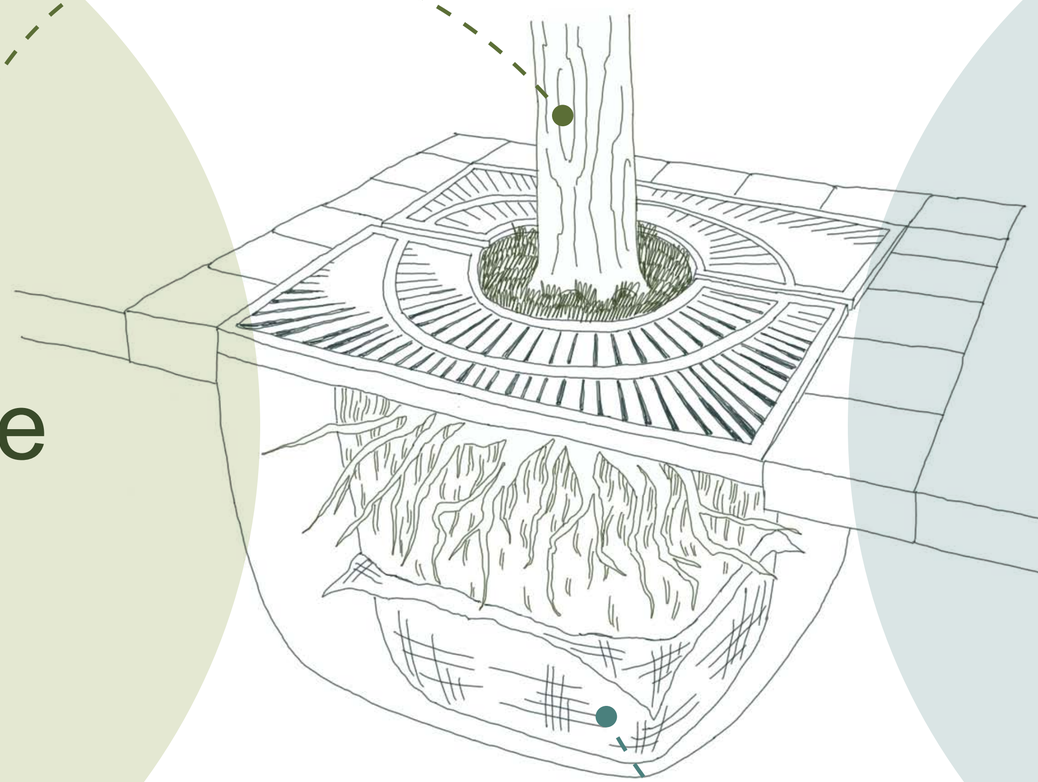
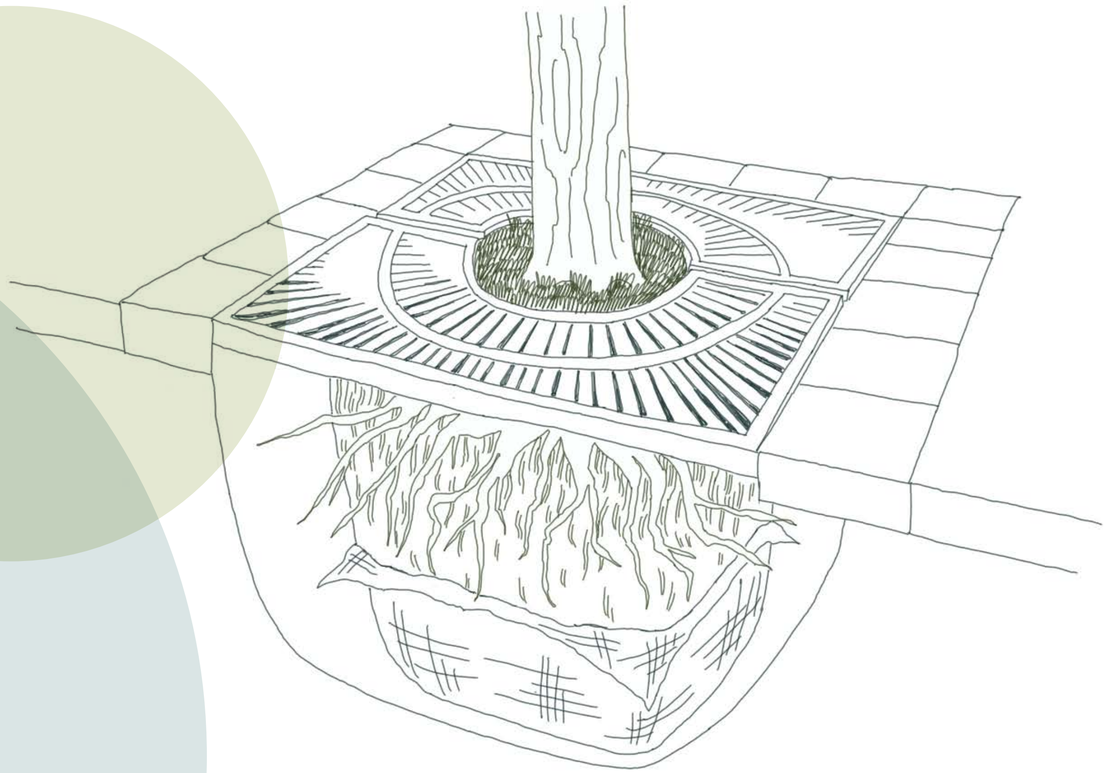
tree



