Plant More Trees!

Introducing the Keystone 10 Million Trees Partnership with CCCD

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Columbia County Conservation District

Keystone 10 MILLION TREES PARTNERSHIP

Agenda

- Why Trees??
- The Planting Process
- Site & Species Selection
- Tips for Success
- The Keystone 10 Million Trees Partnership
- Additional Resources
- Q&A

Does this look stable or healthy?

Nope →

← Closer

Much better →

← Yes!!

What do you see?

-TREES! (roots)
-Riffles, rock
-Min. erosion
-Shallow and wide
-Fish, macros
-Floodplain

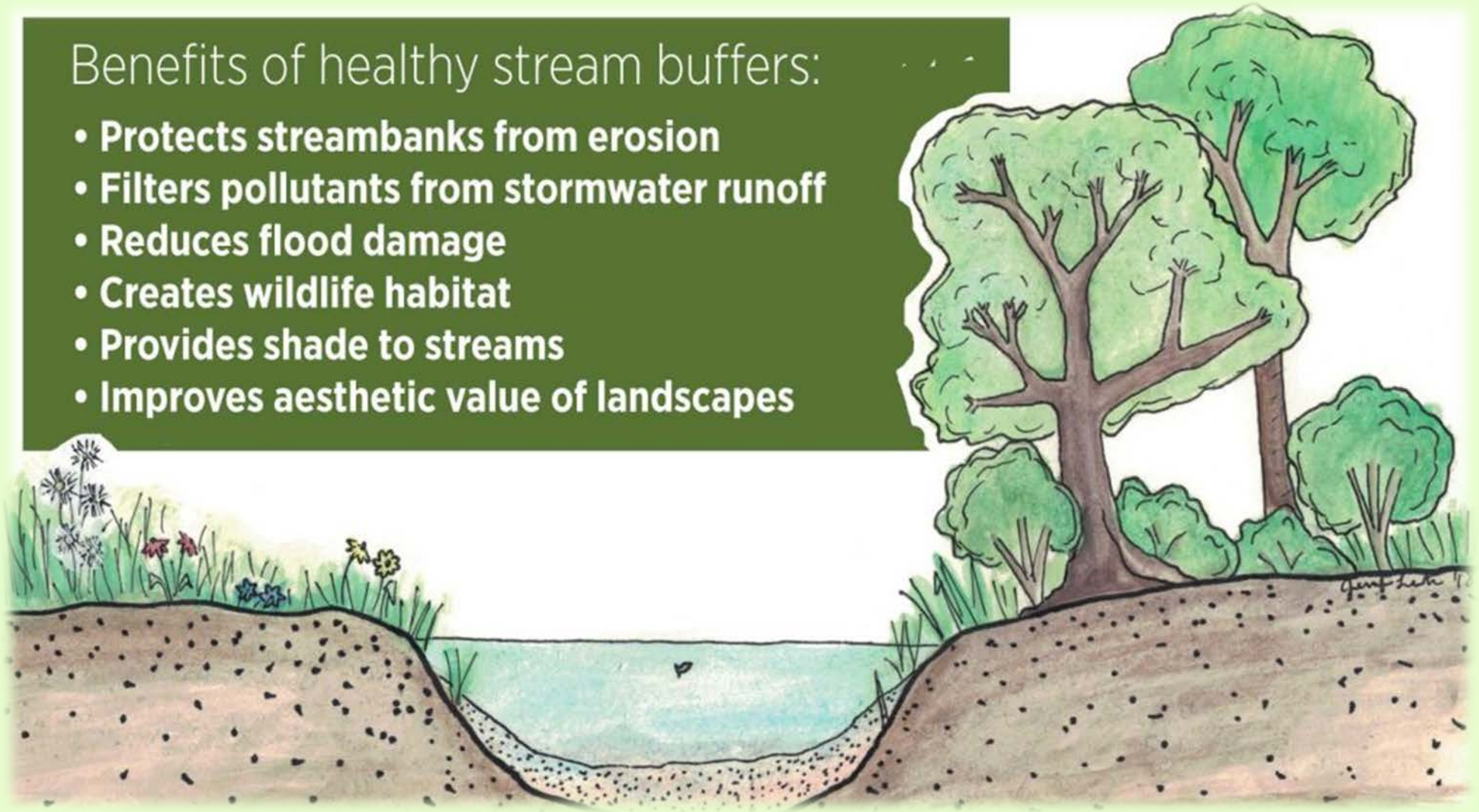
Why Trees??

