

Native Groundcovers & Alternatives to Lawn

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LYNNHAVEN *River* NOW

Restoring Virginia Beach Waters



“A PLANT THAT HAS FED NOTHING HAS NOT DONE ITS JOB.” ~ DOUG TALLAMY



Two decades of
reducing pollutants



restoring
critical
habitat



and engaging our
community.



Virginia Beach Watersheds

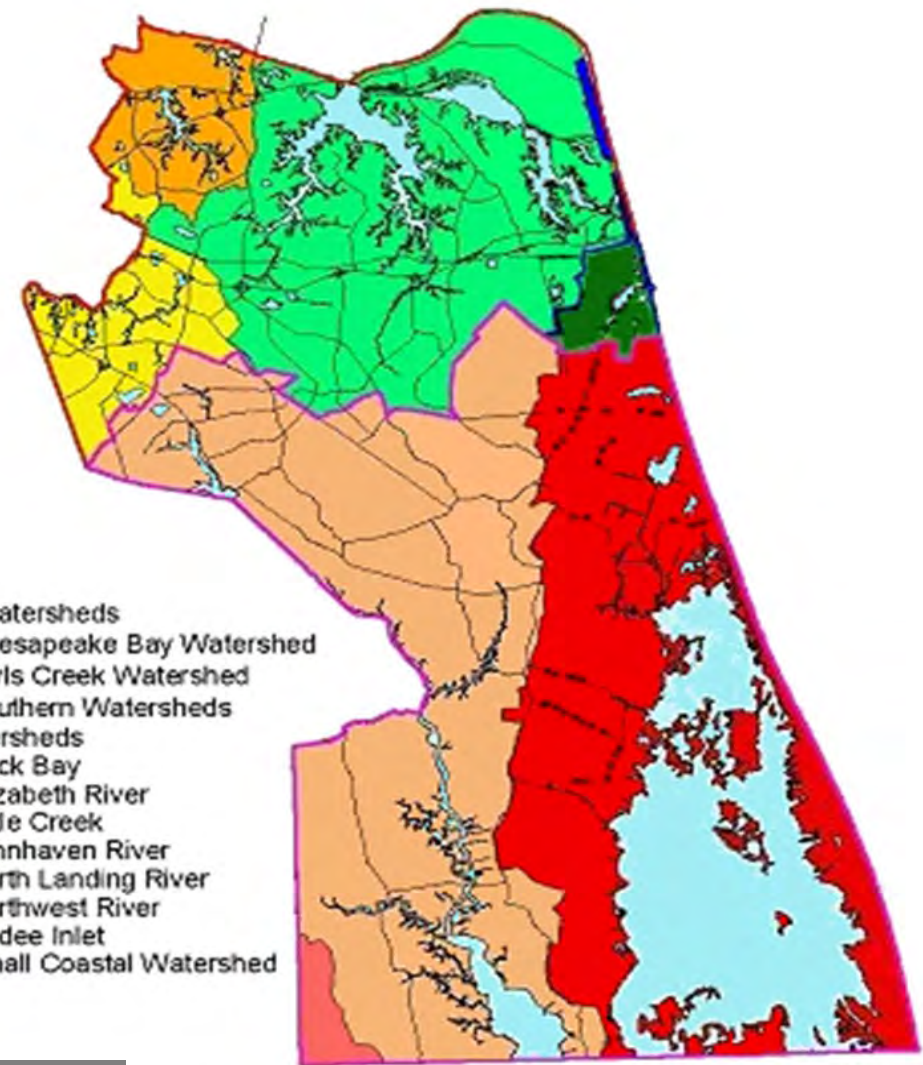
PRIMARY WATERSHEDS

ALBEMARLE & PAMLICO SOUNDS

ATLANTIC OCEAN

CHESAPEAKE BAY

- Major Watersheds
- Chesapeake Bay Watershed
 - Owls Creek Watershed
 - Southern Watersheds
- Subwatersheds
- Back Bay
 - Elizabeth River
 - Little Creek
 - Lynnhaven River
 - North Landing River
 - Northwest River
 - Rudee Inlet
 - Small Coastal Watershed



Virginia Beach Watersheds

Problems on Our Local Waters

▶ Development-Driven Issues

▶ Water Quality Problems

- ▶ Excess Nutrients
- ▶ Sediment
- ▶ Toxins
- ▶ Bacteria

▶ Habitat Loss

- ▶ Oyster Reefs & SAVs
- ▶ Wetland & Buffer Habitats
- ▶ Invasive species

▶ Climate-Related Issues

- ▶ Sea-level rise
- ▶ Land subsidence
- ▶ Changes in precipitation & weather patterns



To Restore our Waterways
We Must Restore our Watersheds

Our Goal:

Clean & Healthy Virginia Beach Waterways

Restore Pollutant Inputs

Excess Nutrients
Sediment
Bacteria
Toxins

Restore Important Habitats

Underwater Grasses
Wetlands
Riparian Buffers
Oyster Reefs

Educate & Engage Public and Private Partnerships



Let denizens work together to make a difference through the collective impact of many personal changes.

PEARL HOMES

RESTORATION

Restoring oysters, living shorelines, riparian buffers, and wetlands – all vital to the health of our waterways.

PEARL FAITH COMMUNITIES

People of faith who are committed to protecting our natural resources and making our community better.

PEARL SCHOOLS

Inspiring and training the environmental stewards of the future.

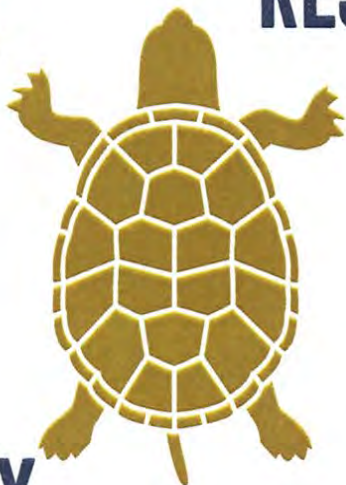
PEARL BUSINESSES

Finding the double bottom line – good for business and good for the environment.

GET INVOLVED!

ADVOCACY

A voice for the environment – working for good environmental policy on the local and state levels.



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Native Plants

What are Native Plants?

Those plants that are naturally present in this region since the last ice age.

