Sustainability in Landscape Design and Maintenance

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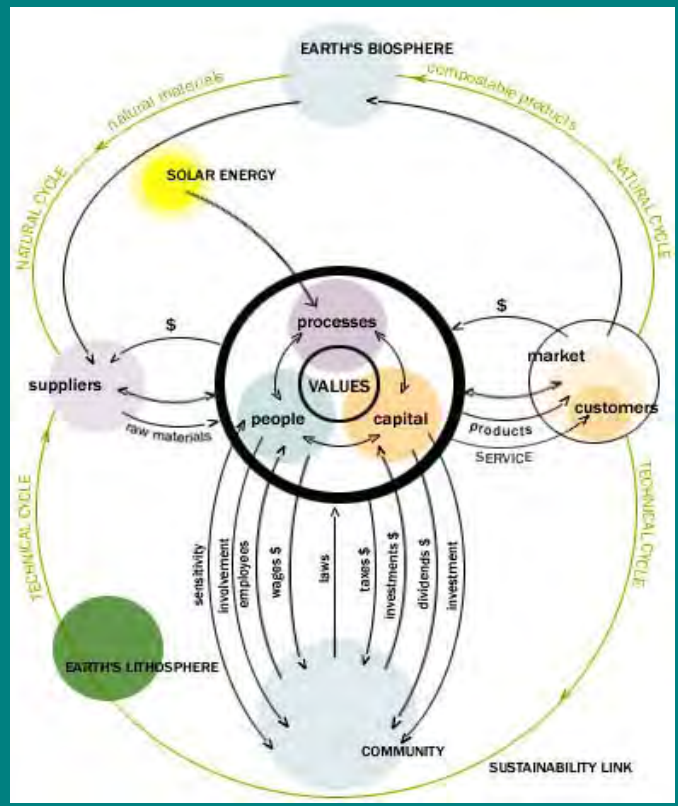
What is ‘Sustainable?’

- Being “less bad” is not enough
- Green buildings and recycling
  - Positive steps, but still not sustainable
- Sustainable:
  - Systems that support themselves over very long periods of time
  - Closed loop
  - Restorative

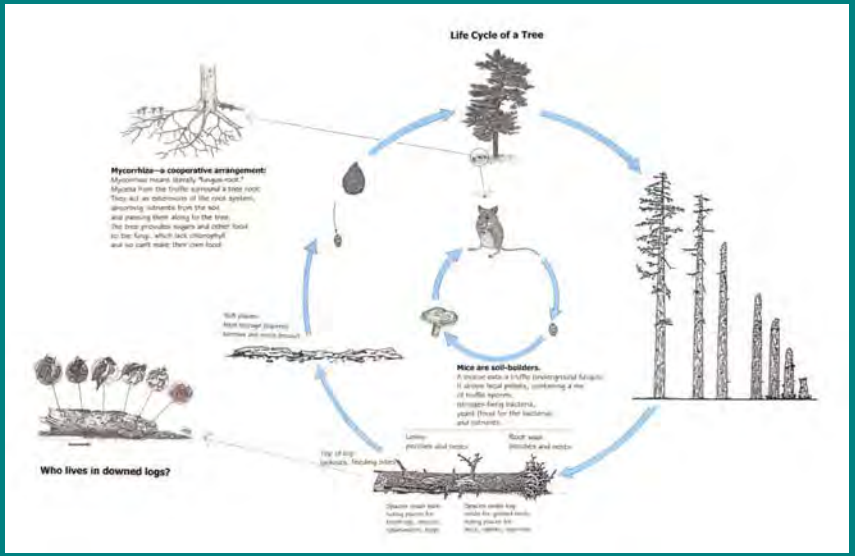


From www.interfacesustainability.com/model.html

The Basics: Building a Sustainable Landscape

Functioning Systems

- Functioning ecosystems, vs. “natural look”