TREES…

- Act as a natural **sponge**
- **Intercept** rainfall
- **Slow the flow** of stormwater
- **Spreads** water, preventing flow channelization
- Roots **hold soil** in place, preventing excess erosion
- **Filter** out metals, nutrients, and other chemicals
- **Trap** dust, pollen and smoke
- **Block** wind and noise
- Provide **habitat** and **food** for wildlife
- Provide **shade**
- **Cooling effect** for soil, air, and water
- **Sequester Co2** from atmosphere
- **Structure** an ecosystem
- **Provide** nutrients and soil organic matter
- **Native plants** especially reduce need for fertilizer/pesticides; benefit native wildlife; are non-invasive

…THE LIST GOES ON!!

Why Riparian/Streamside Buffers?



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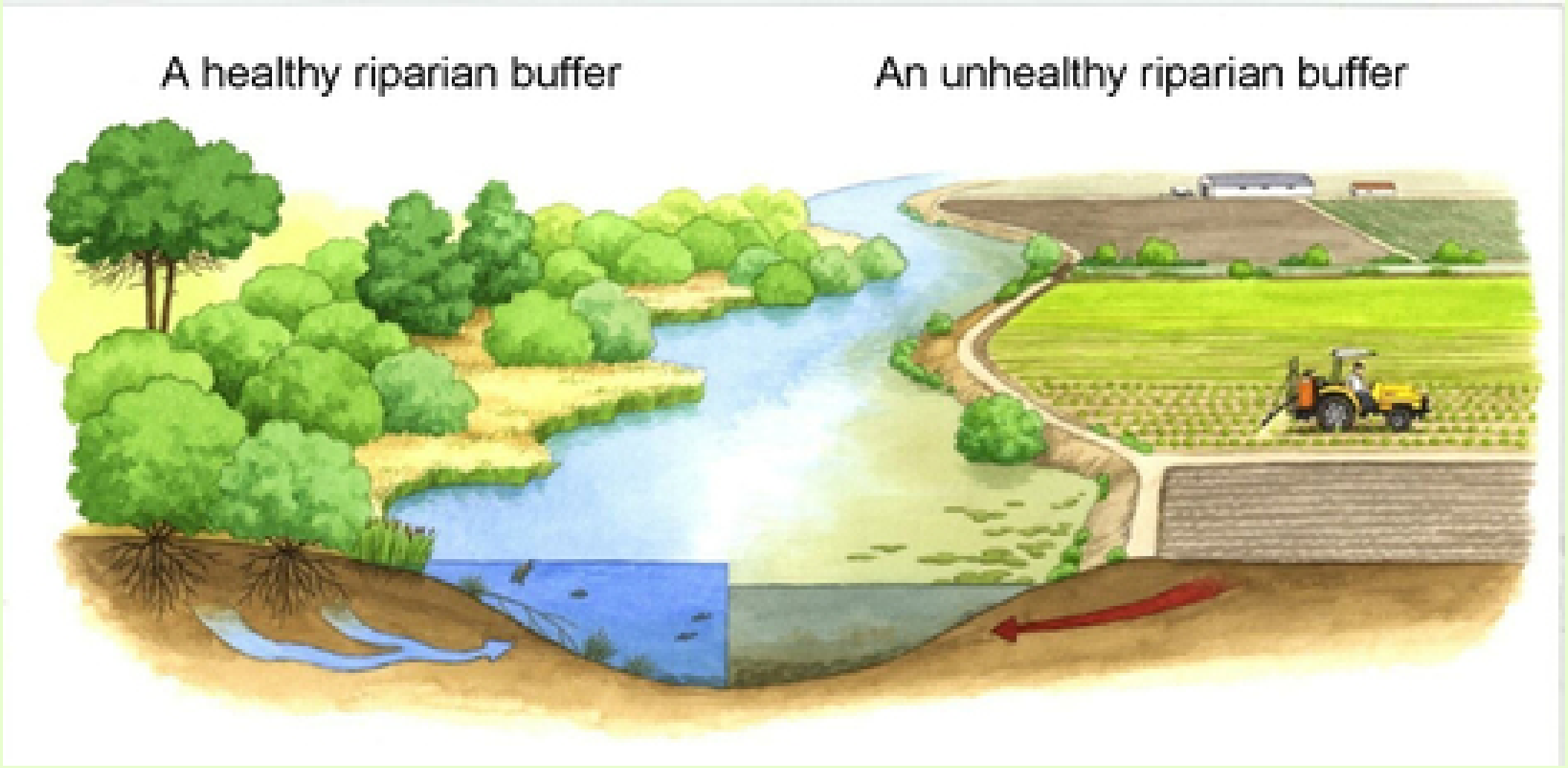


