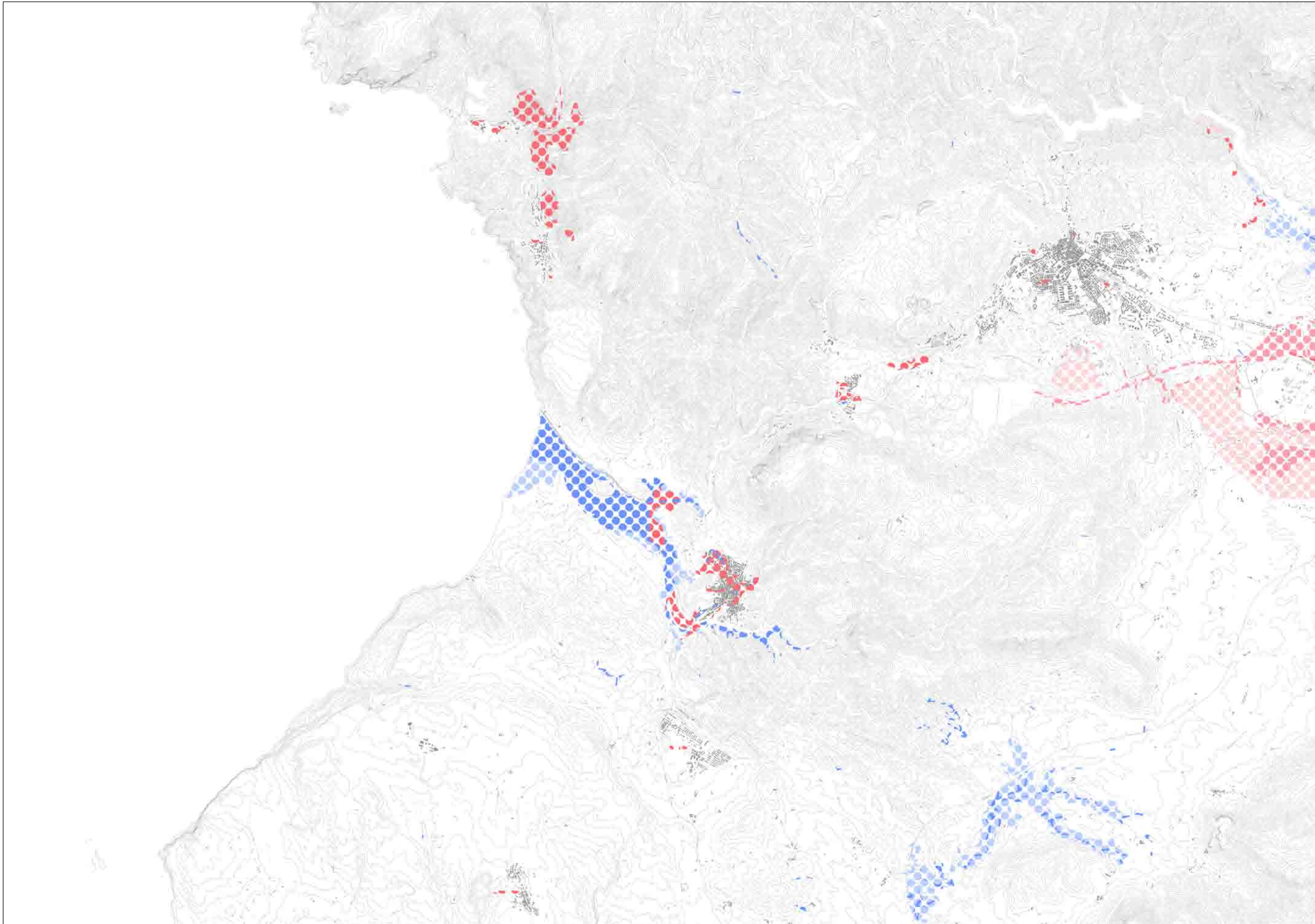


*Landscape*

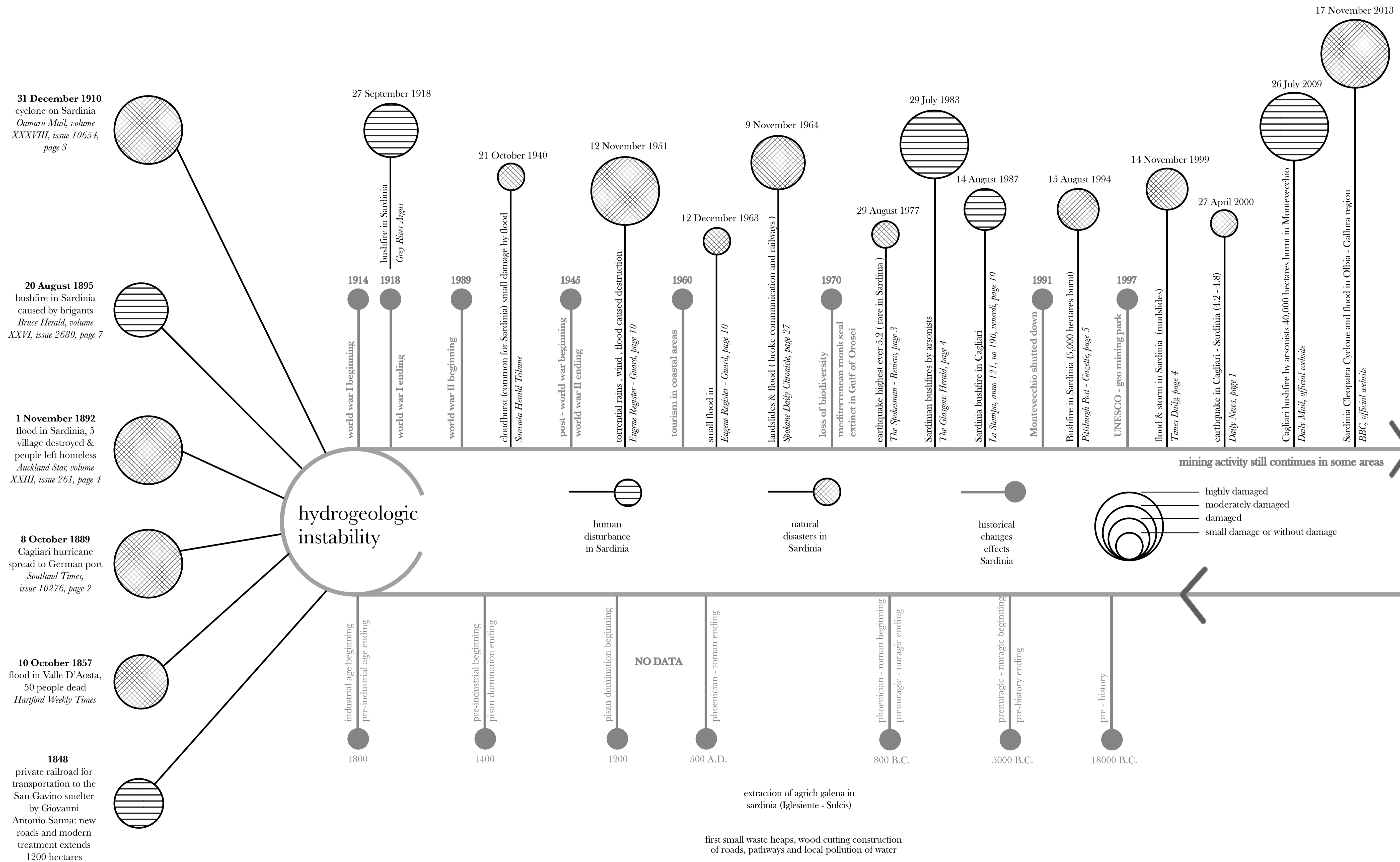
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Hydrogeologic instability

-  High flooding's risk
-  Medium flooding's risk
-  High landslides' risk
-  Critical landslides' risk
-  Areas subjected to fall



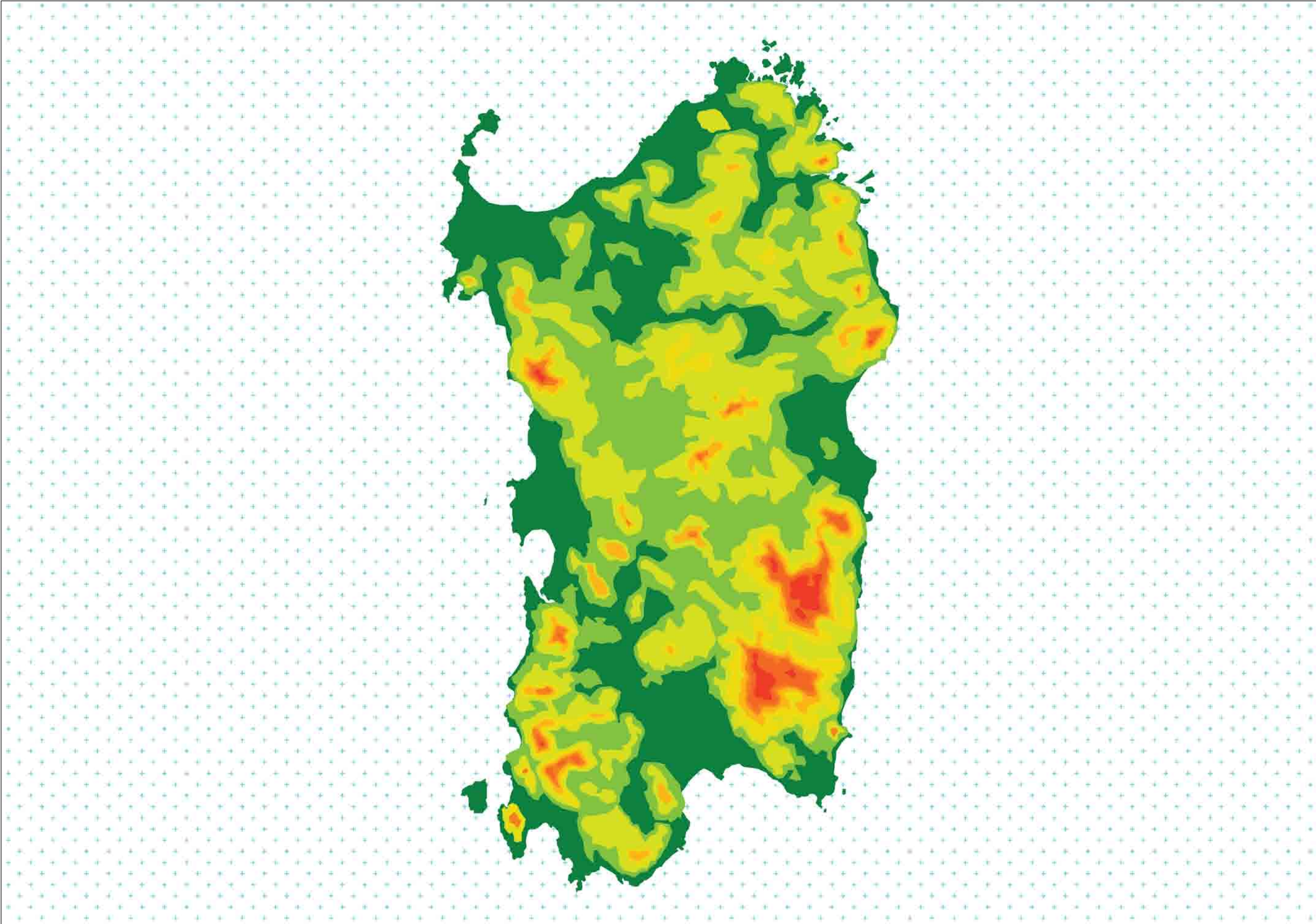
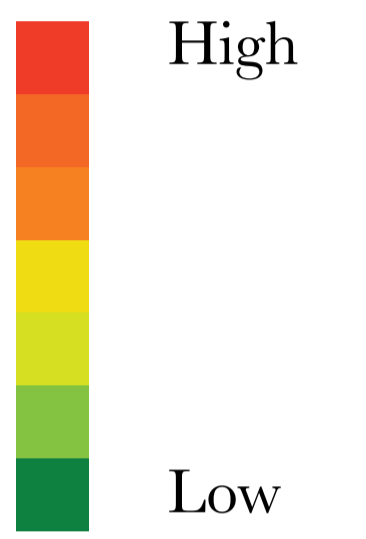
Hydrogeologic instability's timeline