pit



# man vs. nature

*how do we control nature?*

# time / history



## trees were urbanized

### early civilization

**lumber** is harvested to build buildings for settlements and cities

### colonial america

**domination of land** and nature as a part of colonization culture

### 1900s

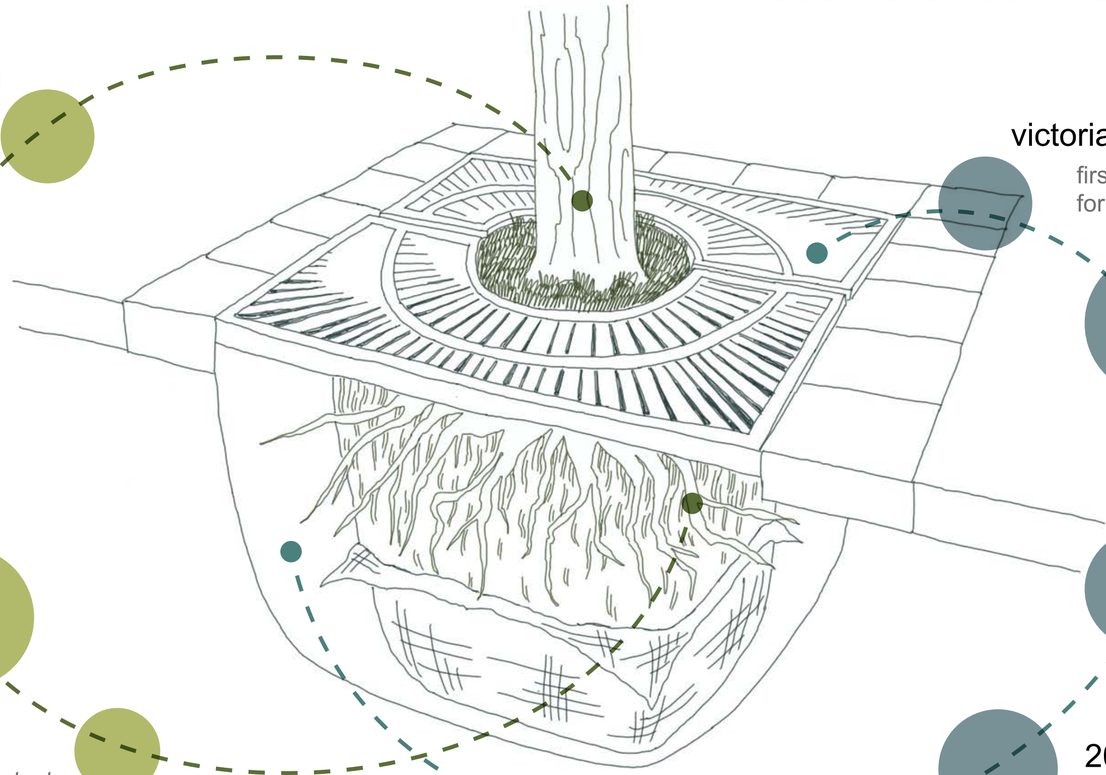
the **u.s. forest service** is incorporated under the department of agriculture

*trees perceived as crops; forests as farms*

### 1970s

chipko movement in india sparks **“tree-hugging” activism** against deforestation

**arborist** profession introduced to urban/municipal contexts



## cities were naturalized*

### victorian england

first **vaulted tree pits** designed in streets paved for pedestrian and horse-drawn carriages

### 1950s

post-war suburbanization urged for a **pastoral nostalgia**

trees used for window-dressing in blighted areas during **urban renewa**l movements

emerging field of climatology finds the **urban heat island effect**, where trees play a major role in urban cooling

*ecological and health benefits recognized for urban trees*

### 2020

pandemic realigned priorities to beautify public spaces with greenery

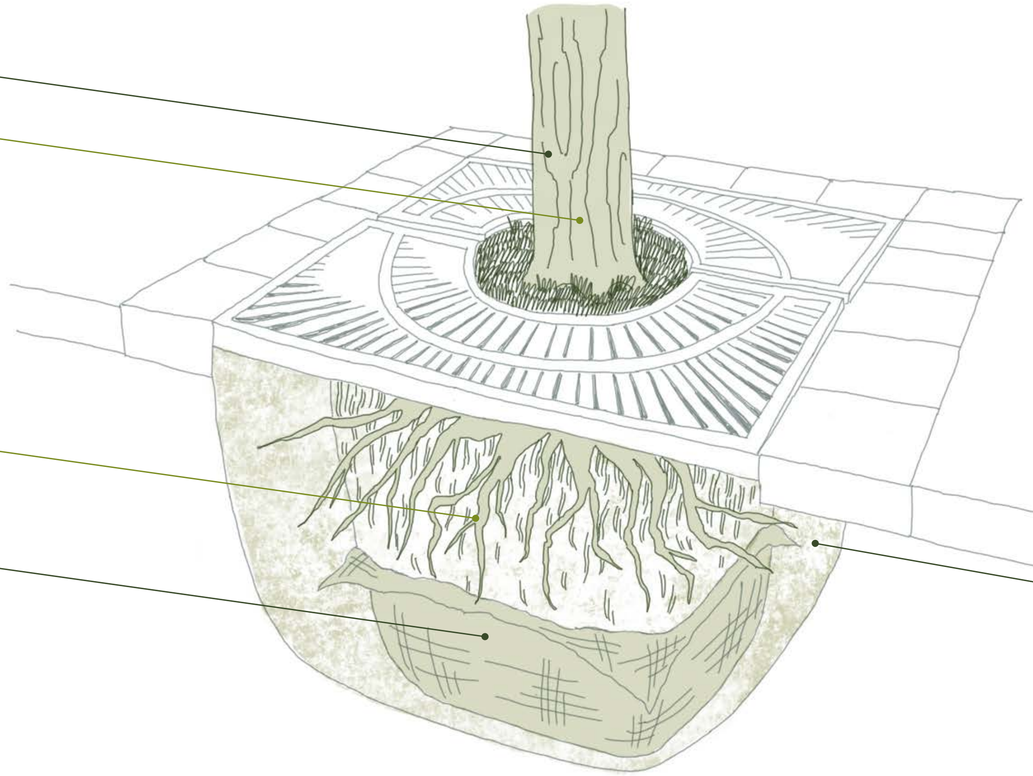
* “Cities were naturalized, and trees were urbanized” from Sonja Dümpelmann’s *Seeing Trees*