So you want to plant some trees…

Step-by-step process:

1. Define your goals and expected outcomes
2. Locate area(s) for planting
3. Observe site conditions
4. Determine the species that fit site requirements
5. Create a planting plan *(optional)*
6. Create a maintenance plan *(optional)*
7. Prep the site for planting
8. Plant trees! ☺
9. Maintenance until establishment

BLUE = CCCD can help with this process

1. Determine Your Goals and Outcomes

What are you planting trees for?

- Pollutant reduction
- Flood + stormwater reduction
- Stabilization
- Reforestation
- Habitat Restoration
- Harvestables
- Ornamentals
- Wind/Noise Screening
- Shade
- etc.

2. Locate areas for planting

- **Streamside** ← priority plantings
  - **Bank stabilization**
  - **Pollutant reduction**
  - **Aquatic habitat**
  - **Riparian habitat**
  - **Water quality improvement**
  - **Flood and stormwater reduction**
- Reforestation/Uplands
  - Field -> forest
  - Replace dying/diseased trees
  - Habitat and food sources
  - Harvestables
- Landscape and Home enhancements
  - Shade trees
  - Windbreaks / Noise blocks
  - Privacy
  - Ornamentals

Ideal planting sites

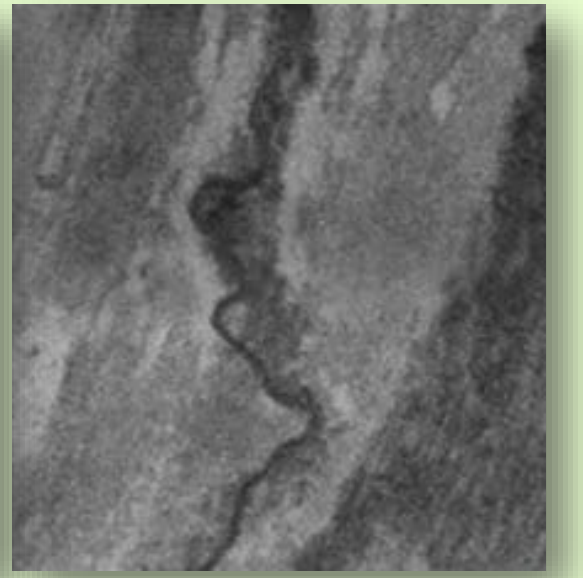
No existing vegetation
Natural resource concerns
Visible bank erosion
Vertical banks
Infrequently trafficked