*Landscape*

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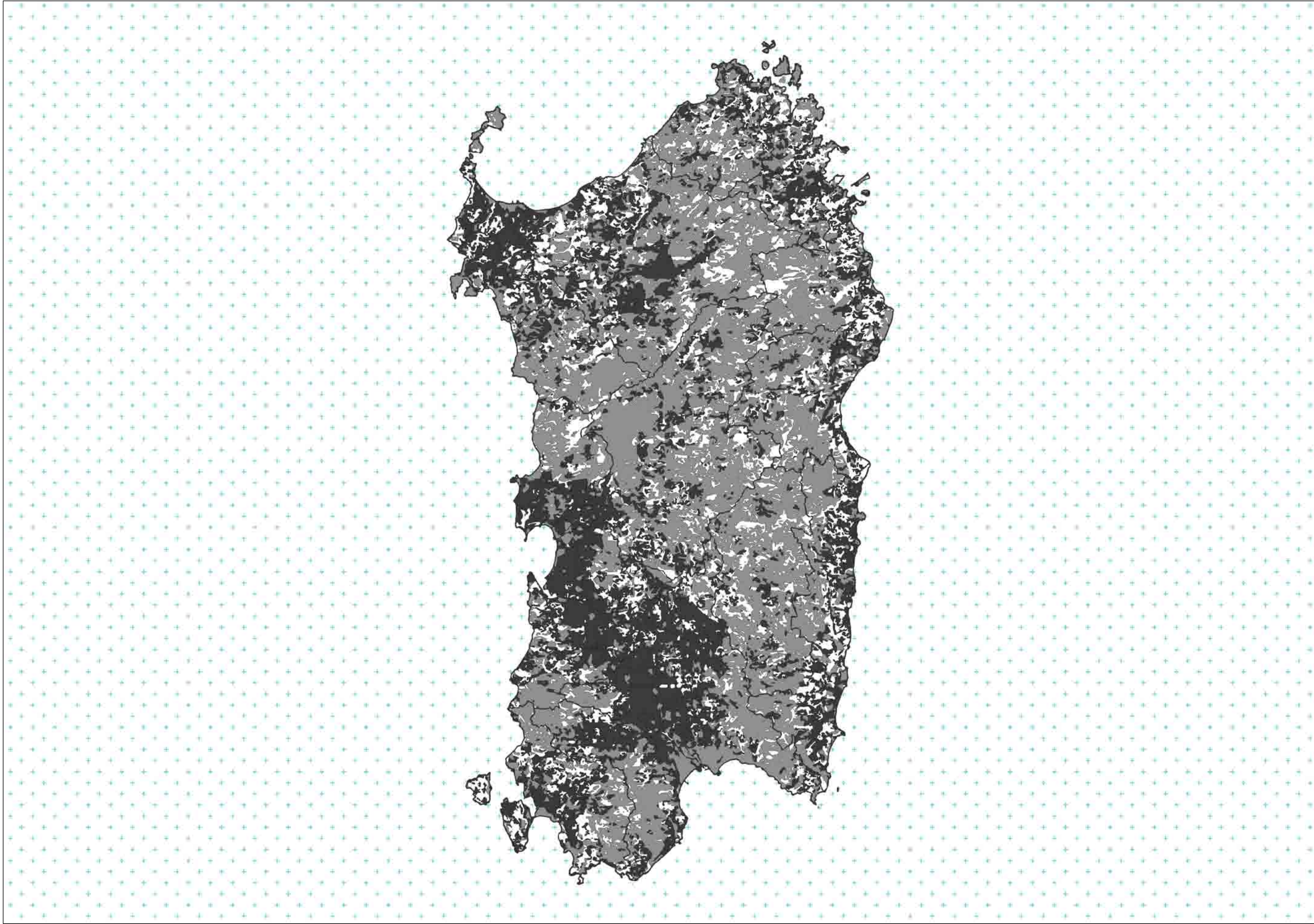
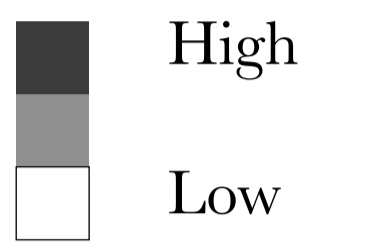
Fire risk



*Landscape*

---

Desertification



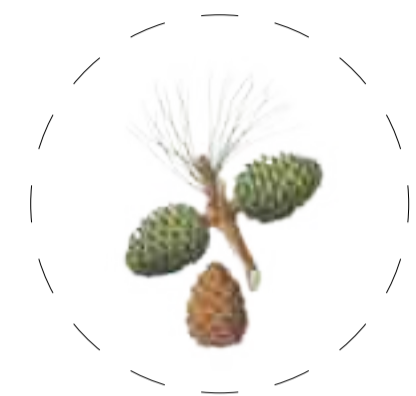
Territorial section for flora



1 ♦ Aglium  
Roseum L.



2 ♦ Limonium  
Nymphaeum



3 ♦ Pinus  
Pinea L.



4 ♦ Quercus  
Suber L.



5 ♦ Quercus  
Ilex L.



6 ♦ Euphorbia  
Dendroides L.



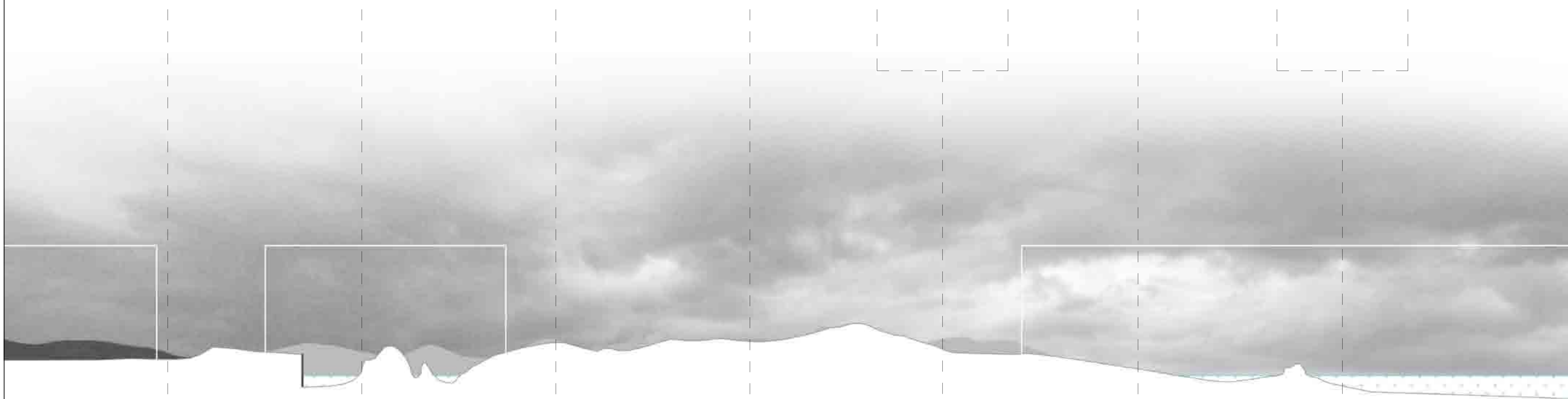
7 ♦ Arundo  
Donax L.



8 ♦ Opuntia  
Ficus Indica L.



9 ♦ Crithmum  
Maritimum L.



Urban areas

Rivers and  
lakes

Woods and  
forests

Mountains

Mediterranean  
scrub

Humid coast  
areas

Coasts and lit-  
tle islands

Territorial section for fauna



Sardinian Great Tit  
(Parus Major Ecki)  
Common



Sardinian Brook Salamander  
(Euproctus Platycephalus)  
Endangered



Sardinian Sheep  
(Ovis Aries)  
Common



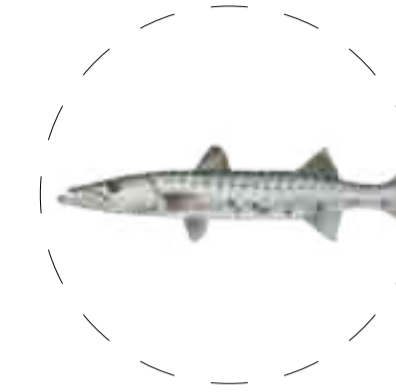
Sardinian Fox  
(Vulpes Vulpes Ichnusae)  
Common



Barbary Partridge  
(Alectoris Barbara)  
Uncommon



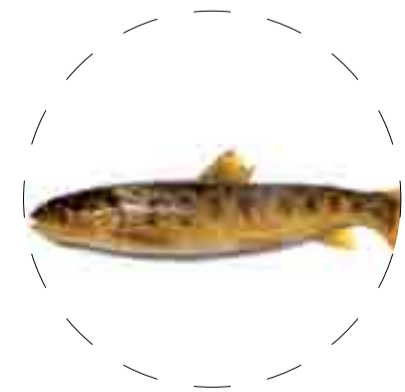
Sargo  
(Diplodus)  
Common



Barracuda  
(Sphyraena)  
Common



Sardinian Chaffinch  
(Fringilla Coelebs Sarda)  
Common



Mediterranean Trout  
(Salmo Cettii)  
Uncommon



Black Bass  
(Micropterus Salmoides)  
Common



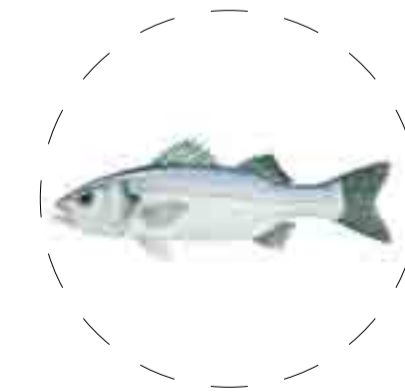
Sardinian Donkey  
(Equus Asinus)  
Endangered



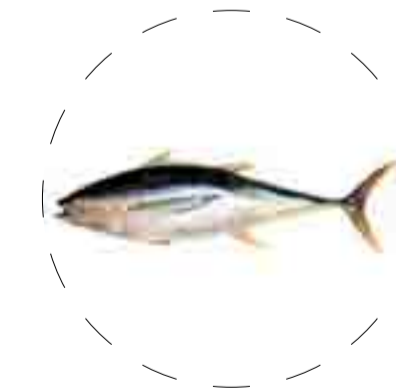
Sardinian Deer  
(Cervus Elaphus Corsicanus)  
Endangered



