

Backyard Stream Repair Overview

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Photo: Jessica Roberts Brown

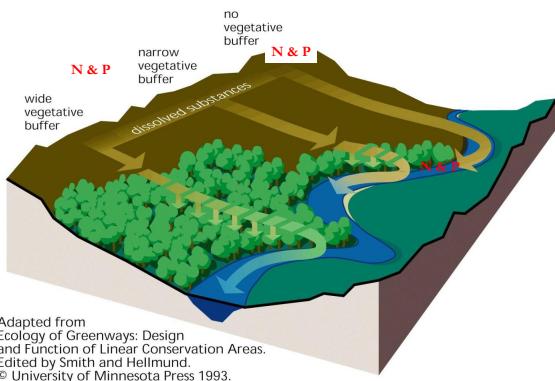
What Is A Streamside Buffer?

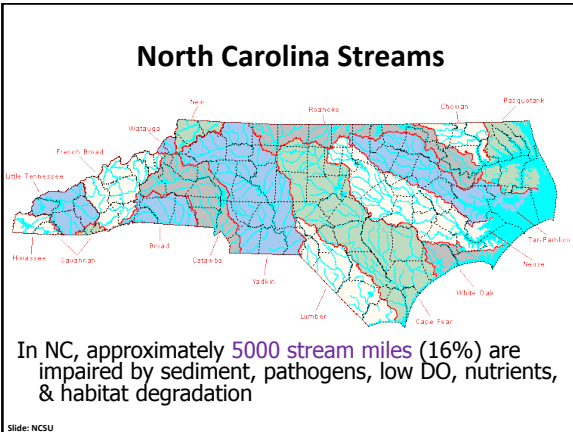
- Permanently vegetated
- Connects upland areas to streams
- Intercepts and filters stormwater runoff
 - Promotes infiltration
 - Nutrient and sediment load reductions
- Decreases velocity

Photo: ACES

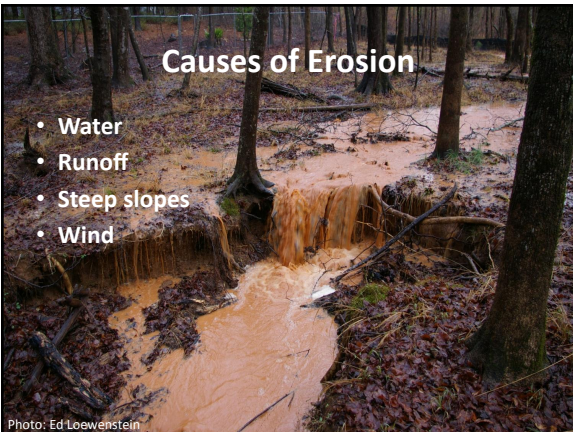
28/11/2011

Vegetative Buffer Width









Causes of Streambank Erosion

- Changes in stream flow
- Increased velocity
- Overland flow
- Concentrated runoff
- Removal of vegetation



Straight Streams



- Typically begin to meander over time
- Stream bends
- Portions of each bank erode
- Tight turns cause outside to erode more
- Sediment deposits on opposite bank



When to Call for Help




- Threatened infrastructure
- Unsafe conditions
- Permits are necessary
- Check for local authorities for regulations and codes



www.aces.edu/bufferkit

- Resources to answer homeowner questions related to stream bank erosion
- Site preparation
- Plant selection
- Technical Resources

Grant Deliverables

- Workshops in each state; NC, AL, GA and FL
 - Classroom time and hands-on site demonstration time
 - 500 linear feet of stream repair
 - Information housed on website
 - Access to webinars
- *Posted on the website at a later time