# nouns & space / growth



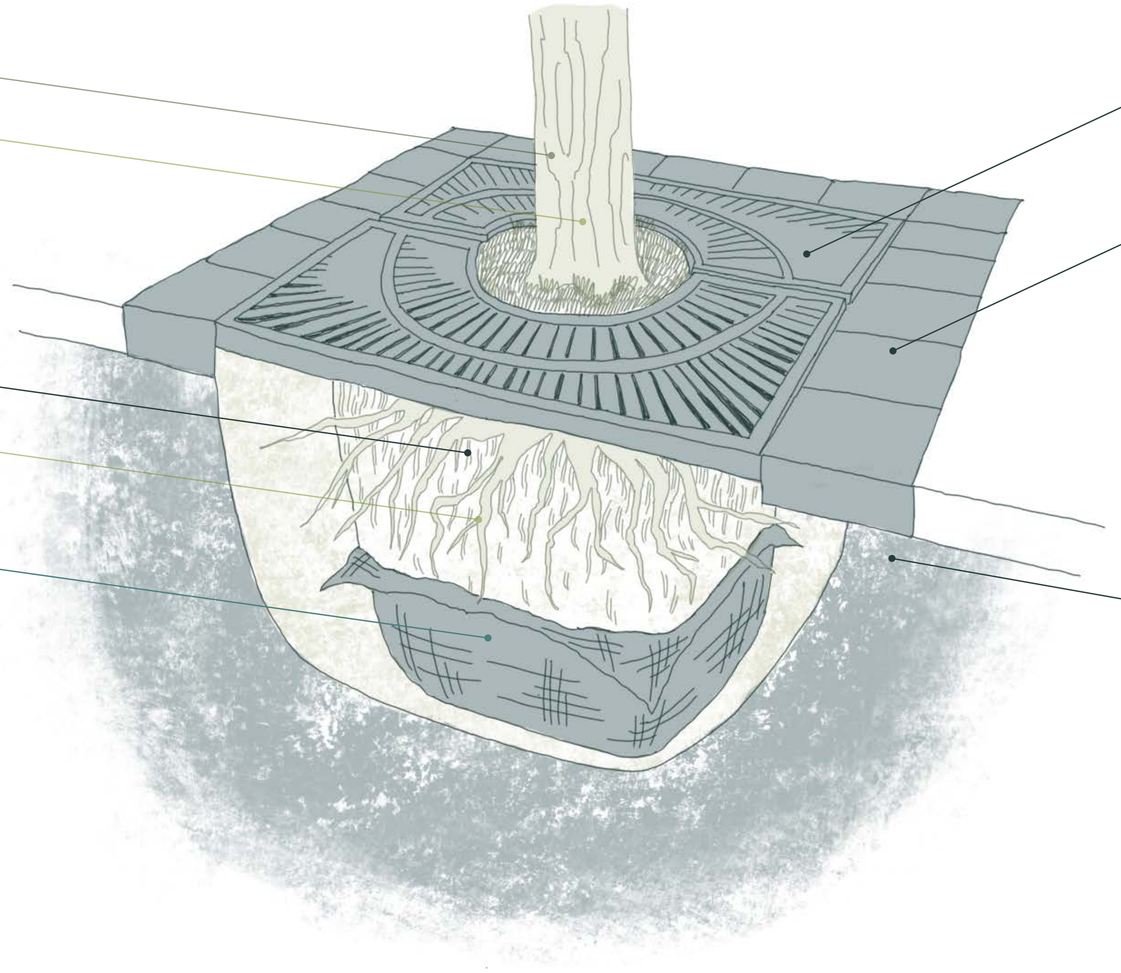
foreign / nursery

- tree
  - *sapling*
- trunk
- roots
- burlap sack
  - *fabric*
  - *jute skin*
  - *flax fiber*



- soil
  - *sand, clay, silt, compost*
  - *mixed material*
- purpose
  - ***root spread***, *support*
- density
  - ***low***, ***medium***, *high*
- nutrient level
  - *none, low,* ***moderate, high***
- backfill
  - ***y*** / *n*

foreign / import



foreign / nursery

- tree
  - *sapling*
- trunk
- root ball
- roots
- burlap sack
  - *fabric*
  - *jute skin*
  - *flax fiber*