Sardinian Wildcat  
(Felis Lybica Sarda)  
Endangered

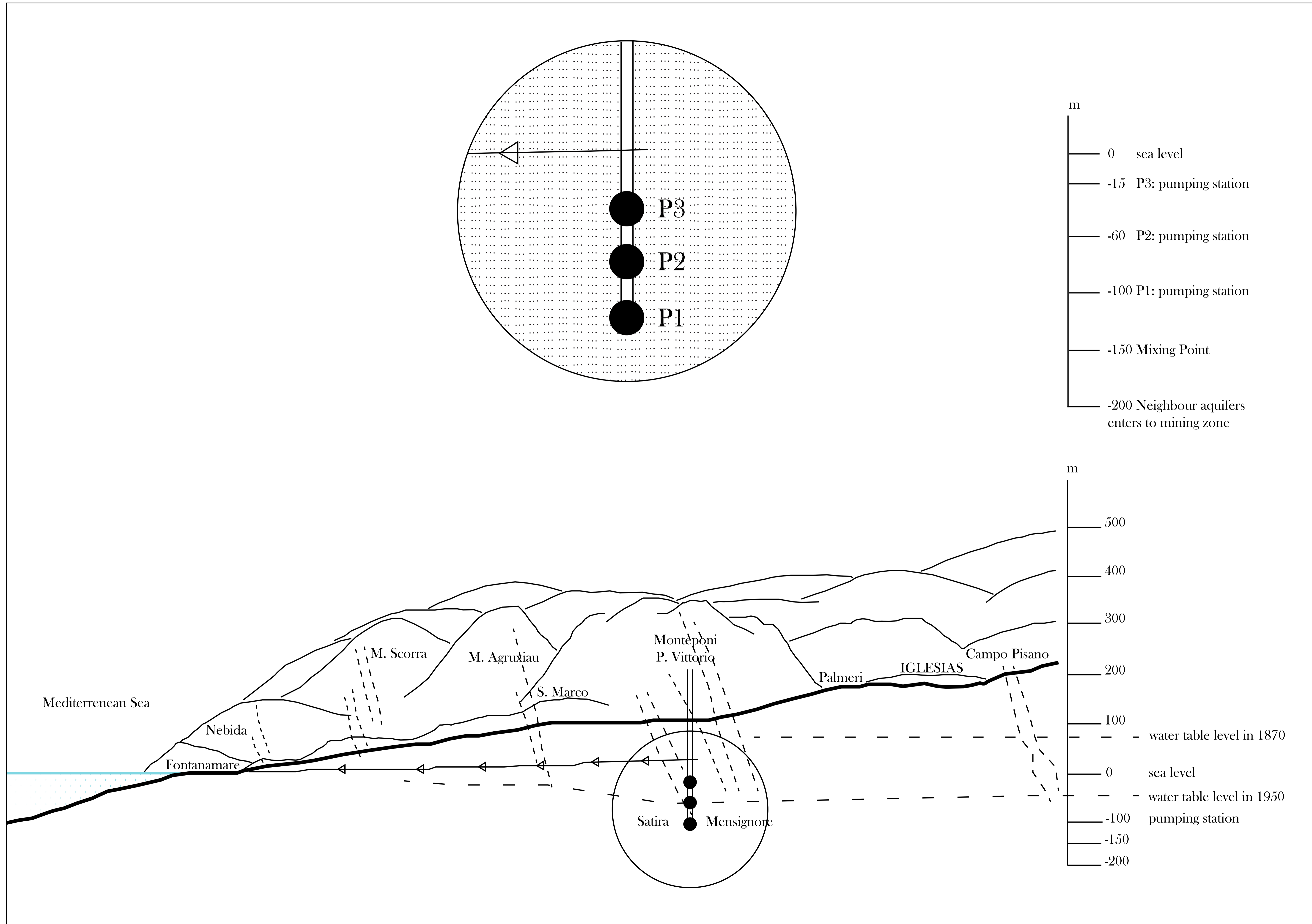


European Seabass  
(Dicentrarchus Labrax)  
Common



Tuna  
(Thunnus)  
Common

*Water cycle*



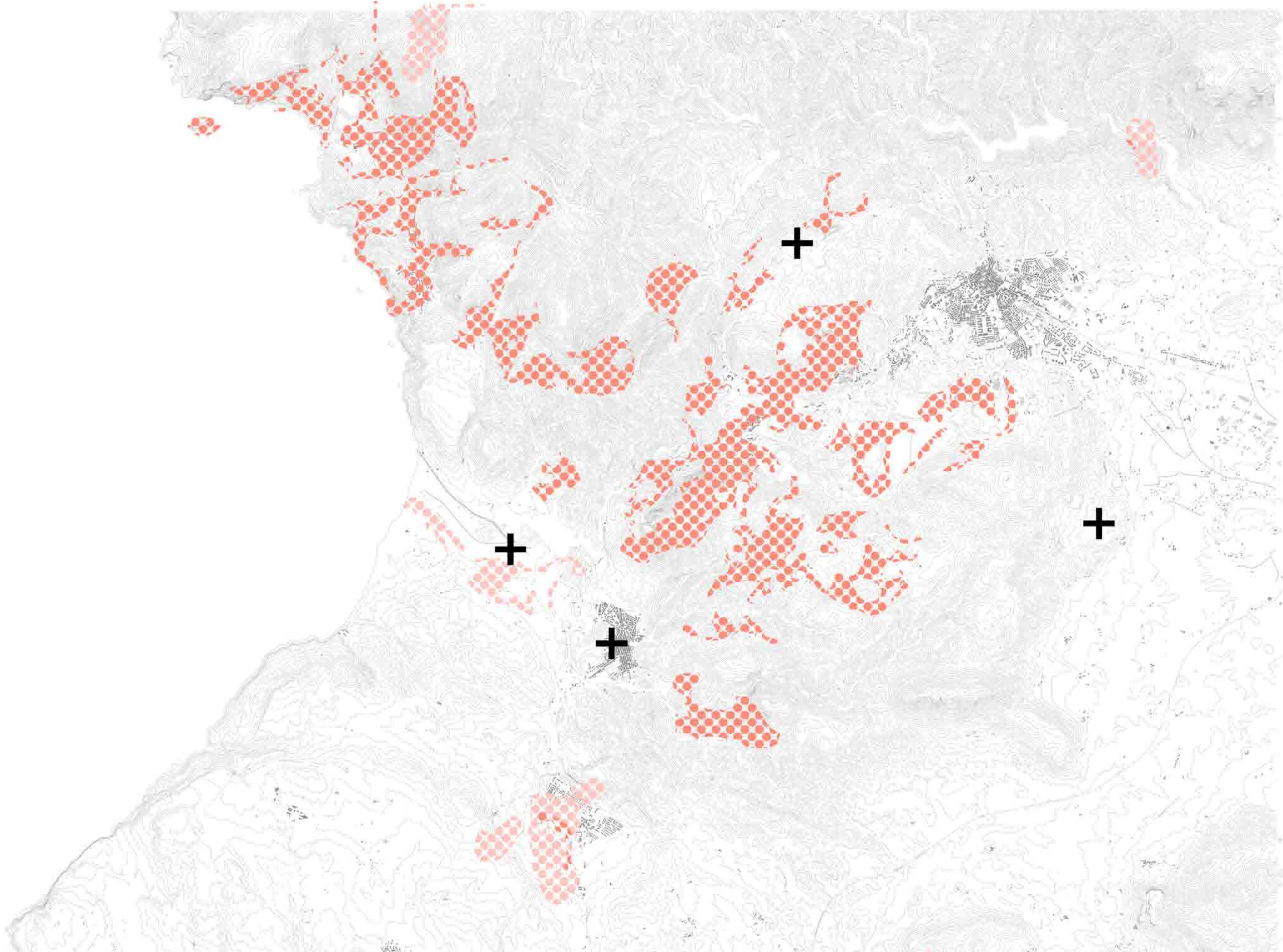
Schematic section of the mining area crossing Monteponi, main shafts, dewatering system and pumping stations.