Since records of native plants were not written until the 17th & 18th centuries, most native plant lists refer back to this time.

Most native plants have co-evolved with animals, most specifically insects.

Alien or introduced plants are those that have been brought to the region as a consequence of human action. The most harmful of these plants are referred to as non-native, invasive plants.

Naturalized plants **are not** native plants. They are a non-native plant that does not need human help to reproduce and maintain itself over time in an area where it is not native.

Lonicera sempervirens
Coral Honeysuckle



Co-Evolution

Many plants have co-evolved with other associated animals to form interdependent communities

These relationships can involve physical changes, such as long beaks to feed from deep-flowered plants

We do not know every relationship, so we don't always understand what is lost when we lose a species

Most insects can develop and reproduce only on the plants with which they share an evolutionary history (Ehrlich & Raven, 1964)



Ruby-throated Hummingbird on
Lobelia cardinalis, Cardinal Flower



Monarch caterpillar,
Danaus plexippus, on
Common Milkweed,
Asclepias syriaca

Insects that specialize on one plant
are no longer able to eat other plants.



Double-toothed Prominent,
Nerice bidentata, on
Elm Leaf, *Ulmus sps.*

Today, our yards support very little biodiversity.



Zebra swallowtail, *Protographium marcellus*, on Milkweed, *Asclepias* sps.

Our challenge is to raise the carrying capacity of our neighborhoods so that they can be healthy, functioning ecosystems.

So, do
we just
add
plants
???



Spiderwort,
Tradescantia virginiana



Plants
do not
support
wildlife
equally.



Regal or Royal walnut moth, *Citheronia regalis*, on hickory, *Carya* sps.



Smearer Dagger Moth,
Acronicta oblinita, on
Buttonbush,
Cephalanthus occidentalis

A close-up photograph of a leaf with a white, fuzzy insect larva (caterpillar) on its surface. The leaf is brown and has a prominent vein structure. The caterpillar is positioned in the upper right quadrant of the leaf. The background is dark, making the leaf and caterpillar stand out.

**90% of all phytophagous [plant eating] insect species
can eat plants in only 3 or fewer families.**

**Most can tolerate only
a few closely related species.**

(Bernays & Graham, 1988)



Quercus (534)

- Prunus (456)
- Salix (455)
- Betula (411)
- Populus (367)
- Malus (308)
- Acer (297)
- Vaccinium (294)
- Alnus (255)
- Carya (235)
- Ulmus (215)
- Pinus (201)
- Crataegus (168)
- Rubus (163)
- Picea (150)
- Fraxinus (149)
- Tilia (149)
- Pyrus (138)
- Rosa (135)
- Corylus (131)
- Juglans (129)
- Castanea (127)
- Fagus (127)
- Amelanchier (124)
- Larix (121)
- Cornus (118)
- Abies (117)
- Myrica (108)
- Viburnum (104)
- Ribes (99)
- Ostrya (94)
- Tsuga (92)
- Spiraea (89)
- Vitis (79)
- Pseudotsuga (76)
- Robinia (72)
- Carpinus (68)
- Sorbus (68)
- Comptonia (64)
- Hamamelis (63)
- Rhus (58)
- Rhododendron (51)

- Thuja (50)
- Diospyros (46)
- Gleditsia (46)
- Ceanothus (45)
- Hamamelis (44)
- Gaylussacia (44)
- Celtis (43)
- Juniperus (42)
- Sambucus (41)
- Physocarpus (41)
- Syringa (40)
- Ilex (39)
- Sassafras (38)
- Lonicera (37)
- Liquidambar (35)
- Kalmia (33)
- Aesculus (33)
- Parthenocissus (32)
- Photinia (29)
- Nyssa (26)
- Symphoricarpos (25)
- Cydonia (24)
- Ligustrum (24)
- Shepherdia (22)
- Liriodendron (21)**
- Magnolia (21)
- Cephalanthus (19)
- Cercis (19)
- Smilax (19)
- Wisteria (19)
- Persea (18)
- Arctostaphylos (17)
- Ricinus (16)
- Taxodium (16)
- Chamaedaphne (15)
- Toxicodendron (15)
- Oxydendrum (14)
- Ampelopsis (13)
- Arbutus (12)
- Asimina (12)
- Berberis (12)
- Acacia (11)

- Euonymus (11)
- Frangula (11)
- Lindera (11)
- Lyonia (11)
- Caragana (10)
- Clethra (10)
- Rhamnus (10)
- Pyracantha (9)
- Morus (9)
- Elaeagnus (9)
- Chaenomeles (8)
- Cytisus (8)
- Ficus (8)
- Catalpa (8)
- Chamaecyparis (8)
- Chionanthus (8)
- Maclura (8)
- Taxus (8)
- Cupressus (7)
- Andromeda (7)
- Campsis (7)
- Celastrus (7)
- Halesia (7)
- Ledum (7)
- Ailanthus (6)
- Clematis (6)
- Ptelea (6)
- Zanthoxylum (6)
- Albizia (5)
- Ginkgo (5)
- Decodon (5)
- Diervilla (5)
- Gymnocladus (5)
- Hydrangea (5)
- Cotinus (4)
- Eremochloa (4)
- Genista (4)
- Indigofera (4)
- Pueraria (4)
- Leucothoe (4)
- Philadelphus (4)
- Phoradendron (4)

- Sideroxylon (4)
- Cedrus (3)
- Cissus (3)
- Cotoneaster (3)
- Hedera (3)
- Lagerstroemia (3)
- Myrtus (3)
- Tamarix (3)
- Deutzia (2)
- Lavandula (2)
- Lycium (2)
- Melia (2)
- Paulownia (2)
- Phoenix (2)
- Sophora (2)
- Sorbaria (2)
- Weigela (2)
- Calycanthus (2)
- Gaultheria (2)
- Litsea (2)
- Menziesia (2)
- Pieris (2)
- Staphylea (2)
- Calluna (1)
- Camellia (1)
- Clerodendrum (1)
- Colutea (1)
- Forsythia (1)
- Koelreuteria (1)
- Laburnum (1)
- Phyllostachys (1)
- Poncirus (1)
- Pterostyrax (1)
- Sapium (1)
- Thamnocalamus (1)
- Vincetoxicum (1)
- Callicarpa (1)