foreign / import

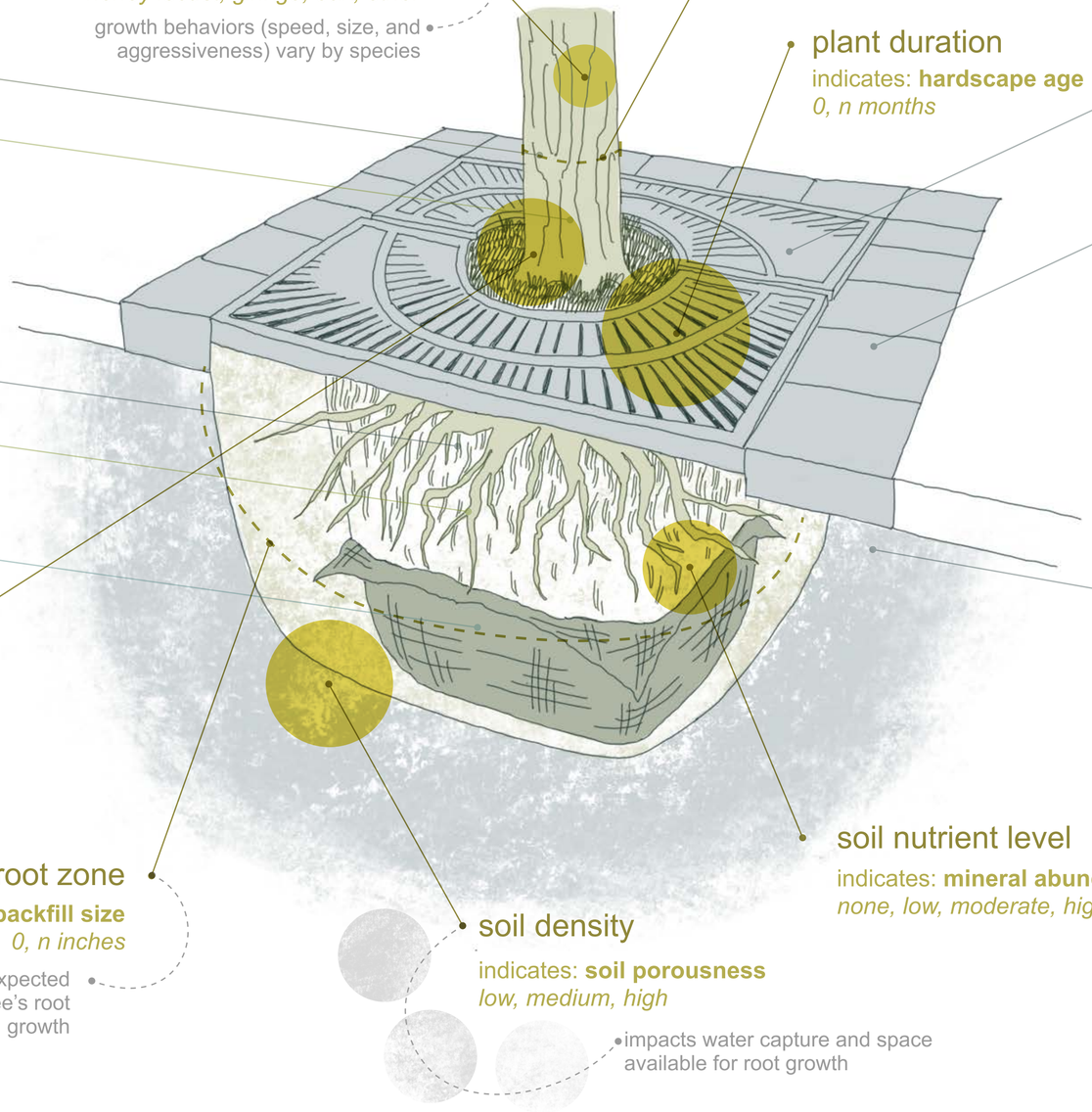
- pit cover
  - *aggregate metal*
  - *steel, aluminum*
- pit collar
  - *cement*
  - *sand, gravel*
- material
  - *concrete, stone, brick*
- raised
  - *y / n*

native / site

- soil
  - *sand, clay, silt, gravel*
  - *mixed material*
- purpose
  - *root spread, **support***
- density
  - *low, medium, **high***
- nutrient level
  - *none, **low**, moderate, high*
- backfill
  - *y / **n***
- structural soil
  - ***y** / n*

# nouns & space / measurements





foreign / nursery

- sapling
- tree
- trunk
- root ball
- roots
- burlap sack
  - fabric
  - jute skin
  - flax fiber
- trunk flare
  - indicates: **pit grade**
  - *below grade, at grade, above grade*
  - an indication of whether or not the backfill is dug at a suitable depth

- species
  - indicates: **growth rate**
  - *honey locust, ginkgo, oak, other*
  - growth behaviors (speed, size, and aggressiveness) vary by species
- trunk dbh
  - diameter at breast height (dbh) is the standard measurement for tree size
  - indicates: **tree age**
  - *0, n inches*
- plant duration
  - indicates: **hardscape age**
  - *0, n months*