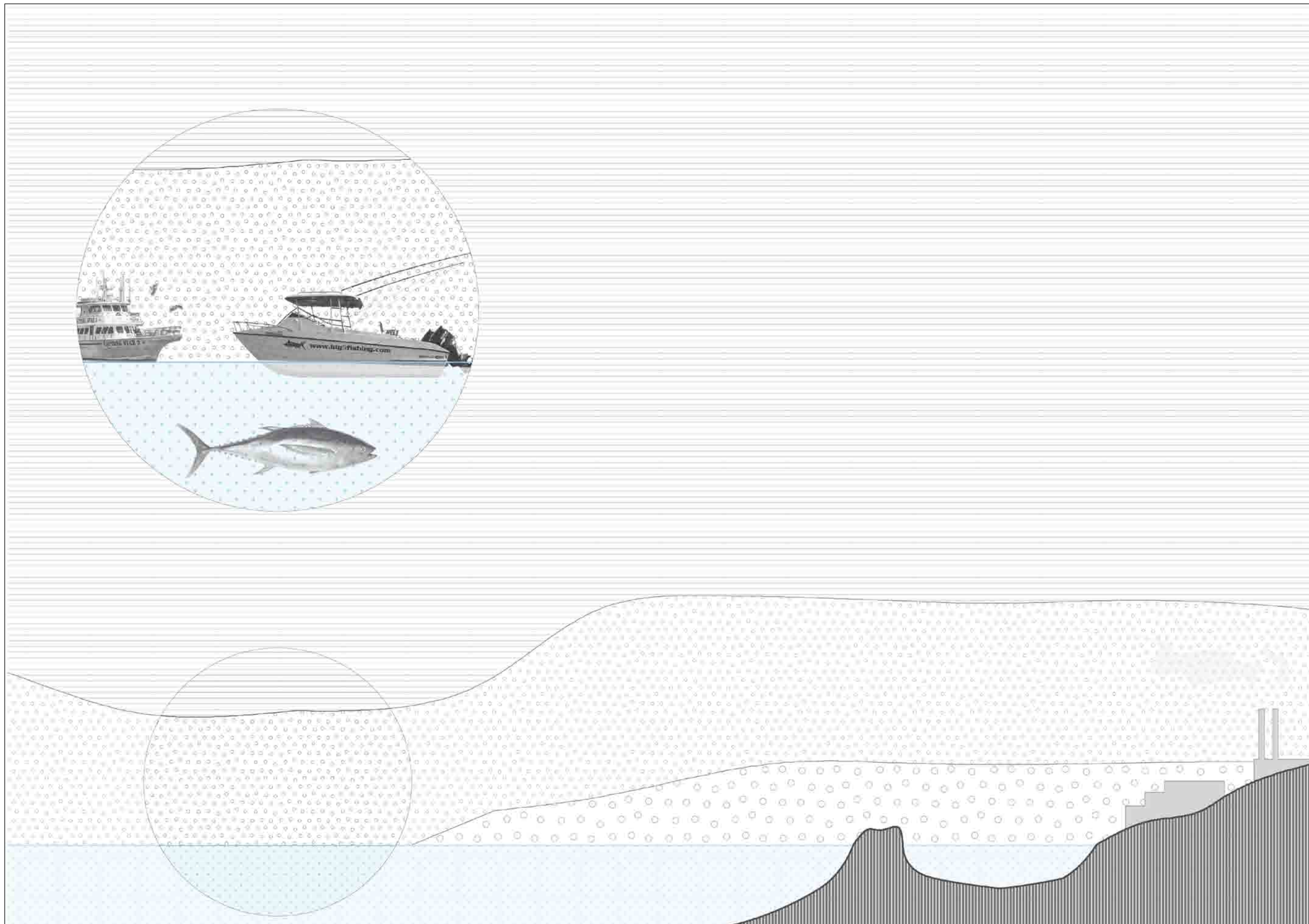
*Water cycle*

Polluted areas in abandoned mining sites

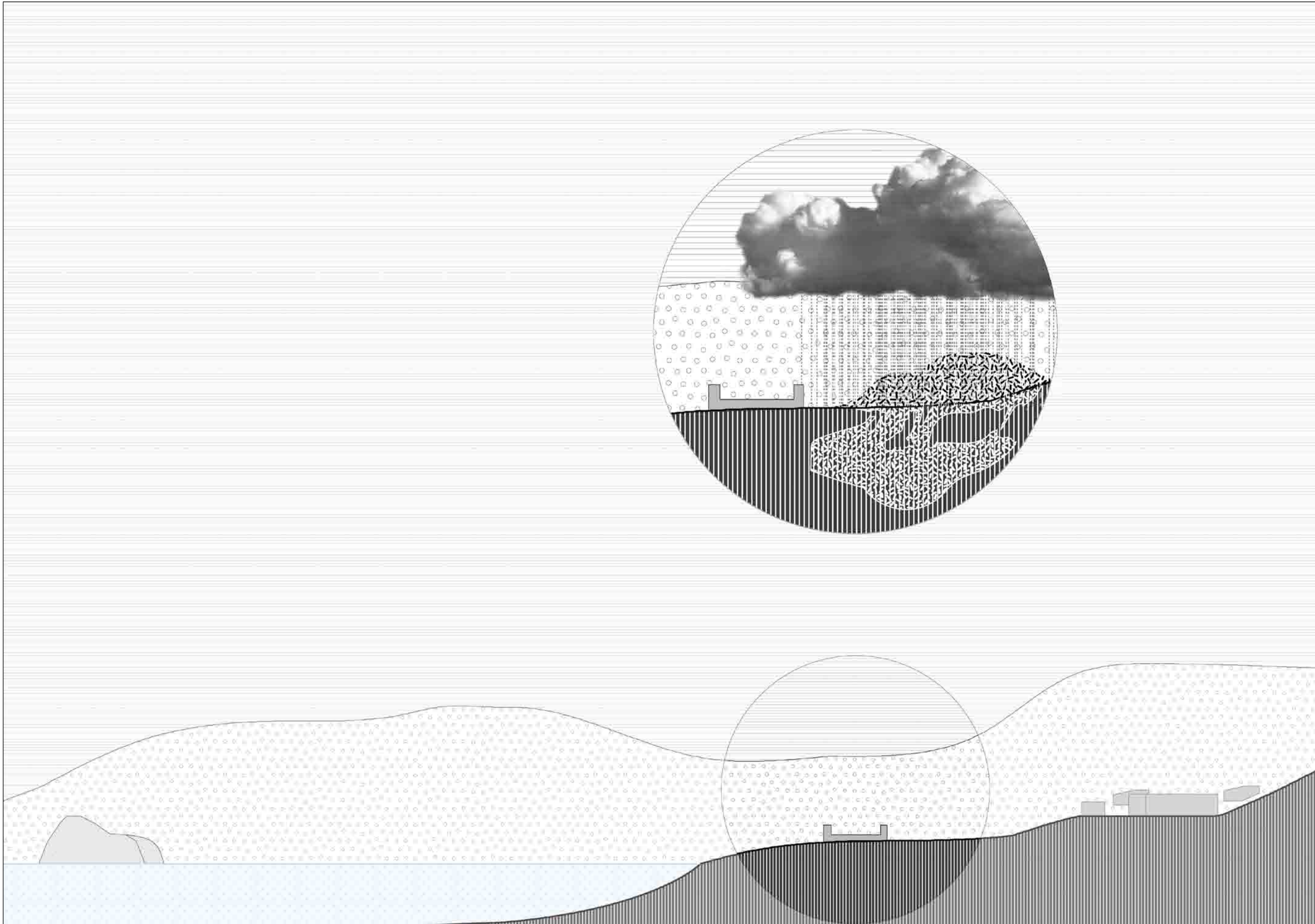
- Mining sites of interest
- Mining sites
- Damps



