

Landscape Choices for a Changing Climate ~ Climate-wise best practices

The Mayflower Point Association and
Orleans Pond Coalition

July 14, 2023

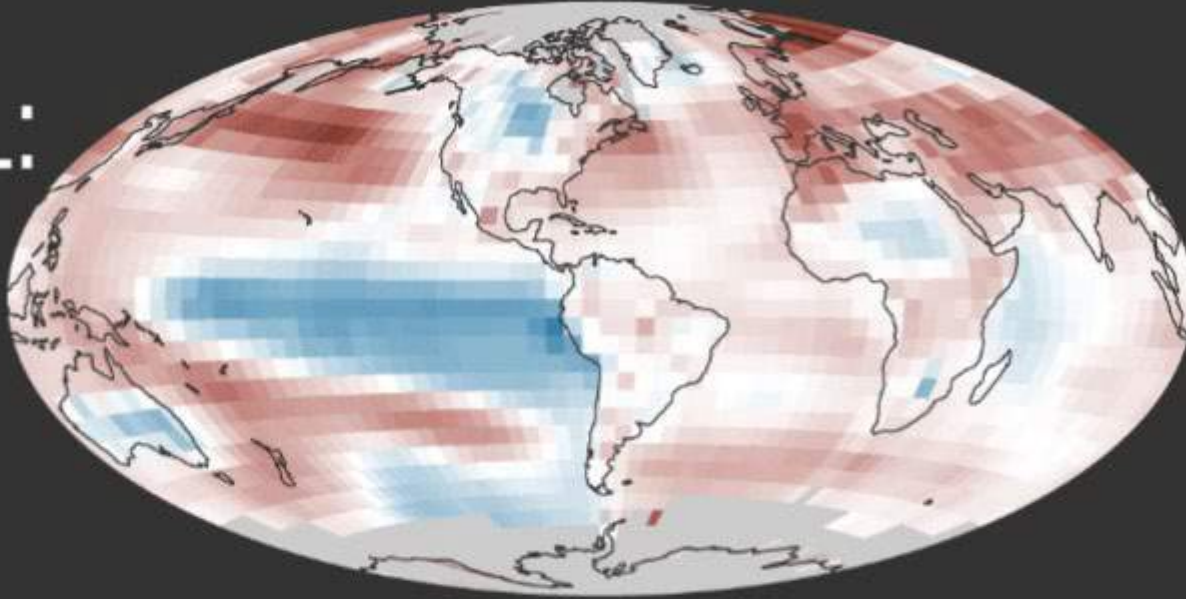
Kristin Andres

APCC Associate Director for Education



IT'S OFFICIAL:

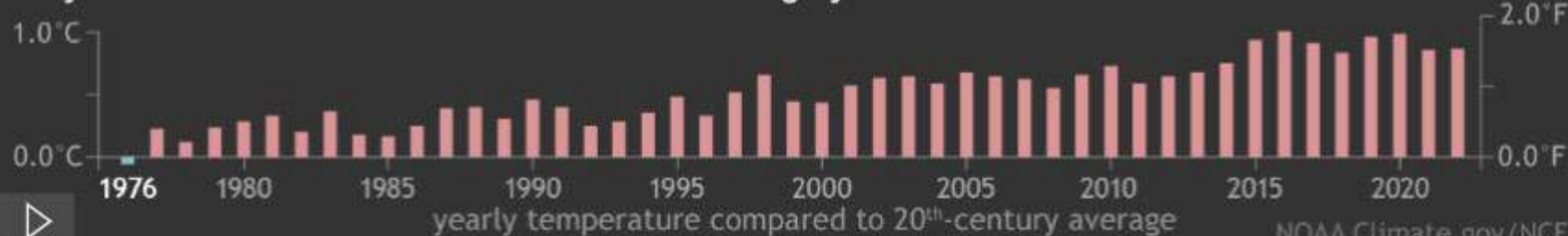
2022 WAS WORLD'S
6th-WARMEST
YEAR ON RECORD
[1880-2022]



Difference from 1991-2020 average (°F)



46 years since Earth's had a colder-than-average year



Global ocean heat content (OHC) hit a record high in 2022.