Site Prep and Assessment



Plant Selection

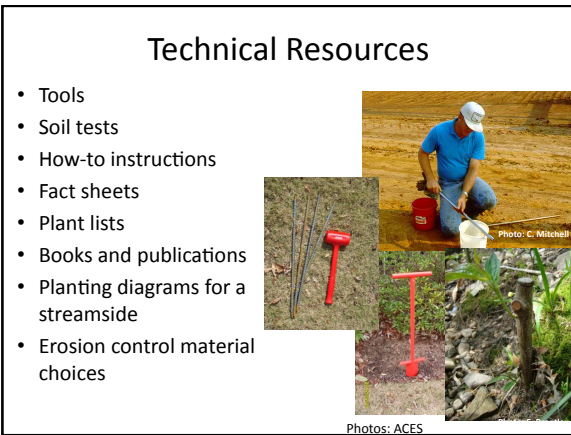
- Information to come
- Native plant choices
- Right plant, right place



Photos: NCSU

Technical Resources

- Tools
- Soil tests
- How-to instructions
- Fact sheets
- Plant lists
- Books and publications
- Planting diagrams for a streamside
- Erosion control material choices



Photos: ACES

Stream Assessment



28/11/2011

Photo: ACES



Photos: ACES

Burke Place Streamside Plantings

Streambank erosion is becoming a regular problem. Roads, parking lots, roofs and other impervious surfaces shed stormwater into nearby streams, and this rushing water carves soil away from vulnerable streambanks. When streambanks are not protected, erosion can take away much of your yard, and even threaten the stability of your house. Native plants can be installed to prevent future erosion and hold banks in place.

Alabama Cooperative Extension System (ACES) specialists met with members of Burke Place to discuss environmentally conscious options to repair neighborhood streambank erosion problems.

This handout provides summaries of suggestions provided by the ACES. Each reach has been prioritized based on feasibility.

For more information on live stakes, please visit: <http://www.aces.edu/files/extension/Ag%20Soil/2010/August/WG-09-10.pdf>

Lessons Learned

- Not everyone wants your help
- It's a LONG process
- Communication is vital
- Dedicated people make a difference

Photos: ACES

Healthy Stream Indicators

- Presence of aquatic life
- Clear stream
- No funny smells
- Shade available to stream
- Stable stream banks
- No trash or debris present
- Water is flowing in a pool, run, riffle pattern
- Stream meanders or moves through the land in an s-shape
- Good mixture of sand, pebbles, rocks

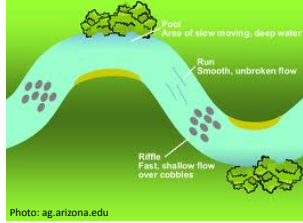


Photo: ag.arizona.edu

Slide: NCSU

Healthy or Unhealthy?



Photos: ACES




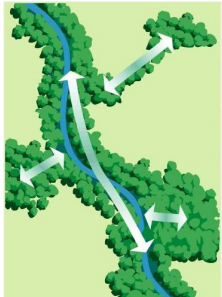
Photo: Joey Hundley, Lee Co.





What were the unhealthy streams missing?

- NATIVE TREES, SHRUBS!
- Floodplain
- Natural Habitats
- Good Water Quality



Slide Credit: NCSU

Stream Corridor Restoration: Principles, Processes, and Practices, 10/98, by the Federal Interagency Stream Restoration Working Group (FISRWG).

We Need Streamside Forests

- Unstable streambanks
- Past poor vegetation choices
- Increased impervious surfaces and runoff
- Areas of high erosion and washout



Urban Streams Need Buffers



- Water quality benefits - Intercepts and filters pollution
- Reduces future erosion
- Provides detritus and debris for stream
- Provides habitat and food for insects and wildlife
- Provides shading for stream - regulates temps for aquatic species
- Roots provide stability – HOLD SOIL IN PLACE



Photos: ACES

Successful Streamside Buffer



- Scout for potential problems
- Correct planting time
- Plant a variety of woody and herbaceous plants
- Right plant, right place
- Let the plants grow, don't mow!
- Necessary upkeep and maintenance