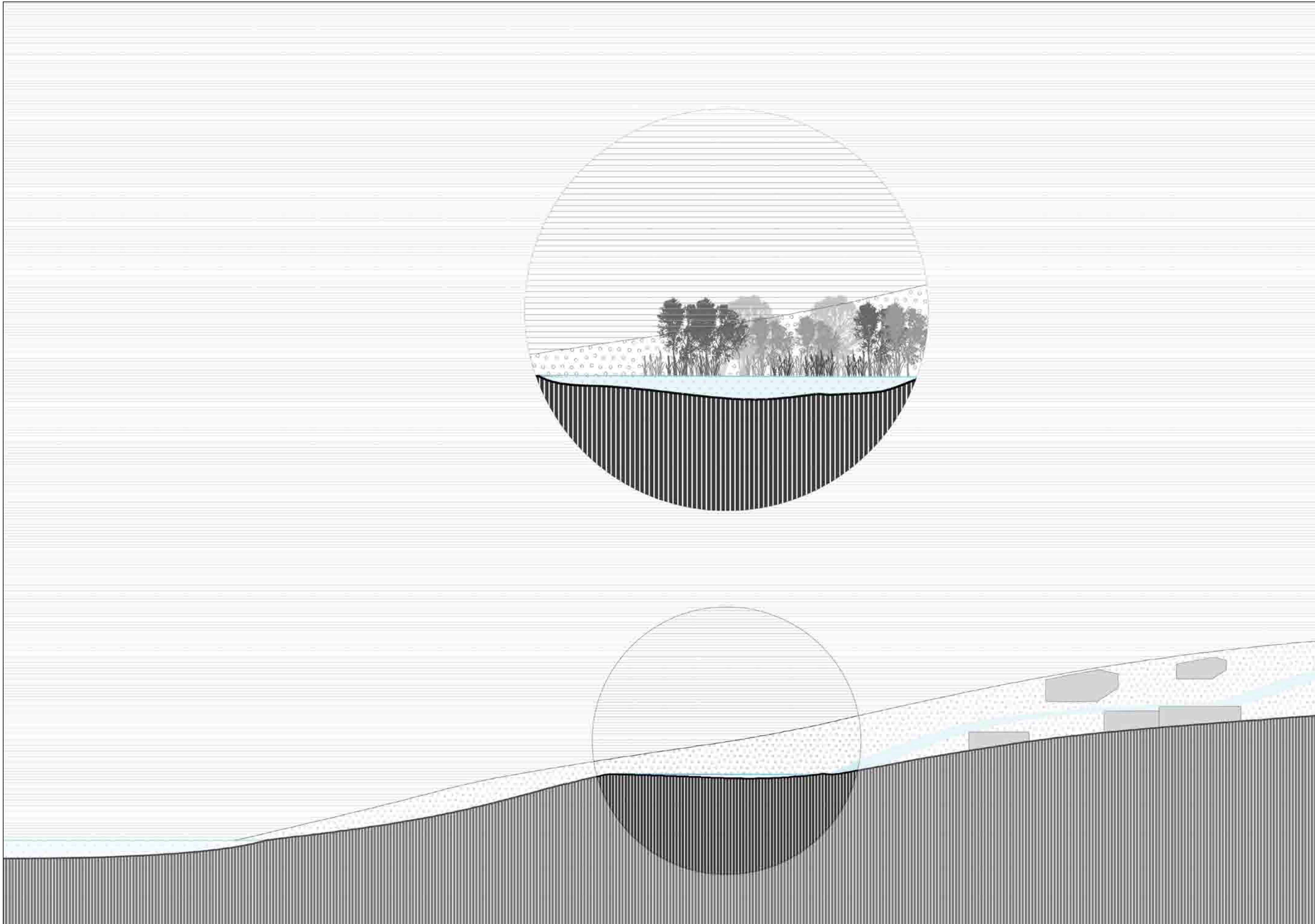
Pollution and depuration



Pollution and depuration



Pollution and depuration



# ENAS

Ente acque della sardegna

Industrial use

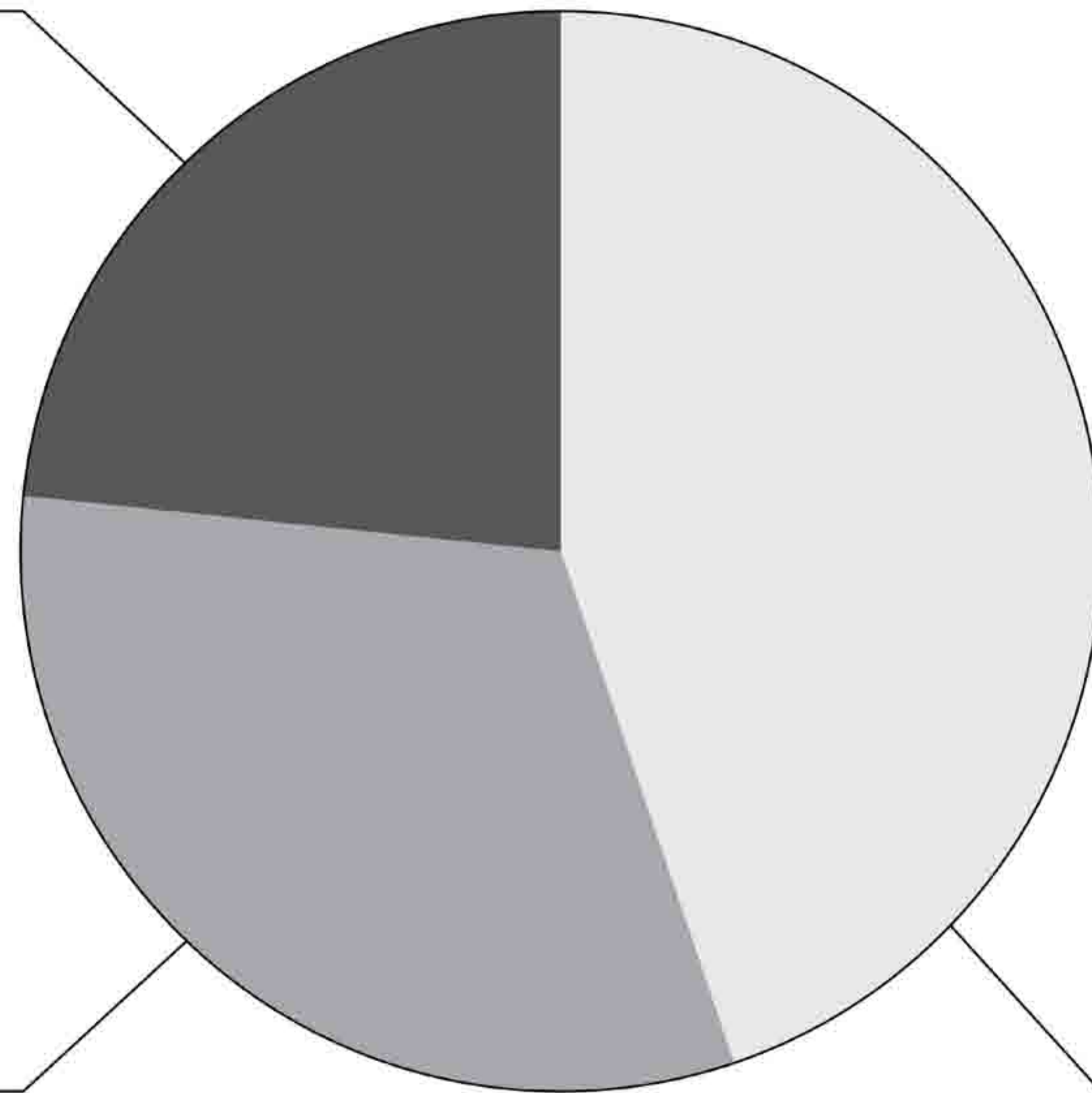
17%

Domestic use

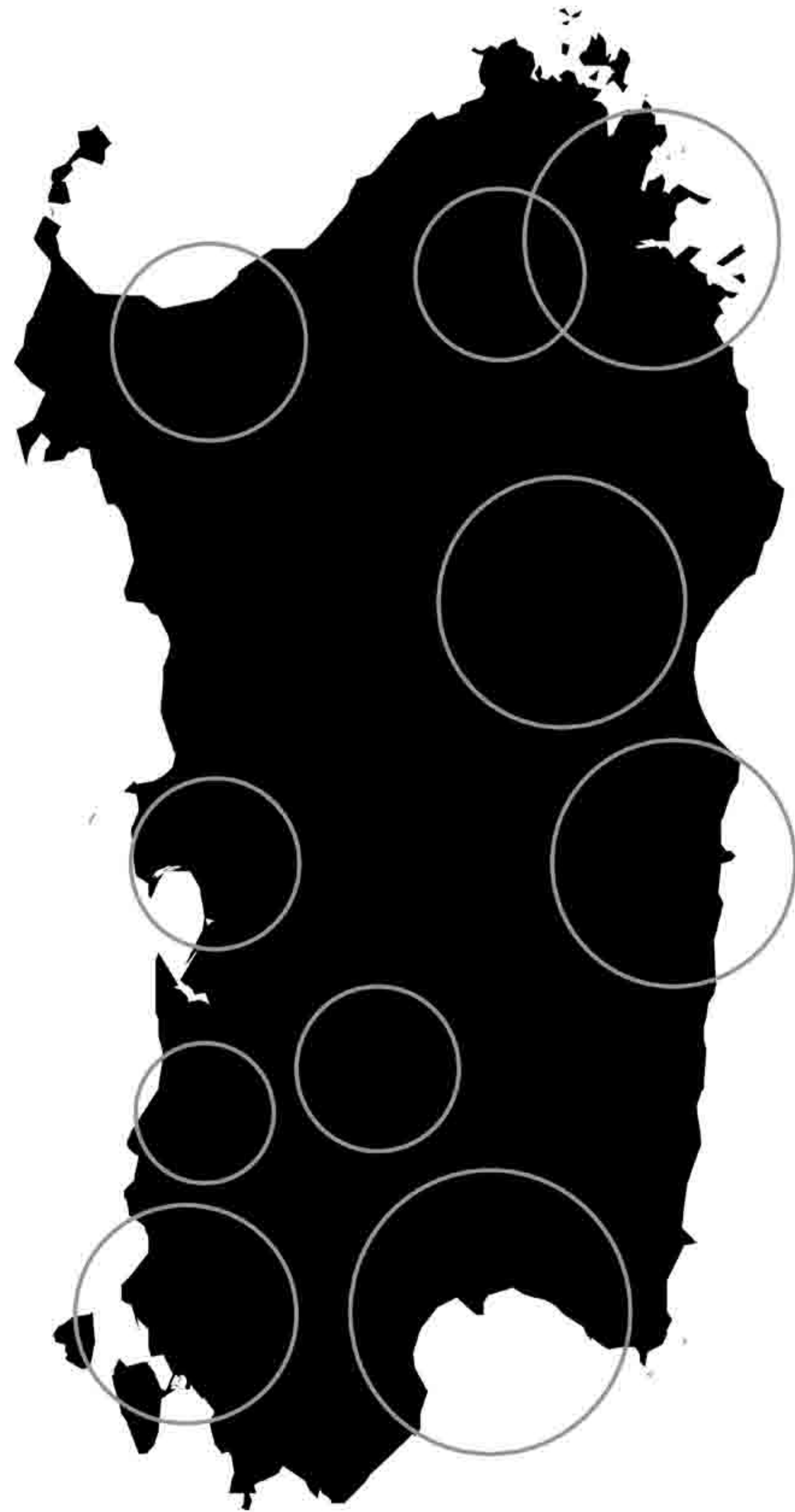
37%

Agricultural use

46%



Domestic use of water  
pro-capite per year



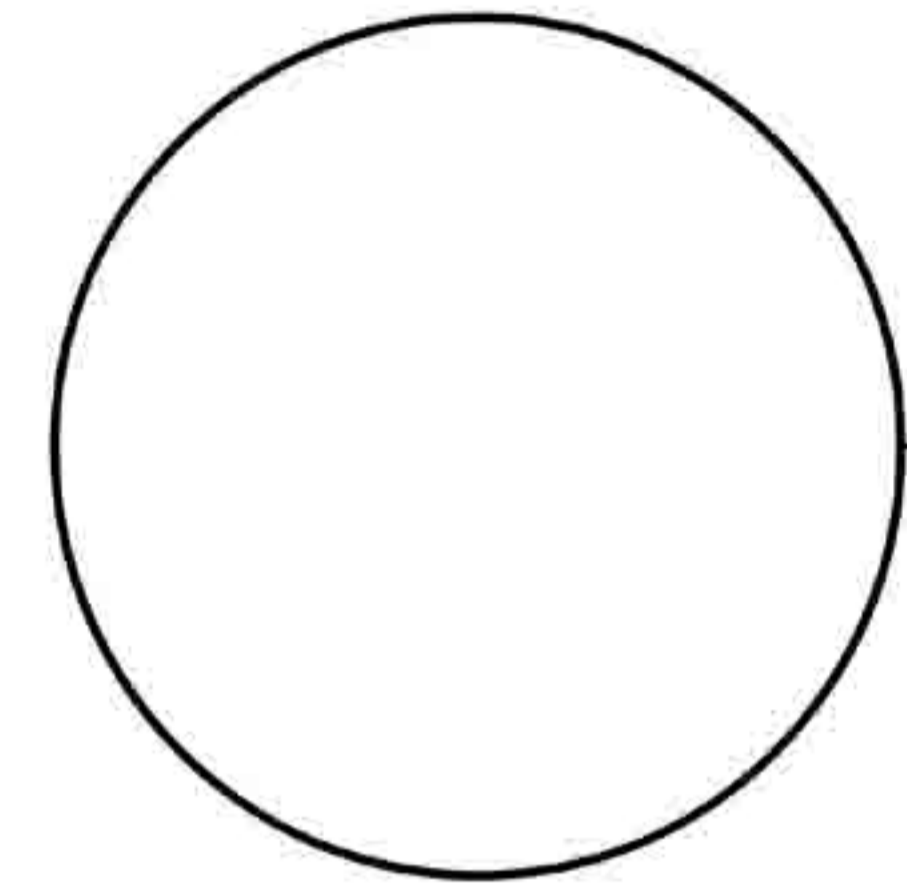
Olbia 62.0  
Tempio Pausania 47.9  
Sassari 52.0