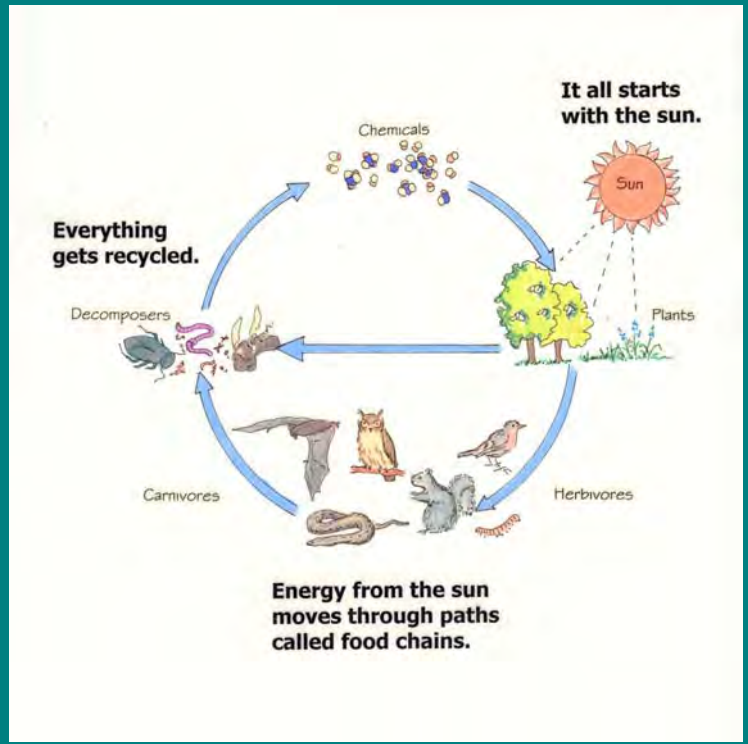
Instruction manual

The Basics: Building a Sustainable Landscape

Functioning Systems

Closed loop:

- Don’t need large inputs of water and fertilizer.
- Don’t export waste.



The Basics: Building a Sustainable Landscape

Functioning Systems

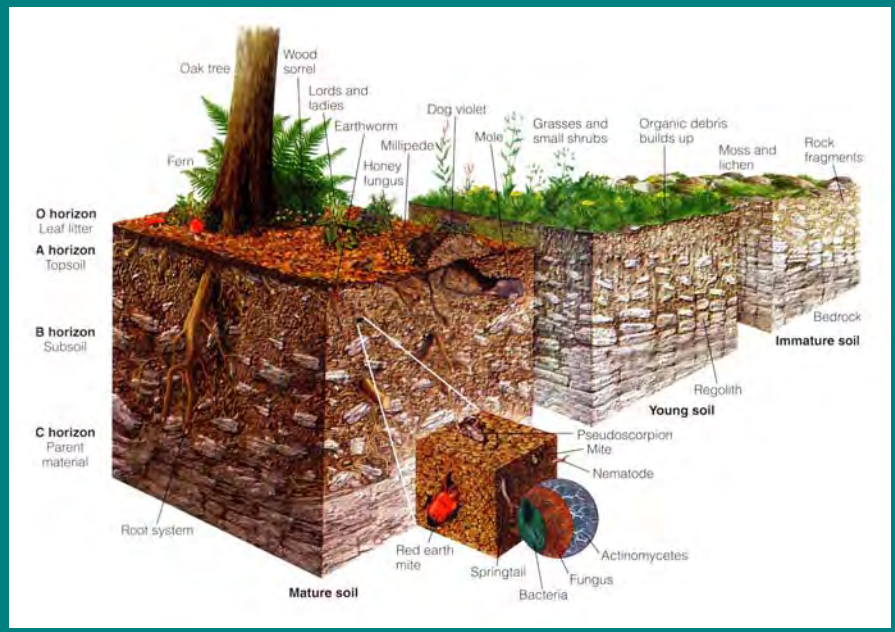
Closed loop:

- Water that falls on the site, stays on the site.

The Basics: Building a Sustainable Landscape

Functioning Systems

Closed loop:

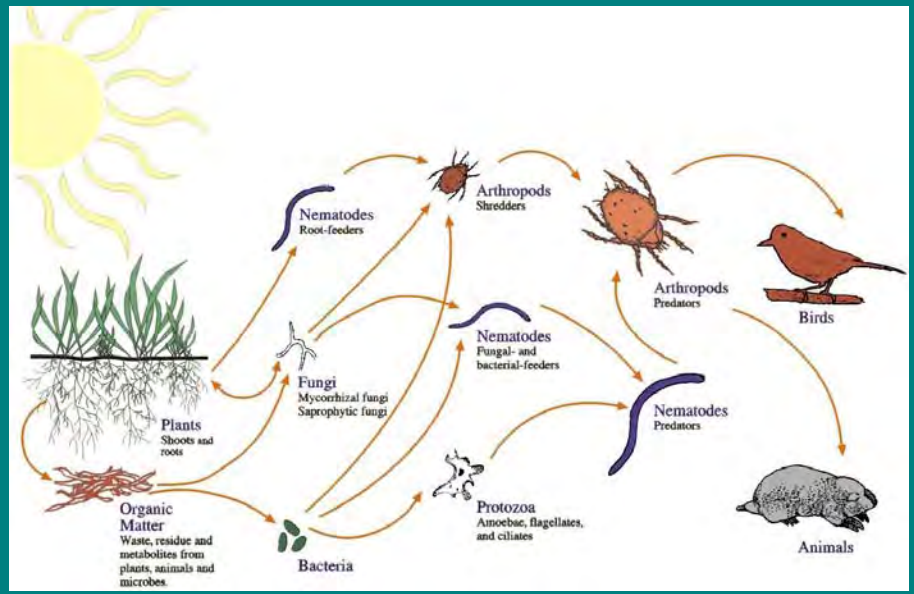


- Leaves that fall on the site, stay on the site.

The Basics: Building a Sustainable Landscape

Functioning Systems

- Everyone has a role to play.
  - It's all connected.
  - The smallest organisms are probably the most critical.
- Soil ecosystems: the most important habitat on your site



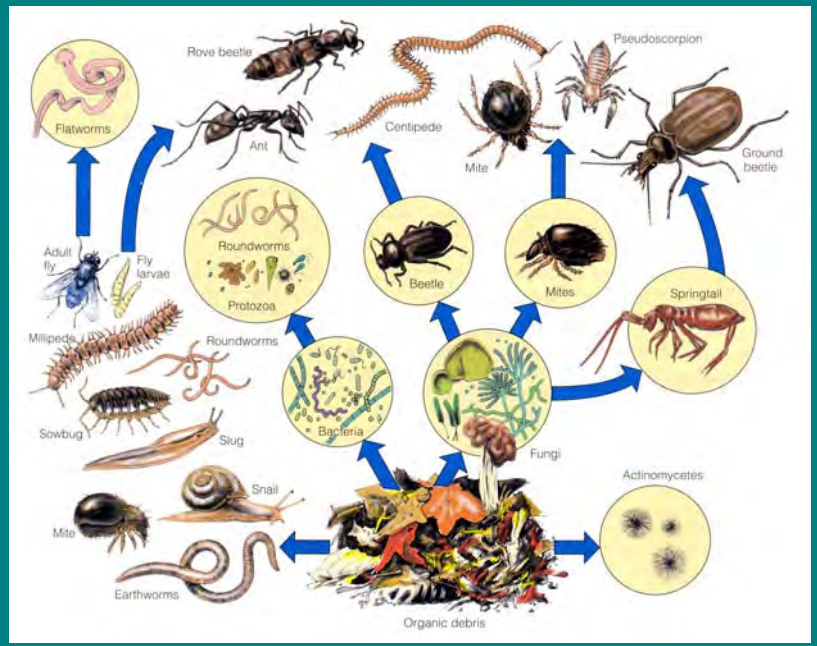
Soil is alive!

- In one pinch of healthy soil:
  - One billion organisms
  - 10,000 species of microbes
- In one handful of healthy soil:
  - More creatures than there are humans on the entire planet
  - Hundreds of miles of fungal threads