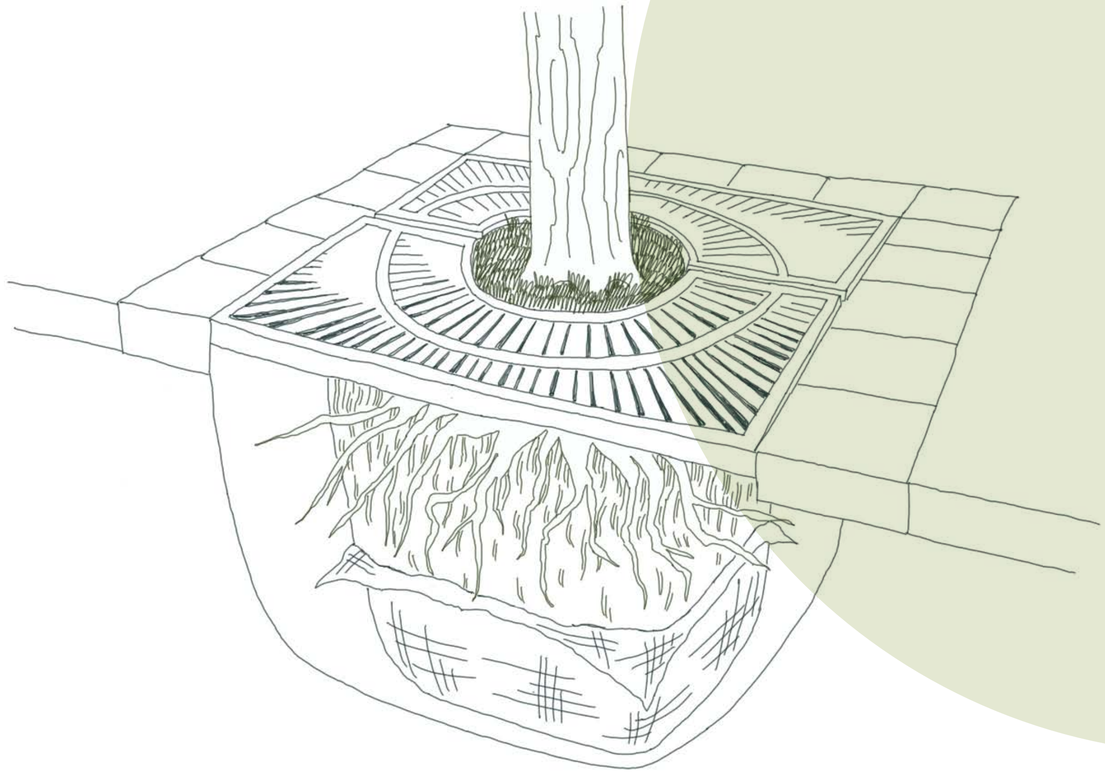
foreign / import

- pit cover
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  - *y / n*

native / site

- soil
  - *sand, clay, silt, gravel*
  - *mixed material*
- purpose
  - *root spread, **support***
- density
  - *low, medium, **high***
- nutrient level
  - *none, **low**, moderate, high*
- backfill
  - *y / **n***
- structural soil
  - ***y** / n*

- critical root zone
  - indicates: **backfill size**
  - *0, n inches*
  - a calculated measurement for expected space needed for a mature tree's root growth
- soil density
  - indicates: **soil porousness**
  - *low, medium, high*
  - impacts water capture and space available for root growth
- soil nutrient level
  - indicates: **mineral abundance**
  - *none, low, moderate, high*

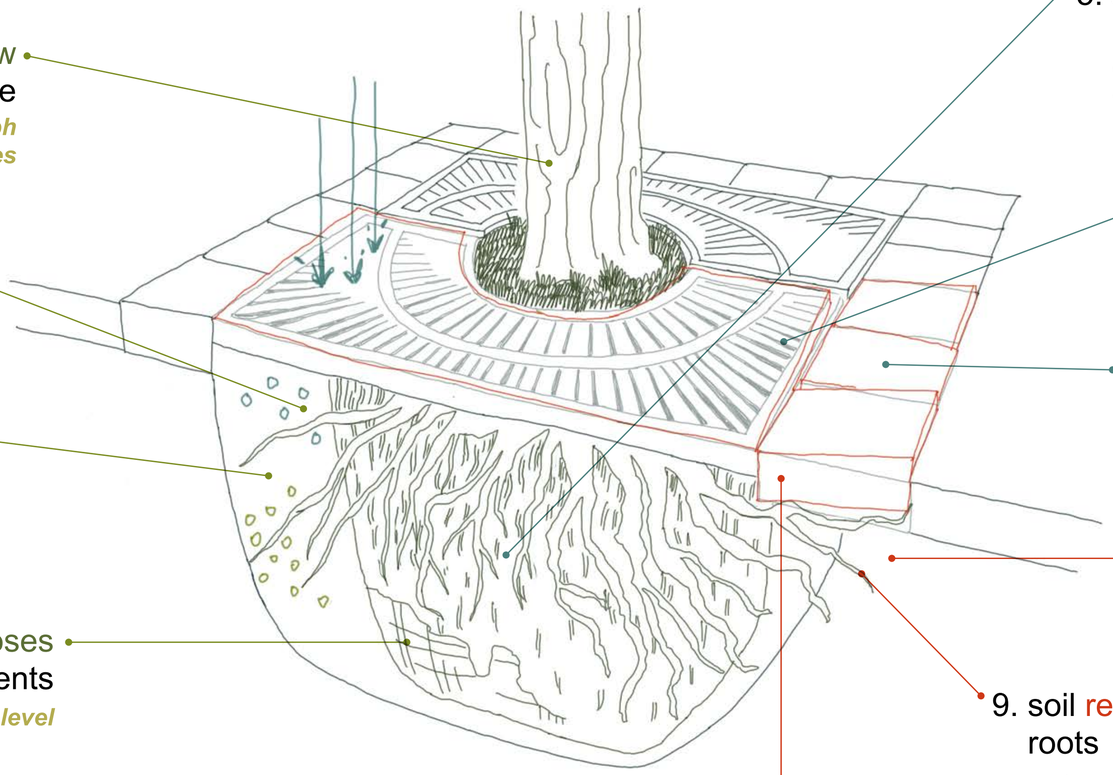


dispute

*when nature outgrows control*

# verbs





4. roots grow tree
*growth rate | **trunk dbh and species***

3. roots absorb water and nutrients
*absorption rate | **soil density and nutrient level***

2. soil retains water and nutrients
*volume | **soil density***
*density | **soil nutrient level***

1. burlap decomposes into nutrients
*decomposition rate | **soil nutrient level***

5. structural soil supports backfill contains
*weight | **soil density***
*volume | **critical root zone***