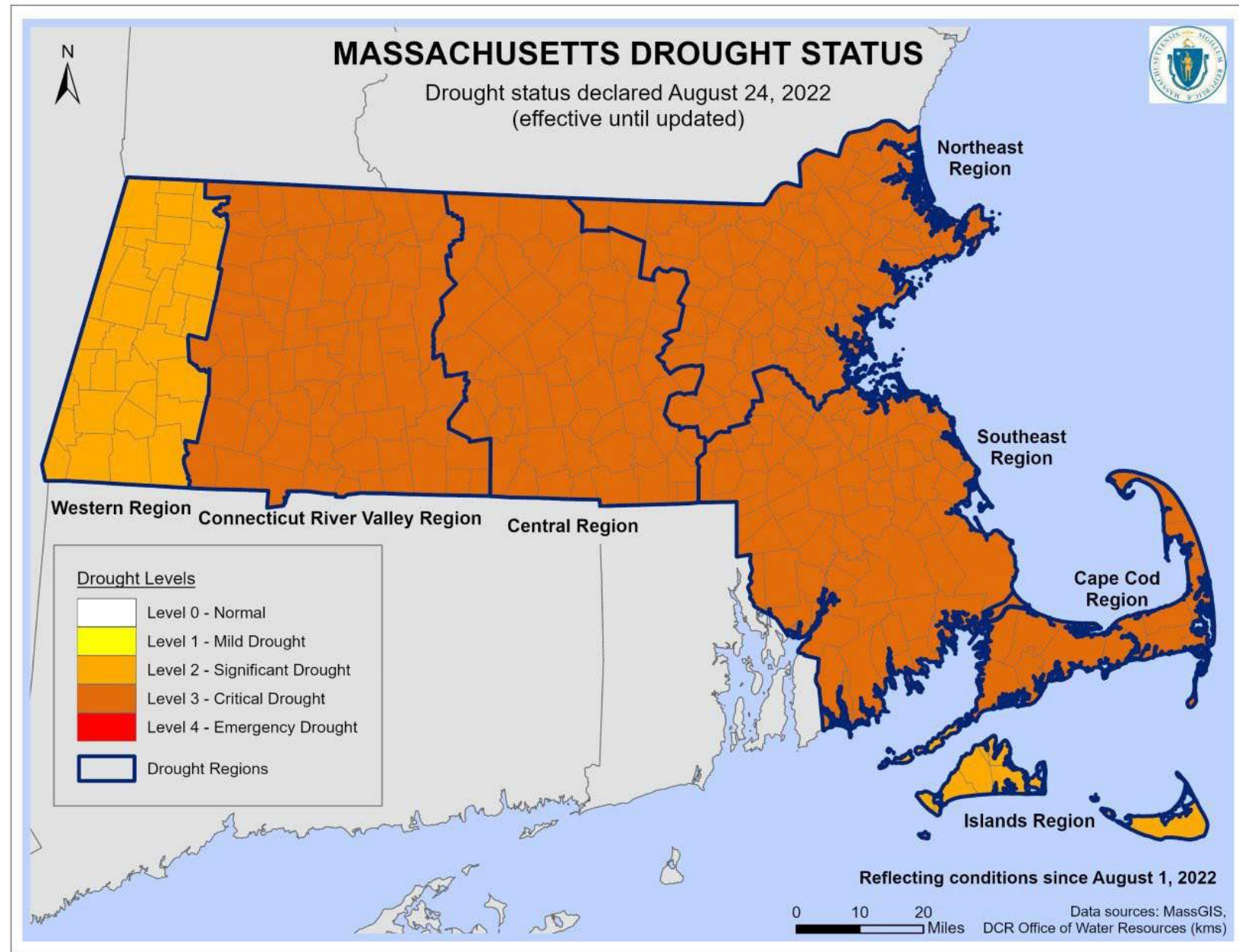
In February, extent of Arctic sea ice was third smallest on record.

Earth just had its second-warmest March on record.

Antarctic sea ice coverage for March 2023 ranked second smallest recorded.

