



The UCONN Extension
Sustainable Landscaping for Water Quality
Series

*Protecting our Lakes and Rivers
through Sustainable Landscaping*

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Connecticut's Land Use Changes



Between 1940 and 2000 there have been significant changes to the Connecticut landscape from expanded residential land use development

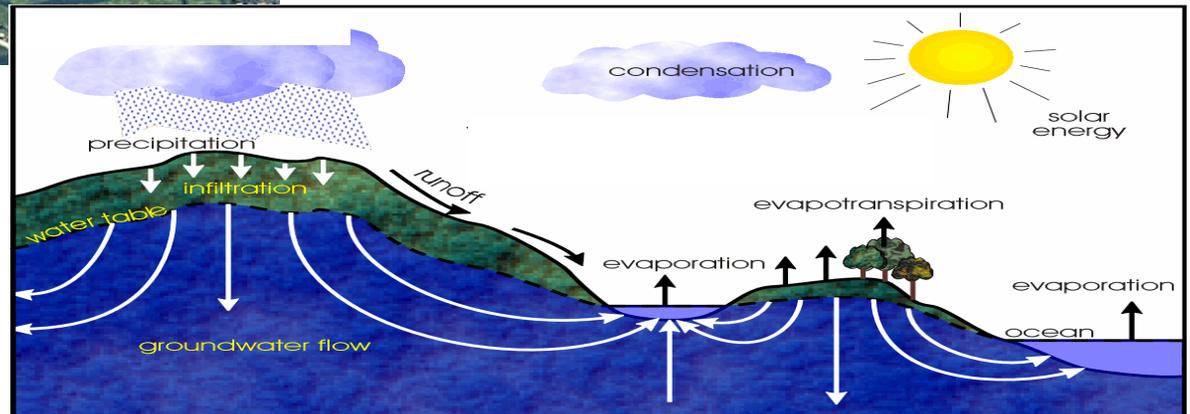
Sustainable Approaches Needed

Traditional landscape practices associated with such development have impacted natural ecosystems in a variety of ways, including water quality.

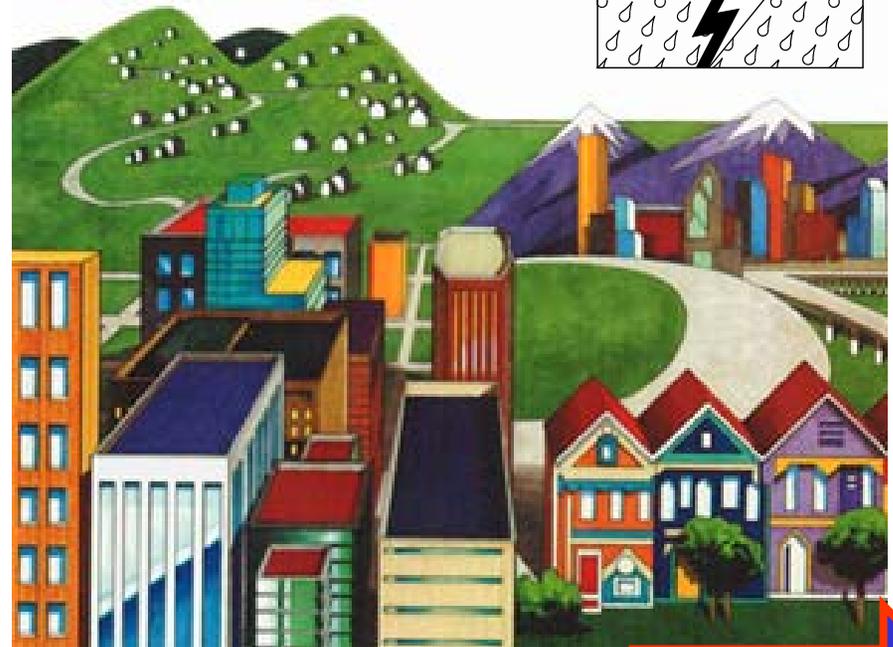
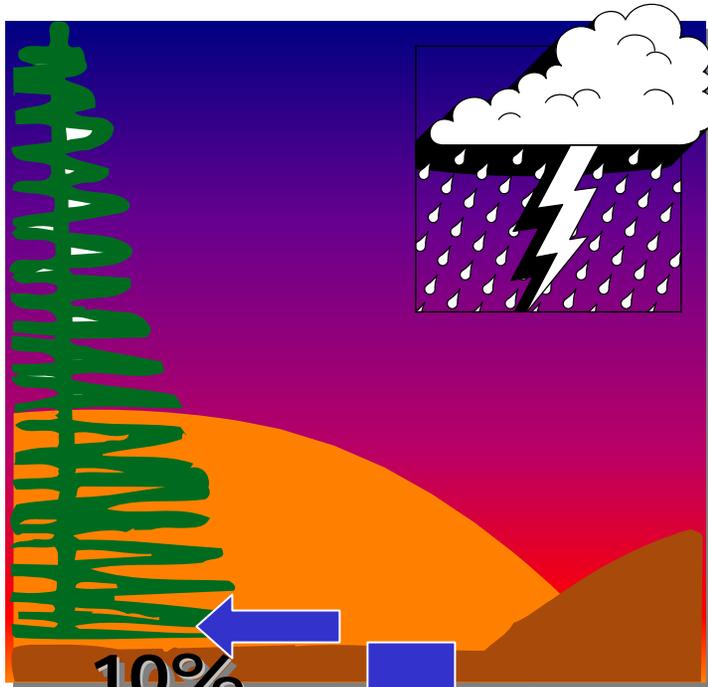
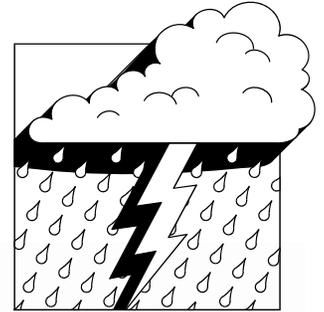
Every home is part of a larger LANDSCAPE...



