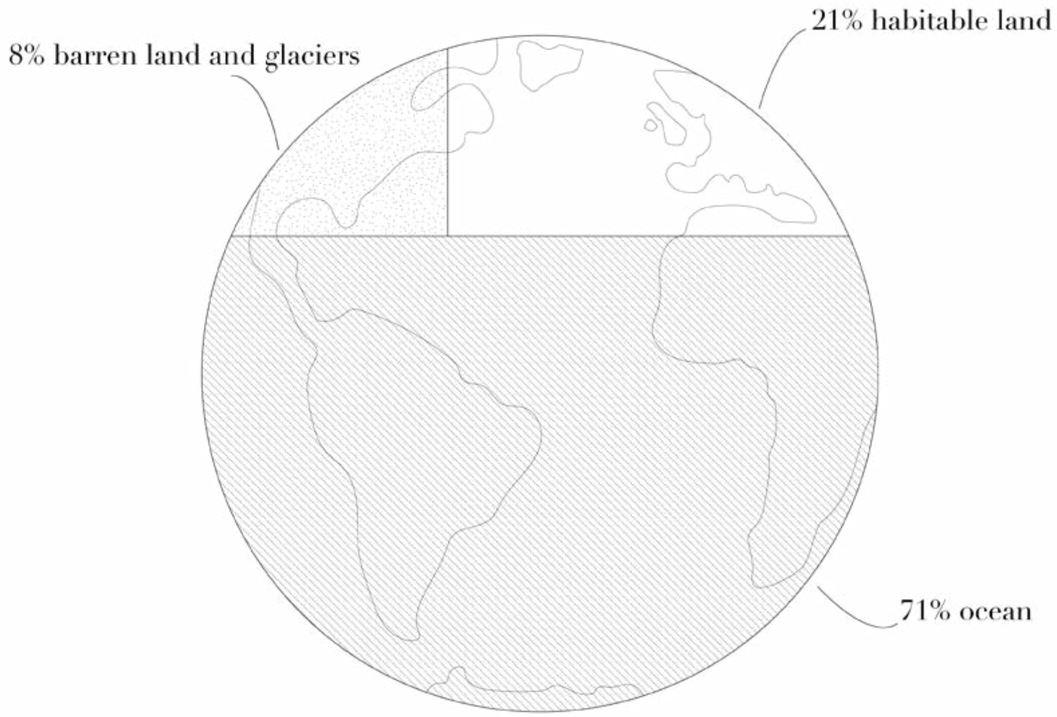
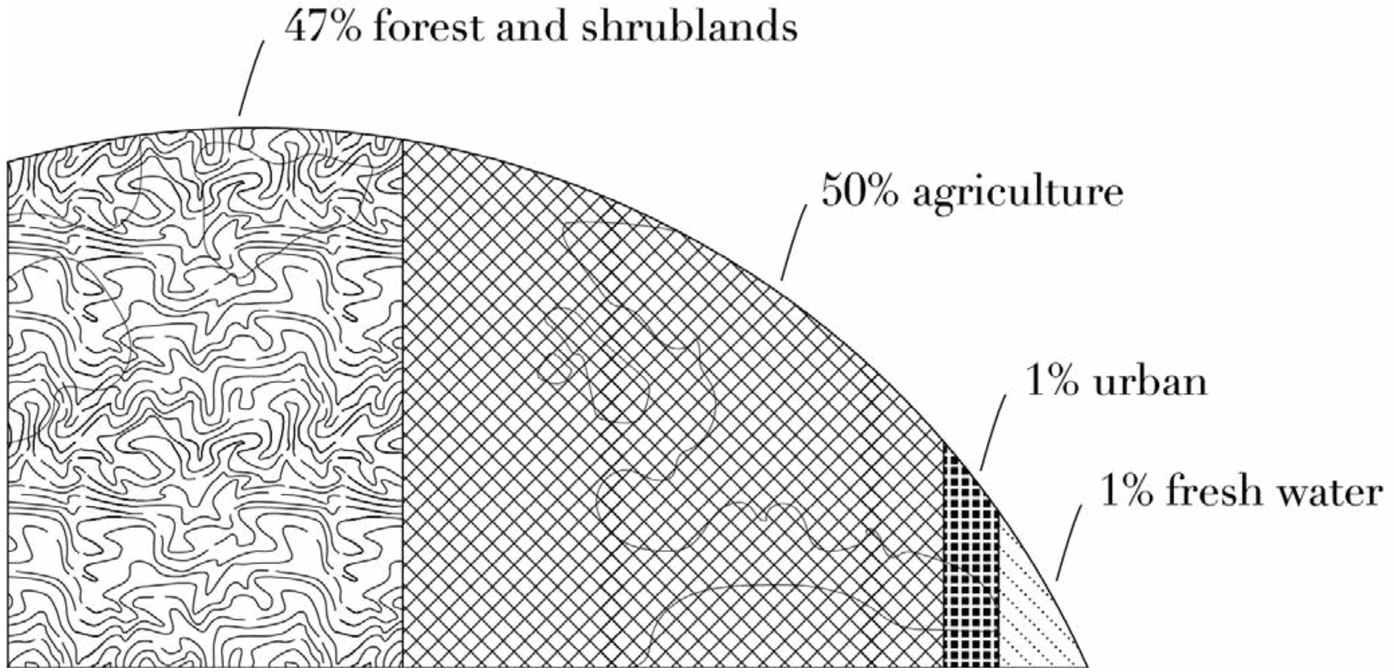
# Designing for Coexistence

or how to overcome the speciesistic bias in spatial design


8% barren land and glaciers
21% habitable land
71% ocean


47% forest and shrublands
50% agriculture
1% urban
1% fresh water

1.2 million species known to us

8.7 million species estimated

1 million species threathened by extinction

How can spatial design be implemented in order to improve the coexistence between species?

What is coexistence?

What moral obligations do designers have towards non-human beings?

What are the basic things that species need in their environment and how are human structures and activities affecting these needs for non-human species?

What species are living in the Thames Estuary and what are their basic needs of their environment?

What effects has the current design of the Thames Estuary on the species and how is it contributing to their needs?

How can the species' needs be taken into account in the current situation of the Thames Estuary in order to improve the coexistence between species?

(NASA, 2003)