- Dirca (1)
- Leiophyllum (1)
- Menispermum (1)
- Nemophila (1)
- Osmanthus (1)
- Stewartia (1)
- Metasequoia (0)
- Vitex (0)
- Ceratonia (0)
- Cercidiphyllum (0)
- Exochorda (0)
- Firmiana (0)
- Grewia (0)
- Kalopanax (0)
- Kerria (0)
- Kolkwitzia (0)
- Nandina (0)**
- Phellodendron (0)
- Pseudosasa (0)
- Rhodotypos (0)
- Stephanandra (0)
- Styphnolobium (0)
- Tetradium (0)
- Toona (0)
- Zelkova (0)
- Adlumia (0)
- Arceuthobium (0)
- Berchemia (0)
- Borrchia (0)
- Cladrastis (0)
- Empetrum (0)
- Eubotrys (0)
- Itea (0)
- Loiseleuria (0)
- Nestronia (0)
- Styrax (0)
- Xanthorhiza (0)
- Zenobia (0)

Quercus (534)

Non-native plants support fewer insects.



Heavenly or Sacred bamboo, *Nandina* sps.



Nandina has been linked to bird deaths and is thought to be linked to the Cedar Waxwing decline.

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Non-native plants support fewer insects.

- Grewia* (0)
- Kalopanax* (0)
- Kerria* (0)
- Kolkwitzia* (0)
- Nandina* (0)**
- Phellodendron* (0)
- Pseudosasa* (0)
- Rhodotypos* (0)
- Stephanandra* (0)
- Styphnolobium* (0)

Heavenly or
Sacred bamboo,
Nandina sps.

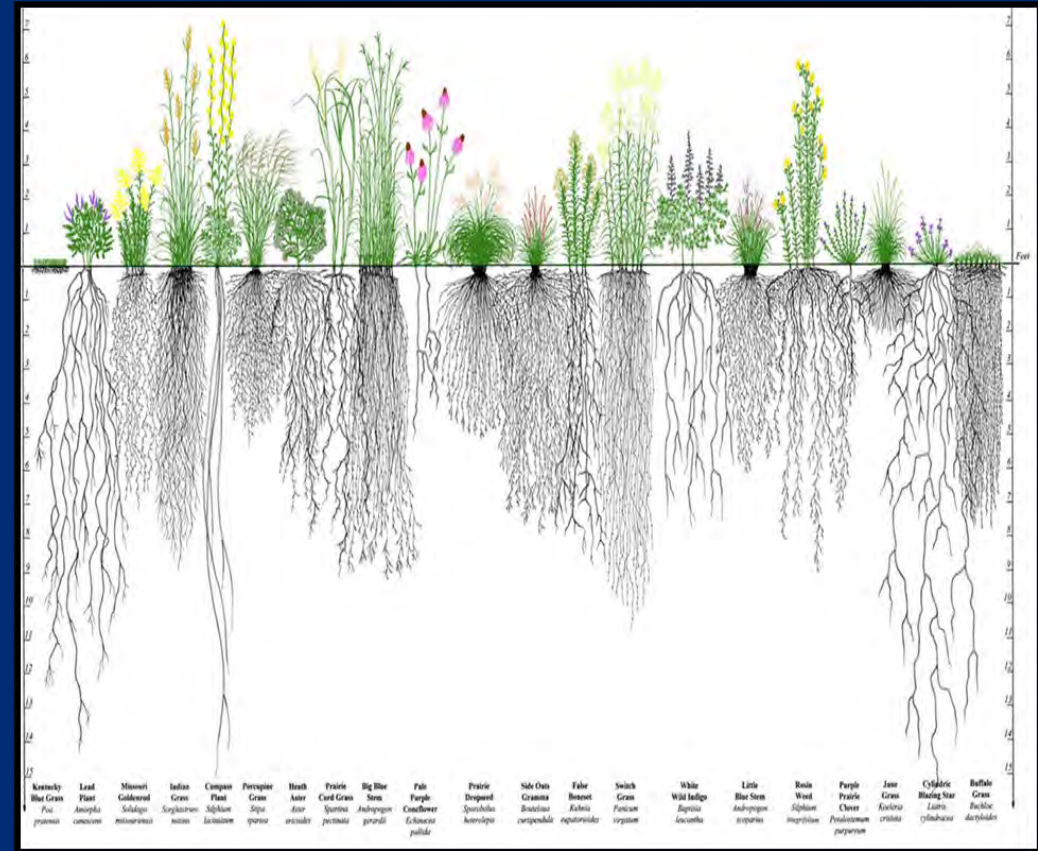
... has been linked to bird deaths and is
... might be linked to the Cedar Waxwing
decline.