Impacts of Climate Change

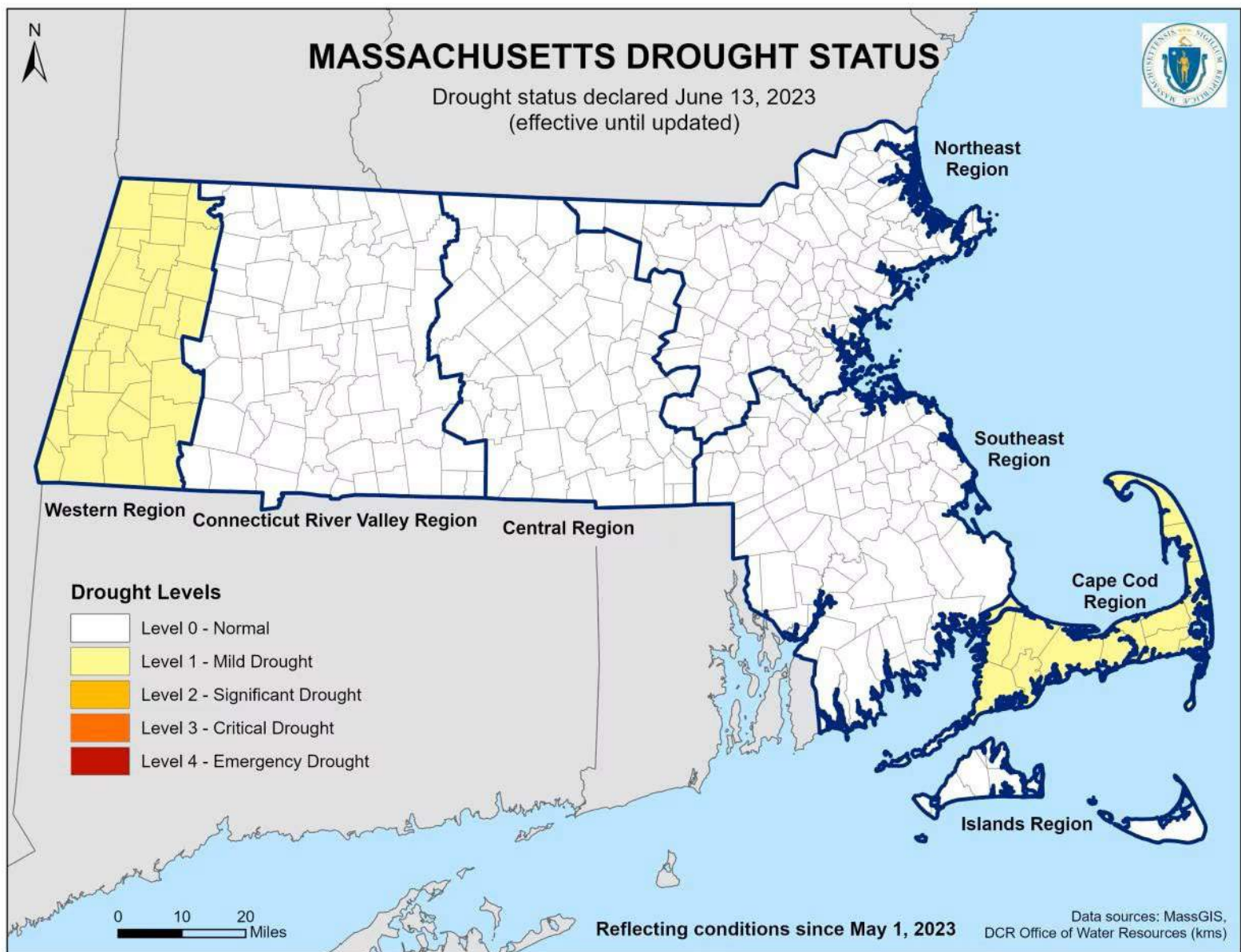
- Heatwaves
- Drought
- Wildfires





HARWICH WATER DEPARTMENT DROUGHT ACTION LEVEL RESPONSES		
ACTION LEVEL	RESPONSE	FREQUENCY OF MONITORING
NORMAL	NORMAL WATERING CONDITIONS	
ADVISORY	VOLUNTARY WATER RESTRICTIONS ODD/EVEN DAYS	
WATCH	MANDATORY: ODD/EVEN LAWN WATER & OFF-PEAK HOURS	X
WARNING	MANDATORY: 2 DAY PER WEEK OUTDOOR USE & OFF-PEAK HOURS	
EMERGENCY	MANDATORY: BAN ON ALL NON- ESSENTIAL OUTDOOR WATER USE	

Scituate Reservoir, Scituate, MA - photo by Qainat Kahn for WBUR, 2016





Increased storm intensity

Frequent flooding

Mitigation, Adaptation & Resiliency

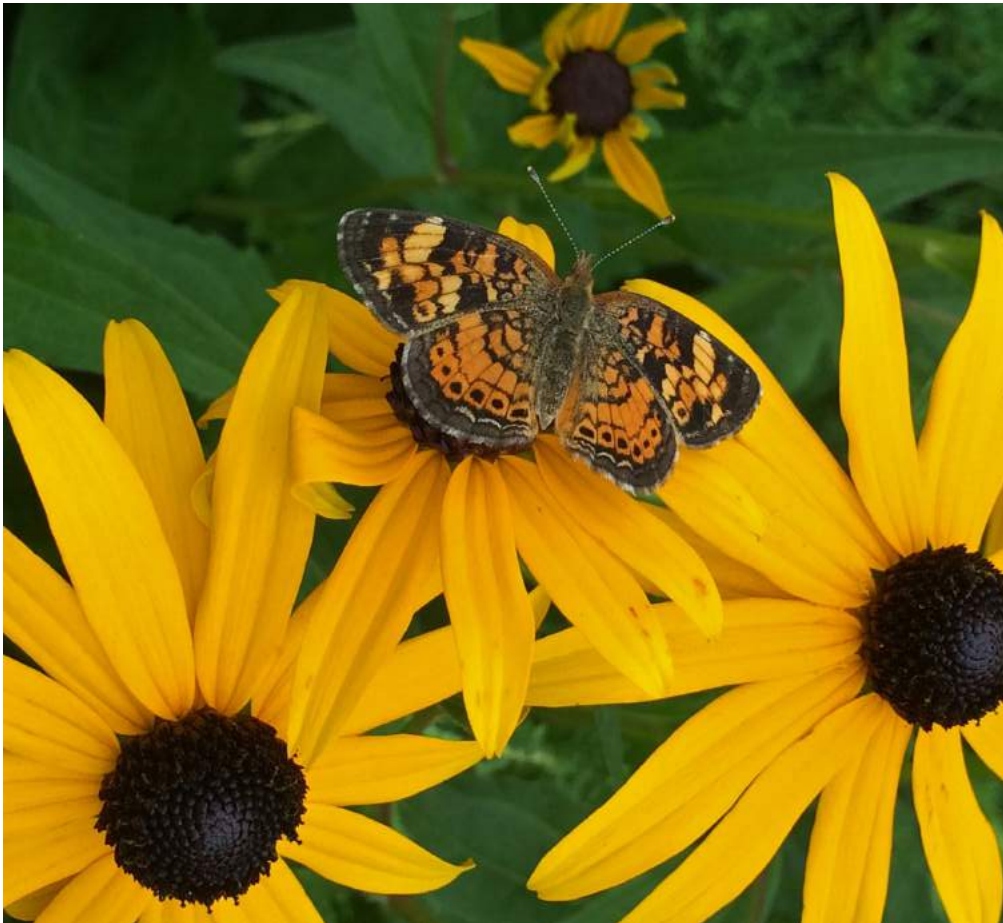
- **Mitigate** – take steps to reduce carbon release into the air
- **Adapt** – make adjustments in behavior, practice and design to deal with changes in our environment to build resiliency.
- **Resiliency** – the ability to bounce back after difficulties



Cumulative Impact of Our Actions

“Every garden matters, every landscape counts.”