Coexistence

Ethics

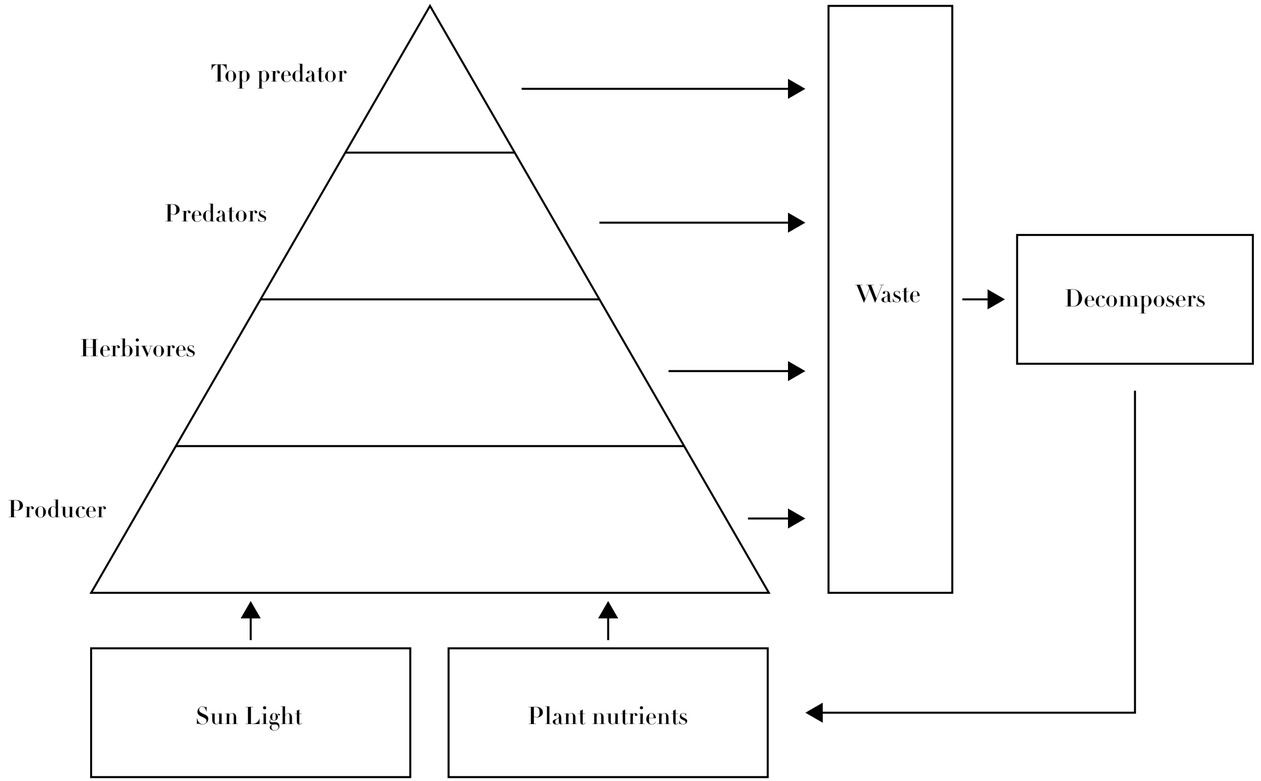
Effects of the urban habitat

Approach

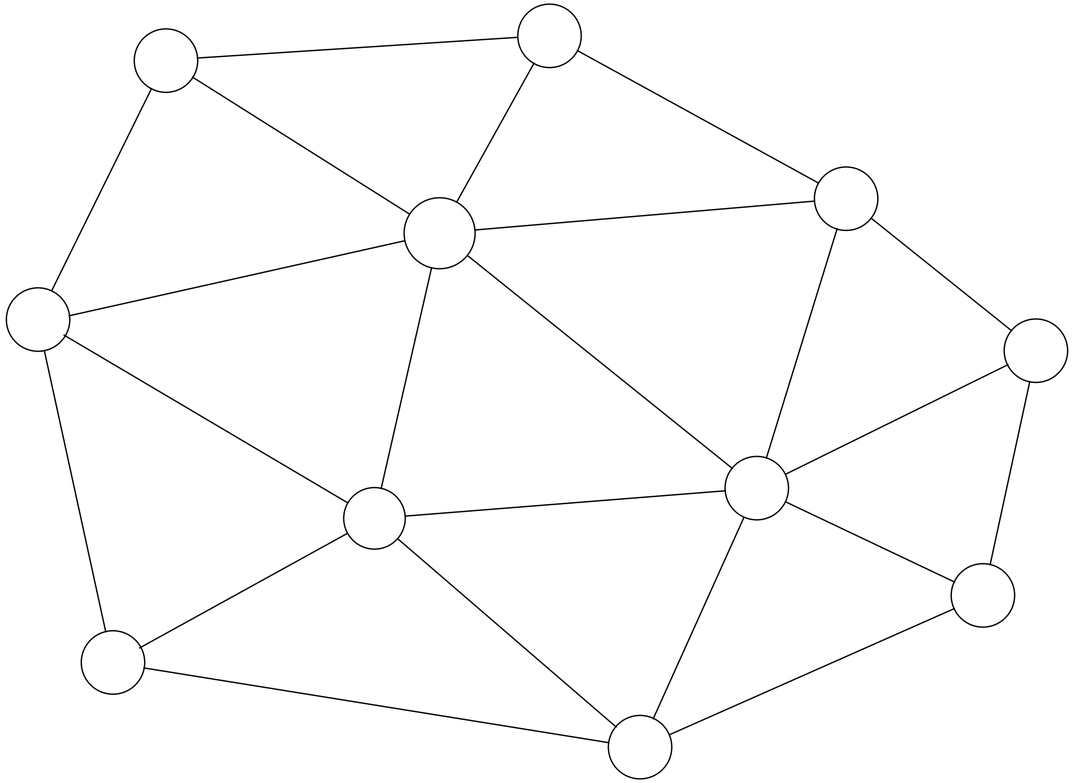
Analysis

Design

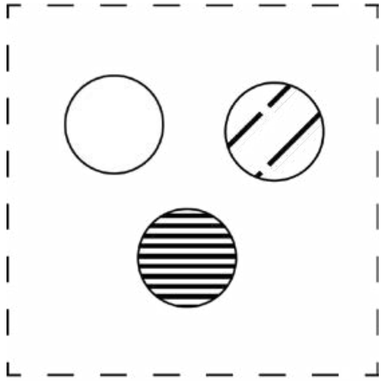
Conclusion



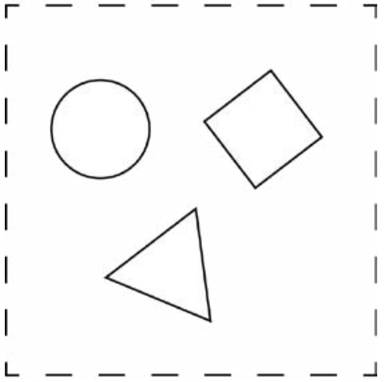

to exist = to coexist



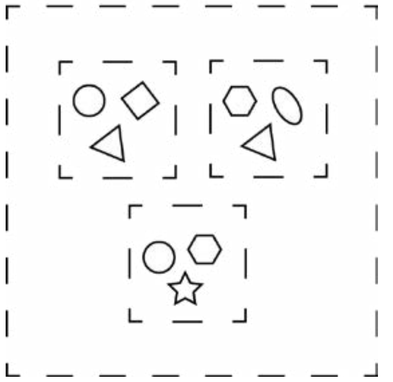
networks



genetic diversity



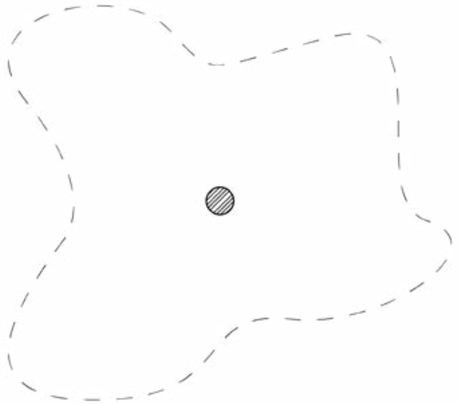
species diversity



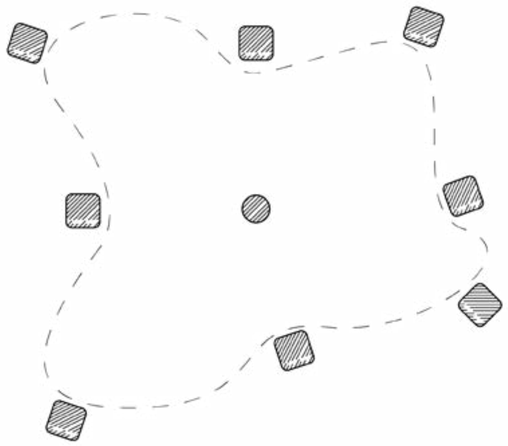
ecosystem diversity

biodiversity as the richness of coexistence that offers resilience

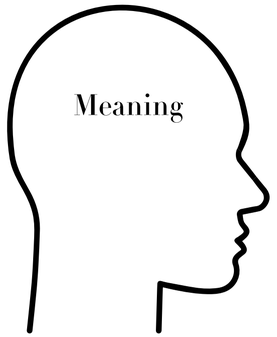
Subject



... in an environment



... consisting of objects



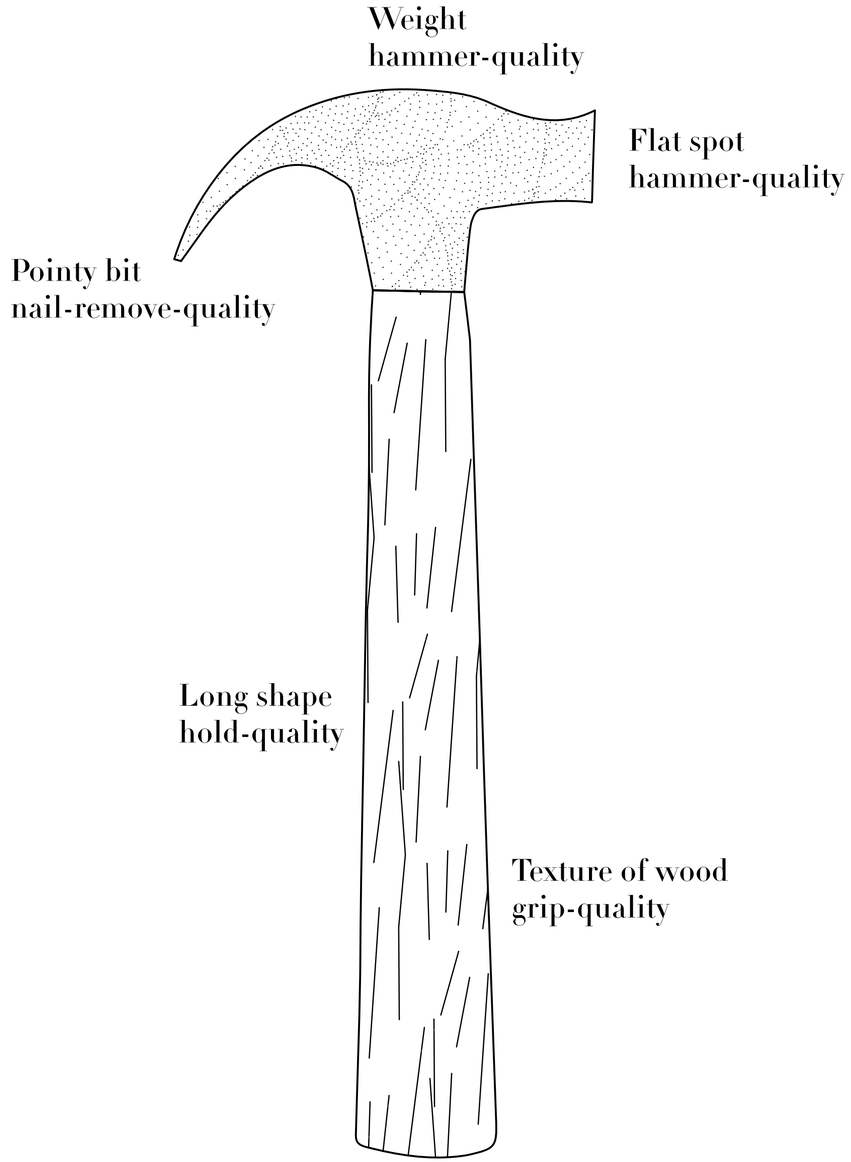

Subject

Object

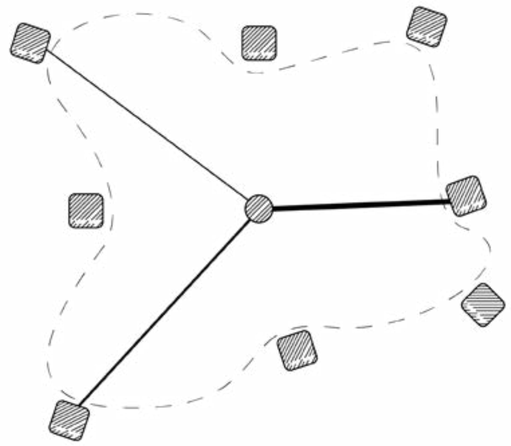
# texture

[teks-cher]
(noun)

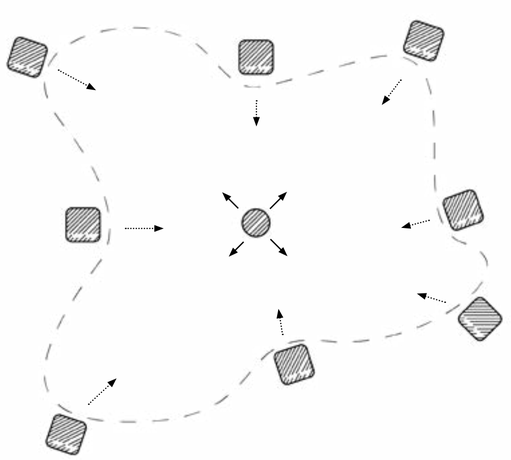
the characteristic physical structure given to a material, an object, etc., by the size, shape, arrangement, and proportions of its parts.




textures and affordances

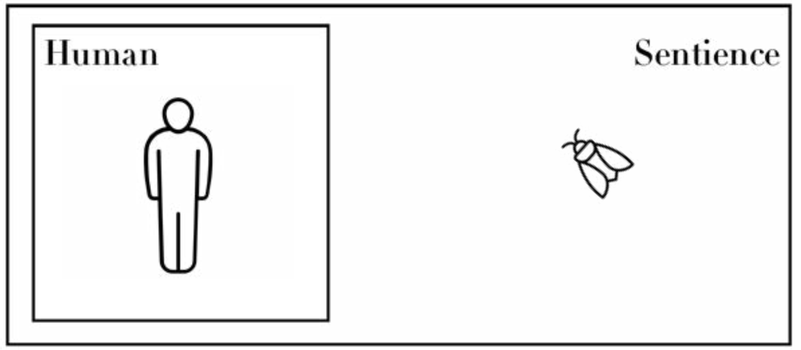


... with whom it has different meaningful relationships

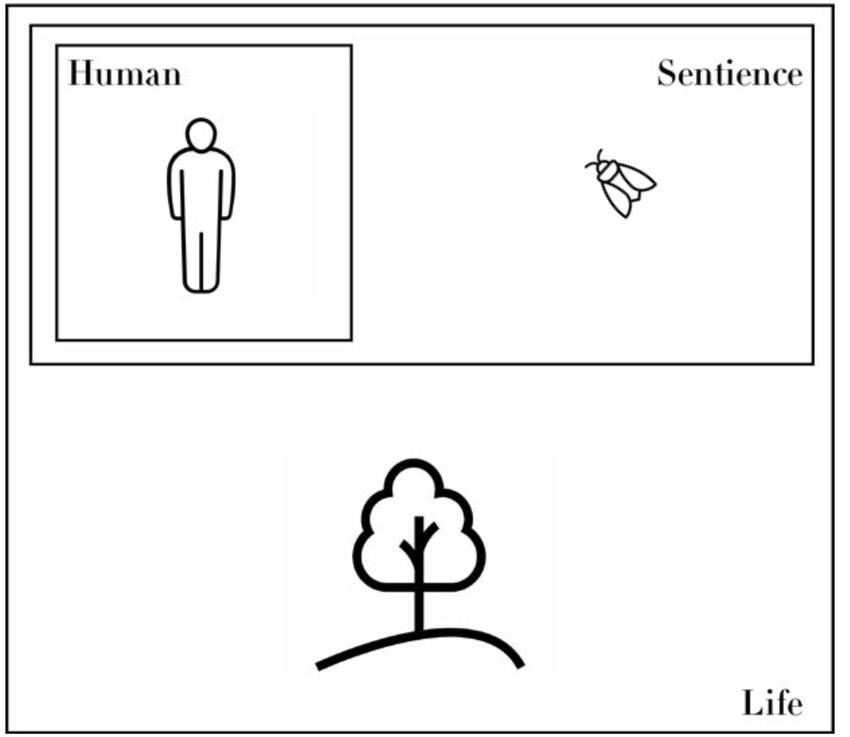


agency

moral status




moral status




moral status

improve life of other species

allow life of other species

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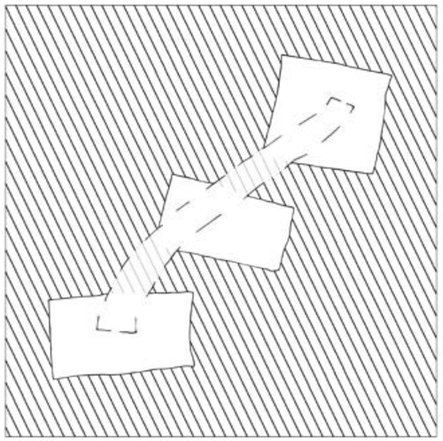
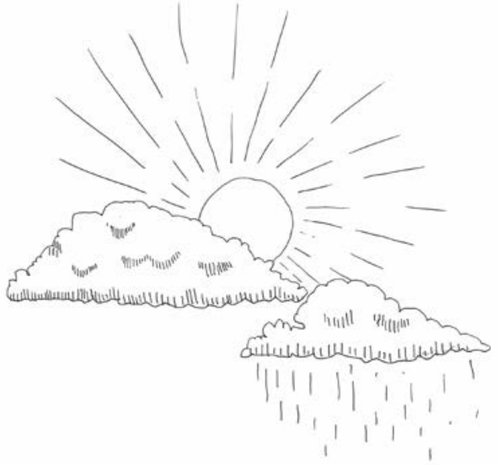
limit life of other species