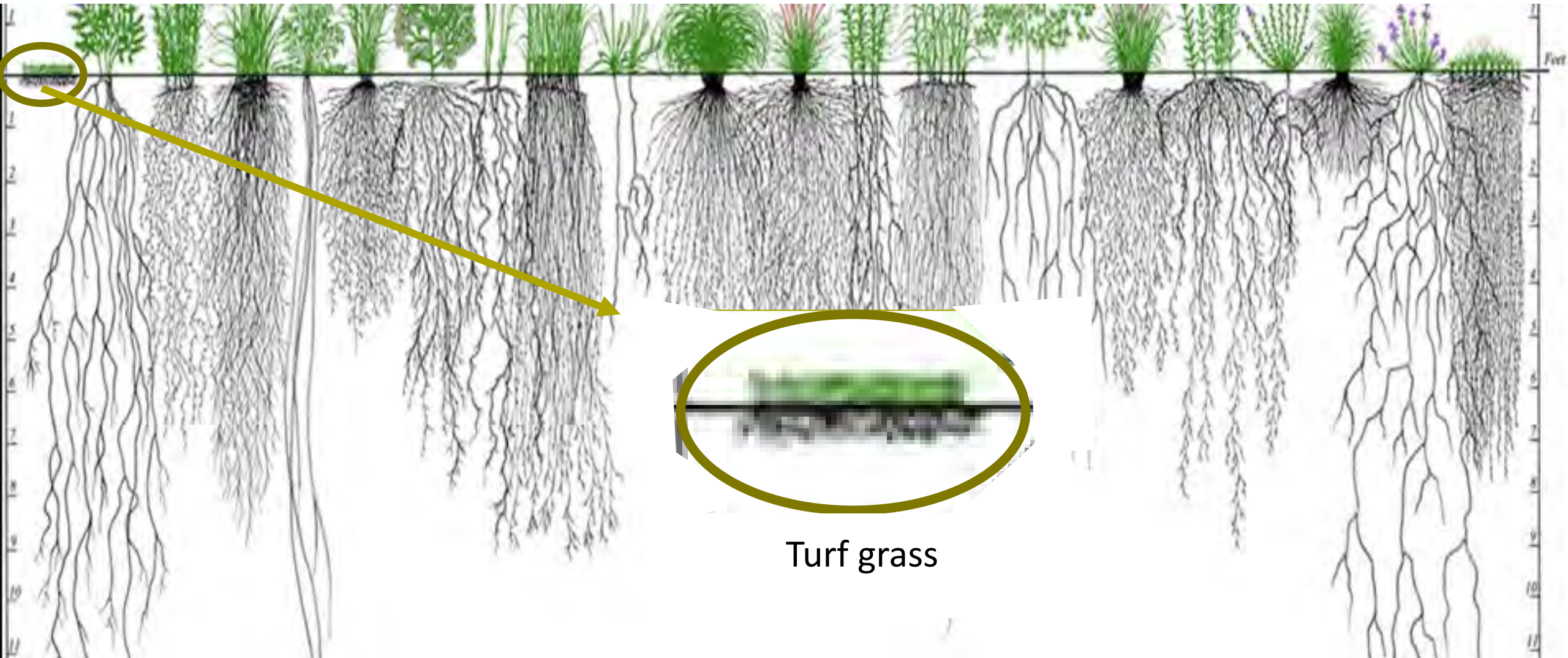
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Planting Natives

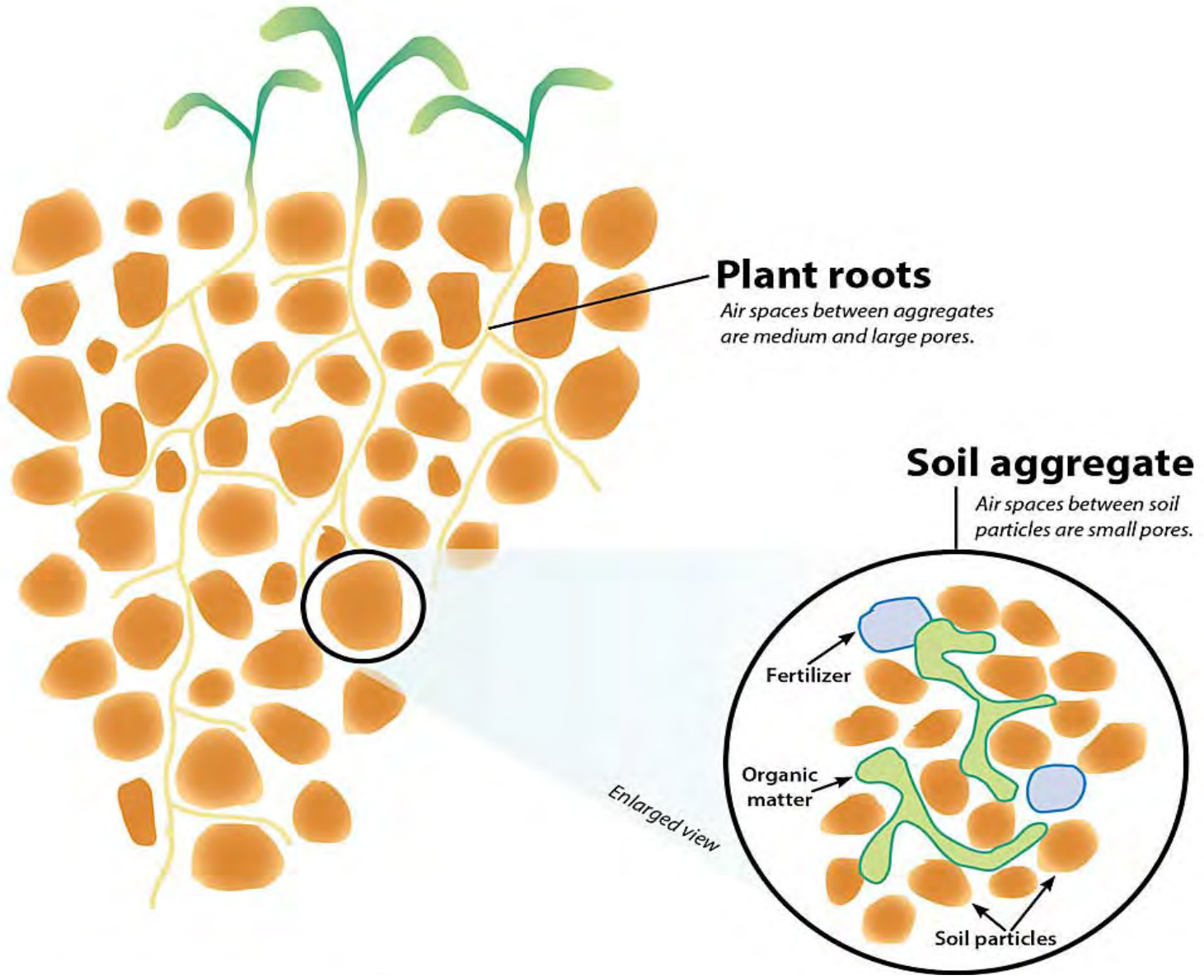
- Native plants increase and support the natural biodiversity of our region
- Native plants provide a *sense of place*
- Native plants absorb more water than turf grass helping to reduce storm water runoff
- Native plants do not require fertilizers
- Native plants require fewer pesticides than lawns
- Native plants require less water than lawns
- Native plants help reduce air pollution (gas-powered garden tools, such as mowers, emit 5% of our country's air pollution)
- Native plants promote stewardship of our natural heritage
- Native plants save money





Turf grass

A better look at root systems



Spaces between soil particles are opened by root growth.

These spaces fill with water after a rain event reducing the amount of water available to run off the land.

Turf grass is not native.

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Turf grass is not native.