— Grow Native Massachusetts





Trees

Energy Saving

- *Cool (temps) up to 10°F by shading our homes and streets and releasing water vapor*
- *Reduce your household's heating and cooling by up to 25%, saving between \$100 and \$250 in annual energy costs.*

Carbon storage

- *In one year, an acre of mature trees absorbs the amount of carbon dioxide produced by a car driven 26,000 miles.*

The Cape lost more than 2,300 acres of forest cover between 2001 and 2011, with 70% of the loss replaced by development. (Cape Cod Commission)



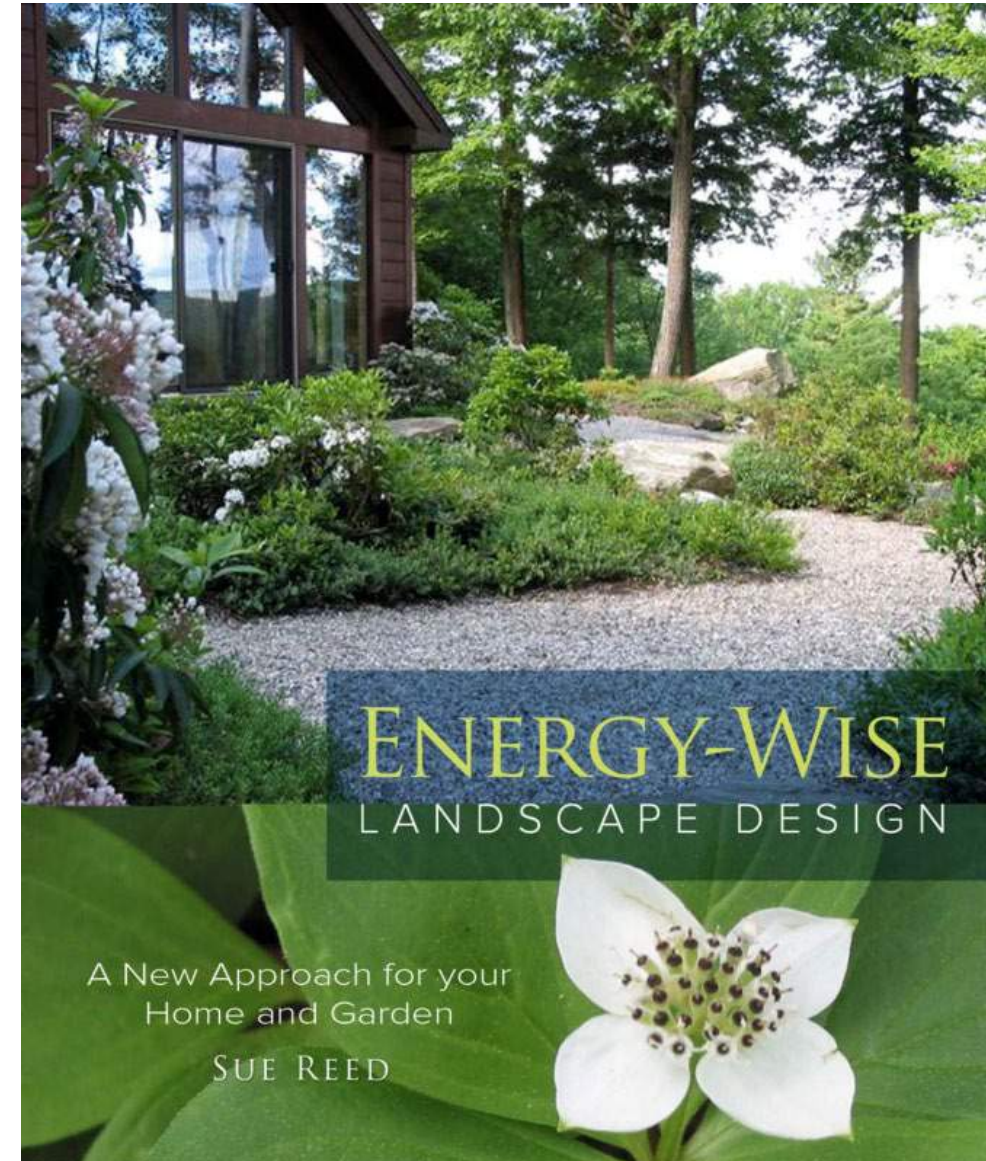
Design Considerations

Plant deciduous trees to the south and west to keep your house cool in the summer and let the sun warm your home in the winter, reducing energy use. (U.S. Department of Energy)

Plant a windbreak to the north and south with evergreens or a hedgerow. Leave wild areas.

Plant to shade air conditioners—they'll use less electricity. A unit operating in the shade uses as much as 10% less electricity than the same one operating in the sun. (U.S. Department of Energy)

Plant for the future – anticipate loss of trees to disease, storms, natural plant succession.





Other values of TREES

- Air quality
- Water quality, groundwater recharge
- Soil porosity & flood control
- Soil stabilization
- Wildlife habitat
- Reduce urban crime
- Community project
- Increase in property value
- Contribute to our quality of life

https://depts.washington.edu/hhwb/Thm_Crime.html;
<https://www.arboday.org/trees/index-benefits>

Our Green Infrastructure





What can you do?

- Plant more trees.
- Preserve existing trees.
- Advocate for trees.
- Support or start your own
“Friends of Trees”
(FriendsofTreesChatham.org)
- Support a tree ordinance in
your community.

AVOID THE HEAT SINK

Moderate Temperatures
on Your Site

- Use “Cool Pavement” on driveways – light colors, grass strip, shell, native stone
- Minimize heat-holding stonework



40 million acres of lawn in the U.S. - about the size of New England.

Nationwide, landscape irrigation is estimated to account for nearly one-third of all residential water use.

Lawn industry is largely fossil fuel-based – fertilizer production & gas-powered equipment for maintenance.

Maintenance Choices



One new gas-powered lawn mower produces as much air pollution emissions in one hour of operation as 11 new cars being driven for one hour. (EPA)

A 4-stroke leaf blower 13x's more carbon emissions than that of a 2011 Ford Raptor pickup, and a 2-stroke leaf blower was 23 x's more.

OR

Green Equipment Movement





Reduce lawn area to what you need.

Think “throw rug” instead of “wall to wall carpeting.”

Make it a Cape Cod lawn – it’s a thing! No fertilizers or pesticides. A Cape Cod lawn is not irrigated and goes dormant in the summer. Virtually anything that grows is okay, including clover, moss, violets.