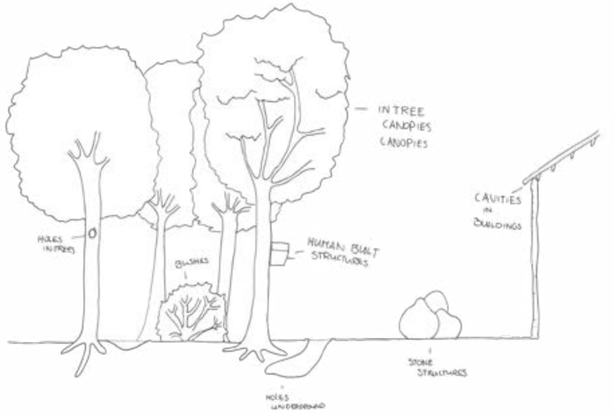
ethical treshold



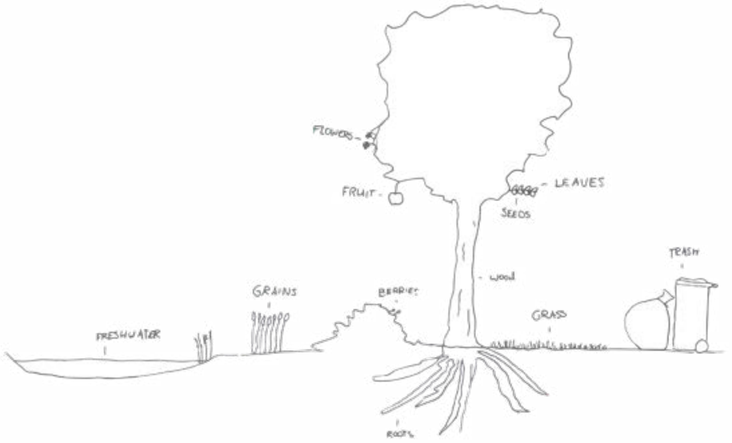
infrastructure



climate

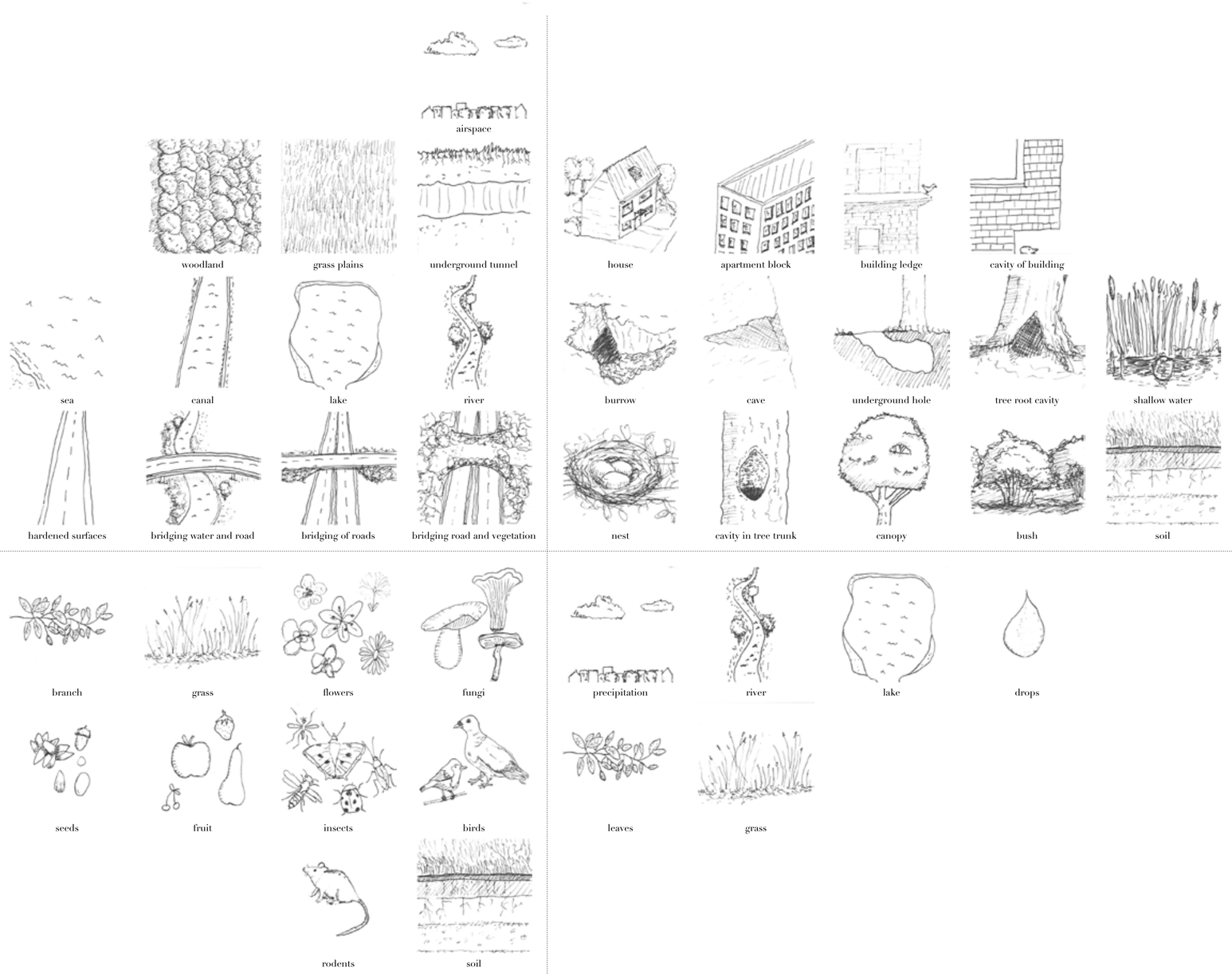



shelter




food

water

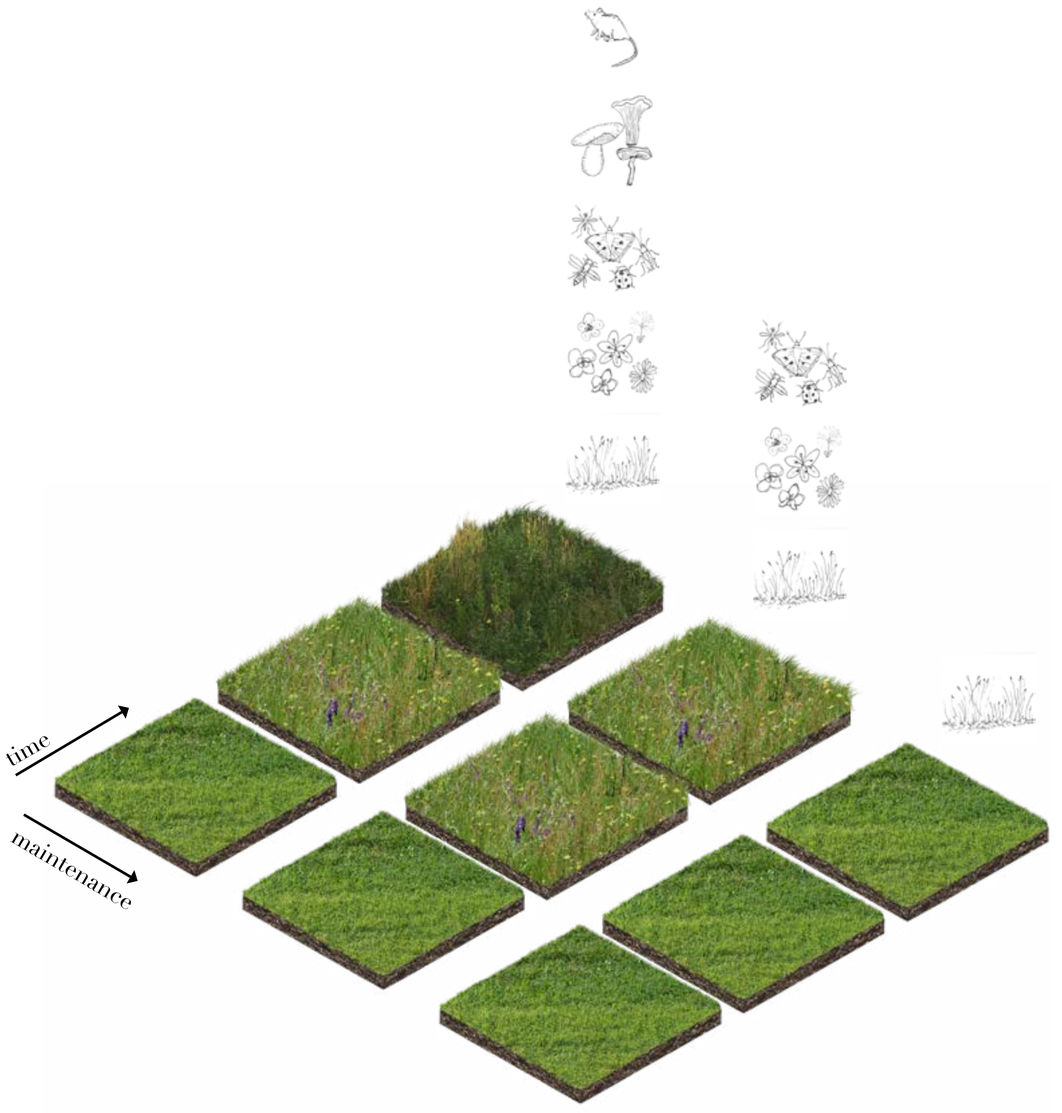

airspace
woodland
grass plains
underground tunnel
house
apartment block
building ledge
cavity of building
sea
canal
lake
river
burrow
cave
underground hole
tree root cavity
shallow water
hardened surfaces
bridging water and road
bridging of roads
bridging road and vegetation
nest
cavity in tree trunk
canopy
bush
soil
infrastructure
shelter
food
water
branch
grass
flowers
fungi
precipitation
river
lake
drops
seeds
fruit
insects
birds
leaves
grass
rodents
soil

# textures

# land use change its maintainenance

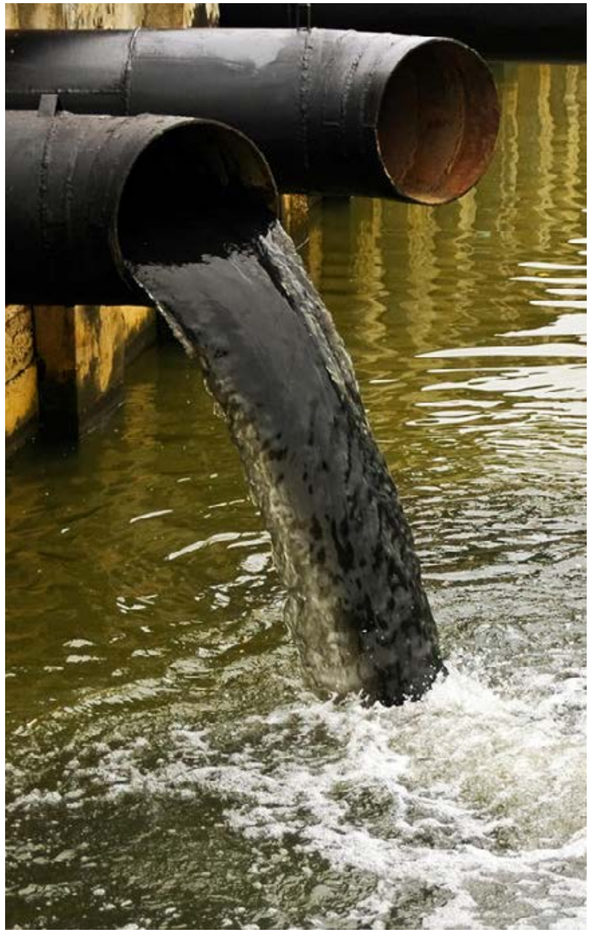
monocultural

impenatrable surfaces

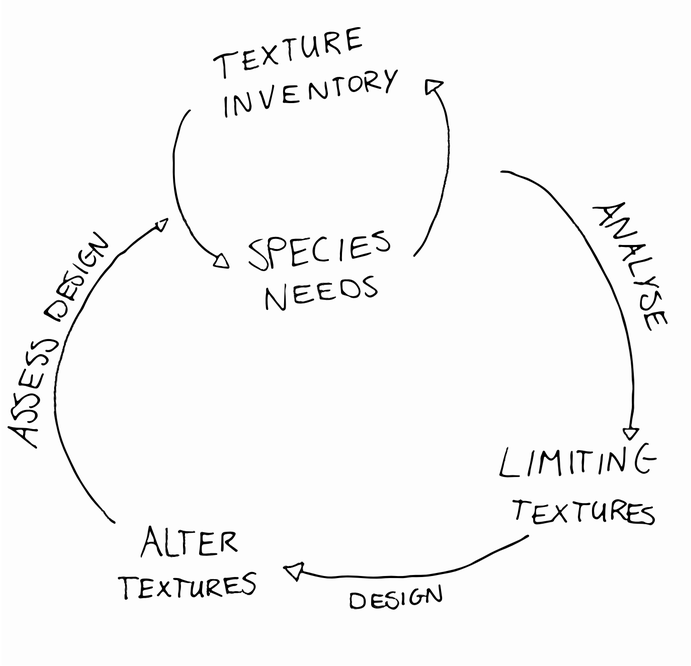

time
maintenance

air and noise pollution (iStock, n.d.)

ground pollution (Fotokostic, n.d.)



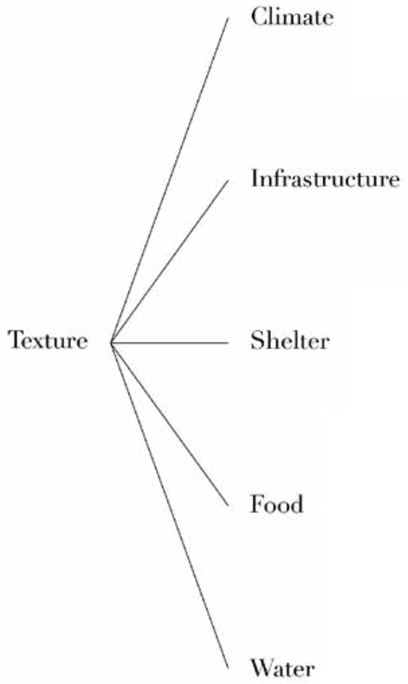
water pollution (Getty, n.d.)

