Ecoculture: Emergence in urban ecology

Matt Welch, Madrone Landscaping LDC and Mateo Scoggins, City of Austin
Basic Characteristics of Oak Mott Ecology

--Carbon retentive at soil level (suckers)
--Deep fermentation layer/ A layer in soil increases:
    -Nutrient cycling (microbial activity)
    -Moisture absorption/retention, deep storage
    -Deep, dense root systems
--Humus/organic matter/root mass “heaving” alleviates slope
--Emergence of soil depth, biomass, species richness and diversity. Growth over time.
Models and objectives

- Why does it work better on the other side of the fence?
  - Super productive ecologies?
  - Hostile desolate systems where things are still working. Plants in hostile locations.
  - Look at simple systems, i.e. cliffside ecology, vernal pools, sidewalks at what is generating life.
Typical Managed Landscape Model:

--Carbon depleting: mow, blow, haul it to the dump
--Cleanliness over ecological process
--Rainwater repellant: send it to the gutter
--Thin-soiled:
  --garden soil smeared over clay, bedrock.
  --Very little microbial/fungal activity.
  --Very little moisture absorption/retention.
  --Shallow roots, quick to dry up
--Heavily leached with chlorinated tap water irrigation
--Warm season only
--Product-heavy (snake oil)
Ecoculture

- New model for urban residential land management
- Seeks to maximize productivity and carbon/nitrogen cycling through:
  -- deep tilling of organic matter/compost
  -- terraforming for passive rainwater harvesting
  -- use of “carbon dumping” perennials and woodies
  -- spring/fall cut and cover while still green
  -- seasonal (x4) application of compost/mulch to cover
  -- cool season manure crops
Deep soil is key.

- Start with clay, ideally
- Broadfork (12-16”)
- Manure compost 10-20%
- Bark mulch/wood chips 10-20%
- 3-5 turnings--broadfork and shovel-- to break up clay
- Light liquid feed at time of planting (humic acid, N, fungal)
- Drench soil at planting: large H2o investment
Myths worth busting:

1. Native plants “need” poor soil
2. Xeric plants are more ecologically beneficial
3. Organic matter just disappears
4. Mulch with gravel
5. Plants will “drown” if flooded
Areas for research:

- plants’ phenological response to drought in nature vs. urban landscape (irrigation, etc).
- Size and abundance of large woody material (hugel culture).
- How to scale this up from yard to parcel.
- Effects of city water (chlorine, etc) on soil biology, respiration, etc. vs rainwater