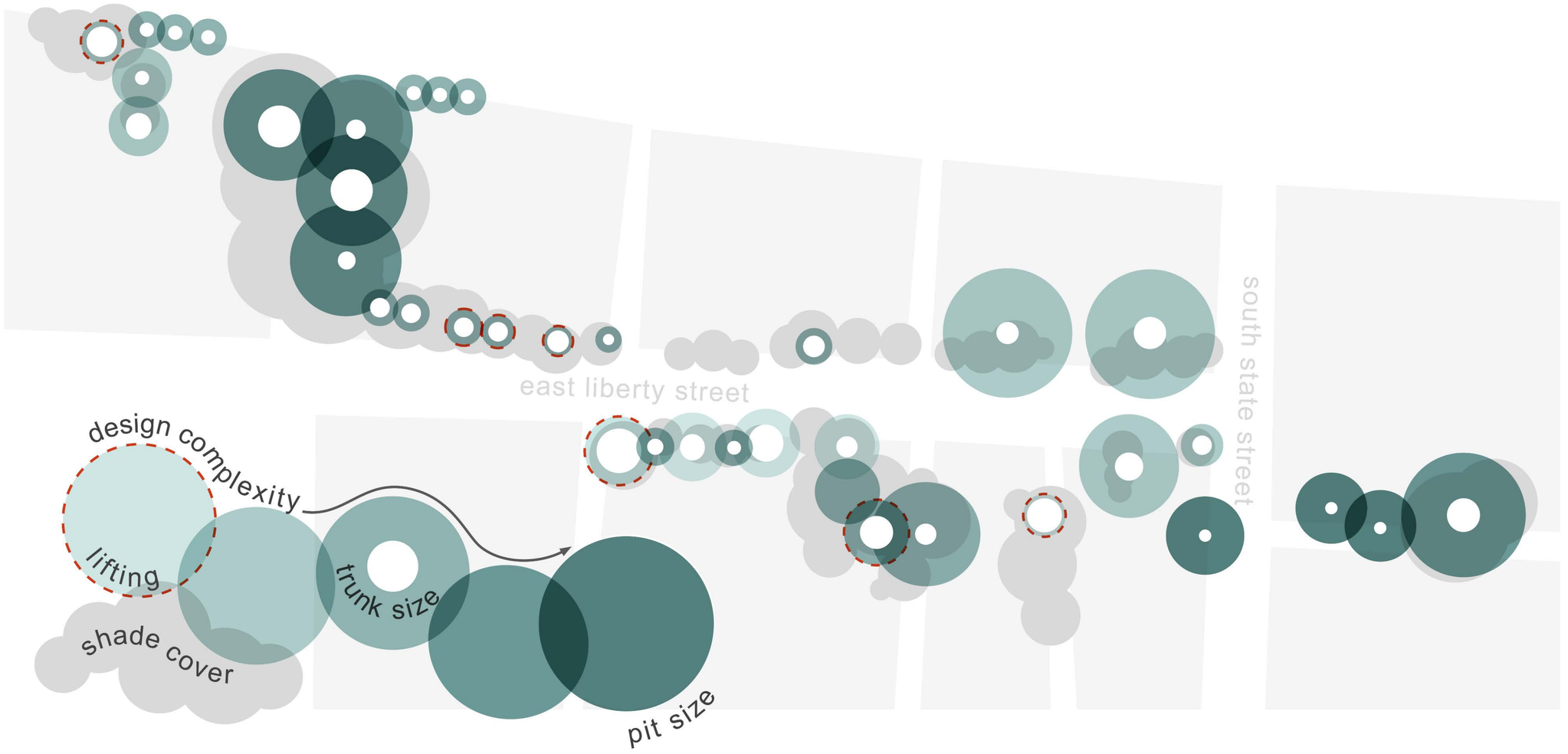
6. pit cover preserves soil
*displacement | **material***

7. hardscape protects roots
*durability | **material***

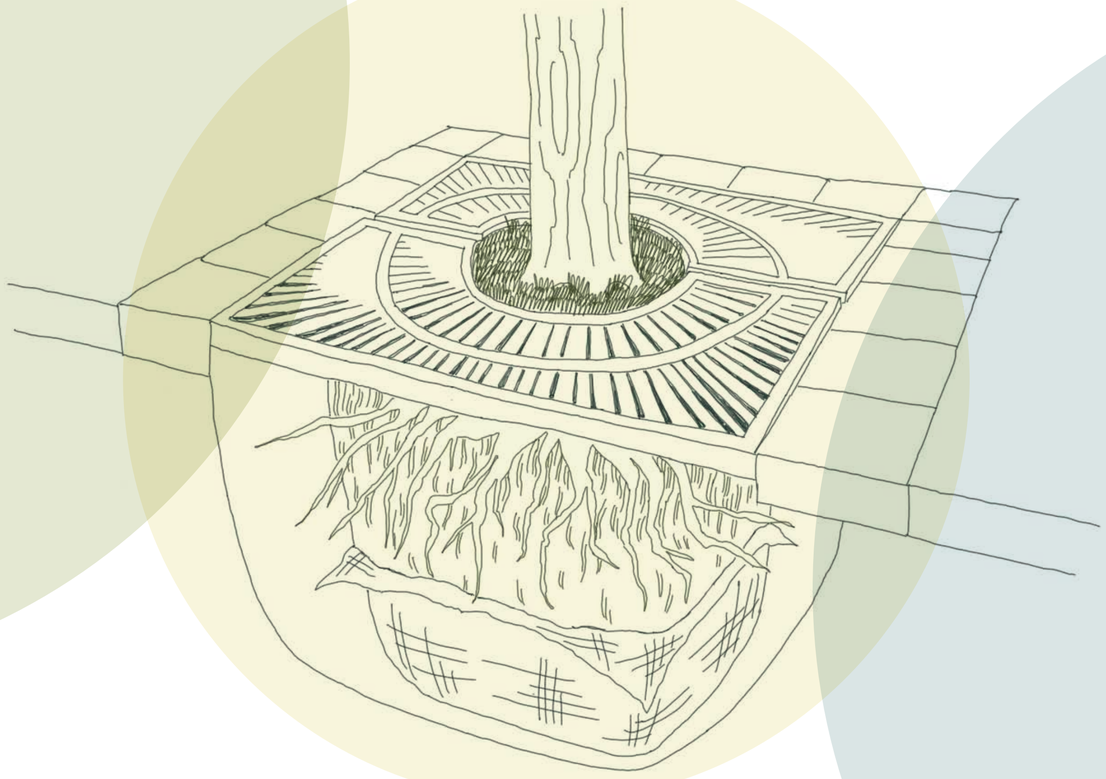
8. pit collar compacts soil
*density | **material and soil density***