... connected by the **WATER CYCLE**



Development Impacts on the Water Cycle



Nonpoint Source Pollution

- *No single “point source”*
- *Water washing over land*
- *Picks up pollutants*
- *Storm drain – UNTREATED - water*
- *We all play a role in prevention*

Residential Landscape Practices that Contribute Pollutants

- *Fertilizer and pesticide use*
- *Landscape design and management*
- *Watering practices*
- *Yard waste management*
- *Soil stabilization*

Steps to Developing a Sustainable Landscape

- *Site design*
- *Plant selection*
- *Landscape management*

Site Design



*Understand what you have on the site and
work with the landscape*

Plant Selection



*Select and use plants that are appropriate
for the location*

Landscape Management



*Manage the property by utilizing
natural principles*

Site Design

It is Important to Look at

- Existing topography
- Water flow across site
- Soil drainage
- Sun/shade exposure



Site Design

Protect creeks, drainage swales, storm sewer outlets and wet areas



- *Manage runoff and pollution from impervious surfaces*
- *Use buffer zones to intercept and filter pollution in runoff*

**For site design, consider these categories
of the landscape
when making plant selections**

- *Lawn*
- *Ornamental beds*
- *Perennial beds*
- *Vegetable gardens*
- *Hardscapes*
- *Natural areas*
- *Water/wetland areas*

Site Design
Lawns



**Think about ways to reduce the
lawn area**

Dark green turf not best



- *Not healthiest*
- *Less able to endure stress*
- *Prone to disease*
- *Increased nutrient loss*

How do most of us stack up?

Cardinal Rules for Lawns

- Mow lawn around 3” high
- Recycle grass clipping
- Limit P and N applications, know size of lawn area, and calibrate the spreader
- Test soil
- Keep fertilizer and clippings off hard surfaces

Survey Results

- *Grass cut at 2”, not 3”*
- *Half remove clippings*
- *Fertilizer not accurately applied as don’t know nutrient needs or size of lawn area or unable to calibrate spreader*
- *Soil not tested*
- *Clippings and fertilizer often left on hardscapes*

Plant Selection

Common Grass Species

A typical lawn is a mix of grasses

Types of Grasses

*Demand Level**

Kentucky bluegrass

High

Perennial ryegrass

High

Fine Leaf fescues

Low

Turf-type tall fescues

Low

**Nutrients, water, sun*

Major Water Quality Concerns are Nitrogen (N) and Phosphorous (P)

Phosphorus an issue especially near a lake



Provide only that amount of nutrients from fertilizers that is required by the grass

Apply based on soil test. May not need apply any.