Turf grass requires lots of upkeep because . . . Turf grass is not native.

Mowing

Fertilizing

Grub control

More fertilizing

Dethatching

Even more fertilizing

Repairing

And again mowing

(And fertilizing)



Mower

Trimmer

pH kit

Soil kit

Spreader

Sprayer

Fungicide

Pretreatment

Herbicide

Seed

Pre-emergent

pH kit

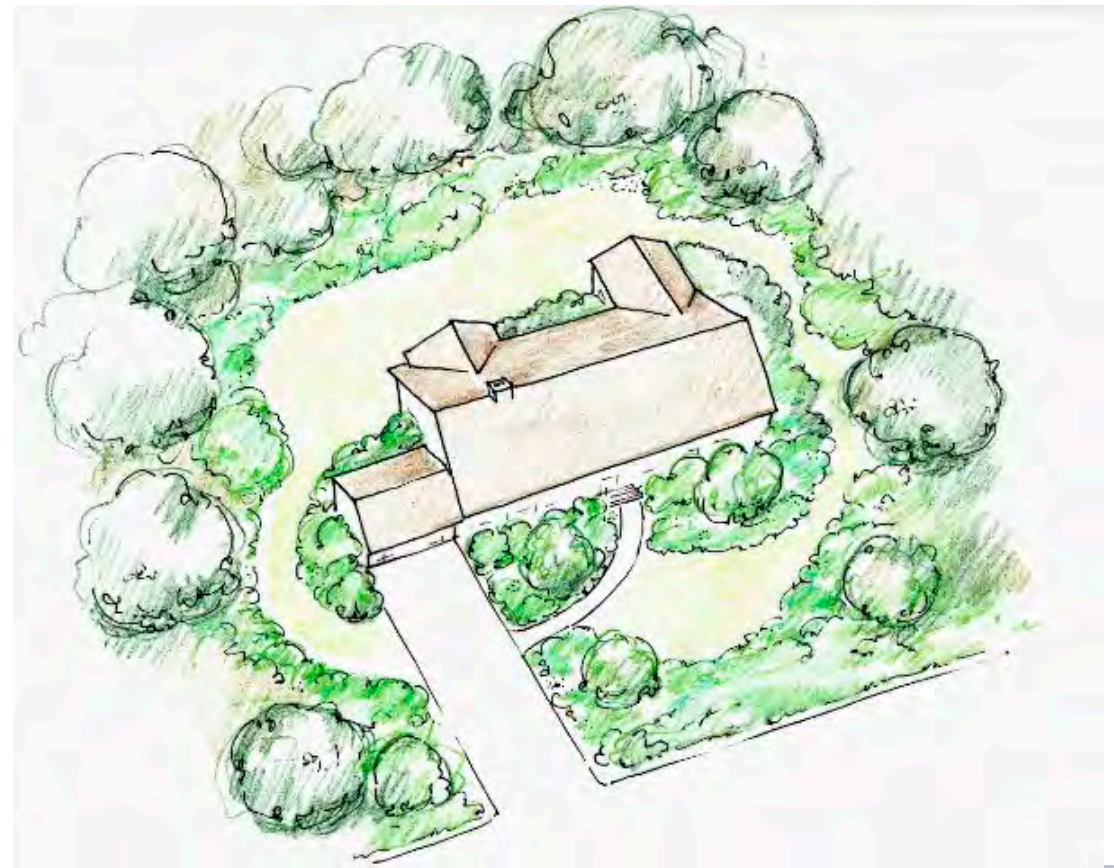
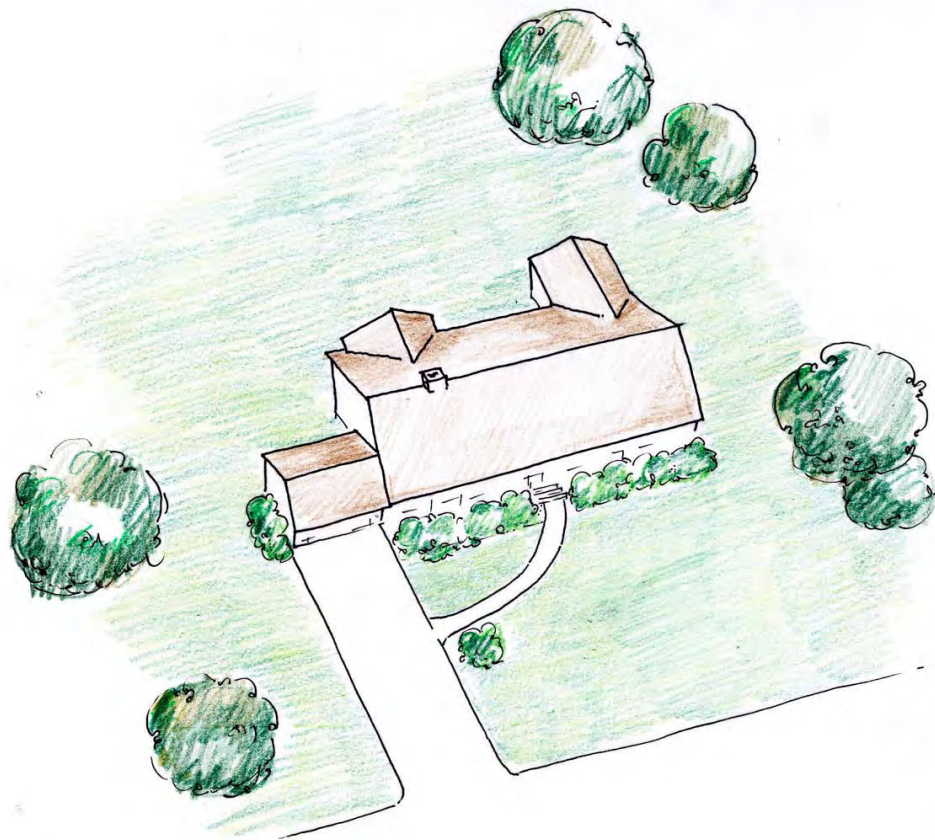
Fertilizer

Repair kits

or,

a **LAWN SERVICE.**

Treat turf grass like an Area Rug not Wall-to-Wall Carpeting



Any lawn that isn't used

SHOULD BE REPLANNED AND REPLACED

How do you use your lawn?