Mow less often.

Lawn Alternatives

- Wild Strawberry – *Fragaria virginiana*
- Appalachian Barren Strawberry - *Geum fragarioides*
- Pennsylvania Sedge – *Carex pensylvanica*
- Golden Groundsel – *Packera obovata*
- Bearberry - *Arctostaphylos uva-ursi*
- American Ginger – *Asarum canadense*
- Hay Scented Fern - *Dennstaedtia punctilobula*
- Prairie Dropseed - *Sporobolus heterolepis*
- Purple Lovegrass - *Eragrostis spectabilis*
- Foam Flower – *Tiarella cordifolia*





Pennsylvania Sedge


Meadow



Avoid churning the soil.

Try sheet mulching for conversion of lawns to planted areas.



A photograph of a landscaped garden bed. The bed is filled with a thick layer of reddish-brown wood mulch. Several plants are scattered throughout, including a large, feathery ornamental grass in the center, and several flowering shrubs with pink and red blossoms. To the left, a green lawn borders the mulched area. In the background, a dark wooden fence runs along the edge, and behind it, a red building with yellow bollards is visible. The scene is brightly lit, suggesting a sunny day.

Decorative Landscapes Inc.
Landscape Rejuvenation Project

Instead of
making wood
mulch the
star of your
landscape...



opt for living green mulch.

A lush garden scene with various plants. In the foreground, there's a bush with green leaves and clusters of small red berries. Behind it, several purple flowers with dark centers are visible. Green ferns and other foliage fill the background, creating a dense, vibrant garden. The right side of the image fades into white, where the text is located.

More Plants! More Plants!

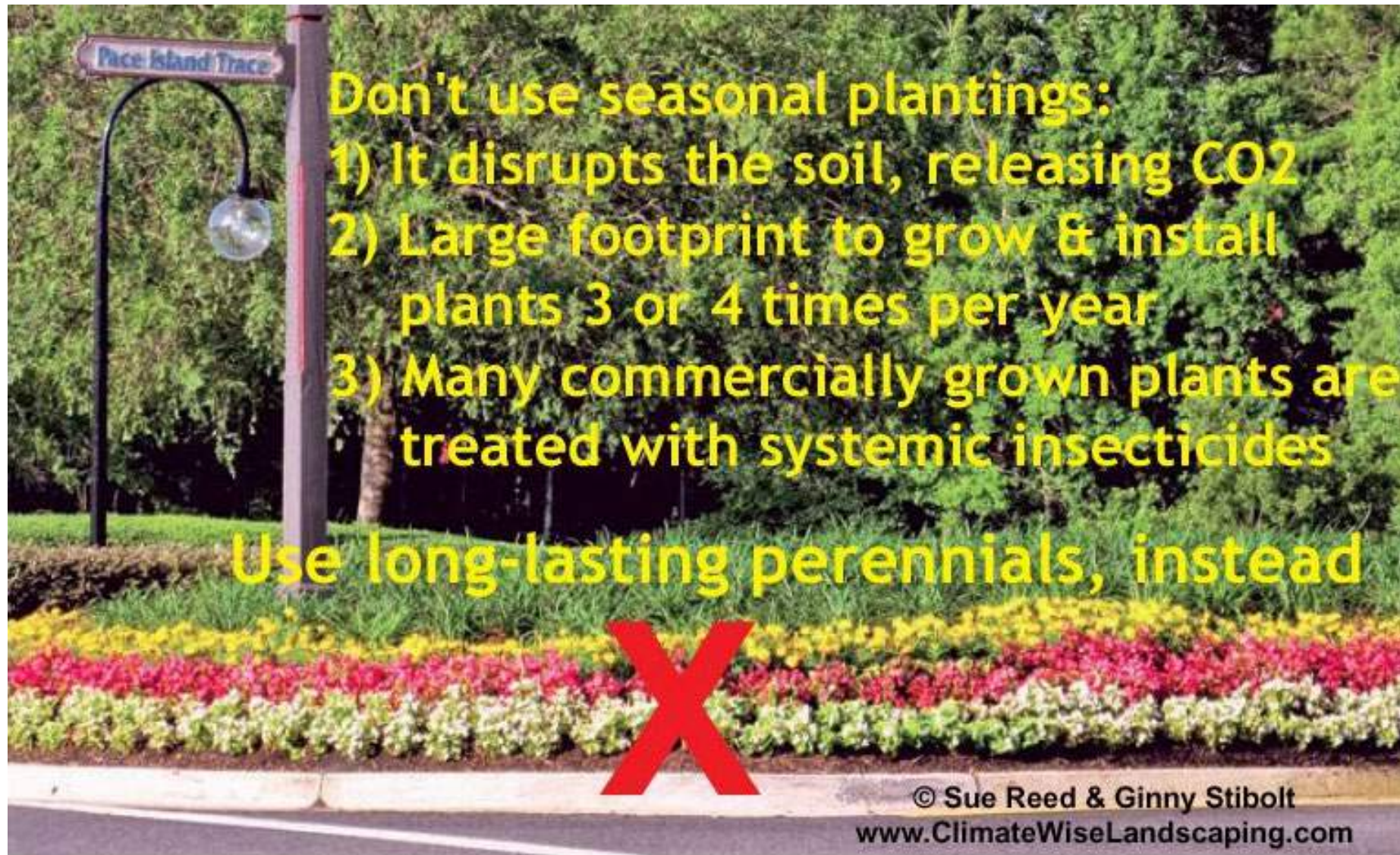
Ecosystems high in biodiversity are stable and resilient.

Same goes for our landscapes.



- Choose plants with similar cultural requirements that suit the site and the existing soils.
- Allow plants and the living soil to form a thriving, long-term community.
- It reduces need for weed control, just "editing."