Nuoro 60.7

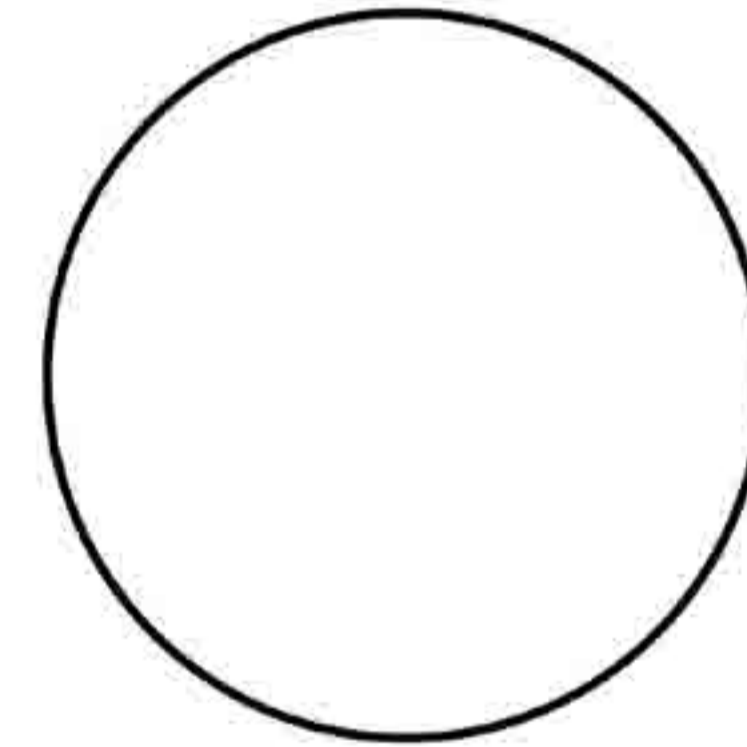
Lanusei 60.1  
Oristano 47.8

Sanluri 46.8  
Iglesias 42.8

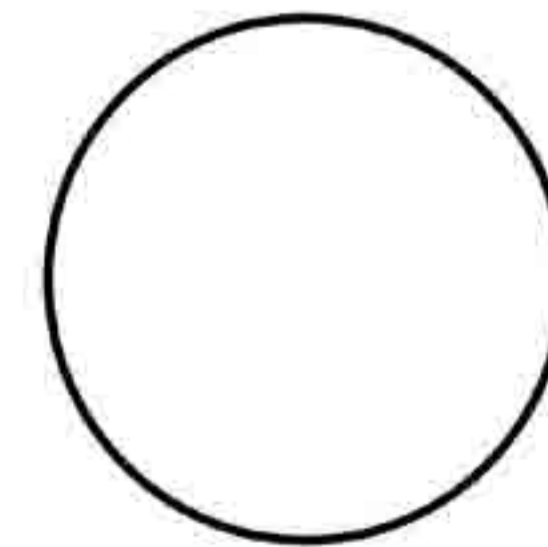
Carbonia 56.5  
Cagliari 66.2



Milan  
83.1



Rome  
73.3

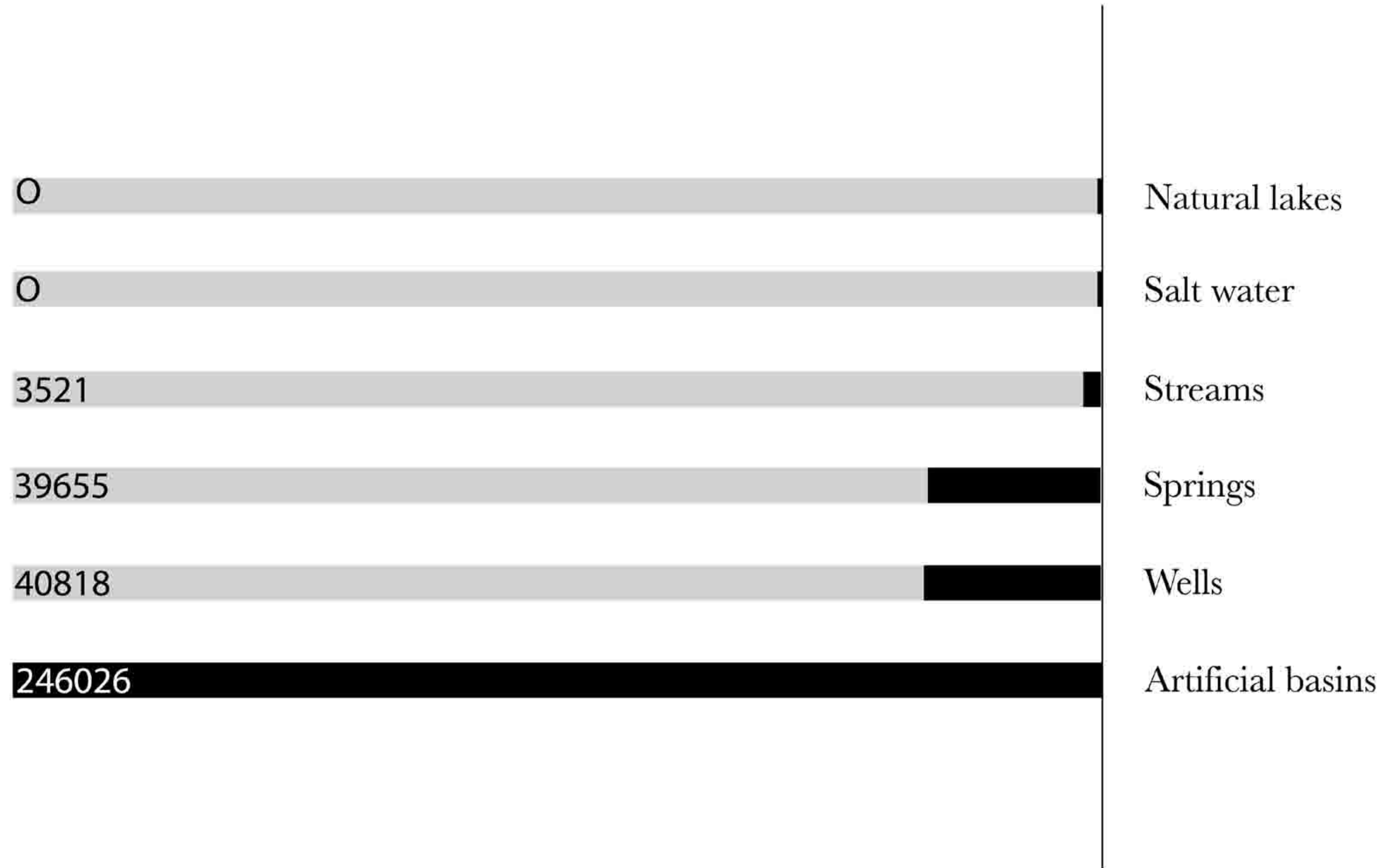


Naples  
58.4

Data in cubic meters

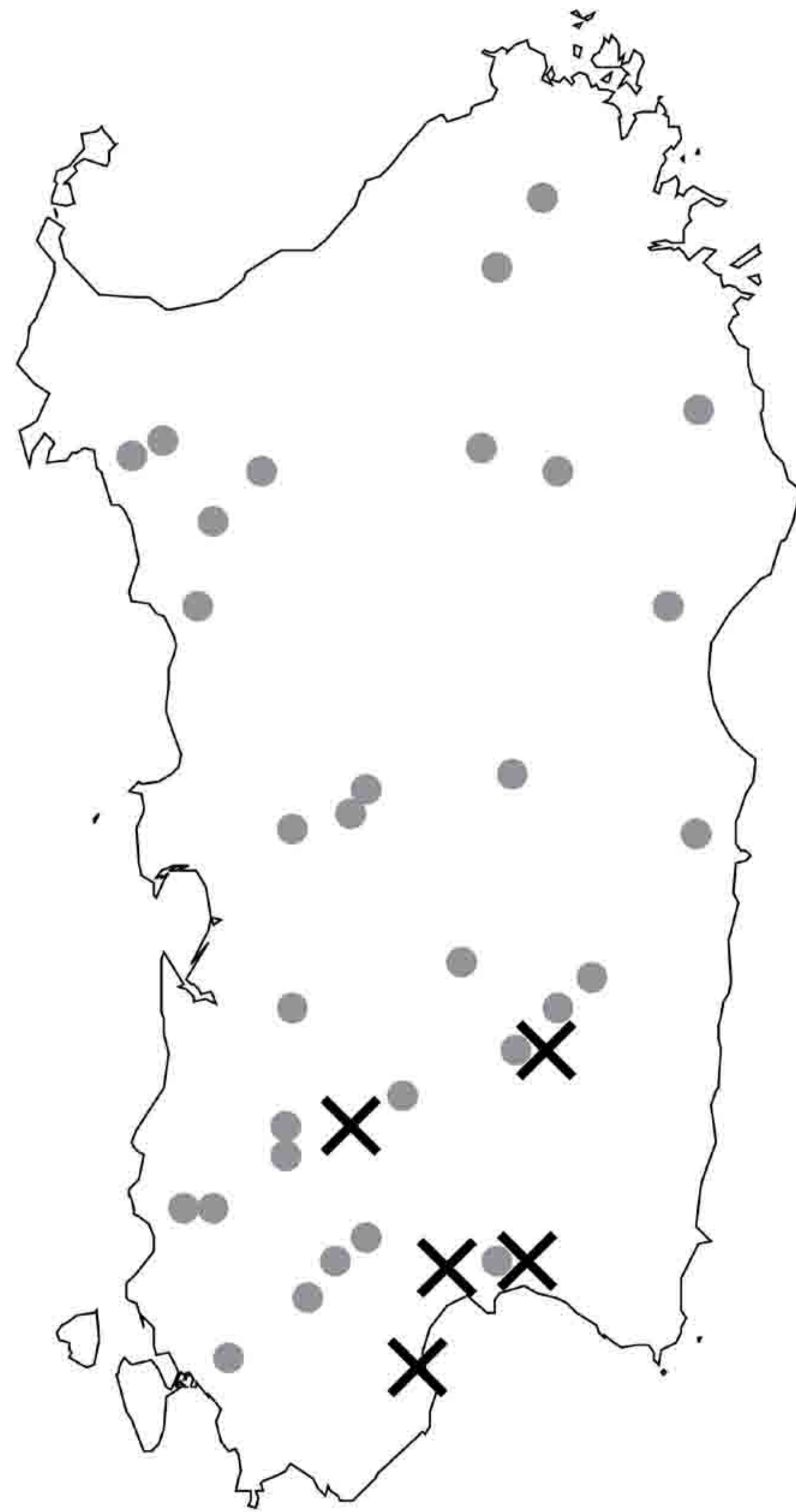
### Sources of water to be made drinkable

Domestic use of water  
and sources



Data in thousands of cubic meters

Industrial uses, principal dams  
and hydroelectric plants



● Principal dams

× Hydroelectric plants

Chemical applications

Production plants

Thermic vector

Mechanic vector

Energy source



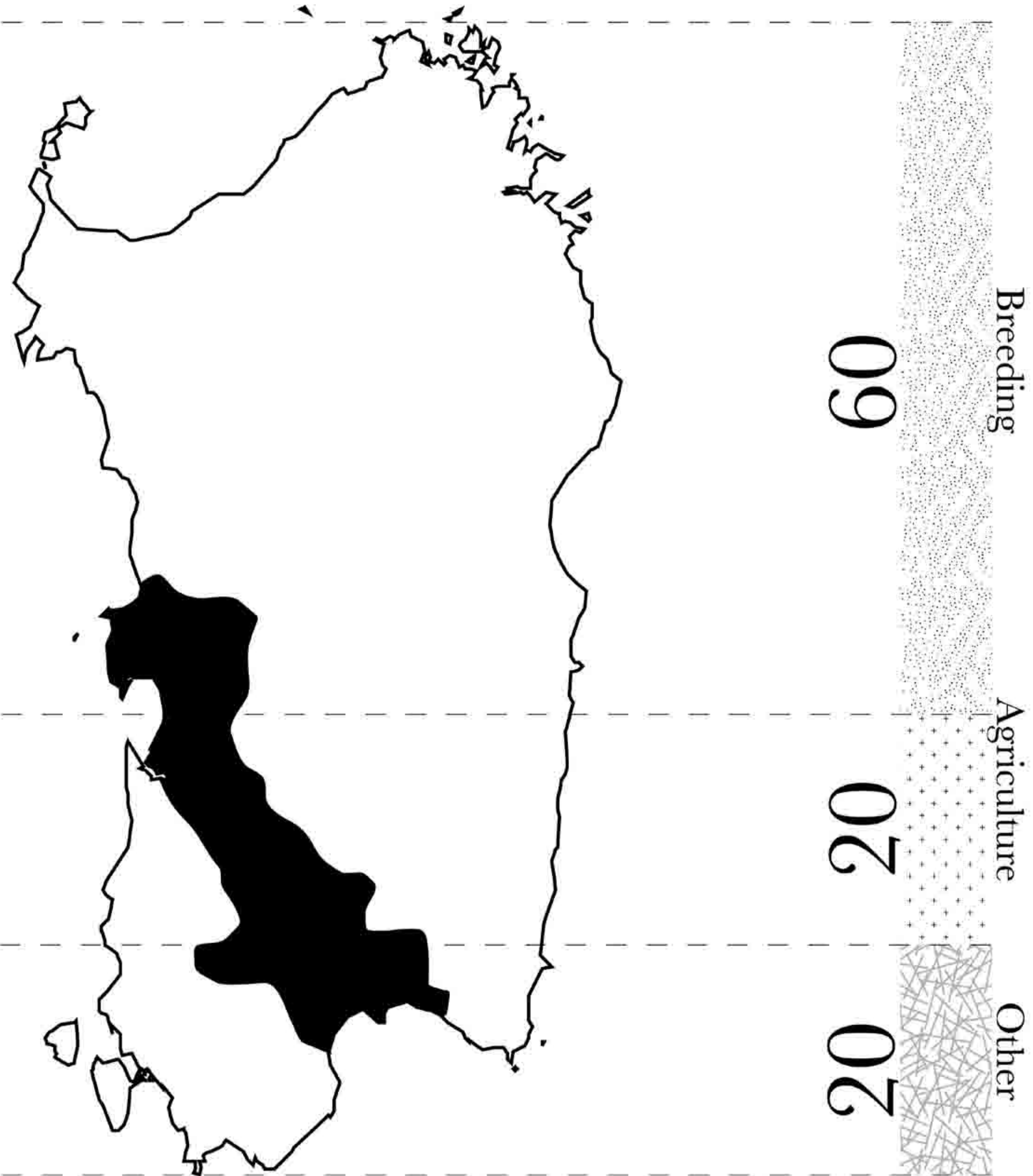
Quantity of soil devoted  
to agriculture

Due to the shallow depth of  
the soil and little permeability,  
for millenia the region  
specialized in breeding instead  
of harvesting

Sardinia hosts nearly half of  
the ovines present in  
the country.

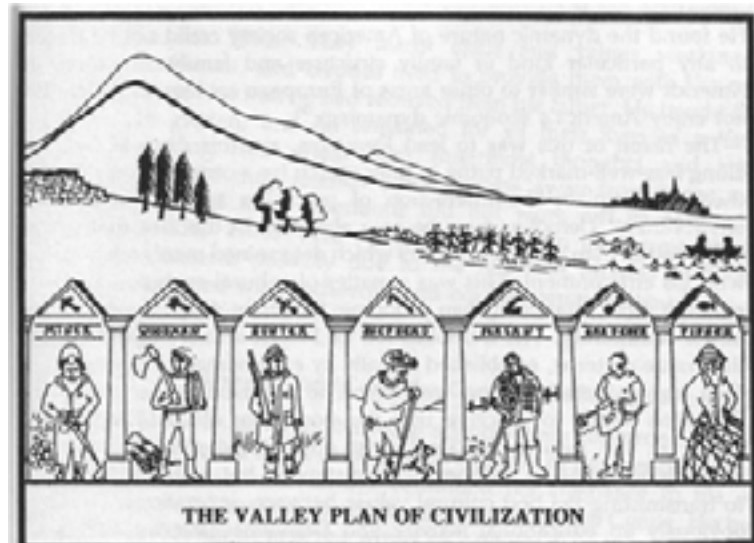
Pianura di campidano  
Most productive  
agricultural region

Forestal areas, urban  
settlements, non  
exploitable terrains



**Brief encyclopedia  
of *flora*  
in the Iglesias area**



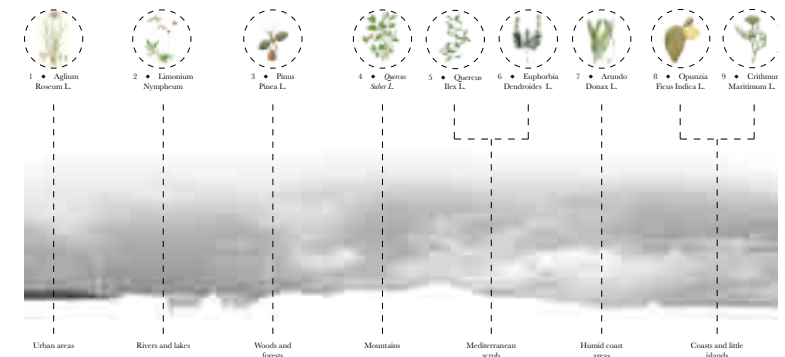


**Figure 2.2 The Valley section and the basic occupations**  
 'By descending from source to sea we follow the development of civilisation from its simple origins to its complex resultants; nor can any element of this be omitted. . . In short, then, it takes the whole region to make the city. As the river carries down contributions from its whole course, so each complex community, as we descend, is modified by its predecessors.'  
 Source: P. Geddes (1901), 'Civics: as applied sociology', Part I, Sociological papers, (ed.) V. V. Bradford London: Macmillan, pp. 105-6.