Before you start dropping in native plants randomly about your yard, think about how you use your lawn. Do you need a lawn area...

...for the grandkids to play ball?

...for the dog?

...play croquette?

...to decorate?

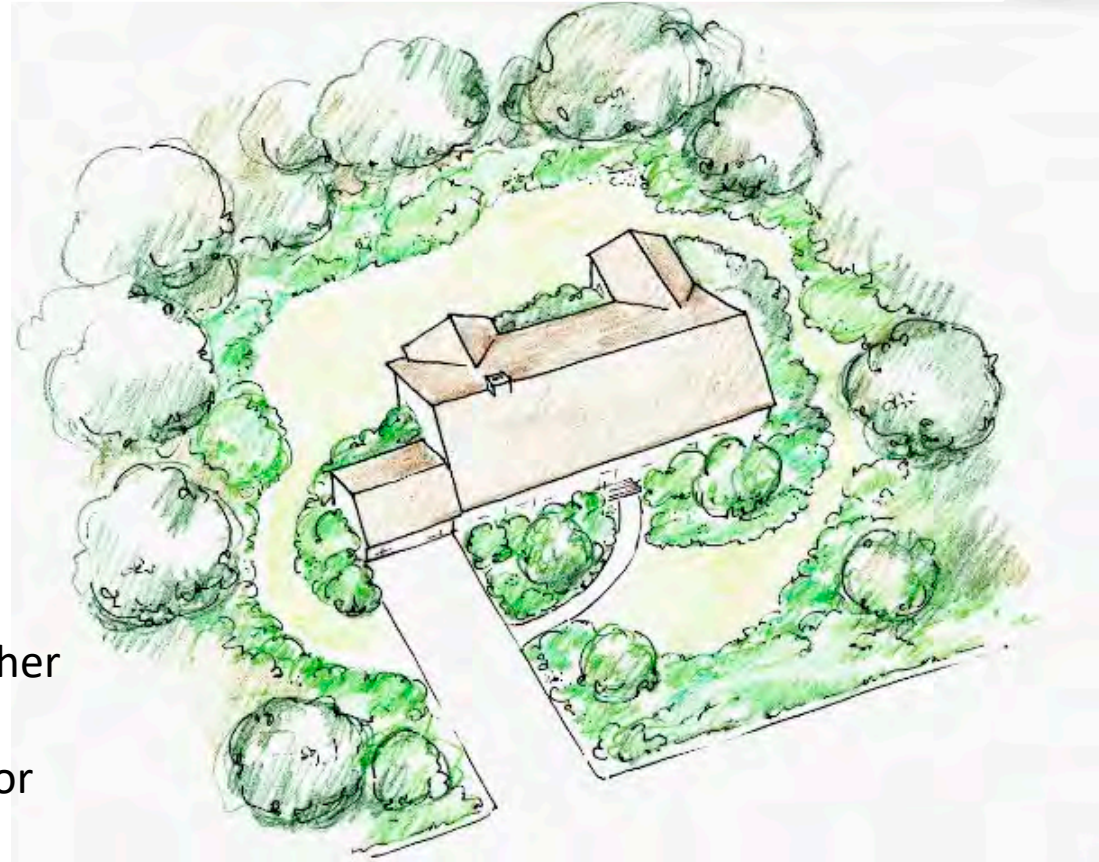
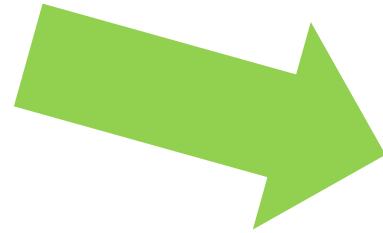
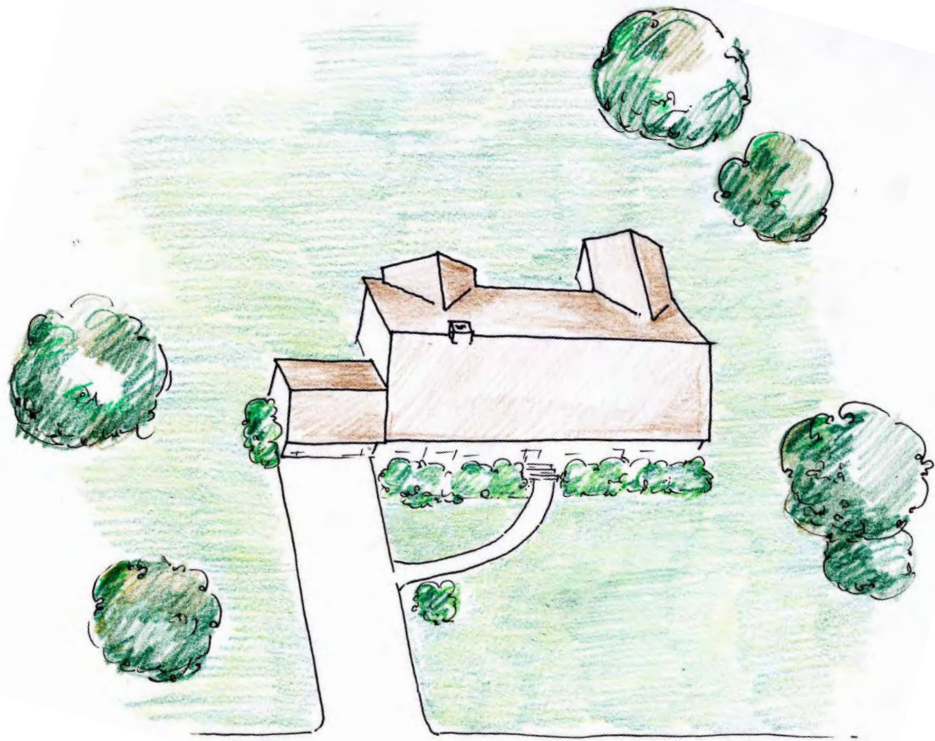
...because that's what my dad and his dad had before me so its good enough for me.

How much lawn do I need for these activities?





Your Landscape Plan



Questions to ask yourself:

How is my outside space used?

What do I want my outside space to do?

Do I want to support pollinators, birds, and or other wildlife?

Do I want a swing, a meditation space, an outdoor party space?