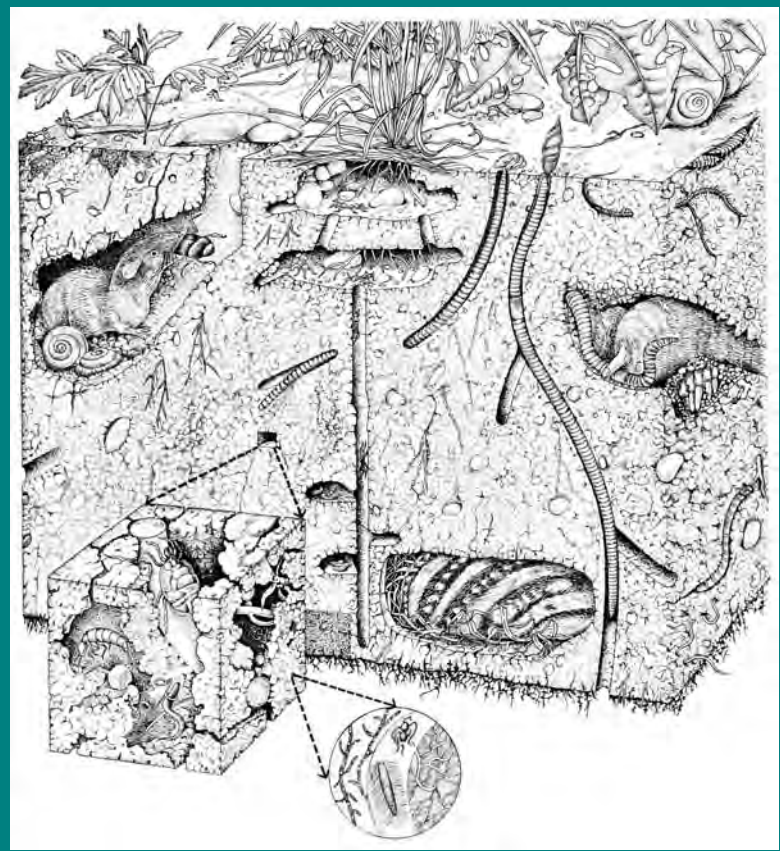
Source: National Geographic

Six groups of soil organisms

- Bacteria
- Fungi
- Protozoa
- Nematodes
- Arthropods
- Earthworms



- Each group plays a critical role.
- Each group features great diversity.



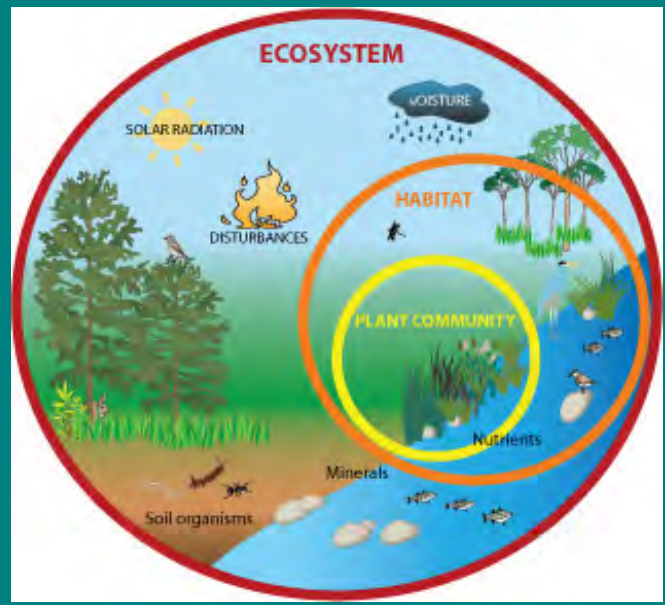
Peter Raven

Soil is not just powdered rock!