9. soil resists roots
*resistance | **soil density***

10. roots lift pit collar and pit cover
*force | **species***




case study: downtown ann arbor



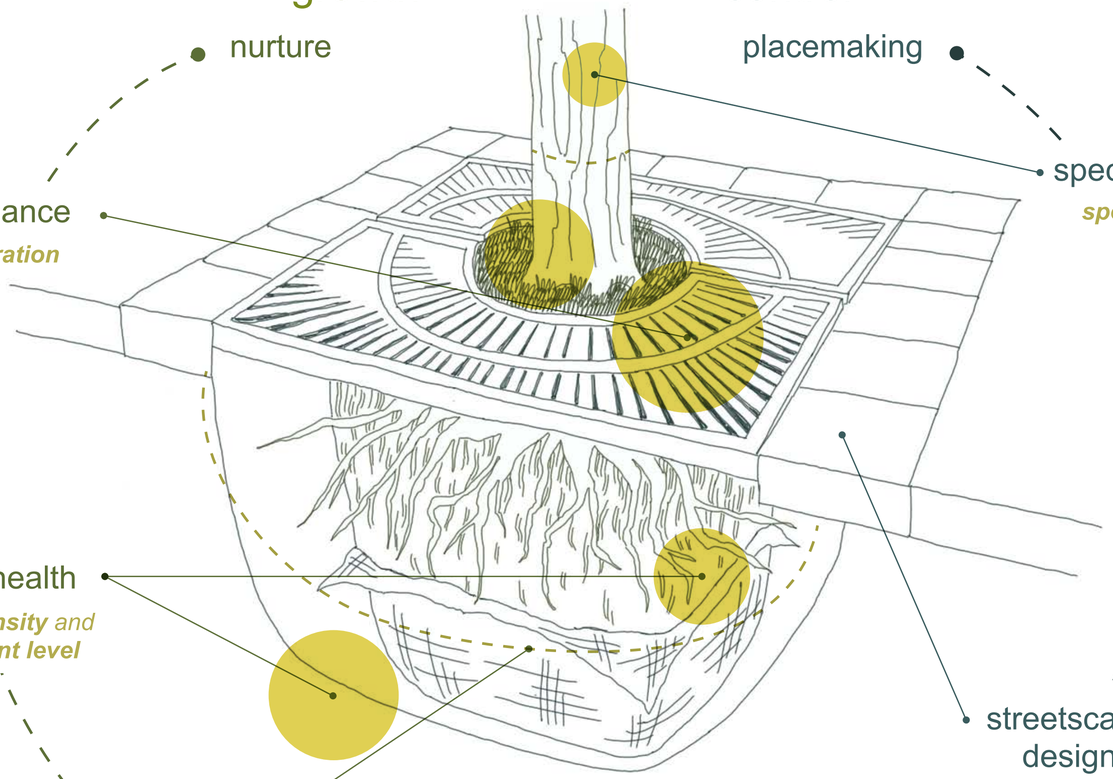
# bridging the gap:

*where we need to go from here*

# adjectives

# design decisions

# bridging the gap / 01



## growth

### nurture

### maintenance

***plant duration***

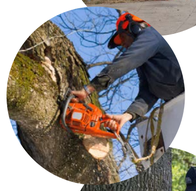
*responds to needs of the street*

*infrastructural*

relandscaping



pruning



insect/disease treatment



*natural*

*responds to needs of the tree*

### soil health

***soil density*** *and* ***nutrient level***

*water retention* *(0, n)*

*mineral abundance* *(0, n)*

### root space

***backfill size*** *to* ***critical root zone*** *ratio*

*not enough room for roots to grow* *0*

*adequate root space* *1*

*roots deoxygenated and have poor water capture* *n*

## control

### placemaking

### speciation

***species***

*streets retain distinctive aesthetic character*

*monoculture*



maple



honeylocust



ginkgo

*biodiverse*

*improves health of local ecosystem*

### streetscape design

***hardscape material***

*unremarkable public experience*

*less complex*



concrete



brick with cover



elevated surface

*more complex*

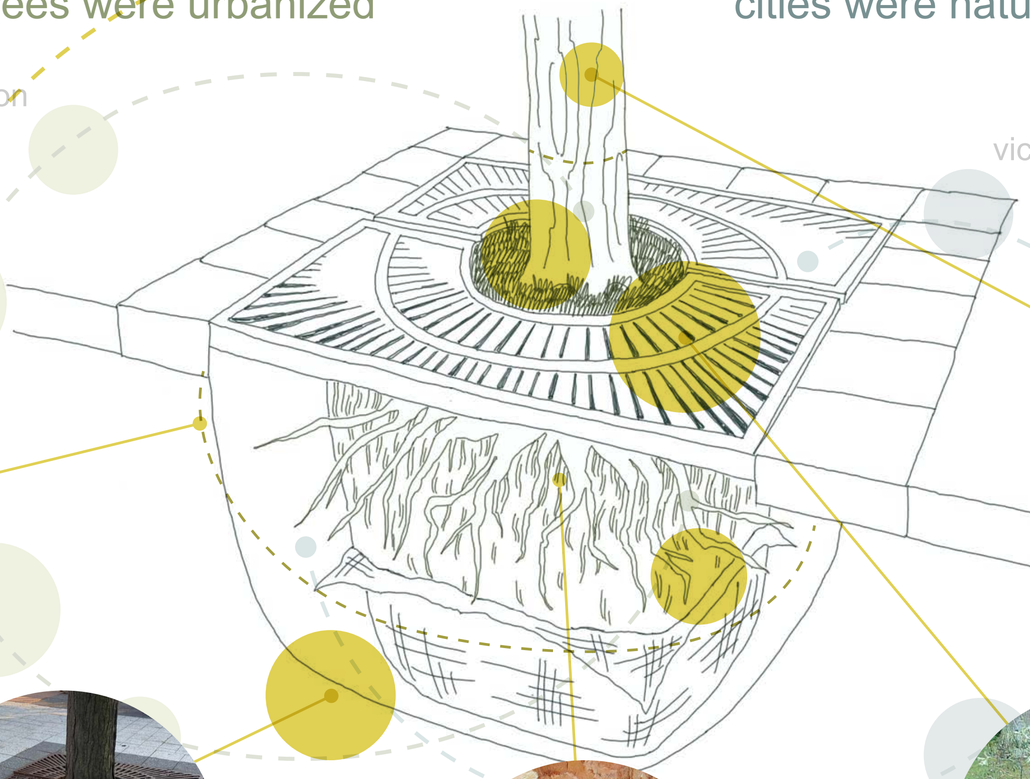
*distinctive public experience*

### futures

futures

trees were urbanized

cities were naturalized



early civilization

**lumber** is harvested to build buildings for settlements and cities

colonial america

**domination of land** and nature as a part of colonization culture

1900s

*public works*

the **u.s. forest service** is incorporated department of agriculture

*rests as*

1970s

ement in india sparks against deforestation

profession introduced to u



construction

*construction near unprotected tree can lead to root injury and tree death*

***critical root zone consideration***



lifting

*inadequate infrastructure lead to roots invading nearby hardscape*

***permeable pavement, structural cells, suspended pavement***



insect / disease

*introduction of invasive species or disease can damage tree health*

***foreign/native compatibility***

victorian england

first **vaulted tree pits** designed in streets paved for pedestrian and horse-drawn carriages

1950s

post-war suburbanization urged for a **pastoral nostalgia**

trees used for window-dressing in blighted areas during **urban renewal** movements

emerging field of climatol **urban heat island effec** play a major role in urba

*ecological and health ben*

ed priorities to beautify greenery



tree droppings

*pollen, fruits, leaves, etc. can disrupt sidewalk experience*

***selective hybridization, proactive maintenance***

*forestry*

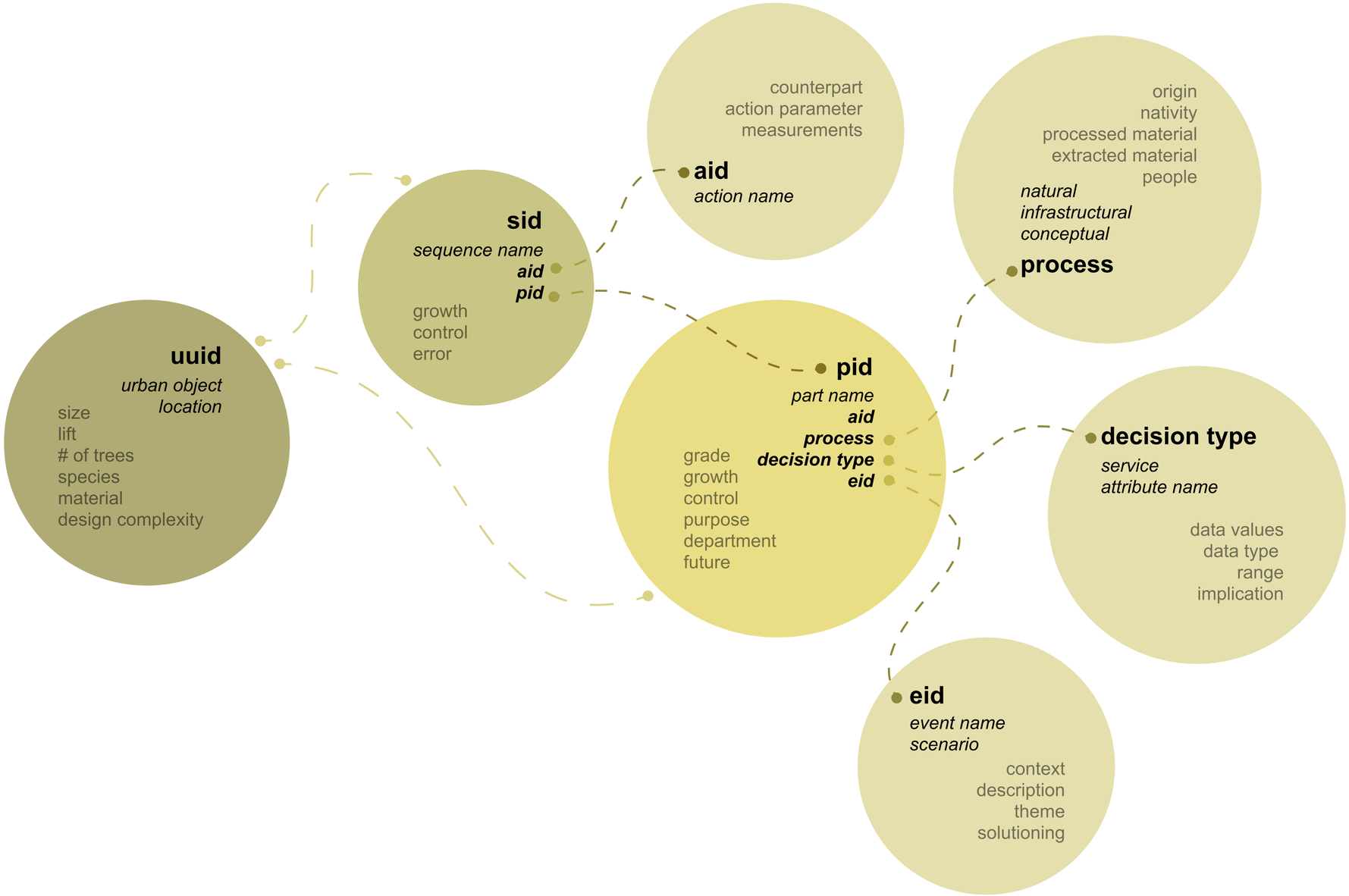


monoculture

*increases risk during pest events and restrict local ecosystems*

***intentional speciation***

# data structure



# references




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    - https://www.deeproot.com/blog/blog-entries/tree-pits-are-the-pits-but-we-can-make-them-better/
- ann arbor city forestry department:
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