*Al-Kufrah Municipality, Libya*

### The Valley Plan of Civilization

Drawn by Patrick Geddes, the section is aimed to represent how geographical, geological and morphological characteristics define the environment as far as society and landscape is concerned. It describes how the landscape host mines, forests, hunting spots, grazing lands, agriculture, gardening and fishing.



### Sardinia's Valley Plan of Vegetation

Sardinia's sequence of ecosystems is composed of 7 main environments:

1. Urban areas
2. Rivers and lakes
3. Woods and forests
4. Mountains
5. Mediterranean scrub
6. Humid coast areas
7. Coasts and little islands



*Al-Kufrah Municipality, Libya*

### **Echotones**

Echotone is defined as a space in-between two different ecosystem containing characteristics from both of them. The picture shows how the presence of water deeply defines the landscape: this example illustrates how the Nile's water allowed the birth of cities and of irrigated agricultural fields directly facing desertic areas.



*Iglesiente area, Sardinia, Italy*

### **Echotones**

The ortophoto shows how the *waterscape* defines the landscape allowing the coexistence of beaches, cliffs, different types of vegetation, agriculture and urban settlements. ♦



**1 ♦ Aglium Roseum L.**

Current agriculture and urban areas got their original landscape replaced by new urbanistic and agricultural interventions. One typical species is the *Aglium Roseum L.*, *Aglio Roseo* in Italian, *Allu de carroga* in Sardinian dialect, that is still very present in the grazing areas.



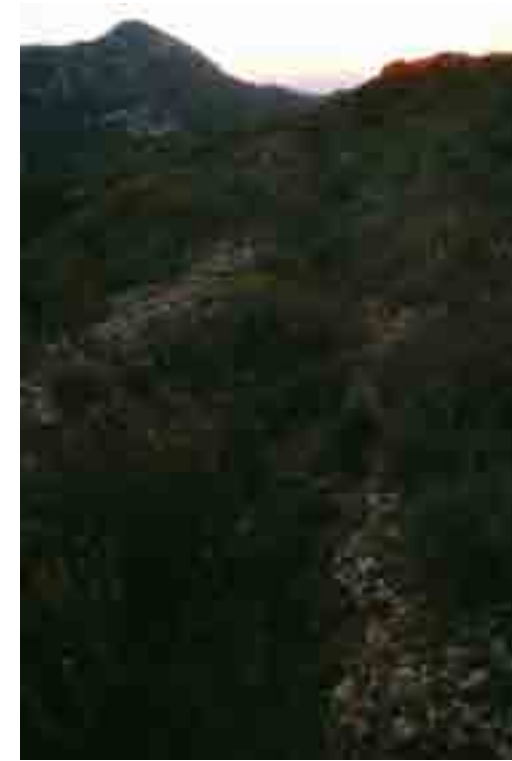
**Agriculture and urban areas**

It is a perennial plant, about 50 cm high, emanating a strong smell. It usually grows up in dry and uncultivated areas and sunlit slopes, from 0 to 700 m. ♦



## 2 ♦ Limonium nymphaeum

*Limonium* usually grows up in salty soils and so prefers sea coastlines or salty swamps. Most of the *Limonium* types are perennial, 10-70 cm high.



## Rivers and lakes

Rivers and lakes ecosystems have very big changes depending on seasons and elevation. Most of the torrents totally disappear for the whole year except for Winter months. ♦



### 3 ♦ Pinus Pinea L.

Beyond forests in the mountains and in the Mediterranean scrub, mainly composed by *Quercus Suber* L. and *Quercus Ilex* L., *Pinus Pinea* - *Pino domestico* - forests are anthropic and the plant is considered exotic: native of Spain, this evergreen conifer is very diffused in Italy. It has always been planted to get pine nuts.



### Woods and forests

Heliophilous, it can grow up to 600m high lands in different kinds of soil, although preferring light, sandy and fresh soils. It is often used in the coasts with touristic, leisure and cultural purposes. It is often used in reforestation together with *Leccio* and *Sughera*. ♦





#### 4 ♦ Quercus Suber L.

With its Italian common name *Quercia da sughero*, it is an indigenous species typical in the Mediterranean sea and especially in Sardinia's Sulcis-Iglesiente area. It is evergreen and very similar to the Leccio, but with a corky bark, bigger acorns and more toothed leaves. Heliophilous and xerophilous, it prefers dry soils and can live from the coast to 900m high lands.



#### Mountains

Due to its taproots (*radici fittonanti*), it prefers deep and light soils, but can grow on rocky ones as well. The cork extracted from the bark is a big economic resource to Sardinia: it is worldwide used for bottle caps and in building constructions. The wood is very hard and mainly used for heating. ♦



5 ♦ **Quercus ilex L.**

Indigenous species, the *Leccio* is an ever-green *sclerophylla* and is the most diffused Mediterranean species, spread in the whole Sardinia from the coastline to inner areas to the mountain ones. Xerophilous and fairly thermophilous, it gets used to hot and dry climates, like Sardinian one. It often comes together with *Sughere* and Pine trees. Its wood is strong and heavy, often used for heating, not proper for working. ♦



**Mediterranean scrub / 1**

Composed by trees and bushes, it is the main and characterising vegetation element in the area. Depending on the dimensions of the scrub, it can be called *low scrub* or *high scrub*. It can otherwise be defined depending on the main vegetal type contained: *Leccio*, *Ginepro*, *Erica*, *Corbezzolo*, *Olivastro*, *Carrubo*, *Euforbia*, *Alloro*.



**6 ♦ Euphorbia characias L.**

Indigenous species, it is a deciduous bush spread all over Sardinia. Despite other deciduous bushes, it loses its leaves at the end of the Spring and goes into vegetative rest in order to face the coming Summer and survive aridity, dryness and high temperatures, becoming red-coloured.



**Mediterranean scrub / 2**

It also survives *salsedine*. It contains a stinging latex that keeps it safe from animals biting it. ♦



**7 ♦ Arundo Donax L.**

Humid and coast areas are mainly composed by swamps, *acquitrim*, salines and lagunes located close to the shore. Vegetal elements living in salty water gradually replace the fresh water ones. In this in-between space one of the most spread species is the Arundo Donax L., *common cane*. It has a long and cave trunk and lives in fresh or fairly salty water, generally from 0 to 700 m on sea level. It is used for bio-heating and



**Humid coast areas**

for paper production. It lives in any kind of soil with good water availability and prefers high air temperatures. It also survives in ponds but only if not continuously exposed to water as this situation would get it to rot. Its roots goes deep in the soil and can reach aquifers down to 1 m deep. ♦



### 8 ♦ *Opuntia ficus-indica* L.

The vegetation in coasts and little islands is changing depending on further divisions: beach, anteduna, duna, retroduna, cliffs, *falesie* and *gariga*. *Opuntia ficus-indica* L. is an exotic species, an evergreen with origins in Mexico and was introduced to Europe in 1500.



### Coasts and little islands / 1

In Sardinia it is often found in coast areas and is also used as a hedge or in food. Its fruits are edible. The plant can live with high temperatures and dry soils since its matte surface is made to keep water.



9 ♦ **Crithmum maritimum L.**

The *Crithmum maritimum*, *Finocchietto marino* in Italian, is very spread in the coastline's different habitats containing salt. Its particular leaf shape is made to reduce water loss because of sun, wind and salt.



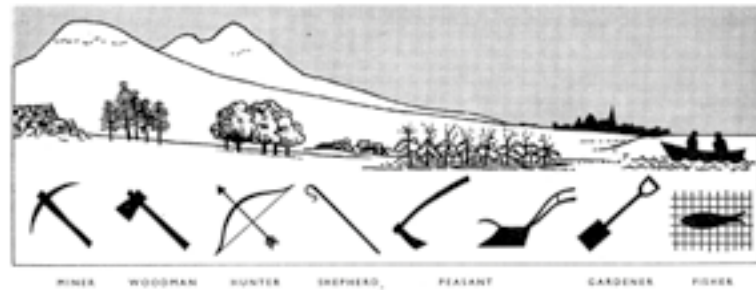
**Coasts and little islands / 2**

Its seeds, usually falling down into the sea, thanks to their spongy texture working as a life vest, float for long in the waves waiting to reach a soil proper for germination.

**Brief encyclopedia  
of *fauna*  
in the Ilesiente area**

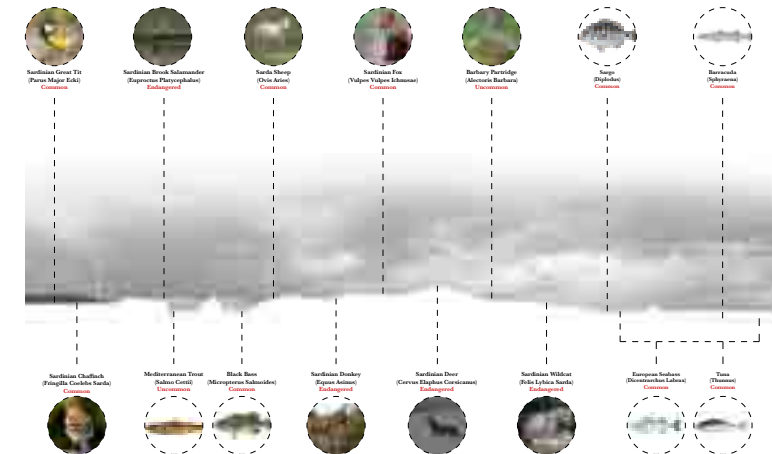






### The Valley Section

Drawn by Patrick Geddes, the section is aimed to represent the complex interactions between biogeography, geomorphology and antropic systems and shows that the “natural occupations” like hunting, fishing and the extractive activity are supported by physical geographies that define different models of human settlements. The distribution of the different animal species is also influenced by physical geography, therefore the Valley Section is used in this booklet to identify the habitat of each species.



### Sardinia's Valley Plan of Fauna

Sardinia's fauna is presented depending on the different environments:

1. Saltwater
2. Freshwater
3. Land
4. Air



### **Saltwater**

In the picture above you can see “La Marmora” washery, that, for a period, has been responsible for the pollution of the surrounding portion of sea, that is also part of the route of tuna, and fishermen have noticed there a deficiency in the presence of that fish.



**Sardine**  
(*Sardina Pilchardus*)  
Common

It is a species of ray-finned fish in the monotypic genus *Sardina*. Littoral species. Forms schools, usually at depths of 25m to 55m or even 100m by day, rising to 10m to 35m at night. Feeds mainly on planktonic crustaceans, also on larger organisms. Spawns in batches, in the open sea or near the coast, producing 50,000-60,000 eggs with a mean diameter of 1.5mm.