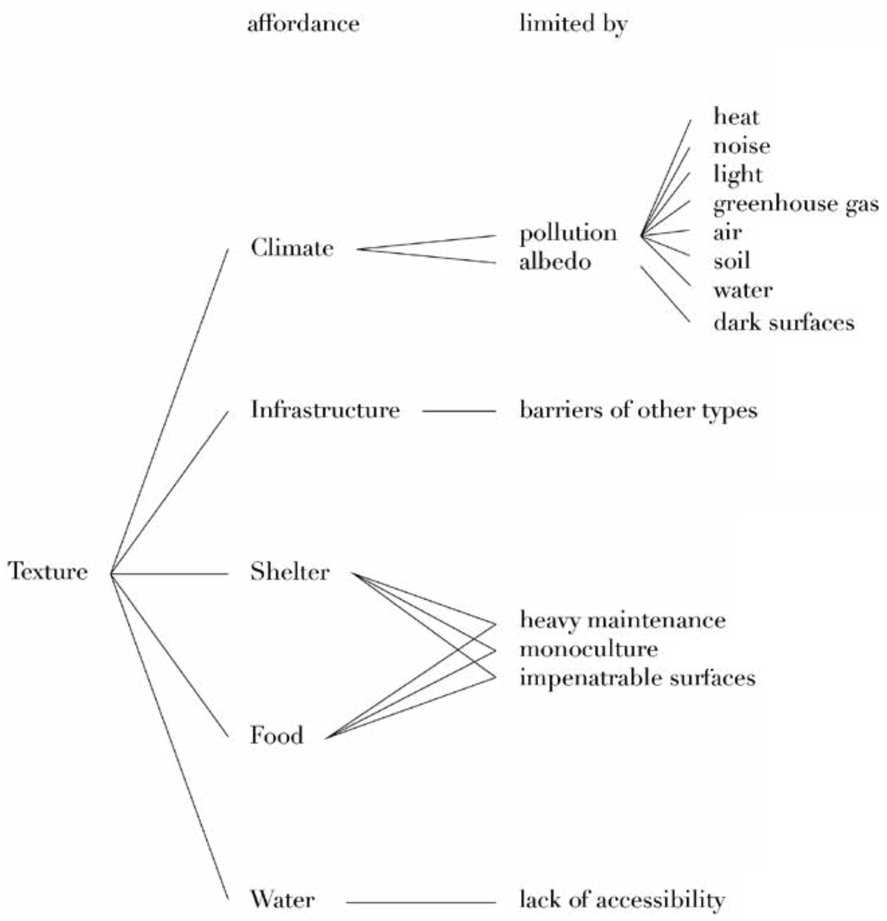


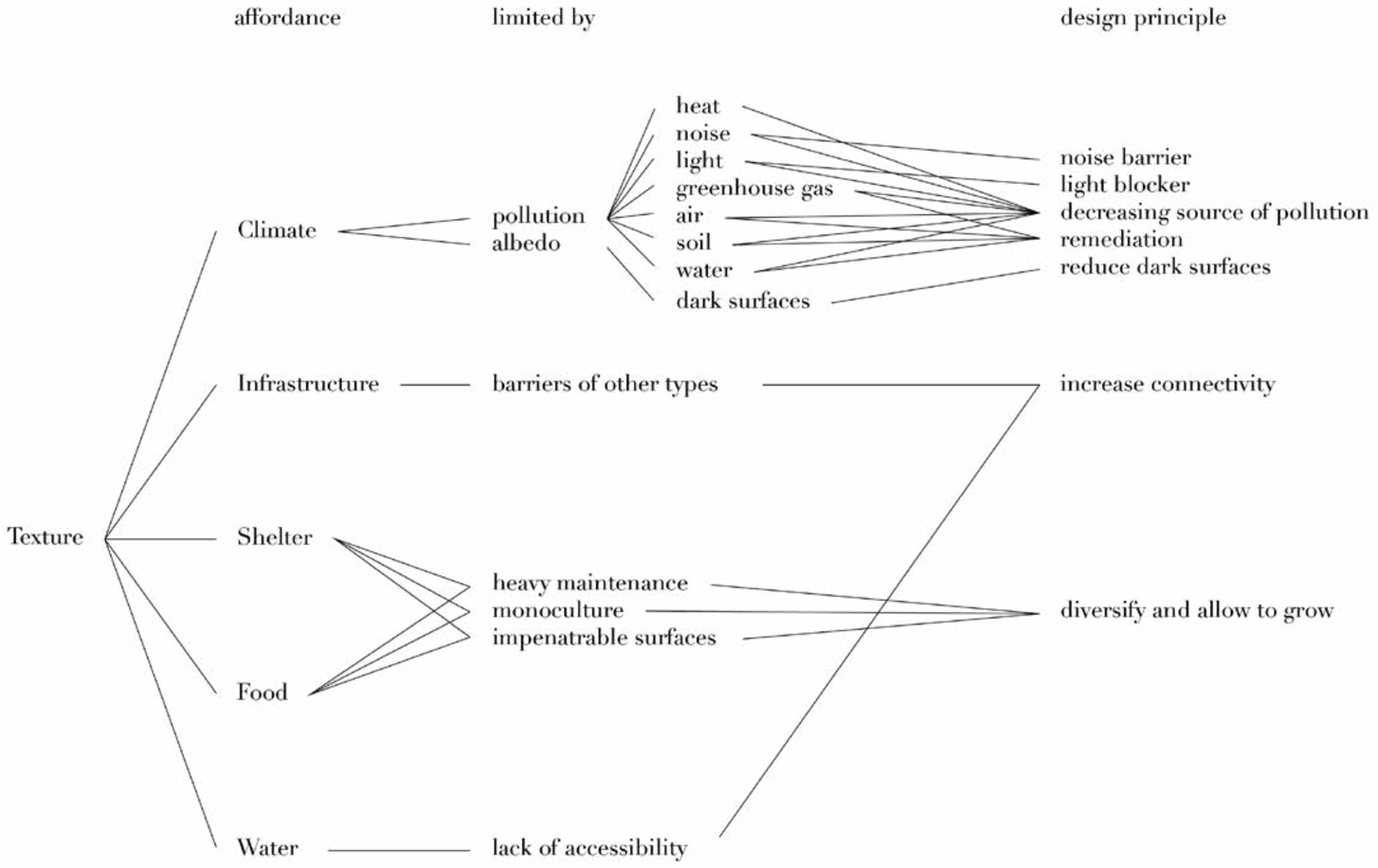

design approach

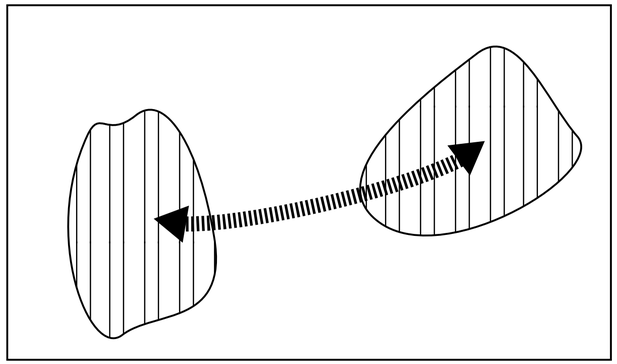
Texture

affordance



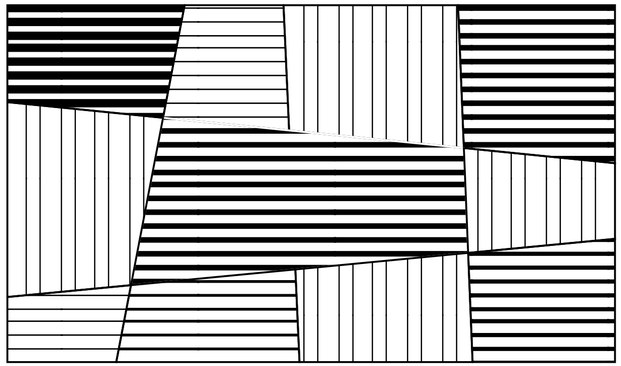

affordance
limited by
Texture
Climate
pollution
albedo
heat
noise
light
greenhouse gas
air
soil
water
dark surfaces
Infrastructure
barriers of other types
Shelter
Food
heavy maintenance
monoculture
impenatrable surfaces
Water
lack of accessibility


affordance
limited by
design principle
Texture
Climate
Infrastructure
Shelter
Food
Water
pollution
albedo
barriers of other types
heavy maintenance
monoculture
impenatrable surfaces
lack of accessibility
heat
noise
light
greenhouse gas
air
soil
water
dark surfaces
noise barrier
light blocker
decreasing source of pollution
remediation
reduce dark surfaces
increase connectivity
diversify and allow to grow



design principle 1

connect



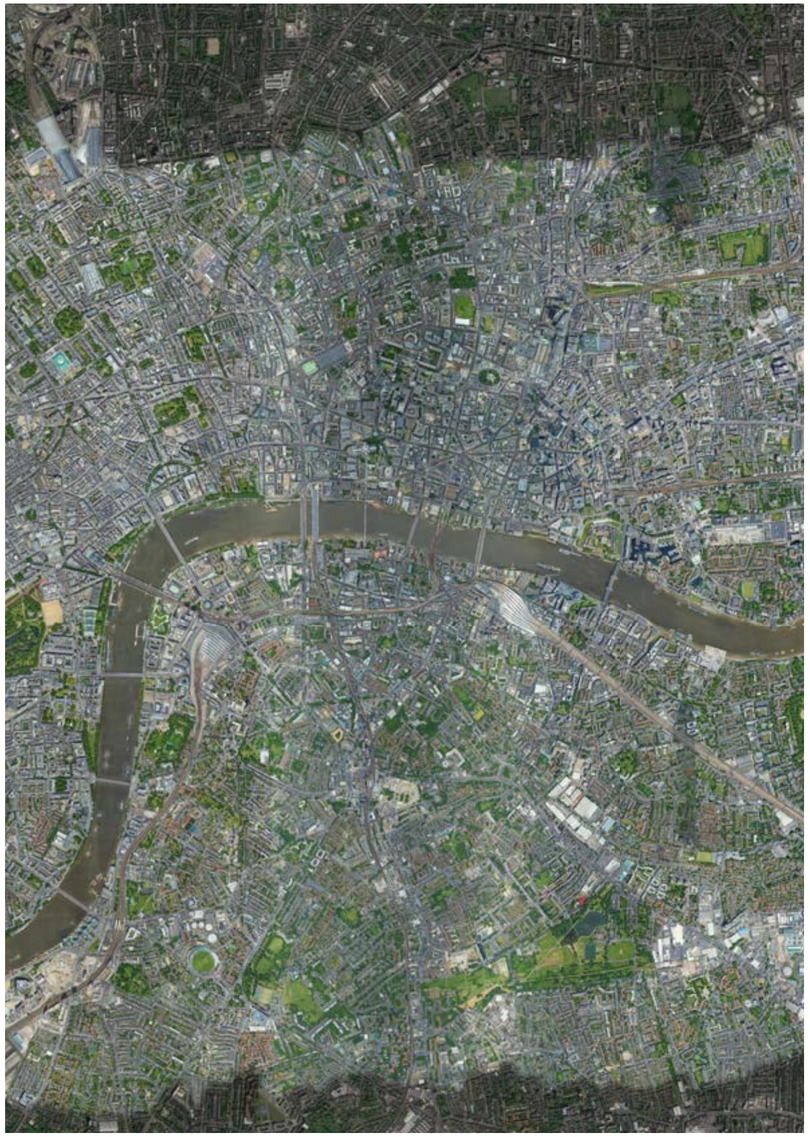
design principle 2

diversify textures

design principle 3

let it grow

Thames Estuary



London

Cliffe

water
foreshore
urban continuous
urban discontinuous
forest
other green
pastures
cropland

land cover

water
foreshore
urban continuous
urban discontinuous
forest
other green
pastures
cropland

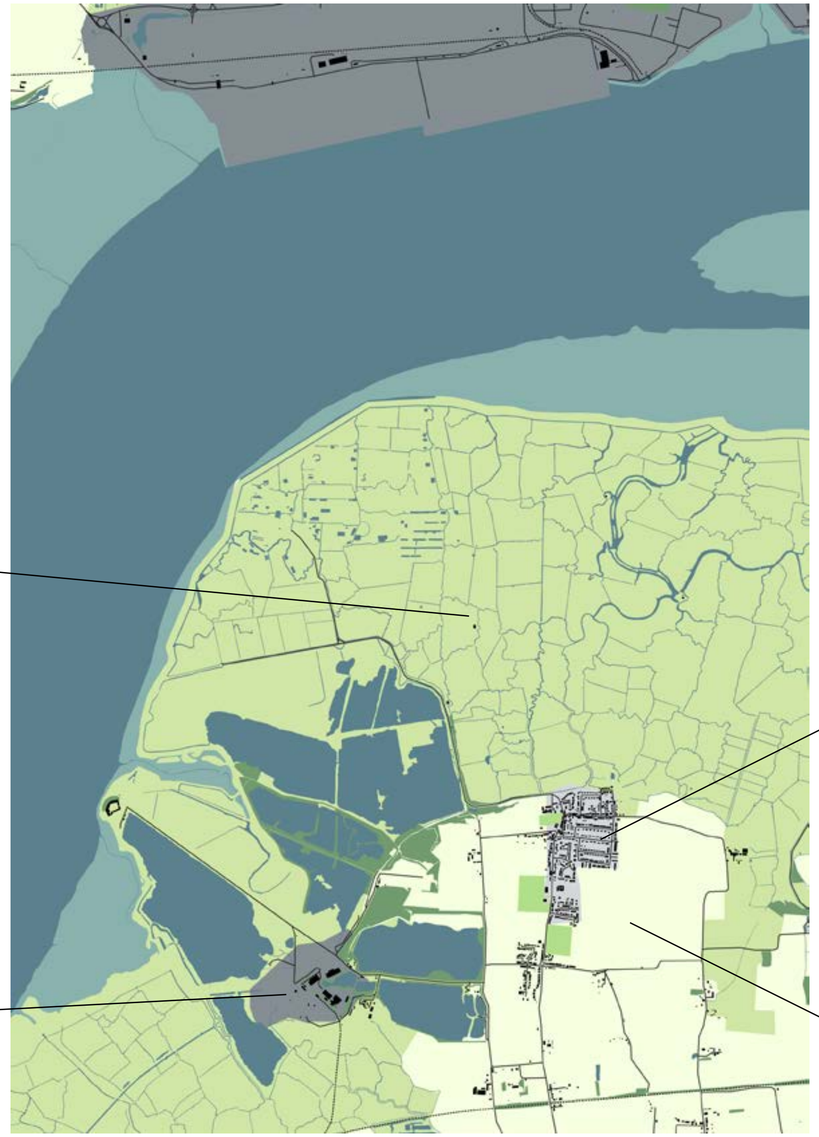
suburbs

water
foreshore
urban continuous
urban discontinuous
forest
other green
pastures
cropland