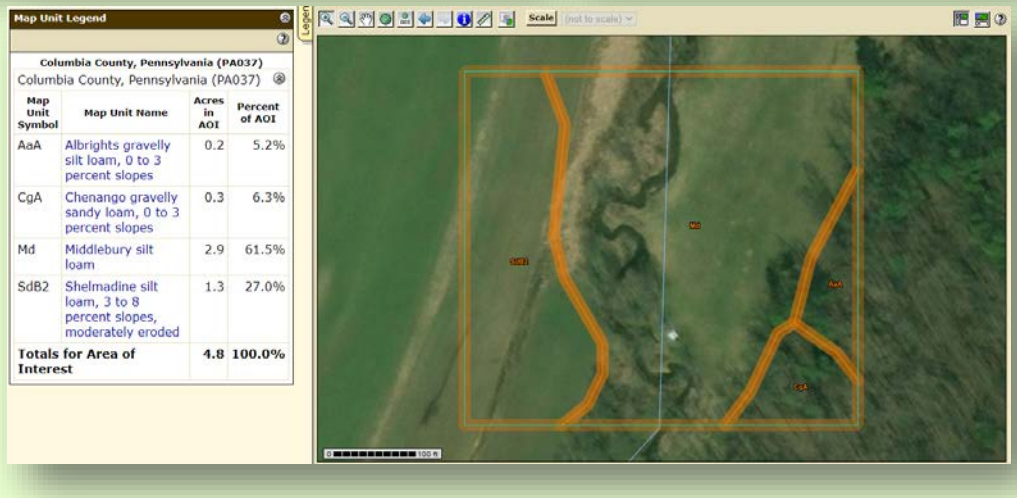
3. Observe Site Conditions

Survey the site in-field

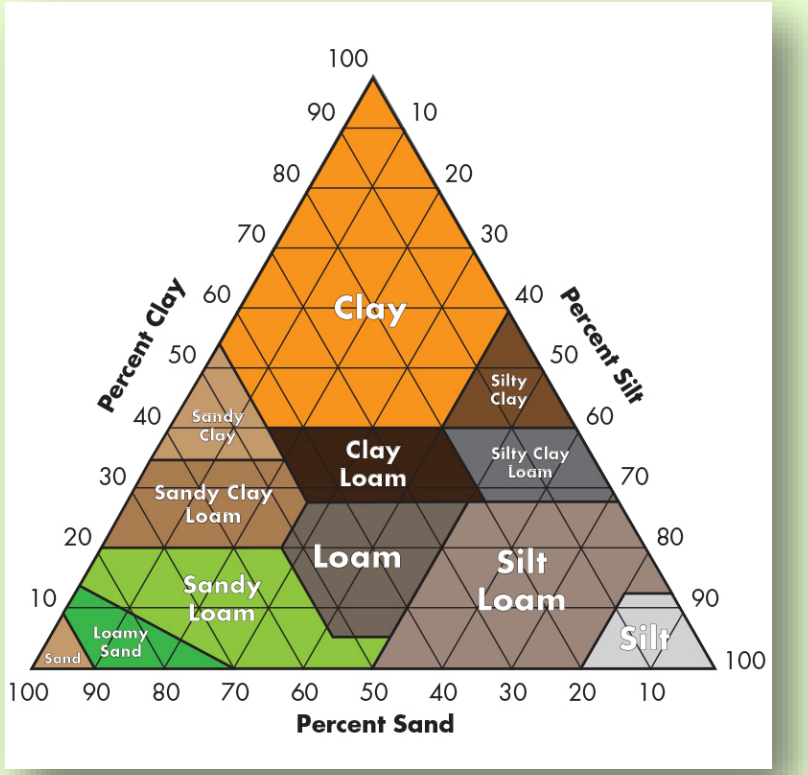
Additional Tools:

- Satellite imagery
- Historic satellite imagery
- Topographic maps
- Hydrological data
- USDA Web Soil Survey





Basic Site Survey:



Important Observations

- **Soil Conditions** – clay, silt, or sand? loam?
- **Moisture** – dry, moderate, or wet?
- **Light Availability** – full sun, partial shade, or shade?

Additional Observations:

- **Existing species on-site** – These species have high success rate
- Identify any **underground utilities** (Call 811)
- **Environmental Stressors-** Deer browse, nearby development, climate extremes, stormwater & flooding, pests and disease, invasive species, pollutants and runoff, etc.
- **Invasive Species** – Must address prior to planting!