Phosphorus (P)

- *Native soil provides P to plant roots*
- *Phosphorus needs by grass plants are limited – most important when starting new lawn for root development*
- *If recycle clippings will reduce and eventually eliminate need to add P*

Nitrogen (N)

- *Nitrogen affects turf growth and quality – especially color*
- *Normally add 2 – 4 lbs of N per 1,000 square feet*
- *The more N applied, the greater chance for loss to ground and surface water*

Fertilizer Formulations

- *Soluble (fast release) vs insoluble (slow release)*
- *Most home lawn fertilizer is soluble (fast release)*
- *Organic fertilizers are insoluble (slow release)*



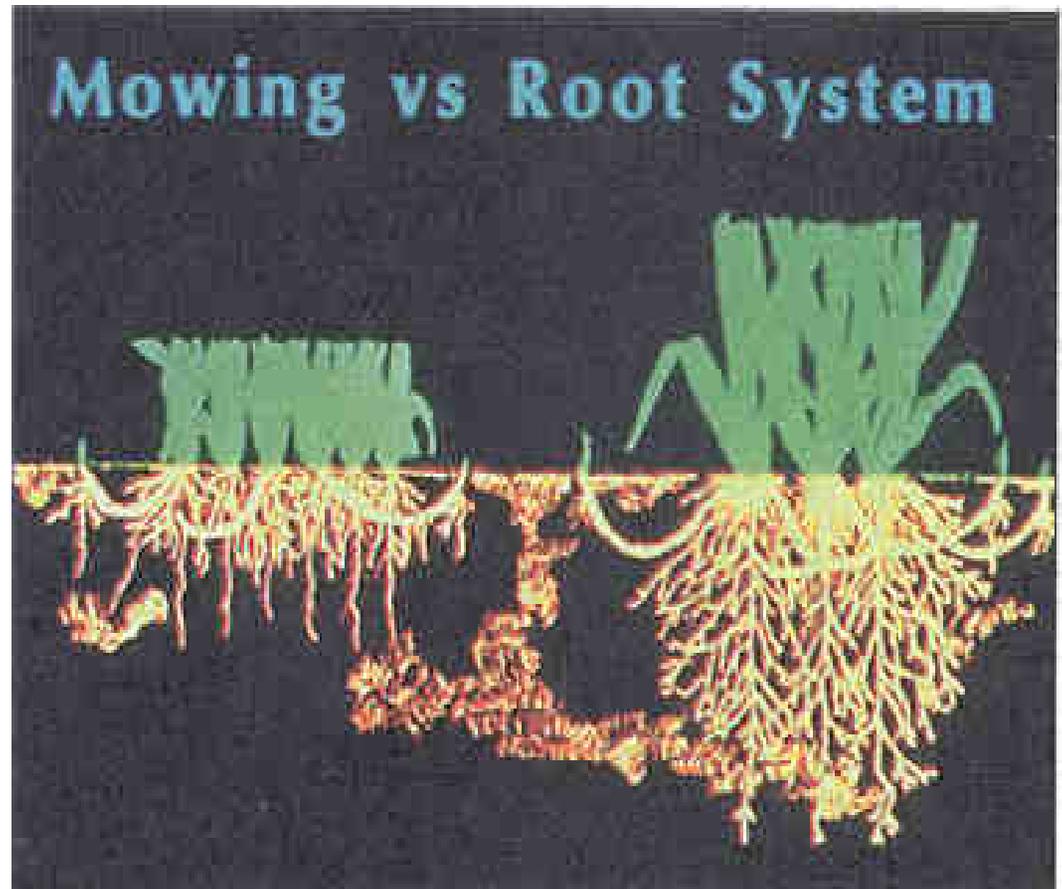
Know the size of the lawn! Read the bag!