Can I do this project a little at a time or should I do a complete makeover?

Access





LOOK AT HOW YOU WANT TO ACCESS YOUR YARD.

Consider future needs such as entering with walkers or wheelchairs when adjusting slopes and planning walkways

Reverse the turf

Consider alternating turf with formalized pathways for a more natural look. Use small patches of turf as an accent instead of the main event.



Soft Pathways



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Natives to compliment your access points & edges

LOW-GROWING GROUNDCOVERS



Groundcovers

LOW-GROWING



Partridge berry, *Mitchella repens*

- delicate trailing prostrate vines with small white blooms and single red berries
- evergreen perennial prefers dry acidic woodlands
- difficult to propagate; requires cold stratification
- .5'
- part-sun to shade
- found along trails at First Landing State Park

Groundcovers

LOW-GROWING



Narrowleaf blue-eyed grass, *Sisyrinchium angustifolium*

- common perennial in the iris family
- small, star-shaped light blue to pale purple flowers with thin erect “blade-like” leaf
- sun to part-shade
- 1 – 3 ‘, but often found mowed, mixed with turf grass
- Open grassy areas and damp woods

Coastal blue-eyed grass, *Sisyrinchium atlanticum*

- Moist and wet marshes, meadows and low woodlands

Groundcovers

LOW-GROWING



Wild pink, *Silene caroliniana*

- Semi-evergreen
- small, star-shaped flower
- Forms a 3 – 8” compact mound with dense clusters of flowers
- Open grassy banks and slopes
- sun to part shade
- Moist, well drained sandy soil

Groundcovers

LOW-GROWING



Stonecrop, *Sedum turnatum*

- Native succulent
- great addition to rock garden
- creeping stems make this a good groundcover
- Part to full shade
- .5'

Groundcovers

LOW-GROWING



Lynnhaven carpet (Robin's plantain), *Erigeron pulchellus* var. *pulchellus*

- cousin to daisy fleabane *E. annuus*
- originally identified near the Adam Keeling house in the 1900's
- fuzzy leaves grow in basal rosette
- flowers create a cloud suspended on thin stalks floating above the vegetation
- sun to part shade
- Spreads by shoots into a year-round carpet

Groundcovers

LOW-GROWING



Foamflower, *Tiarella cordifolia*

- versatile perennial
- prefers moist, loamy areas
- sun to shade
- spreads by shoots to form clumps of foliage
- spike of white flowers hovers above greenery
- .5 – 1'

Groundcovers

LOW-GROWING



Sneezeweed, *Helenium autumnale*

- Persistent small yellow flowers
- 1.5 – 6' *
- Open grassy areas, thickets, meadows
- Often found perfectly happy growing in lawns being mowed regularly
- sun to shade *
- Moist, well drained sandy soil



Groundcovers

LOW-GROWING

Threadleaf coreopsis, *coreopsis verticillata*

- 1 – 2'
- beautiful cup-shaped yellow flower
- Grows in full sun
- Dry to moist soil with good drainage
- Spreads by rhizomes and reseeding



Groundcovers

LOW-GROWING

Ebony spleenwort ,
Esplenium platyneuron



Christmas fern ,
Polystichum acrosticoides



Poverty oatgrass,
Danthonia spicata



Make it a Meadow

Groundcovers or covering ground?



Larger areas may need larger plants to fill space and add color.

Covering ground

GROUNDCOVERS



Partridge pea, *Chamaecrista fasciculata*

- 1 – 3 feet
- freely reseeds itself (it is an annual)
- beautiful cross shape yellow flower
- Grows in full sun, but will move into part sun and shade
- moist soil with good drainage
- important nectar source for bees and butterflies; important winter seed and cover source for birds
- flowers for 3 months

Covering ground

USE NATIVE GRASSES AND/OR NATIVE FERNS



Purple love grass,
Eragrotis spectabilis

- grows in clumps

Braken fern, *Pterididium*
aquilinum

- form large colonies



Covering ground

Enhance with meadow-styled plantings with other natives that support pollinators, birds and other wildlife.



Plant a Buffer

Buffers:

Are vegetation planted to specifically intercept nutrients, pollutants in stormwater by slowing their departure from your property.

Prevent runoff to storm drains and/or waterways.

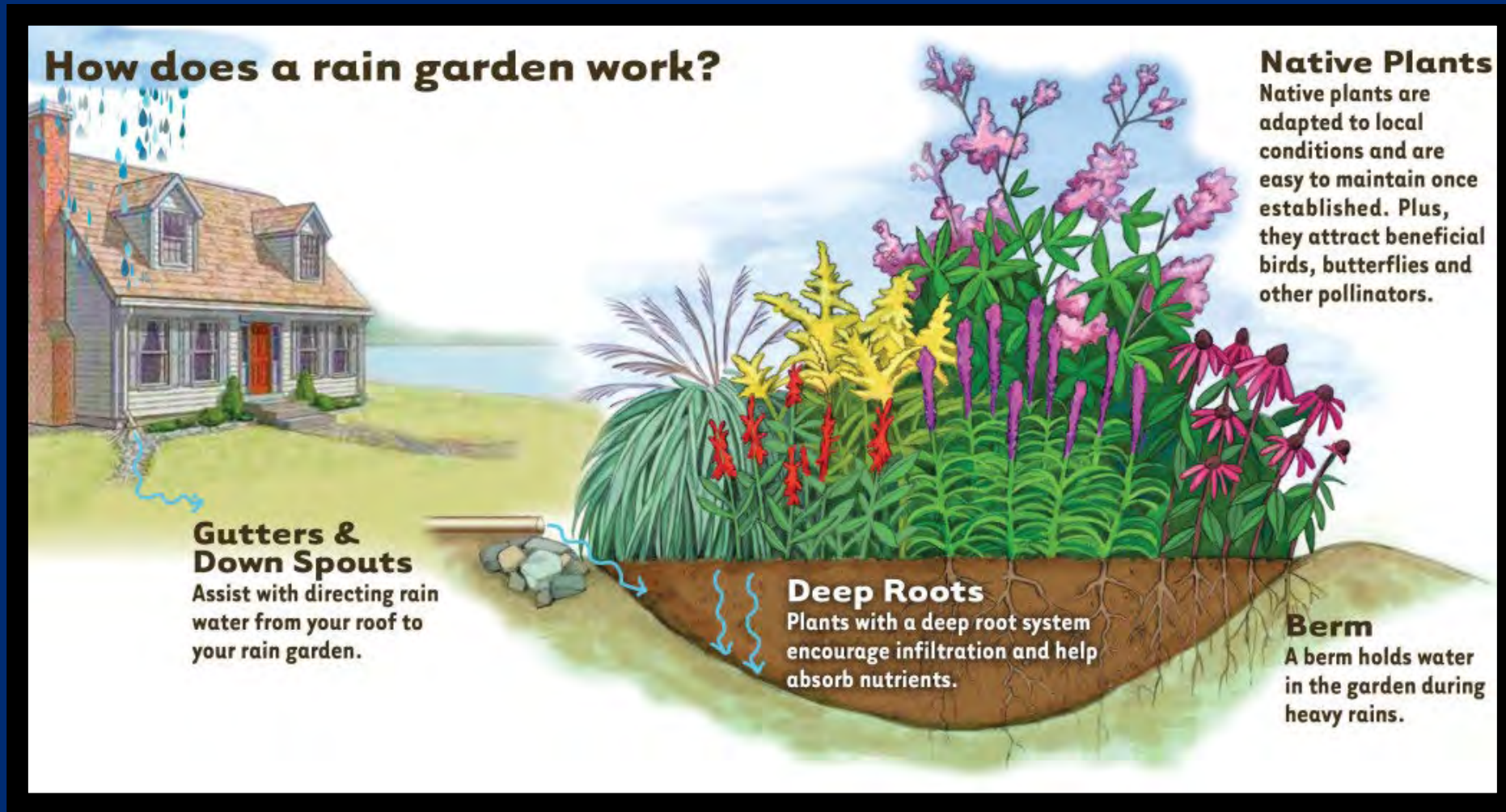
The longer you can keep stormwater filtering on your property, the better our water quality!