4. Species Selection

- **Match the species to the specific site conditions**
- Match species to your goals and outcomes
- Native plants only!
- Plant existing species for high success rate; new species for diversity

Species Questionnaire:

- What is the function of the plant?
- Is the plant in your USDA plant hardiness zone?
- How long will the plant live?
- How fast will it grow?
- Does this plant have pests or disease risk?
- What are the maintenance requirements?
- Where does this species grow in the wild?
- What are the light and soil needs of this species?
- Is the plant allelopathic? (affects other species' growth)

Common Riparian Buffer Species

Tree	pH	Flood Tolerance	Shade Tolerance	Short-Lived (may need replacement)	Height	Pioneer Species
Boxelder (*Acer negundo*)	4.0-7.0	very tolerant	tolerant		understory	yes
Red Maple (*Acer rubrum*)	5.5-7.0	tolerant	tolerant		canopy	
Silver Maple (Acer saccharinum)	4.0-6.5	tolerant	intermediate	yes	canopy	
Sugar Maple (*Acer saccharum*)	4.0-7.0	intolerant	very tolerant		canopy	
Pawpaw (*Asimina triloba*)	5.0-7.0	intolerant	tolerant	yes	understory	
Sweet Birch (*Betula lenta*)	5.0-7.0	intolerant	intermediate		canopy	
River Birch (*Betula nigra*)	4.5-7.5	tolerant	intolerant		canopy	
Gray Birch (*Betula populifolia*)	5.0-6.5	intolerant	intolerant	yes	understory	
American Hornbeam (*Carpinus caroliniana*)	4.0-7.5	tolerant	very tolerant	yes	understory	
Hackberry (*Celtis occidentalis*)	6.0-8.0	intermediate	intermediate		canopy	
Eastern Redbud (*Cercis Canadensis*)	4.5-7.0	intolerant	tolerant	yes	understory	
Alternate Leaf Dogwood (*Cornus alternifolia*)	5.0-7.0	very tolerant	intermediate		understory	
American Holly (*Ilex opaca*)	<6.8	intolerant	tolerant		understory	
Eastern Red Cedar (*Juniperus virginiana*)	6.8-7.2	intolerant	intermediate		understory	yes
Sweetgum (*Liquidambar styraciflua*)	4.0-7.0	very tolerant	very intolerant		canopy	
Tulip Poplar (*Liriodendron tulipifera*)	4.5-6.5	intermediate	intermediate		canopy	
Black Gum (*Nyssa sylvatica*)	4.5-6.0	intermediate	intolerant		canopy	
White Pine (*Pinus strobus*)	<6.8	intolerant	intermediate		canopy	
American Sycamore (*Platanus occidentalis*)	5.0-6.5	intermediate	intermediate		canopy	
American Plum (*Prunus americana*)	5.5-7.5	intolerant	intolerant	yes	understory	
Black Cherry (*Prunus serotina*)	5.0-7.5	very intolerant	intolerant		canopy	yes
White Oak (*Quercus alba*)	4.5-7.0	intolerant	intermediate		canopy	
Swamp White Oak (*Quercus bicolor*)	4.5-6.5	tolerant	intermediate		canopy	
Chestnut Oak (*Quercus montana*)	4.5-7.0	intolerant	intermediate		canopy	
Pin Oak (*Quercus palustris*)	4.5-6.5	tolerant	intolerant		canopy	
Willow Oak (*Quercus phellos*)	4.5-5.5	tolerant	intolerant		canopy	
Black Locust (Robinia pseudoacacia)	4.5-8.0	tolerant	intolerant		canopy	yes
Black Willow (*Salix nigra*)	5.0-8.0	very tolerant	very intolerant	yes	canopy	
Sassafras (*Sassafras albidum*)	6.0-7.0	intolerant	intolerant		understory	yes
Basswood (*Tilia Americana*)	4.5-7.5	intolerant	tolerant		canopy	

Source: Brandywine Conservancy Riparian Buffer Guide

5. Planting Plans (optional)

<u>Parts of a plan</u>

Site Layout – Describe the location and current conditions

Planting Specifications – Describe the planting area, species for planting, # of trees/shrubs, seedling size and type, spacing, access areas, etc.