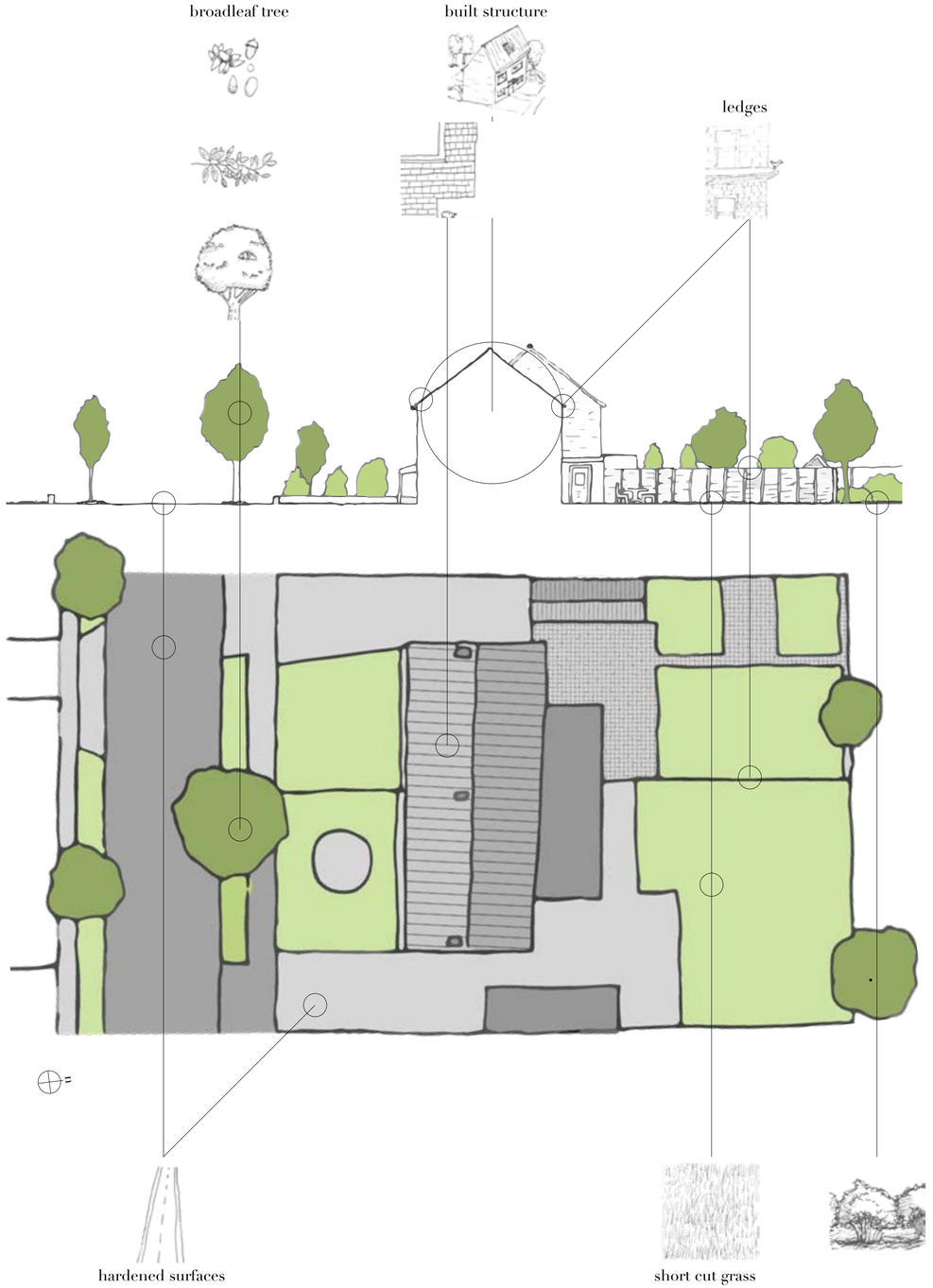
agriculture

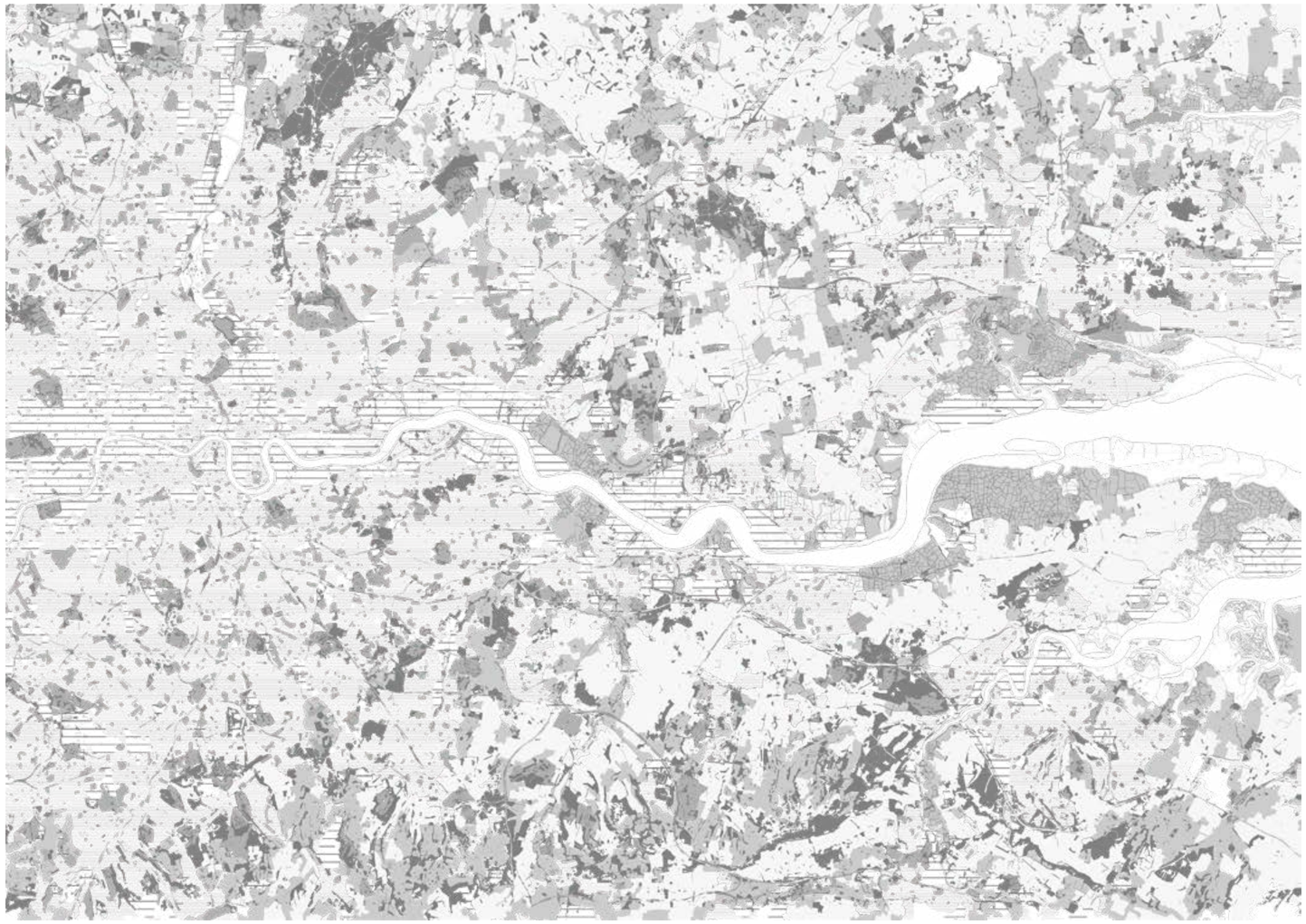
land cover

- water
- foreshore
- urban continuous
- urban discontinuous
- forest
- other green
- pastures
- cropland