Something to think about...skip the annuals.



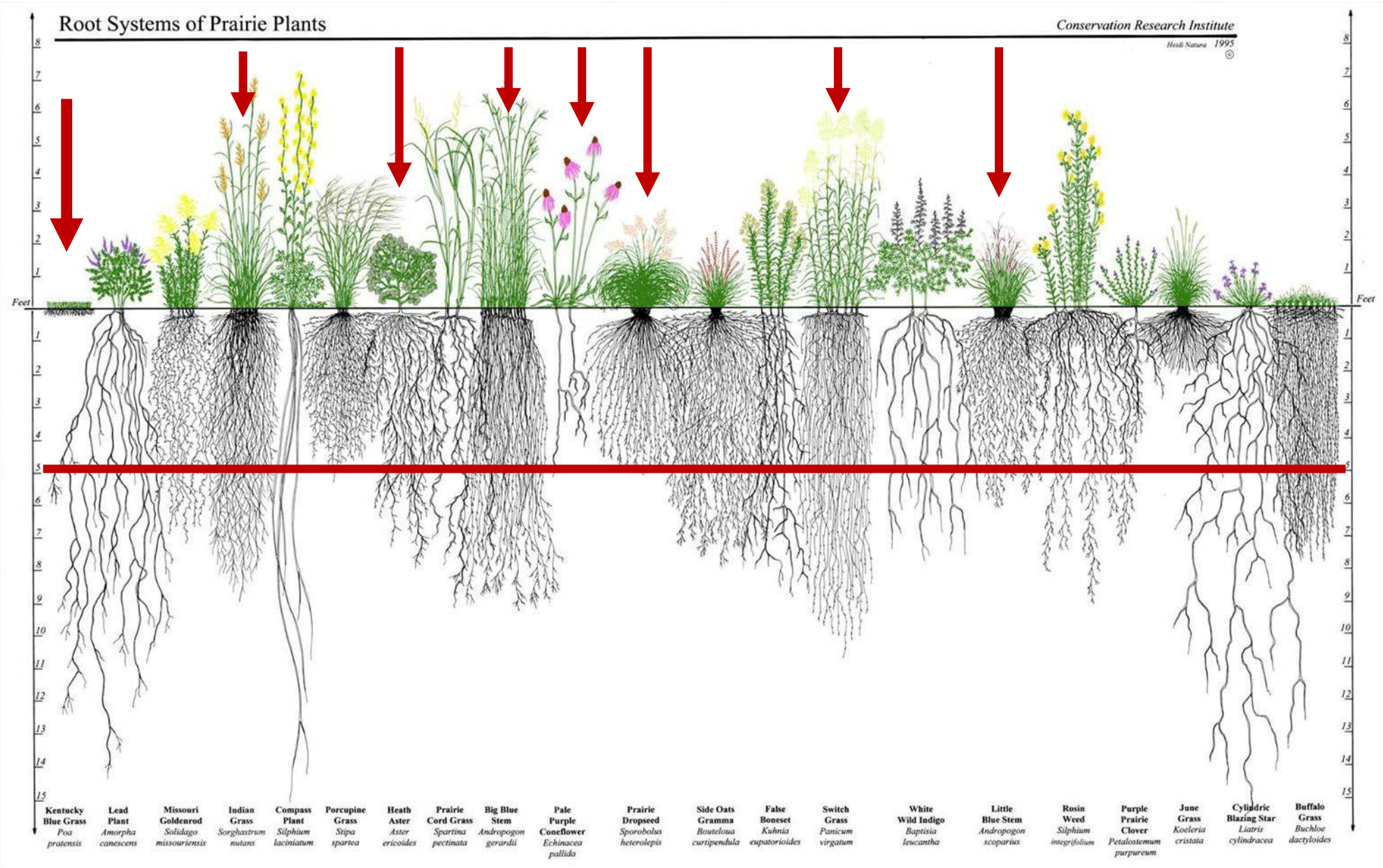


Native Species – *the true proven winners*

- Well-adapted
- Drought & salt spray tolerant
- Require **no soil amendments**
- Support local ecology
- Deep-rooted
- Beautiful
- Not fussy
- Provide a “sense of place”



Roots





Native plants
support pollinators,
birds, and local
food webs.



CapeCodNativePlants.org



CHOOSE THE PERFECT PLANT

This online tool is designed to help you find the native plants best-suited for specific sites that provide the greatest ecological function and benefit, and that will also complement your Cape Cod landscape design. Using the dropdowns below, you have the ability to find plants based on these six criteria: Plant Type, Sunlight, Soils, Bloom Month, Size, and Nature Benefits. Based on your choices, the results will automatically populate.

SEARCH

search by common or scientific name then press ENTER

PLANT TYPE

Choose an Option ▼

SUNLIGHT

Choose an Option ▼

SOILS

Choose an Option ▼

BLOOM MONTH

Choose an Option ▼

SIZE BY HEIGHT

Choose an Option ▼

NATURE BENEFITS

Choose an Option ▼



EASTERN PRICKLY PEAR

Opuntia humifusa



AROMATIC ASTER

Symphyotrichum oblongifolium



BLUE WOOD ASTER / HEART-LEAVED ASTER

Symphyotrichum cordifolium

Harvest Rain & Conserve Water

- Rain barrel
- Rain barrel water collection system
- Cistern



Reduce - Recycle - Re-purpose





Perennial vegetables ~ they keep on giving



Compost


Keep nutrients on site.

Composting kitchen scraps reduces waste disposal.

Grow your soil

- Don't leave soil exposed - protect the soil and soil life with fall cover crops or chopped straw or salt marsh hay
- Don't rototill





Leave the leaves,
leave the seeds,
leave the stems.