Materials Needed– What you will need for planting success

Seedling Protection – Describe how you will protect your seedling planted seedlings until establishment

Map of Planting Site

6. Maintenance Plans (optional)

Parts of a plan

Short-term maintenance plan – Describe how the site will be maintained for successful establishment *(first 1-3 years)*

Long-term maintenance plan – Describe how the site will be maintained post-establishment *(up to 25 years)*

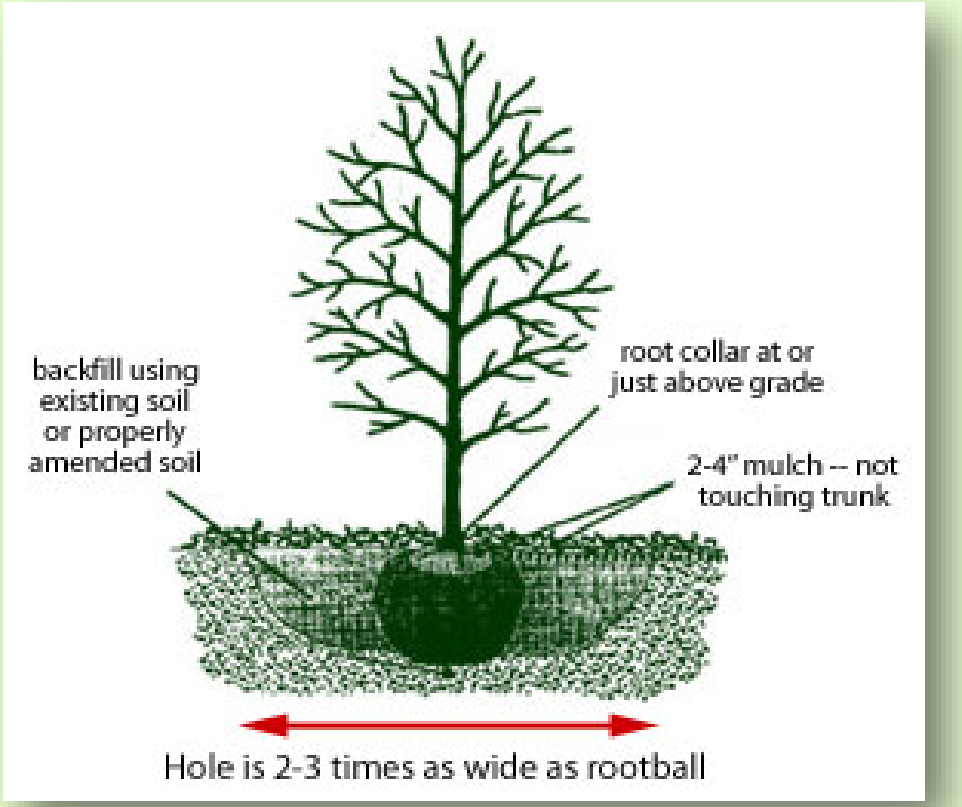
Target survival rate – approx. 75% is ideal

7. Site Preparations

- Prep site up to 1 year prior to planting
- Establish access to site
- Mowing & brush-hogging
- Herbicide treatment(s) as needed
- Soil amendment(s) as needed
- Address any and all invasive species on-site!

8. Plant your trees!

1. Dig shallow, wide hole
   - Width- 2-5x diameter of root ball
   - Depth- enough to cover roots with root collar at surface
   - Sloping sides
2. Place tree in hole, standing straight, roots 1-2” below surface, root collar at ground level
3. Fill hole with soil, tamping down as you go
4. Stake the tree; Shelter (if needed)
5. Mulch (optional)
6. *Maintain until establishment (1-3 years)*



The Keystone 10 Million Trees Partnership

- Coordinated by the CBF
- *"A collaboration effort of national, regional, state, and local agencies, conservation organizations, outdoor enthusiasts, businesses, and citizens to improve PA's communities, economy, and ecology."*
- Goal = **plant 10 million trees by 2025**
- Streamside buffers, as well as urban and suburban plantings
- Plants, materials, and guidance provided

Keystone
10 MILLION TREES
PARTNERSHIP

CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

The Keystone 10 Million Trees Partnership

Why 10 Million Trees?

