

Master Gardener Training: Intro to Landscape Design • April 27, 2022

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What is a Garden / Landscape? a place, an idea, where something (an action) happens
genius loci

Garden-making is a process that combine science and art

process: observing – analyzing – creating a plan

science: knowledge of plant sciences, weather, ecology, soils, math...

art: the aesthetic combination of plants, hardscape, etc.

basic steps to planning and creating a design

- determine your needs and desires, short & long-term goals
- start with a survey or draw it or take a picture
- inventory: what's existing?
- analyze: figure out what needs to change
- what is your concept?
- draw some sketches
- create your Master Plan

Sun conditions: Full Sun: 6 + hours: east- south -west

Part Sun/Shade: 4-6 hours

Shade: less than 4 hours: dappled, dry, deep

5 considerations for the Creation and Maintenance of gardens and landscapes

1. Satisfies needs and desires
2. Functions properly
3. Fits the site
4. Enhances the quality of life for all who use it
5. Beautifies the site

PROCESS

inventory and analyze the site: observe, think, question, research

developing the concept

final plan

SCIENCE

Ecological aesthetic

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." Aldo Leopold, Foreword, A Sand County Almanac

Earth Care -- People Care -- Fair Share

Natural Vegetation of Ohio: at the time of the earliest land surveys, major vegetation types included:

beech forests

prairie grasslands

mixed oak forests

oak savannahs (periodic trees)

oak-sugar forests

marshes and fens (have trees)

elm-ash forests

sphagnum peat bogs

mixed mesophytic forests

bottomland hardwood forests

The ecology of a place: living and non-living aspects

plants: trees, shrubs, herbaceous plants, vines, "geophytes" **producers**

animals: nematodes, insects, amphibians, reptiles, birds, mammals **consumers**

soil: sand-silt-clay, nutrients, pH + complex web of living micro (bacteria, fungi, animals) & macro-organisms (plants, animals) **cyclers**

(environment: weather, history of the land, pollutants, carrying capacity, water availability, temperature, altitude, latitude, etc.)

| | | | | |
|------------------|--|-------------|----------|-------|
| Perennial | woody: | trees | shrubs | vines |
| | subshrub | | | |
| | herbaceous: | "perennial" | biennial | vines |
| | bulbs, corms, rhizomes, tubers, fibrous, tap | | | |
| Annual | herbaceous | | | |

Garden Types

Habitat

woodland: upland, bottomland, vernal pools

prairie: dry, wet, mesic,

"meadow": dry, wet, mesic (upland, midland)

wetland: swamp, marshes bogs, fens (vernal pools)

Garden

shade gardens: rock garden, rain garden, bioswales

wildflower: perennial garden, mixed garden, green roofs

wildflower: cottage garden, herb garden, rock garden

water gardens: rain garden, bog garden,

wildlife gardens: (all habitats)

The Aesthetic

ART Tools of Design: Rules of Design:

Line unity

Form repeti-ti-ti-tion

Texture BALANCE

Color dominance

scale

simplicity

the Architectural

create space • screen views • create privacy

creating rooms by enclosing space

Engineering

erosion control • climate control • sound and light moderation • CO₂ sequestration

repairing and rebuilding soil

“Ecosystem Services”: products or bonuses

From plants: * produce oxygen clean and filter water capture carbon and store (sequester) it in the ground
build topsoil and holds it in place prevent floods
convert sunlight, water and CO₂ into food climate modification: cool, divert, insulate

From animals: * provide pest control pollinate approximately 90% of Earth's flowering plants
disperse plant seeds

From bacteria, fungi, protists: nutrient cycling & waste control

how we plant and care for them: planting and pruning

B&B • Containerized plants • Bare Root

Planting Standards

improper planting (and possibly compacted soil) results in girdling roots

Pruning

To minimize pruning and your maintenance: pick the right plant...

cultivars: the landscape industry's and designer's way of "knowing" how a plant will behave in built environments

We prune:

- to maintain the natural shape of the plant
(or our perception of the natural shape or making art?)
- to control out-of-bounds growth
- to remove broken, diseased or insect damaged growth
- to correct structure
- to improve future flowering and/or fruiting by removing branches, creating a scaffold for next year's fruit
- to improve the chances of survival at transplanting time... broken, crossing, or diseased branches
- to direct or correct the growth in shade trees: weak (narrow) crotches, branch patterns
- to remove suckers and water sprouts
- to rejuvenate old, declining plants by removing older wood
- for Safety:
 - branches over buildings
 - vegetation blocking traffic related views... stop signs
 - traffic obstruction... school buses
 - mowing obstructions

When to prune... it depends

- In general, **late winter** or early spring
 - deciduous plants are dormant; late fall, early winter
 - able to see branches
 - evergreens: after 1st growth flush has hardened off
- Less desirable
 - deciduous:
 - immediately after new growth has developed in spring
 - late summer/early fall: promotes new growth
- Oaks: NOT April 1st through October 31st; oak wilt
- Damaged, dead, diseased or crossing branches should be removed when you see them

Tools

- quality tools
- keep them sharp!
- keep them clean!
- diseased plants: disinfect tools to avoid cross-contamination: alcohol wipes... 91%

hedge shears • hand pruners (bypass pruners & anvil) • loppers • pruning saws: hands and electric chainsaws
PPE!!

The Proper Cut

The collar: defense boundary

1, 2, 3 drop cut

no stub cuts • no flush cuts: defense boundary is bypassed or gone

Pruning types of Trees and Shrubs

Young trees

At planting: should be minimal

- remove dead, broken, crossing or diseased growth
- improve the main framework or shape, as to attain symmetry

Branches selected for permanent scaffolds must have wide angles of attachment

Mature trees

Cleaning the canopy: reduce conditions in the tree that could place people or property at risk; remove dead, broken, crossing, diseased limbs

Structural pruning: Increase structural integrity and encourage health and long life by pruning to one dominant leader

Strategy:

- develop or maintain a dominant leader
- identify lowest branch in the permanent canopy
- space main branches along a dominant trunk
- suppress growth on branches with bark inclusions

Thinning: reduces density of live branches in a tree while retaining its natural shape

- increases light penetration and air movement and reduces weight
- you want an even distribution of branches along individual branches
- Do not remove more than about 15 to 20% of the live foliage on a large tree at one time or sprouting may result

Human accidental pruning:

bird feeder hooks

swings/hammocks attached with rope, wire, or chain

nylon twine on a root ball left in place after planting

zip lines

Christmas lights installed and never removed

ribbon

tree identification tags attached at the nursery

Mulch

6 Reasons to Mulch

- suppress weeds
- conserve soil moisture
- buffer plants from the damaging effects of traffic and lawn equipment
- improve soil structure
- increase soil fertility
- enhance the beauty of the landscape (??)

Mulches can create problems

- fostering the growth of nuisance fungi
- harboring insect pests
- favoring plant pathogens
- depleting soil nitrogen (although in a healthy soil...)

Inorganic: crushed stone, colored glass, pebbles, etc.

- does not break down
- landscape fabric: to use or not to use

Organic: grass clippings, chipped bark, peat, leaves, manure, vegetable scraps, pine "straw", animal manures, mushroom compost, peanut hulls, composted sewage sludge and straw

- enriches soil

Depth: depends on the material and purpose

- weed suppression: 2-3"
- looser mulches can be "thicker"
- too deep, or the texture is too fine, oxygen & water may be blocked

Distance from plants

- trees and shrubs: 6-8" from trunks

issues: composting fungi, carpenter ants, voles, traps moisture

- herbaceous crowns: 6-10"

Distance from structures

- at least 1'

How to apply

- best time to spread: it depends

after first hard frost; after ground warms in late-mid spring

- soil should be moist when mulch is applied
- too much, too early in spring can keep soil cool; can rot crowns and delay plant emergence

Other considerations:

- break up the "crust" that forms after heavy rains
- reminder: cocoa hulls are poisonous to dogs and horses
- ask where your mulch originated

was it composted? added dyes? black walnut chips?

- hot mulch can kill plants
- "sour" mulch