- Winter interest.
- Reduced maintenance.
- Food for winter birds.
- Habitat for pollinators.
- Build soil health.

Manage Stormwater





Permeable Surfaces:

- Porous Pave
- Perk-crete
- Permeable Pavers











Welcome to Our Rain Garden!

What is a Rain Garden?

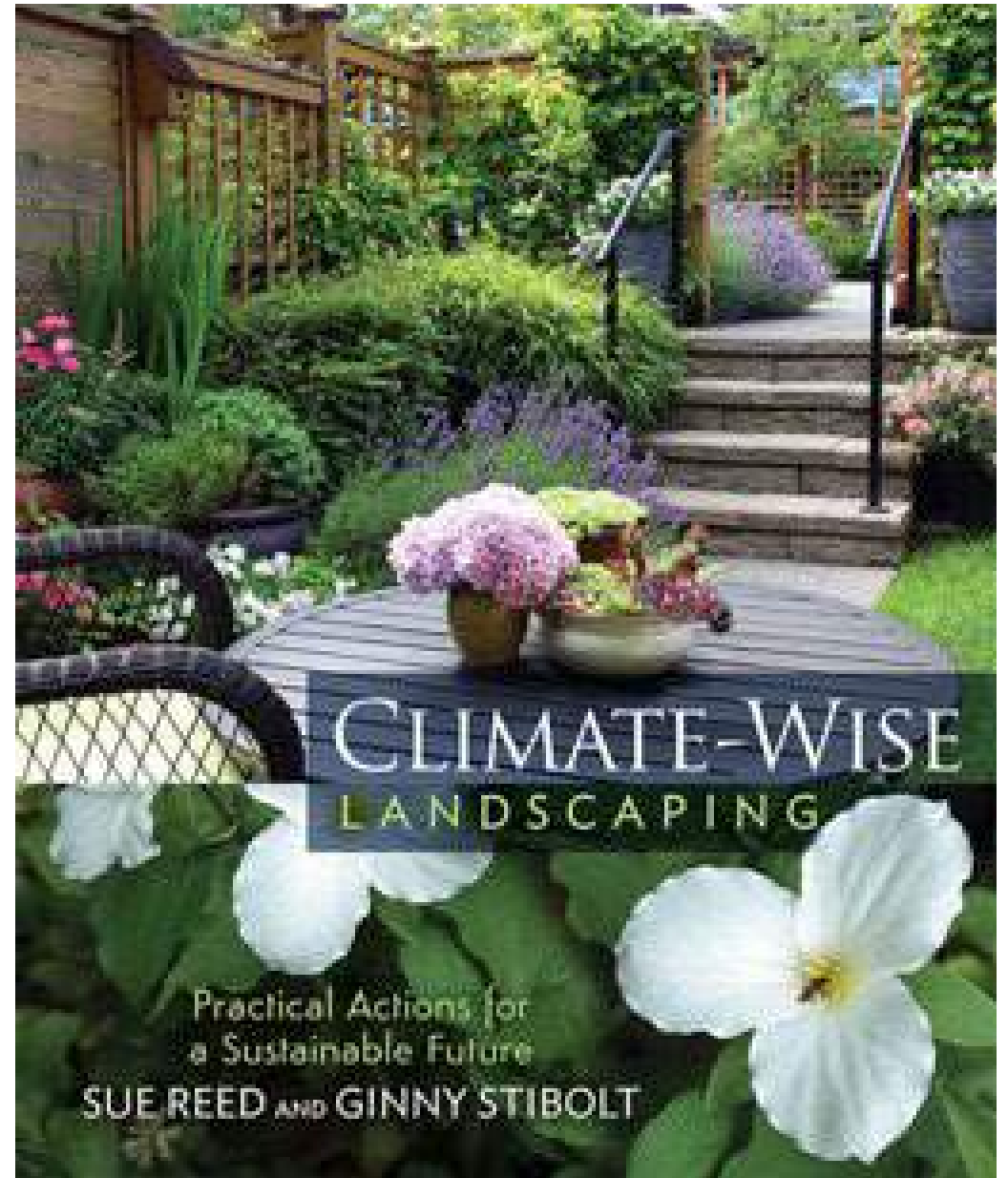
*A rain garden is a shallow depression
that is planted with deep-rooted
native plants.*

APCC's Rain Garden is

Summary:

Climate-Wise Landscape Choices

- Plant native species of TREES, preserve trees
- Minimize lawn area – make it a Cape Cod lawn
- Choose native species, plant for diversity
- Leave the leaves, the stems and the seeds
- Conserve water
- Recycle, repurpose, reuse
- Compost
- Minimize soil disturbance, leave wild areas
- Manage stormwater on your property
- Work *with* nature, not against it for the benefit of all