- *Know the size of the lawn in square feet as the bags of fertilizer tell you how many feet the bag will cover*
- *Recycle clippings and cut the application rate in half*

Mowing

- Mow 1/3 height per mowing
- Keep balance top and roots
- Return clippings for nutrient recycling
- Clippings don't cause thatch



Non-Lawn Site Design and Landscape Management Approaches

- *Ground covers*
- *Shrubs in understory*
- *Non-grass buffers at waters/wetlands edge*
- *Shrubs on steep, dry slopes*
- *Native species/fruit bearing plants in wildlife enhancement clusters*

Plant Selection and Landscape Management

Ground Covers



- *Slows stormwater runoff*
- *Improves infiltration of water into soil*
- *Reduces landscape maintenance labor, costs and materials*

Plant ground covers on steep slopes, wet or shady areas and easily erodible sites, and next to surface water areas

Plant Selection

Ground Covers



Pachysandra

English Ivy



**Low Growing
Junipers**



Plant Selection

Xeriphytic (Drought-Resistant) Plants

Reduces need for supplemental water



Hostas



Black-eyed Susans

Ornamental Grasses



Plant Selection
Xeriphytic Plants

Shrubs - Junipers



**Trees –
Cornelian Cherry**



Trees – White Pine, Conifers

Plant Selection

Native Plants



Native plants are species that have thrived under local conditions without human help for thousands of years



Native plants generally require little in the way of water, fertilizer, or pesticides to provide a beautiful natural looking landscape.

Plant Selection
Native Species



Native Shrubs – Blueberry



Shadblow



Red Chokeberry

Plant Selection

Disease and Insect Resistant Plants

No plants are totally resistant; however many are less prone to insect and disease damage



Ferns



Blue Holly



Shrubs - Smokebush

Landscape Management

Evaluate How You Manage Your Yard



Reconsider your routines to identify good, environmentally-friendly ideas.

Landscape Management

Soil

Source of Nutrients

- Soil is a source of nutrients and water
- Location of **nutrient recycling** and microorganism/earthworm activity

Most Connecticut Soils Have Good Properties

- Water-holding capacity
- Permeability
- Nutrient-holding capacity
- Root penetration
- Workability of soil

Soil Testing Kits

- Tells nutrient content of soil (P, K, Ca, Mg)

- Suggests ways to correct deficiencies via fertilizer and lime additions

- UConn sells soil test kits @ \$5/kit

(<http://www.canr.uconn.edu/plsci/stlab.html>)

ab.html

Landscape Management
Try Natural Landscaping



*Naturalize a portion of the yard to
reduce maintenance and contribute to
a richer ecosystem.*

Landscape Management

Landscape the Border of Your Yard



Perimeter plantings provide a convenient place to recycle tree trimmings, leaves and garden debris.

Landscape Management

Select Plants for Proper Size and Vigor



Reduce trimmings by selecting dwarf varieties and plan for mature tree and shrub height.

Landscape Management

Plant Ground Covers



Reduce impractical lawn areas (steep slopes, shady areas, low spots) and keep tree roots moist and cool.

Landscape Management

Use Organic Mulches



Recycle leaves, wood chips, grass clippings and other yard trimmings as mulch to retain soil, moisture, reduce weed growth, moderate soil temperatures and reduce soil erosion.

Landscape Management

Use Leaves as a Resource



Shredded leaves can be recycled as an organic nutrient source for the lawns

Landscape Management
**Fertilize Conservatively and
Carefully**



*Soil test to avoid excessive growth
that contribute to yard waste.*

Landscape Management

Manage Lawn areas Wisely



*Recycle nutrients by leaving clippings
on the lawn*

Landscape Management

Create a Compost Pile or Bin



*Compost can be used to improve soil
in the garden and conserve water*

Landscape Management

**Direct Downspouts into Planting
Beds or Lawns**



*Redirecting this resource can help to enhance
plant growth and reduce water pollution.*

Landscape Management

Collect and Store Rainwater



Collect rainwater from a limited roof area for later use in the garden, thereby encouraging plant growth.