The Basics: Building a Sustainable Landscape

Plant Communities

- Macro effects – climate: temperature, water



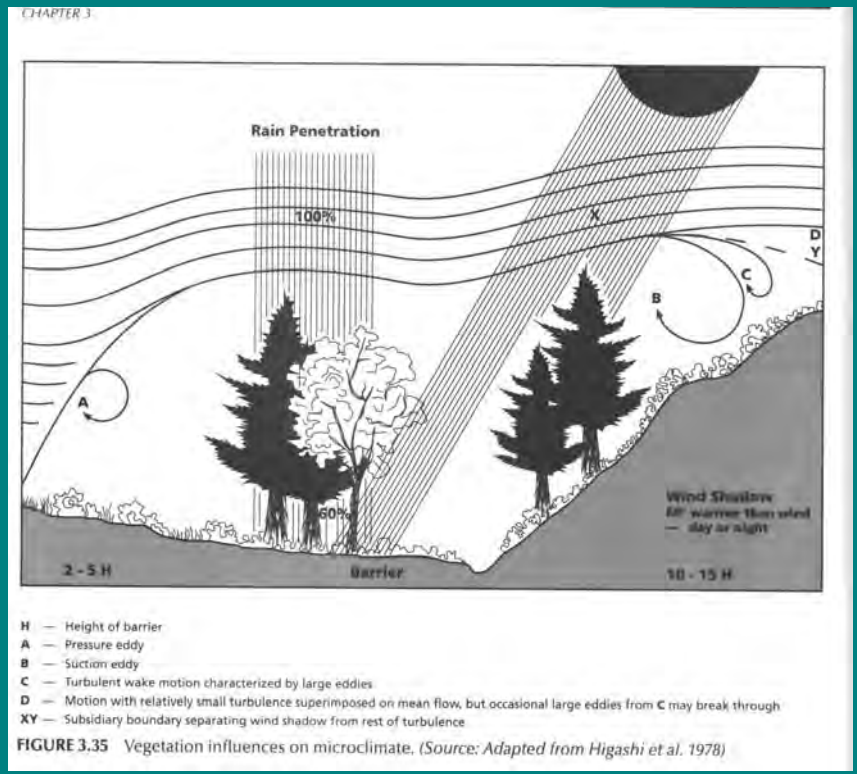
U.S. Fish & Wildlife Service

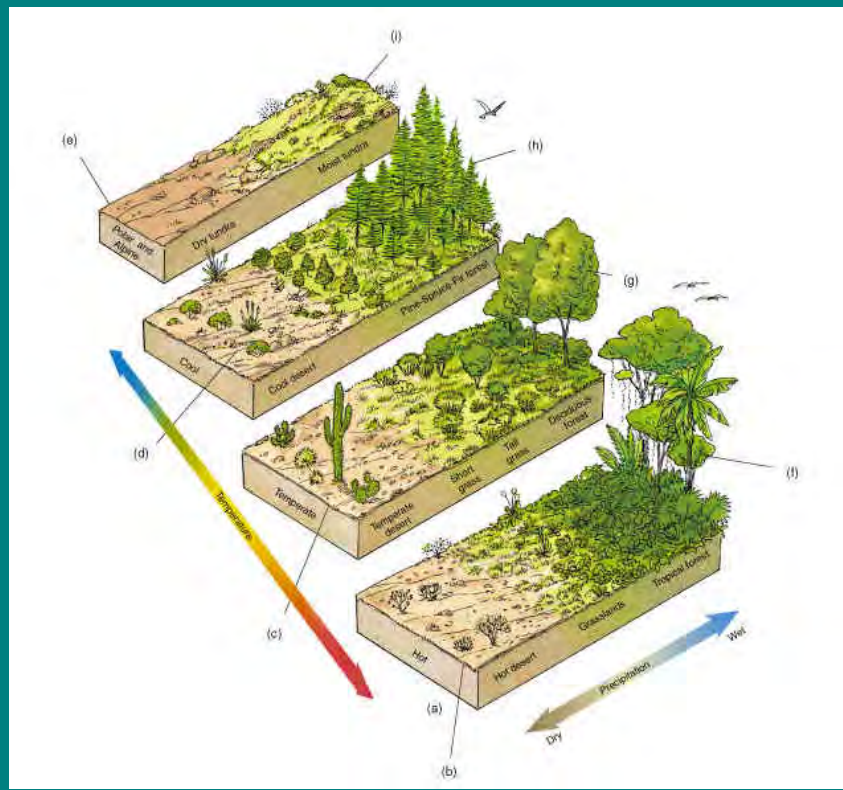
U.S. Ecoregions

The Basics: Building a Sustainable Landscape

Plant Communities

- Micro effects – soil, moisture, sun/shade





Effects of temperature and precipitation

Design: The Plant Palette

- Use regionally-adapted plants.

Design: The Plant Palette

- It doesn't have to look messy!
  - Follow good design principles, no matter what plant palette you're using.
  - Every plant is native somewhere.

Design: The Plant Palette

- It doesn't have to look messy!
  - Messy ecosystems – orderly frames

Some Choices to Make

- What plant/animal community will you encourage?