**Mullet**  
(*Mugil Cephalus*)  
Common

It is a species of ray-finned fish found worldwide in coastal temperate and tropical waters, and in some species in fresh water. Mulletts have served as an important source of food in Mediterranean Europe since Roman times. Mulletts are distinguished by the presence of two separate dorsal fins, small triangular mouths, and the absence of a lateral line organ. They feed on detritus, and most species have unusually muscular stomachs and a complex pharynx to help in digestion.



**Sargo**  
(Diplodus)  
Common

It is a species of seabream that is common in the Mediterranean. It is an active fish, they inhabit the surf zone, but they may be found down to 50m. They consume small crustaceans, mollusks and some seaweed and coral, using their strong jaws to crush shells. Individuals can reach 45cm, but average 22cm. Diplodus sargus are protandrous hermaphrodites, with individuals starting out life as males, and some becoming female later on. It is commercially fished, with 3,713t taken in 2008. The flesh tastes good only when fresh.



**Gilt-Head (Sea) Bream**  
(Sparus Aurata)  
Common

It is a fish of the bream family Sparidae found in the Mediterranean Sea and the eastern coastal regions of the North Atlantic Ocean. It commonly reaches about 35cm in length, but may reach 70cm and weigh up to about 17kg. The gilt-head bream is generally considered the best-tasting of the breams. The second part of the binomial name, aurata, derives from the gold bar marking between its eyes.



**European Seabass**  
(*Dicentrarchus Labrax*)  
Common

It is a primarily ocean-going fish that sometimes enters brackish and fresh waters. It is also known as the sea dace. Highly regarded as a table fish, it is often marketed as Mediterranean seabass, loup de mer, robalo, lubina, spigola, branzino, or bronzino.



**Bluefish**  
(*Pomatomus Saltatrix*)  
Common

It is the only extant species of the family Pomatomidae. It is a marine pelagic fish found in temperate and subtropical waters. It is good eating and moderately proportioned fish, with a broad, forked tail. The spiny first dorsal fin is normally folded back in a groove, as are its pectoral fins. Coloration is a grayish blue-green dorsally, fading to white on the lower sides and belly. Its single row of teeth in each jaw is uniform in size, knife-edged, and sharp. Bluefish commonly range in size from 18cm “snappers” to much larger, sometimes weighing as much as 18kg.



**Barracuda**  
(Sphyræna)  
Common

It is a ray-finned fish known for its large size and fearsome appearance. Its body is long, fairly compressed, and covered with small, smooth scales. Some species can reach up to 2.1m in length and 30cm in width. The barracuda is a saltwater fish of the genus *Sphyræna*, the only genus in the family Sphyrænidae, and is found in tropical and subtropical oceans worldwide ranging from the Eastern border of the Atlantic Ocean to the Red Sea and Caribbean Sea. They are found near the top of the water and near coral reefs and sea grasses.



**Grouper**  
(Epinephelinae)  
Common

It is a teleosts, typically having a stout body and a large mouth. It is not built for long-distance, fast swimming. It can be quite large, and lengths over a meter and weights up to 100kg are not uncommon, though obviously in such a large group, species vary considerably. It swallows prey rather than biting pieces off it. It does not have many teeth on the edges of their jaws, but it has heavy crushing tooth plates inside the pharynx. It habitually eats fish, octopuses, and crustaceans.



**Tuna**  
(Thunnus)  
Common

It is a genus of ocean-dwelling ray-finned bony fish from the Scombridae (Mackerel) family. Their coloring, metallic blue on top and shimmering silver-white on the bottom, helps camouflage them from above and below. All tunas are extremely strong swimmers, and the Yellowfin tuna is known to reach speeds of up to 80 km/h when pursuing prey. As with all tunas, members of this genus are warm-blooded, which is a rare trait among fish; this enables them to tolerate cold waters.



### **Freshwater**

In the picture above you can see the Cixerri river. Also the freshwater could be polluted in the Iglesias area, and it happens when washeries drain into rivers or lakes. Of course when it happens, it also threatens the survival of the species that live or just feed in this water.





**Mediterranean Trout**  
(*Salmo Cettii*)  
Uncommon

It is a species of trout, a freshwater fish in the Salmonidae family. It lives in the Mediterranean region in Corsica, Sardinia, Sicily and on the Italian mainland in the Magra drainage and further south. It is a non-migratory fish which lives in streams and in karstic resurgences. It is smaller than 40 cm in length. It is sometimes referred to *Salmo trutta macrostigma*, which depending on concept is either a more widespread Mediterranean taxon, or a taxon endemic to Algeria.



**Common Carp**  
(*Cyprinus Carpio*)  
Uncommon

It is a widespread freshwater fish of eutrophic waters in lakes and large rivers in Europe and Asia. The wild populations are considered vulnerable to extinction, but the species has also been domesticated and introduced into environments worldwide, and is often considered a very destructive invasive species, being included in the list of the world's 100 worst invasive species. It gives its name to the carp family: Cyprinidae.



**European Chub**  
(*Squalius Cephalus*)  
Uncommon

It is a species of freshwater fish in the carp family Cyprinidae. It frequents both slow and moderate rivers, as well as canals and still waters of various kinds. The species is distributed in most of the countries of Europe.



**Black Bass**  
(*Micropterus Salmoides*)  
Common

It is in the sunfish family (family Centrarchidae) of order Perciformes. Black bass of all species are highly sought-after game fish, and bass fishing is an extremely popular sport throughout the bass's native range. These fish are well known as strong fighters, and their meat is eaten, being quite edible and firm. All *Micropterus* species have a dull-green base coloring with dark patterns on the sides. Most reach a maximum overall length of 40–60cm.



**Land**



**Sardinian Wildcat**  
(*Felis Lybica Sarda*)  
Endangered

It is a carnivorous feline. It is, together with the Sardinian fox, the greatest mammal predator in Sardinia. According to different sources it is present only in Sardinia. The biggest factors of threat are represented by the reduction and fragmentation of its habitat, and by the pollution of its habitat. Nowadays it is a protected species.



**Sardinian Hare**  
(*Lepus Capensis Mediterraneus*)  
Endangered

It is a mammal belonging to the family of the Leporidae. It is diffused in Sardinia and in some smaller islands (Asinara, La Maddalena, Island of Sant'Antioco, Island of St. Pietro). In nature the Sardinian hare is threatened by infectious disease, by some predators (the most active is the Sardinian Fox, but another natural enemy is the Sardinian Wildcat) and by the fragmentation of its habitat. Nowadays it is a protected species.



**Sardinian Wild Boar**  
(*Sus Scrofa Meridionalis*)  
Common

It is a subspecies of the Wild Boar present in Corsica and Sardinia. It uses to live near streams.

**Sardinian Fox**  
(*Vulpes Vulpes Ichnusae*)  
Common

It is a carnivorous mammal belonging to the family of the Canidae.



### **Sardinian Sheep**

(Ovis Aries)

Common

It is a breed of domestic sheep indigenous to the island of Sardinia. It is raised throughout Italy. The Sarda is considered to be among the best Italian breeds for production of sheep's milk; most of the milk is used to make pecorino sardo cheese. The Sarda is highly adaptable; it may be kept on lowland or on mountainous terrains, and is suitable both for intensive and for extensive or transhumant management. The long, coarse white wool is used for weaving carpets and other goods.



### **Sardinian Donkey**

(Equus Asinus)

Endangered

It is a breed of donkey from the island of Sardinia. It is raised throughout the island; there are also some small populations in mainland Italy. It is one of the eight autochthonous donkey breeds of limited distribution recognised by the Ministero delle Politiche Agricole Alimentari e Forestali. The conservation status of the Sardinian Donkey was listed as "endangered" by the FAO in 2007.



### **Tyrrhenian Painted Frog**

(*Discoglossus sardus*)

Uncommon

It is a species of frog in the Alytidae family (formerly Discoglossidae). It is found in Sardinia, Corsica and the Tuscan Archipelago. Its natural habitats are temperate forests, rivers, intermittent rivers, freshwater marshes, and intermittent freshwater marshes. It is threatened by habitat loss.



### **Sardinian Tree Frog**

(*Hyla sarda*)

Uncommon

It is a species of frog in the Hylidae family, found in Corsica, Sardinia, and the Tuscan Archipelago. Its natural habitats are temperate forests, temperate shrubland, rivers, intermittent rivers, freshwater marshes, intermittent freshwater marshes, and urban areas. It lives everywhere there is water, so the only threat for its survival is the pollution of the water.



### **European Cave Salamander**

(*Speleomantes*)

Endangered

It is a native amphibious diffused in Sardinia. European Cave Salamanders are found not only in caverns but on the ground among leaf litter, usually near streams, in wooded valleys. In the open air these salamanders are nocturnal, emerging in wet weather to forage but retreating in dry weather into caves and crevices or hiding beneath stones or logs. When underground they are active at any time of day.

### **Sardinian Brook Salamander**

(*Euproctus platycephalus*)

Endangered

It is a species of salamander in the Salamandridae family found only in Sardinia. It is endemic to the mountainous areas, It is found in slow-moving streams and rivers, small lakes, and ponds, where it hides under stones. When on land, it is usually found in undergrowth or under stones, and usually stays close to water. It is classified by the IUCN Red List of Threatened Species as endangered. It is threatened by loss of habitat, pollution of watercourses, dry conditions caused by the excessive extraction of water, and disturbance due to tourism.





### **Sardinian Deer**

(*Cervus Elaphus Corsicanus*)

Endangered

It is a subspecies of the red deer (*Cervus Elaphus*), endemic to the Mediterranean islands of Sardinia and Corsica. It is smaller than most of the 16 subspecies of red deer; has shorter legs (possibly to better scramble up mountain sides) and a longer tail. The antlers are also simplified and shorter, typically less than 80cm in length. Coat is brownish. Now, less than 250 animals still exist in Sardinia, and they are protected. It is threatened by deforestation, arsons and illegal hunting.



**Air**



**Barbary Partridge**  
(*Alectoris Barbara*)  
Uncommon

It is a gamebird in the pheasant family Phasianidae of the order Galliformes, gallinaceous birds. This 33–36cm bird is a resident breeder in dry, open and often hilly country. It nests in a scantily lined ground scrape laying 10-16 eggs. The Barbary partridge takes a wide variety of seeds and some insect food. When disturbed, it prefers to run rather than fly. It is threatened by the use of pesticides, and by the environmental transformation.

**Sardinian Jay**  
(*Garrulus Glandarius Ichnusae*)  
Common

It is a species of bird endemic to the island of Sardinia.



**Sardinian Chaffinch**  
(*Fringilla coelebs sarda*)  
Common

It is a common and widespread small passerine bird in the finch family. This bird is not migratory in the milder parts of its range, but vacates the colder regions in winter. This species forms loose flocks outside the breeding season, sometimes mixed with Bramblings. The main food of the chaffinch is seeds, but unlike most finches, the young are fed extensively on insects, and adults also eat insects in the breeding season.



**Sardinian Great Spotted Woodpecker**  
(*Dendrocopos major harterti*)  
Common

It is a bird species of the woodpecker family (Picidae). The great spotted woodpecker is 23–26cm long, with a 38–44cm wingspan. Weight: 70-98g.



**Sardinian Great Tit**

(Parus Major Ecki)

Common

It is a passerine bird in the tit family Paridae. It is a resident bird and its length can be from 12.5 to 14.0cm, and it has a distinctive appearance that makes it easy to recognise.