Install a Roadside and Water Buffer



Plant a Rain Garden



Water-tolerant Natives

RAIN GARDENS AND BUFFERS



Soft rush, *Juncus effusus*

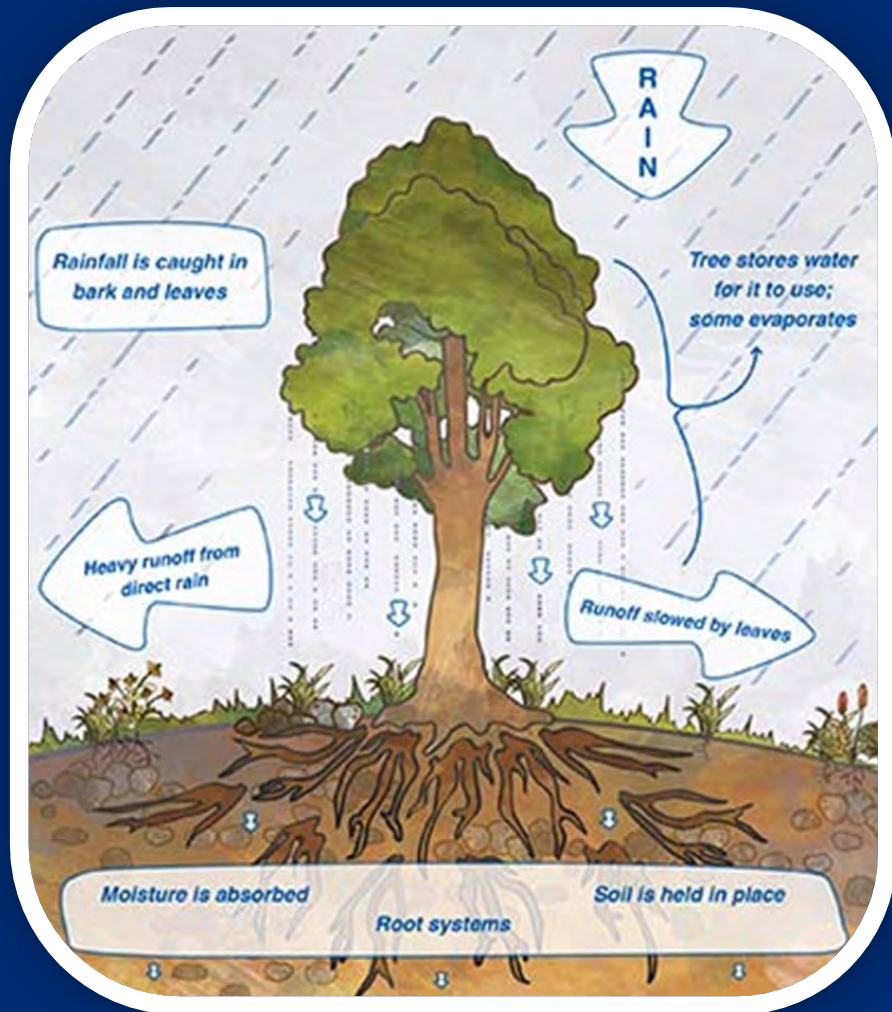


Rough goldenrod, *Solidago rugosa*



Meadow phlox,
Phlox maculata

Plant as Many Trees as You Can



- Trees take up considerable quantities of water and **nutrients** throughout their long lifetimes
- They remove and store carbon dioxide
- Trees prevent more erosion than shrubs or plants

Shrubs and Trees



Buttonbush, *Cephalanthus occidentalis*



Eastern redbud, *Cercis canadensis*



Shadbush or Serviceberry, *Amelanchier canadensis*

Resources for Native Plants



Callicarpa Americana
American Beautyberry

Where to get native plants:

Lady Fern Nursery, Norfolk

Virginia Native Plants Society

Southern Branch Nursery, Chesapeake

TCC Horticulture, Chesapeake

Referenced in today's presentation:

Native Plants for Southeast Virginia including Hampton Roads region, Plant HR Natives, October 2016; download for free at <https://www.plantvirginiannatives.org/plant-southeast-virginia-natives>

Native Plants for Wildlife Habitat & Conservation Landscaping: Chesapeake Bay Watershed, U.S. Fish & Wildlife Service, 2012

Thank you!

ANY QUESTIONS?



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