Cliffe


broadleaf tree
built structure
ledges
hardened surfaces
short cut grass



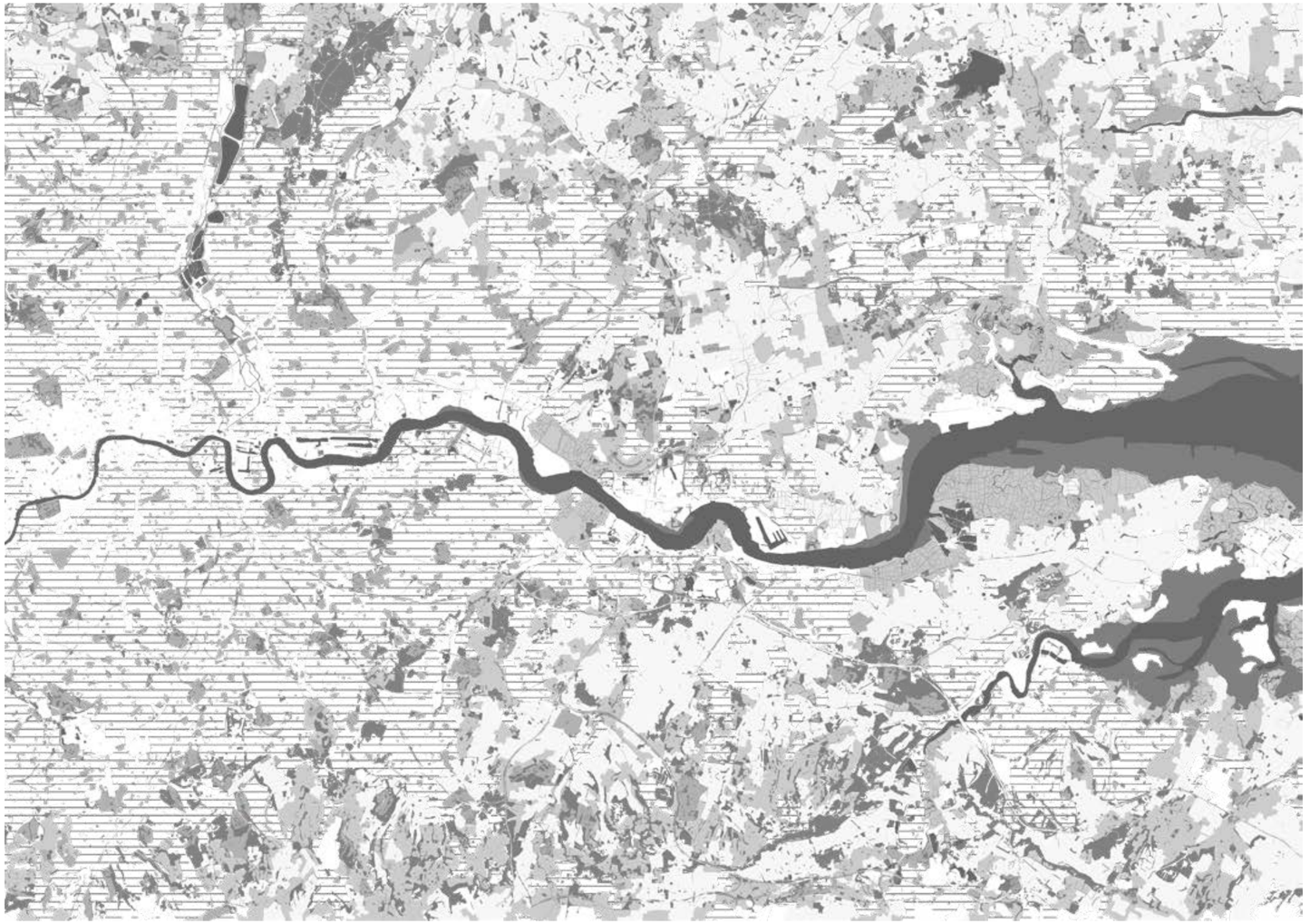
low shelter opportunities

rich shelter opportunities

urban structures

mix urban and earth

shelter

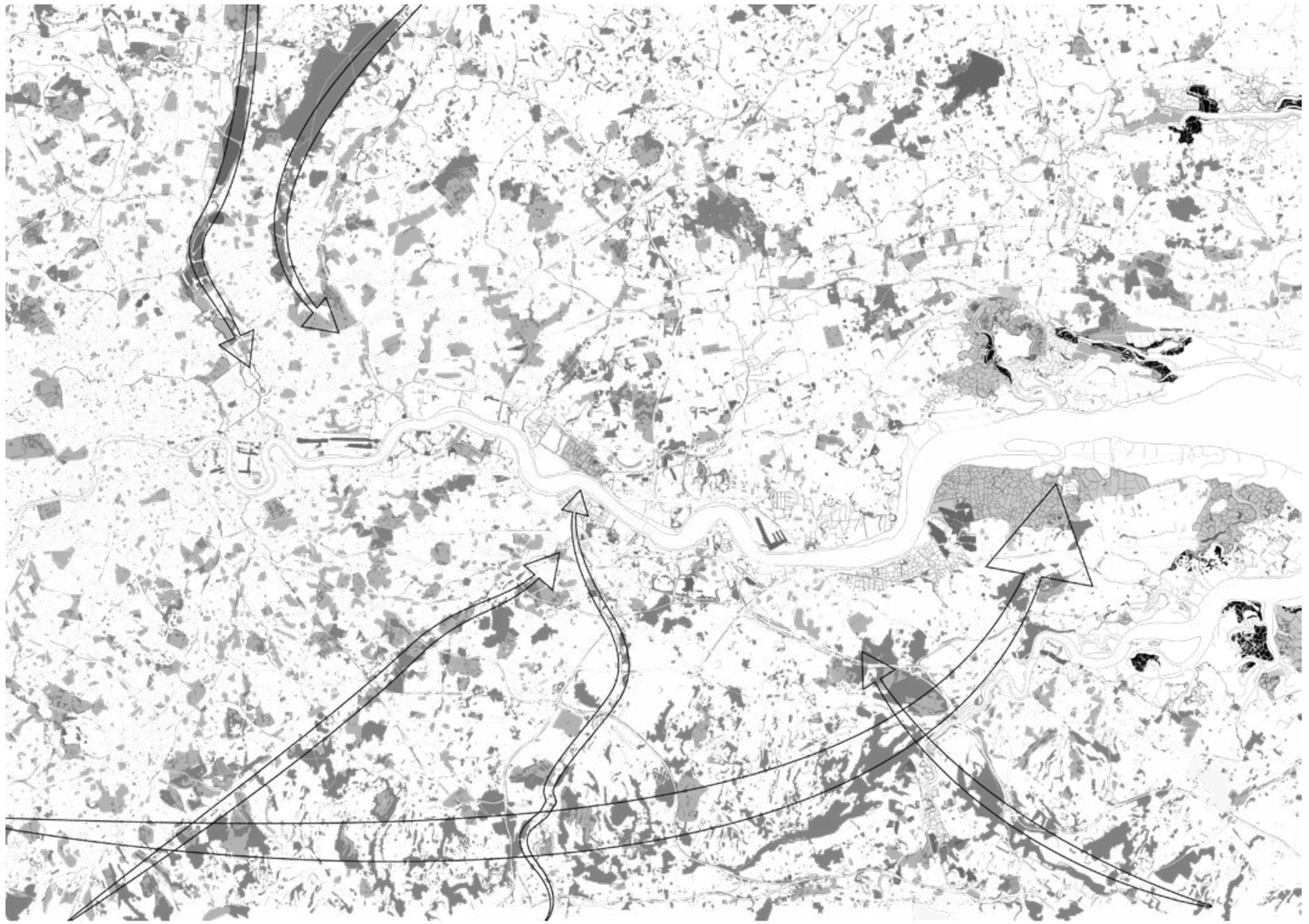


low in food sources

rich in food sources

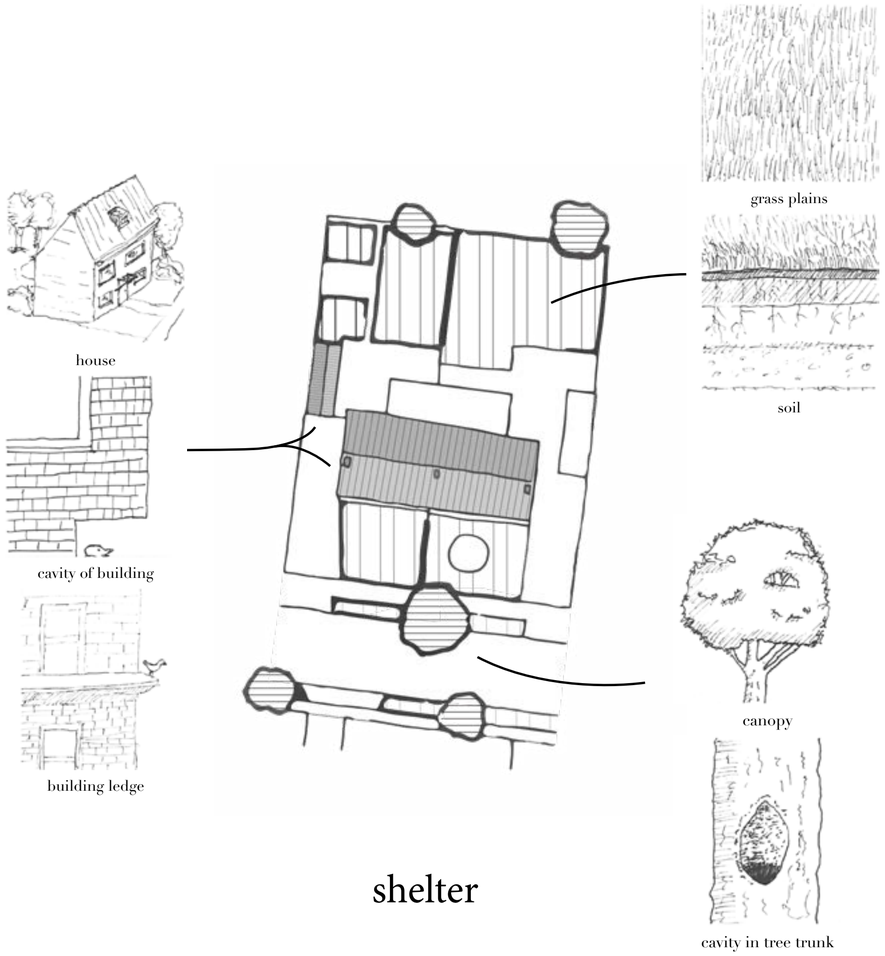
mix between rich and low

food sources

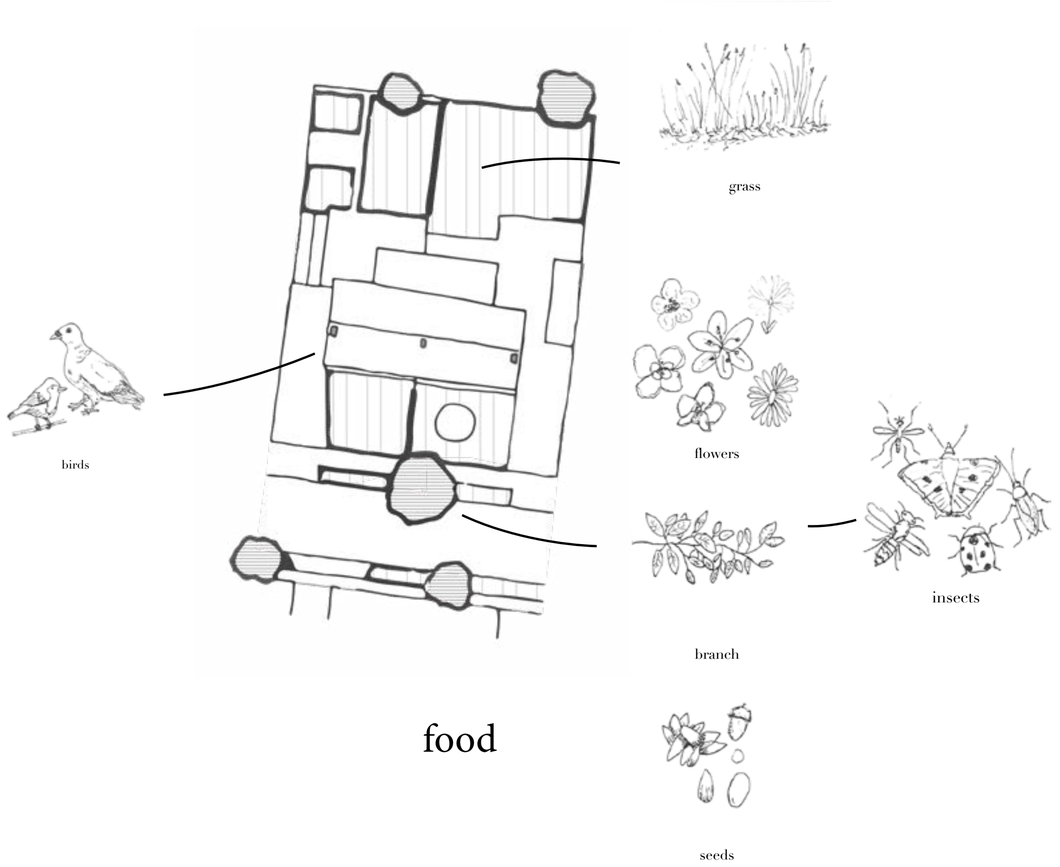



infrastructures

water




shelter




food

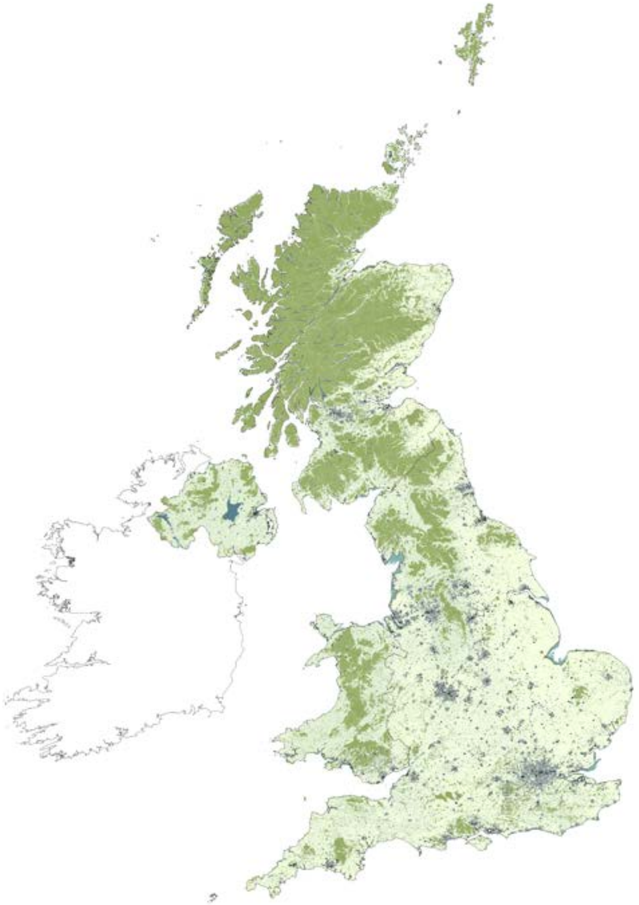
least limiting

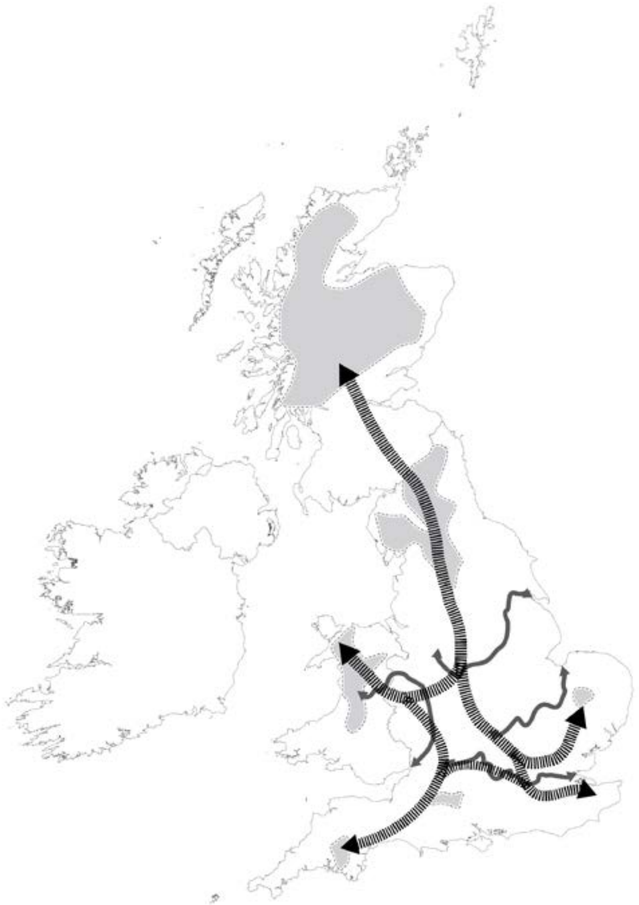
most limiting

barriers

limit map Thames Estuary

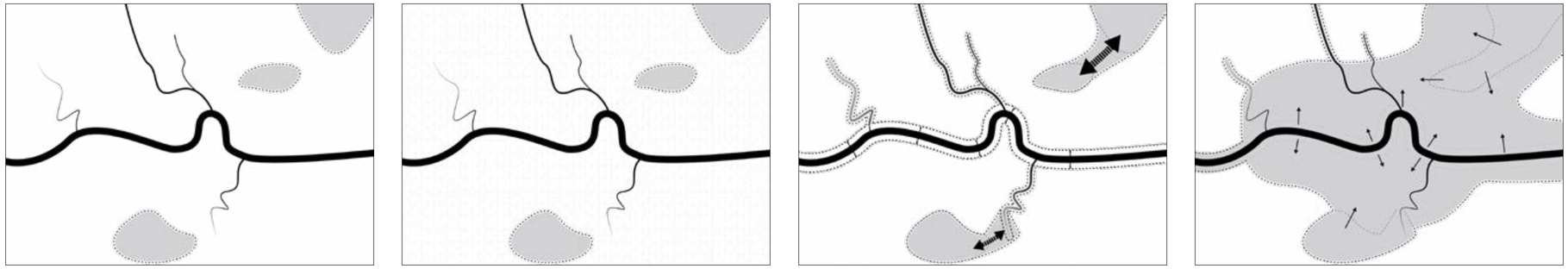
limitations Cliffe



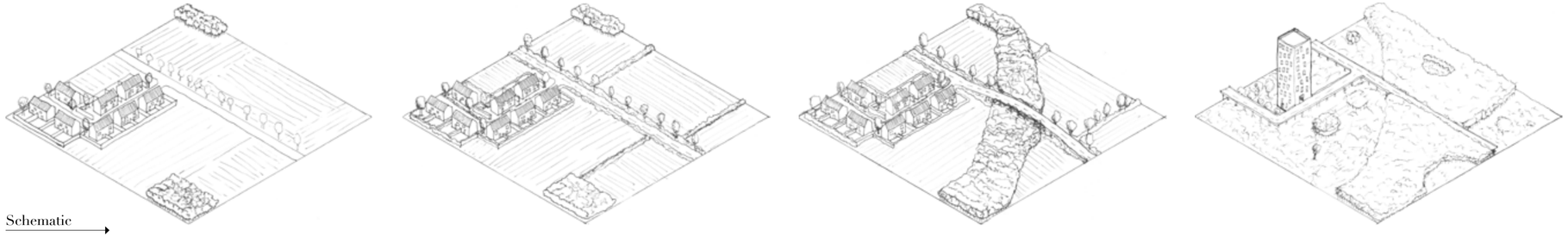


national infrastructures

national infrastructures in the Thames

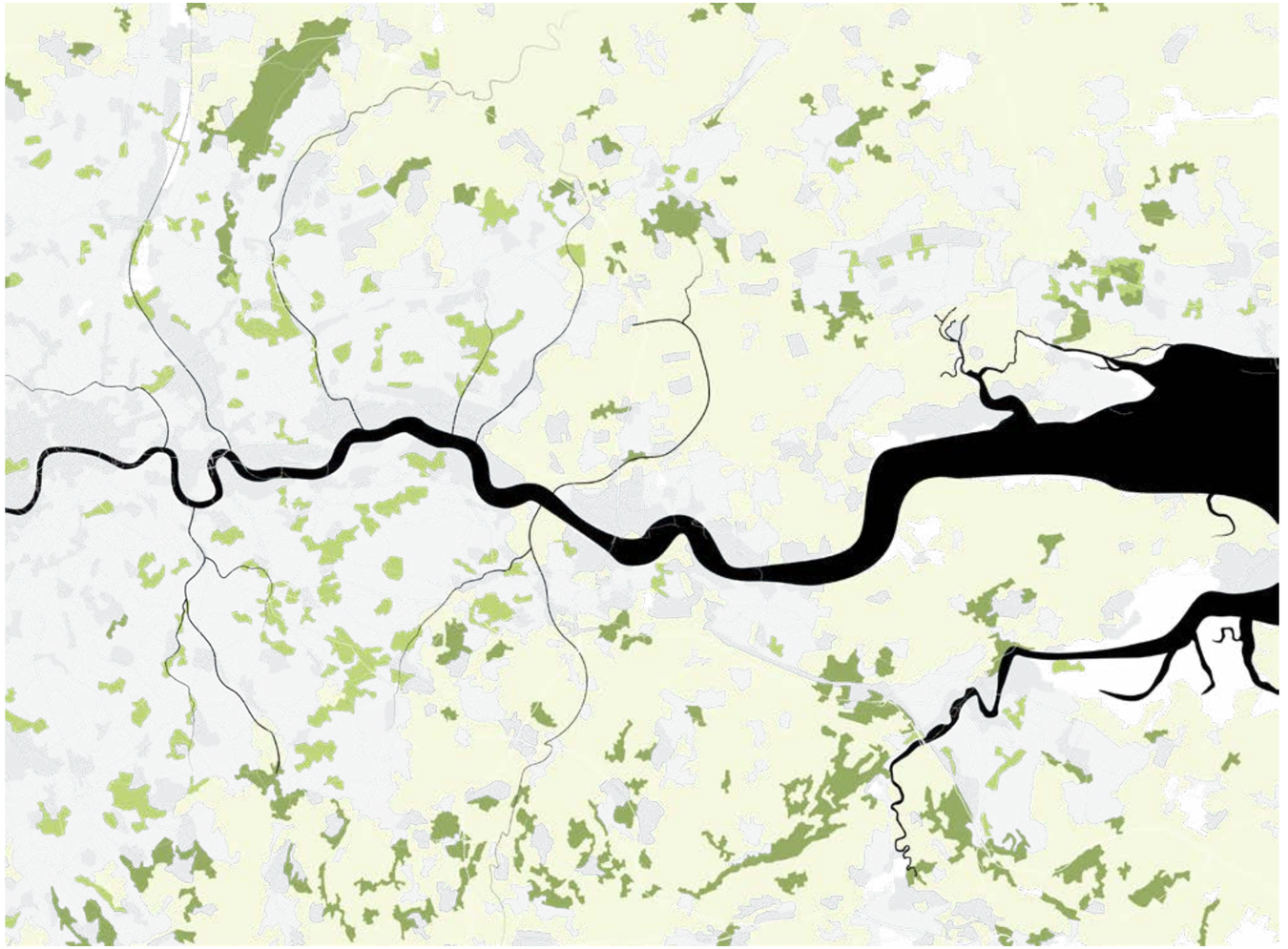


Changes on large scale

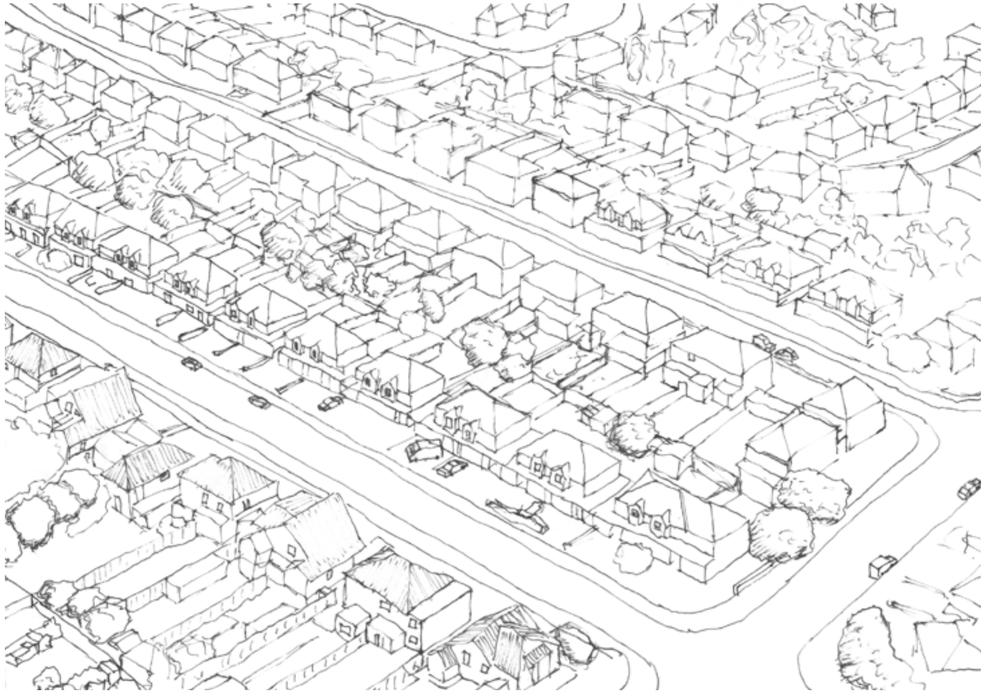


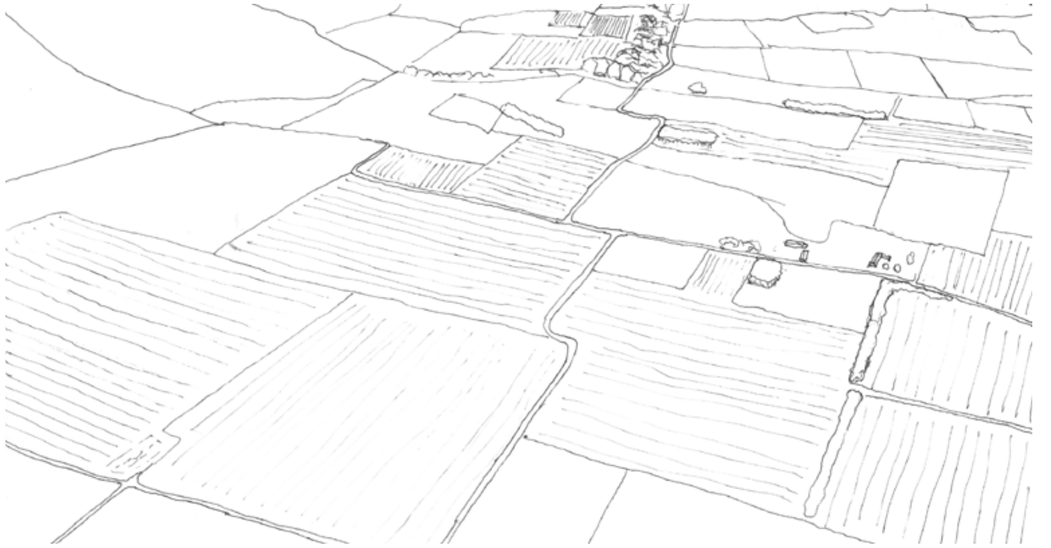
Schematic

| Phase 0 - current state | Phase 1 - Initiation | Phase 2 - Restoration | Phase 3 - Transformation |
|---|---|---|---|
| subsidies for biodiversity promoting initiatives ^* | | creation of nation wide sheltered infrastructure *^ | |
| policies regarding polluting industries ` | | restoration of large rivers to become biodiversity hot spots *^ | |
| policies on pesticide use in agriculture ` | | transformation of highways to bridge landscapes \\^ | |
| policy green borders agriculture *^ | | | large scale transformation of agriculture *^ |
| policies on coexistence enablement in new development ^ | | | |
| **national** responsible department of central government: ^ = ministry of housing communities and local government, * = Dept. Environment, Food and Rural Affairs ` = Dept. for Business, Energy and Industrial Strategy \\ = Dept for Transport | | | |
| subsidies for local projects | | creation of regional infrastructures | |
| | reduction in park maintenance | bridging transport barriers | |
| | | | bridging transport barriers |
| | | densification strategy for Greater London | |
| **regional** responsible authority: council of county, GLA and unitary authorities depending on the area | | | |
| | change public green management | remediation and restoration of local biodiversity hot spots | |
| | new development enables coexistence | | |
| | | connections between 'hot spots' | |
| | | | transformation of agriculture to types of permaculture |
| | | | suburbs transformation to neighbourhoods of coexistence |
| **local** responsible authority: district, borough & local parish councils depending on the area | | | |