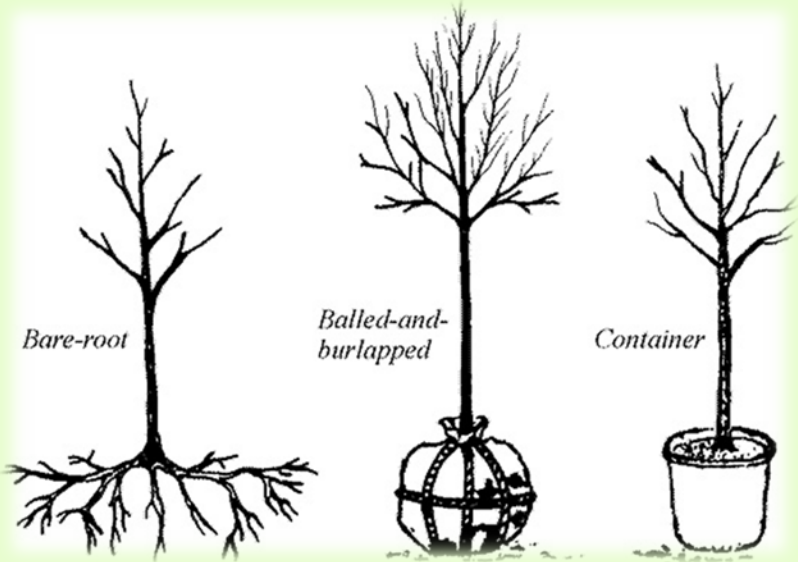
PA's 2016 Clean Water Blueprint calls for **96,000 acres** of new streamside forests to be planted by 2025

- 4.6 million lbs. of Nitrogen reductions
- 22.2 million lbs. of Sediment reductions
- 43,000 lbs. of Phosphorus reductions

The Keystone 10 Million Trees Partnership

Eligibility and Participation *(through CCCD)*

- Planting site located in Columbia County
- Streamside plantings = priority
- Min. 100 trees per planting site
- Trees, stakes, and shelters provided FREE
- Species and seedling type dependent on supplier
- Submit requests for trees for Spring or Fall planting
  - Name, address, contact info
  - Planting location address
  - Number of trees/shrubs requested
  - Species requests if available
  - Submit to: brittney.hartzell@columbiaccd.org



Additional Resources

Keystone 10 Million Trees Partnership: http://www.tenmilliontrees.org/

Columbia County Conservation District: www.columbiaccd.org

Fishing Creek Watershed Association: www.fcwa.net

Site Assessment Tools

- USDA Web Soil Survey: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
- Hydrological Data: https://streamstats.usgs.gov/ss/
- Topographic Mapping: https://www.usgs.gov/core-science-systems/ngp/tnm-delivery/topographic-maps
- Satellite and Historic Imagery: https://www.google.com/earth/

Online Resources

- Riparian Buffer Planting Guidelines: https://www.brandywine.org/sites/default/files/media/BrandywineConservancy-RiparianBufferGuide.pdf
- Buffer Zones and species suggestions: http://elibrary.dcnr.pa.gov/GetDocument?docId=1743387&DocName=Buffer%20Zones%20Species%20Fact%20Sheets%20FINAL.pdf
- DCNR Suggested native plant nurseries: https://www.dcnr.pa.gov/Conservation/WildPlants/LandscapingwithNativePlants/BuyNativePlants/Pages/default.aspx
- Proper planting techniques: https://www.arborday.org/trees/planting/
- Roles of trees in a healthy watershed: https://extension.psu.edu/the-role-of-trees-and-forests-in-healthy-watersheds
- How many trees to protect a stream? https://stroudcenter.org/news/how-many-trees/
- Common trees of PA: https://www.envirothonpa.org/documents/2011_CommonTreesBooklet.pdf
- Deer resistant plants: https://www.pgc.pa.gov/Wildlife/WildlifeSpecies/White-tailedDeer/Documents/Deer%20Resistant%20Plants.pdf
- Climate Change tree species projections: https://forestadaptation.org/sites/default/files/MidAtlantic_tree_species_Ridge%20and%20Valley.pdf

Check out our other webinars!

www.columbiaccd.org/workshops

- Vegetation for stormwater management (no mow zones)
- DIY rain barrels
- PA native plants
- Natural areas of Columbia County
- CCCD “Better Backyards” program
- Invasive species ID and mgmt.

Join our email list for future webinar and event announcements!

Questions?

Keystone 10 MILLION TREES PARTNERSHIP

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