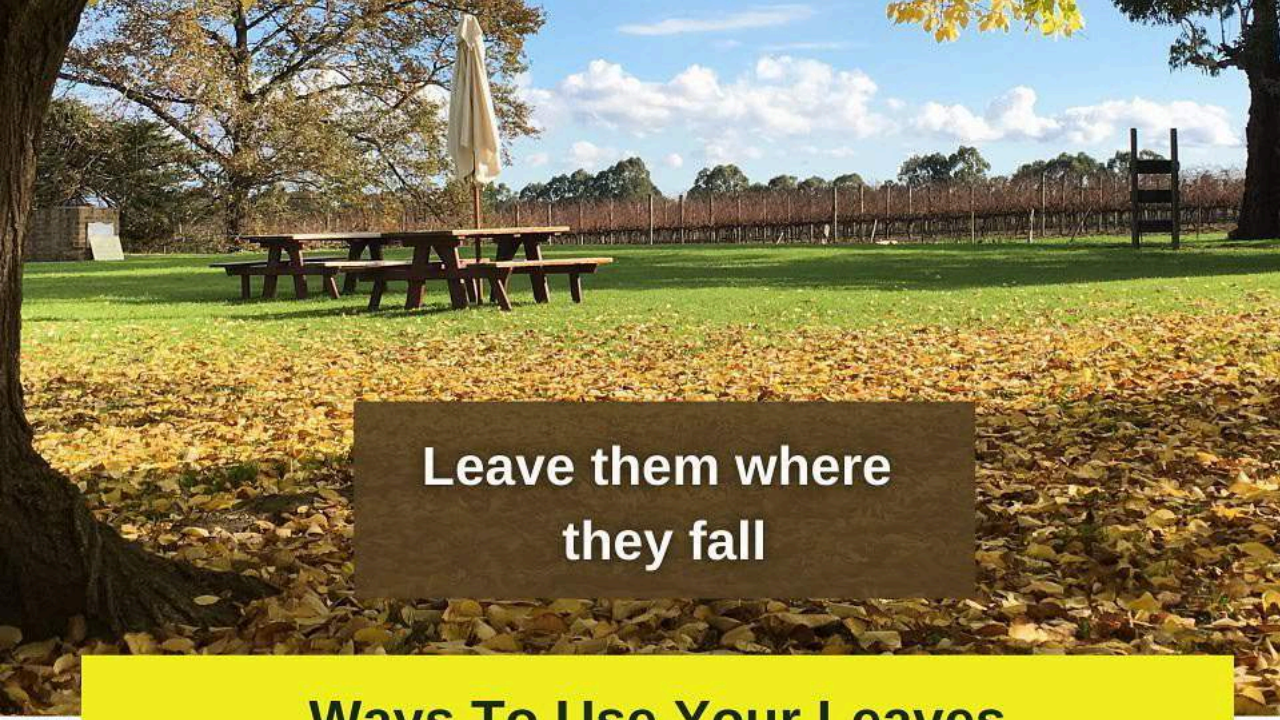


A photograph of a house with a porch and a garden of white daisies. The house has a grey roof and white trim. The porch has white railings. The garden is filled with many white daisies with yellow centers. There are trees in the background and a car parked on the left.

Thank you.

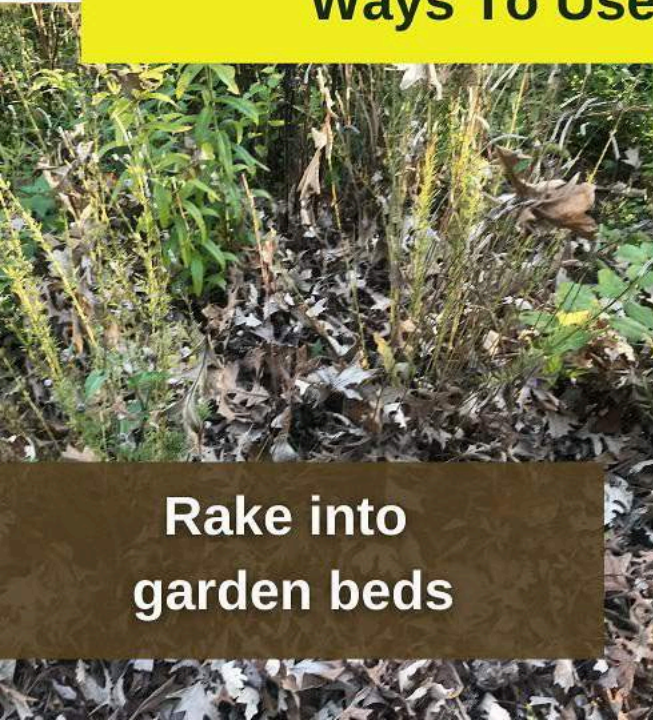


© gerald beetham

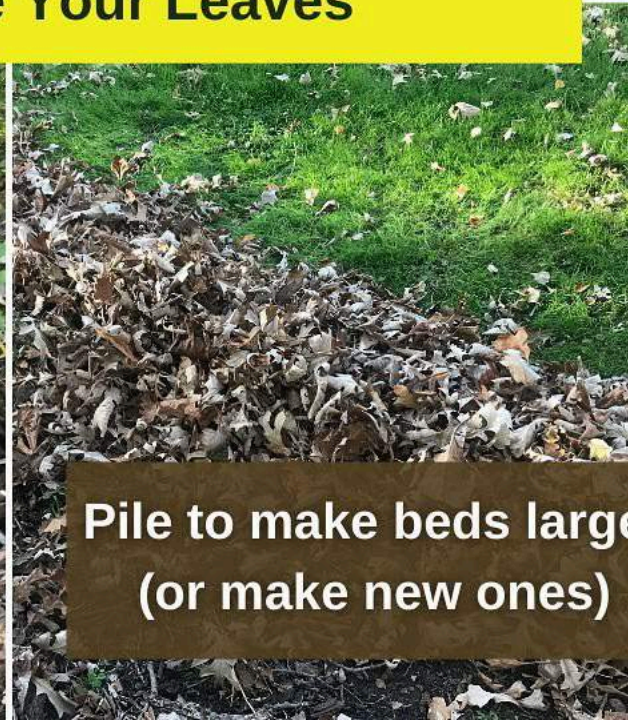


Leave them where
they fall

Ways To Use Your Leaves



Rake into
garden beds



Pile to make beds large
(or make new ones)



A Rain Garden

- A shallow depression, planted with deep-rooted native plants
- Captures stormwater
- Right plant, right place