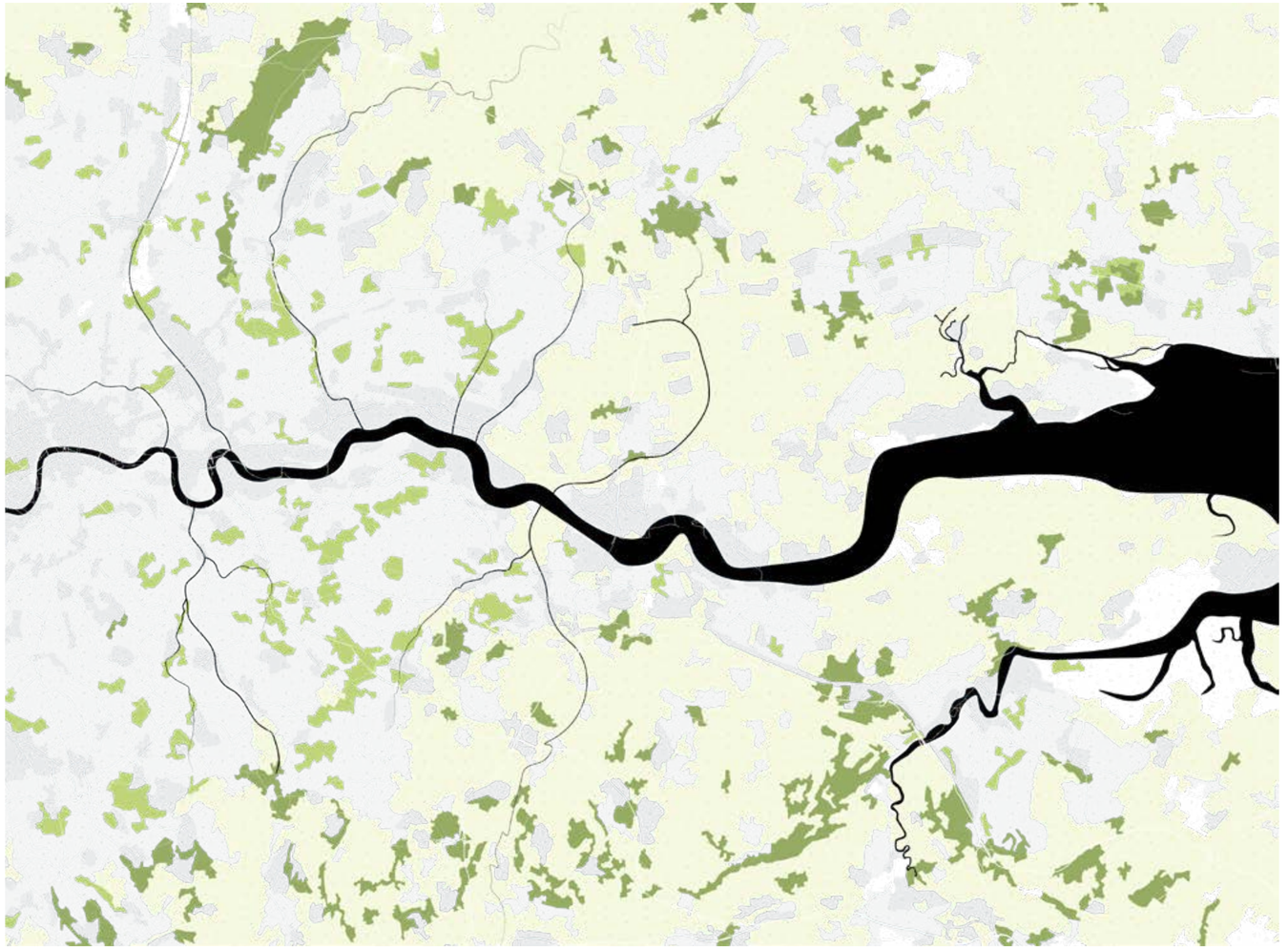


phase 0 - current state

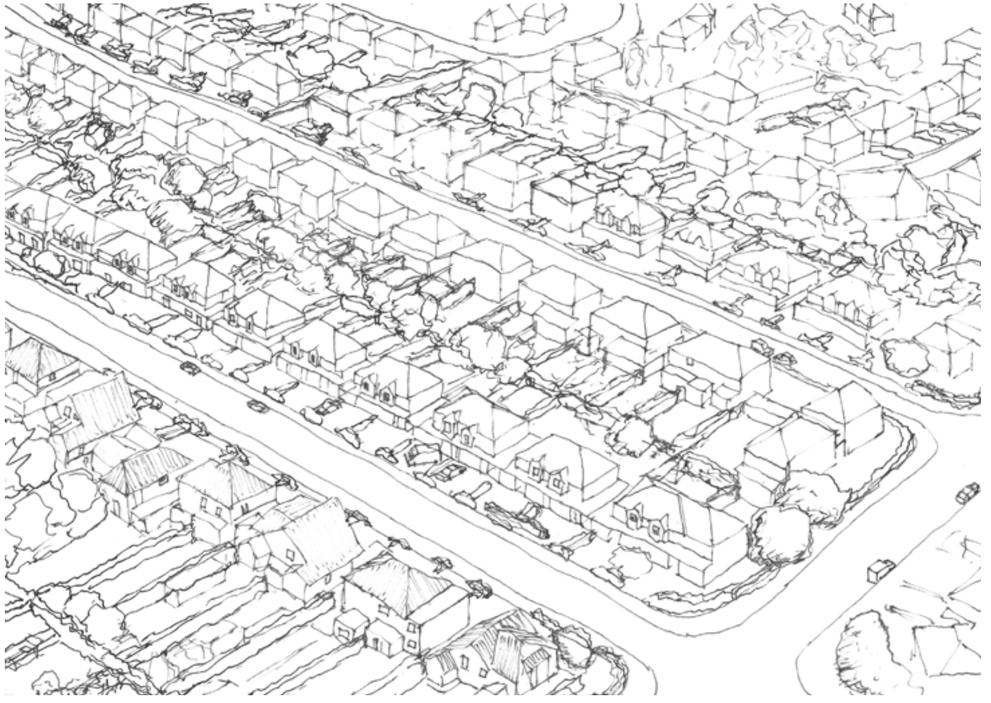


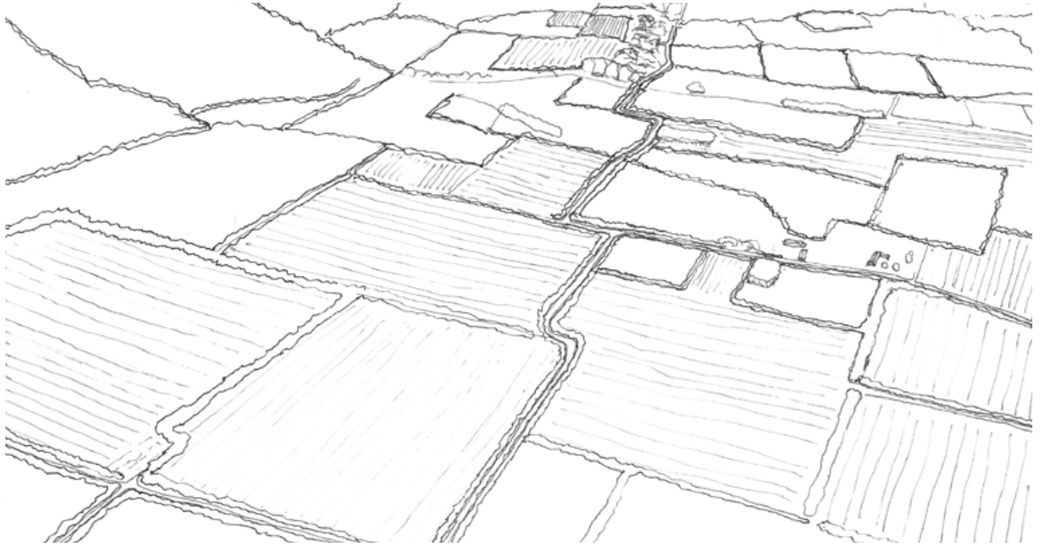


phase 0 - current state

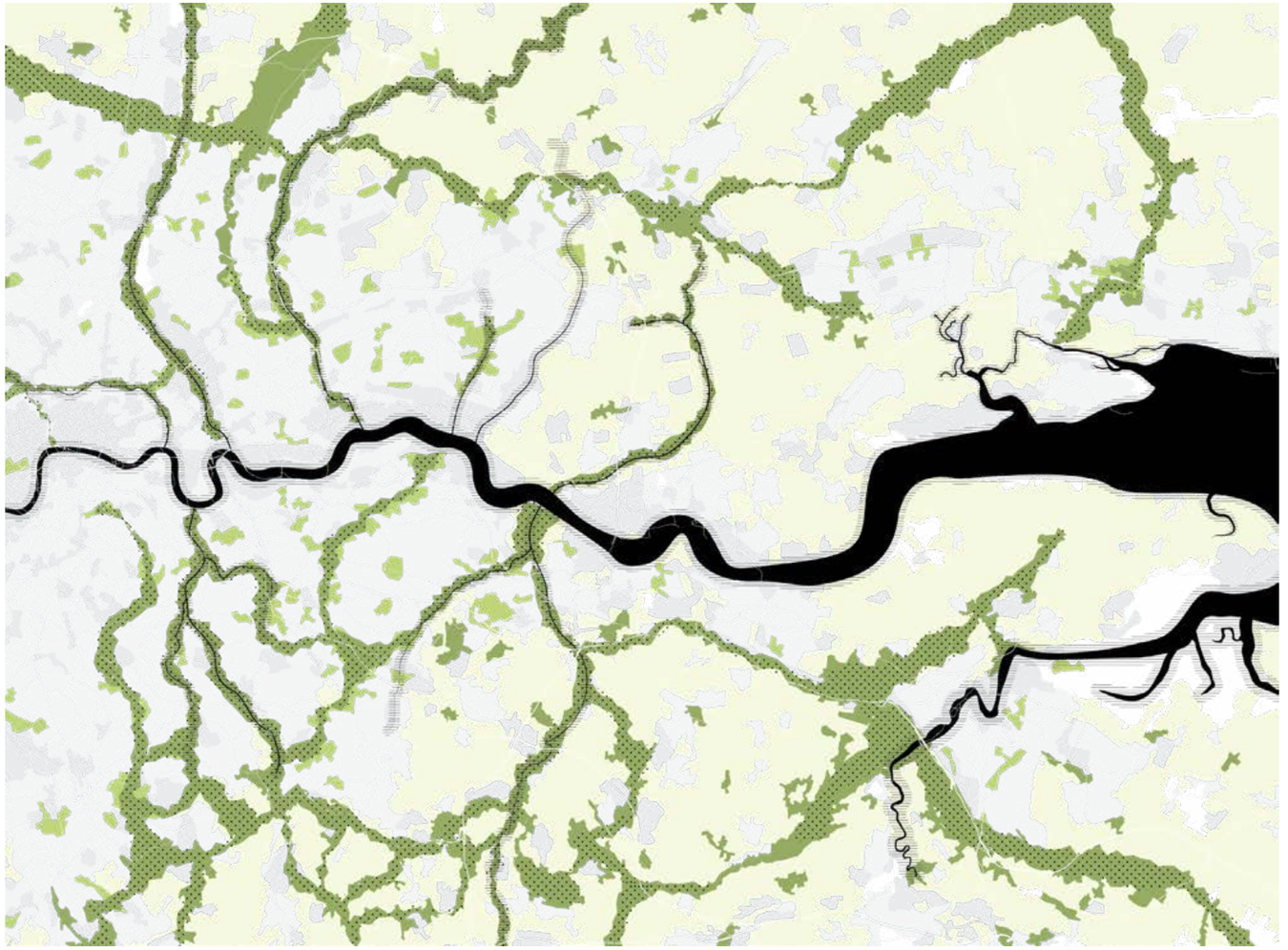


phase 1 -initiation

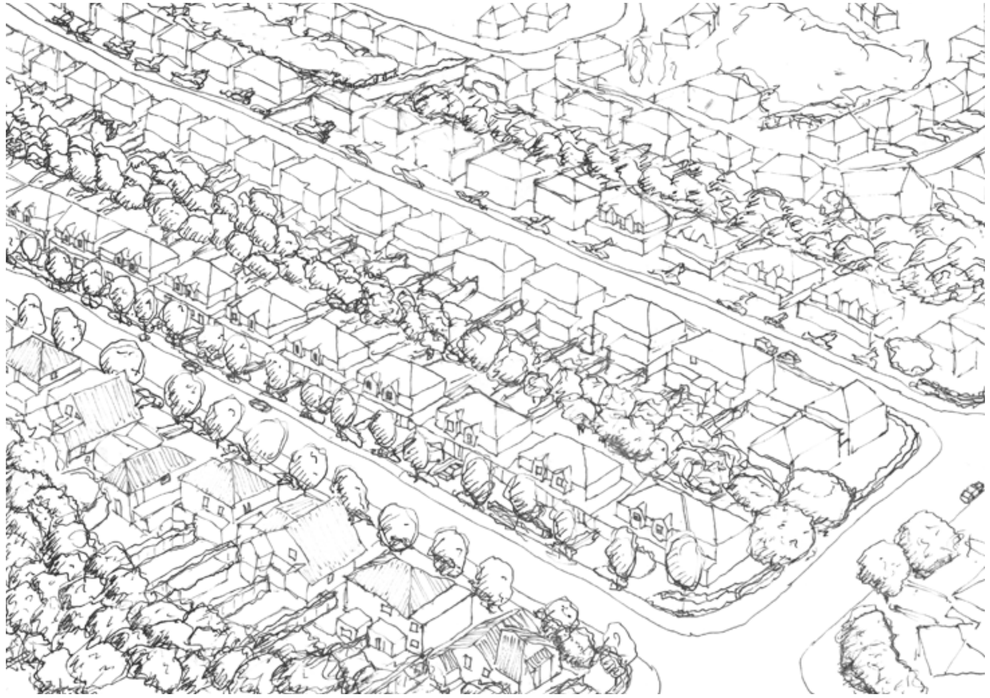




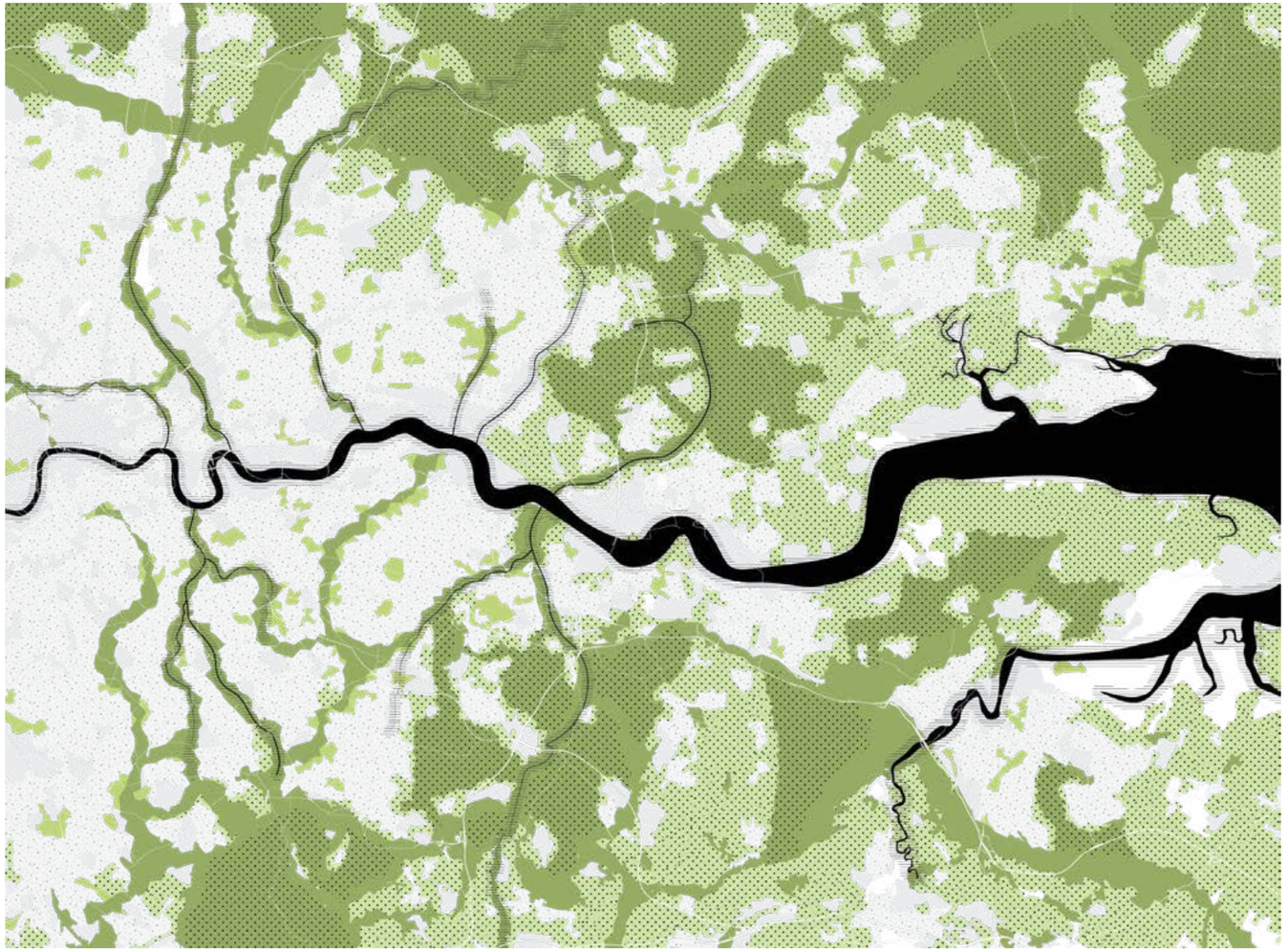
phase 1 - initiation



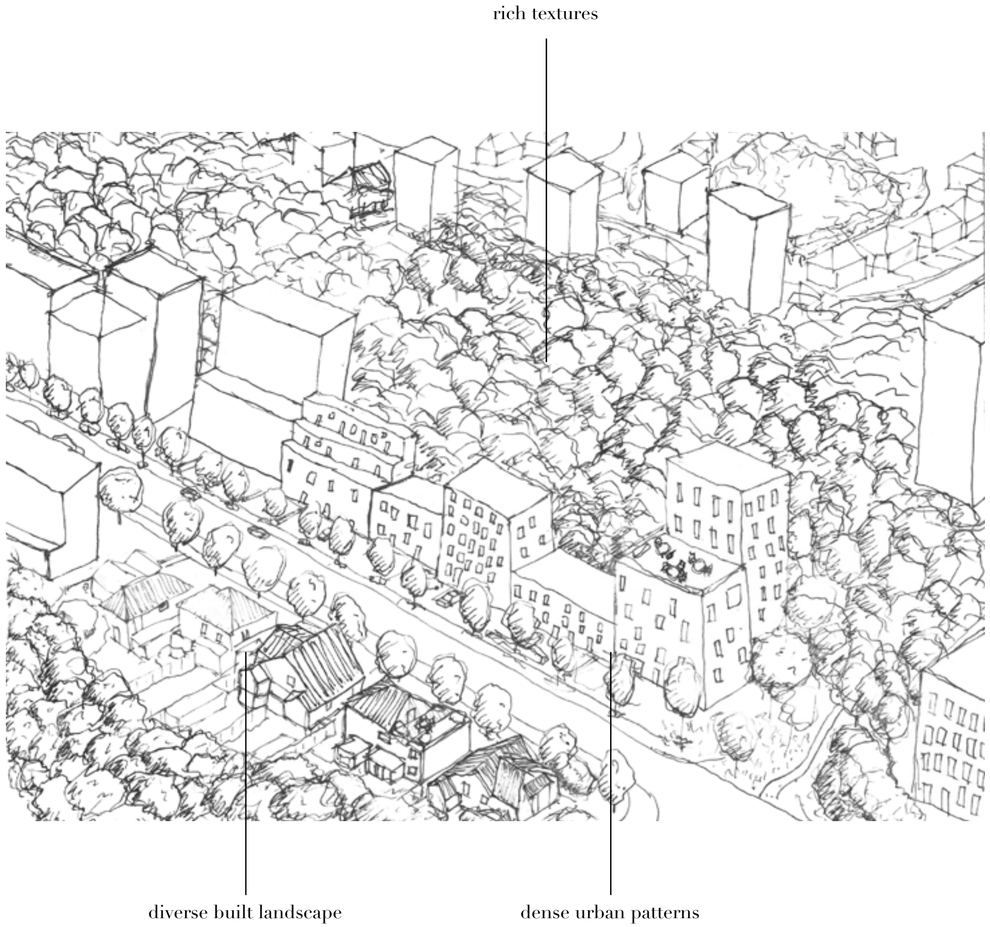
phase 2 - restoration

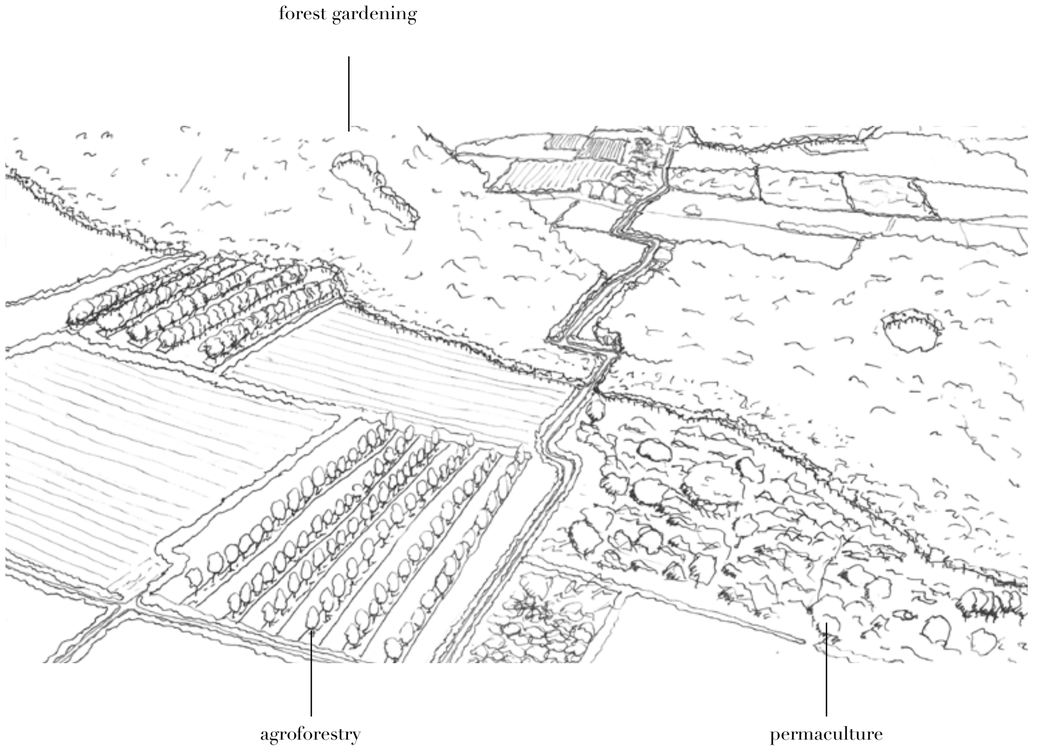


phase 2 - restoration



phase 3 - transformation




# phase 3 - transformation

How can spatial design be implemented in order to improve the coexistence between species?

How can spatial design be implemented in order to improve the coexistence between species?

in order to improve coexistence we have to improve biodiversity
land use that limits agency of other species limits biodiversity
start seeing human environments as part of a dynamic ecosystem that changes over time
allowing other species to design with us