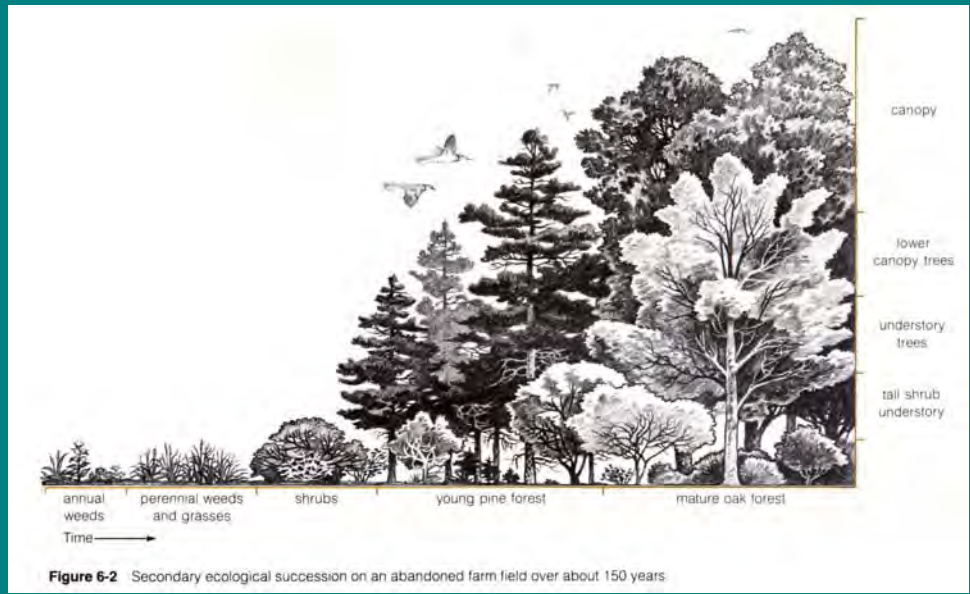
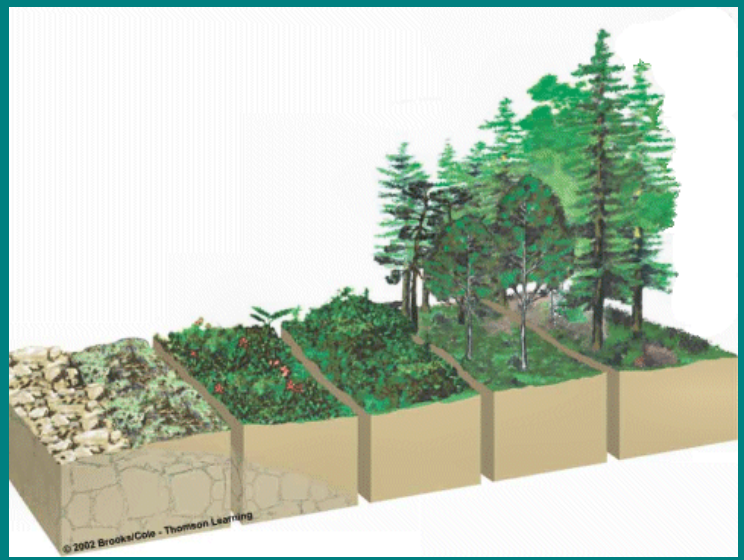


Figure 6-2 Secondary ecological succession on an abandoned farm field over about 150 years

Some Choices to Make

- Do you want to let the system evolve?
- Do you want to represent a particular stage of succession?



What You Need

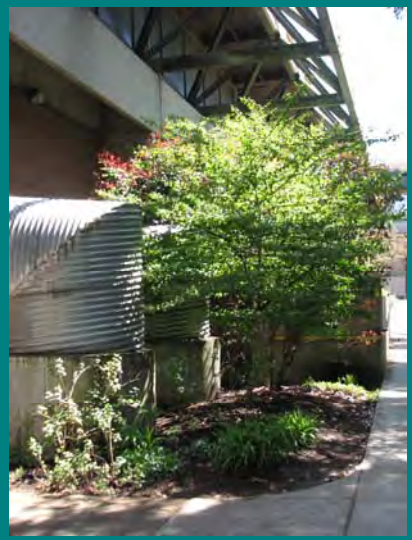
- Support of the institution
  - Additional staff?
  - Reduce tasks for existing staff?

What You Need

Communication and PR

- Help people understand what you are trying to accomplish.
  - Why does it look different?
  - We are used to manicured landscapes.
- Newsletters are one strategy.

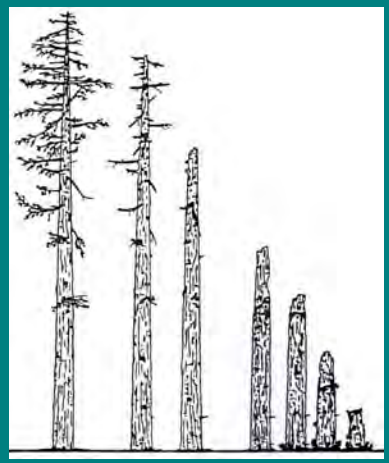
What You Need



- Right plant, right place

What You Need

- Not just a sustainable landscape – a habitat for wildlife



What You Need

- Thorough site preparation

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- Weed control: the biggest issue
- One person’s weed is another person’s flower.

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- Minimal pest control
- Health soil, healthy plants

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Mulch

- Practice mulch mowing.
- Leave forest litter in place once plants fill in.

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Irrigation

- Take advantage of Class IV water

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Lawns

- Diverse lawn vs. monoculture
  - If it's green and mowable, it's a lawn.
- Let lawns go dormant in summer.
  - Lower water use
  - Less CO_2 emissions
  - Reduced thatch problems

Questions?

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