Nonnative Invasive Plants of NC

1. Privets (Chinese, Japanese) Compiled by NC Forest Service
 2. Kudzu
 3. Stiltgrass/Microstegium
 4. Wisteria
 5. Honeysuckle (Japanese, Bush)
 6. Tree of Heaven
 7. Multiflora Rose
 8. Lespedeza, (All Nonnative)
 9. Fescue
 10. Phragmites/Common Reed

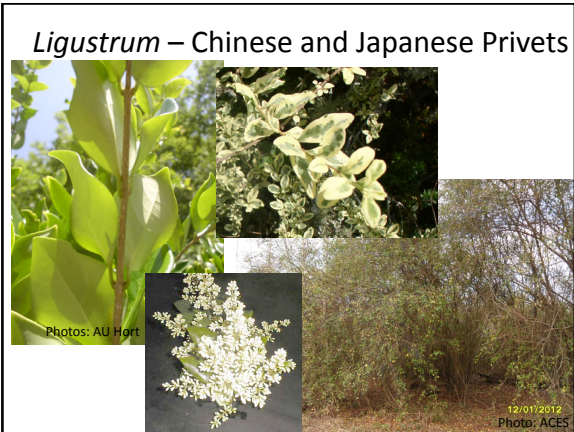



Associated Problems

- Increase wildfire hazard
- Decrease biological diversity
- Disrupt the ecological balance
- Inhibit growth of timber
- Choke out plants favored by wildlife
- Increase land management costs

12/01/2012

Photos: ACES



Ligustrum spp.–
Chinese and Japanese Privets

- Evergreen
- Opposite leaves
 - Japanese – leathery
 - Chinese – thin and papery
- White flowers –
 - April to June
- Black fruits in clusters –
 - July to March
- Prominent lenticels
- Choke out native vegetation
- Poor habitat and food source

Photo: ACES



Pueraria montana– Kudzu

- Deciduous climbing, twining, ropelike vine
- Alternate pinnately compound 3-leaflet leaves
- Cordate, trifoliate pubescent leaves, slightly lobed
- Purple, grape-scented flowers in clusters – June to September
- Green to brown pubescent flat, dry legume seed pods in clusters – September to January
- Leaves are killed with first frost
- Takes over existing vegetation

Microstegium - Stiltgrass

- Annual grass resembles bamboo
- Lance shaped leaves, 3” length
- Forms dense patches, displacing native vegetation
- Can be hand pulled or herbicides are available



Wisteria – Chinese and Japanese



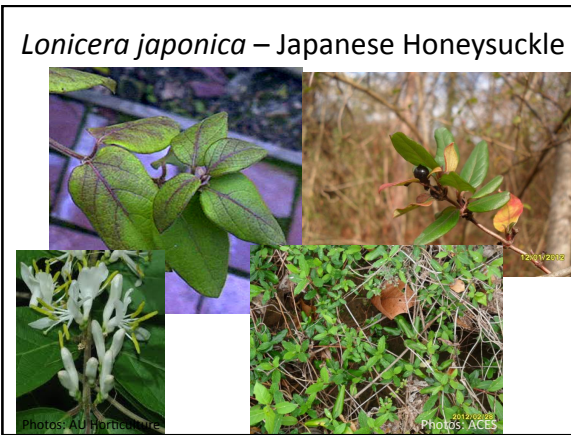
***Wisteria* spp. – Chinese and Japanese**

- Deciduous high climbing, twining, or trailing woody vine or shrub
- Alternate and odd-pinnately compound leaf with 9, 11, or 13 leaflets
- Very fragrant lavender flowers in clusters– March to May
- Flattened legume seed pod – July to November
- Occur on wet or dry sites
- *Native wisteria blooms AFTER leaves emerge
- *Non-native wisterias bloom BEFORE leaves emerge



UGA2132045

***Lonicera japonica* – Japanese Honeysuckle**



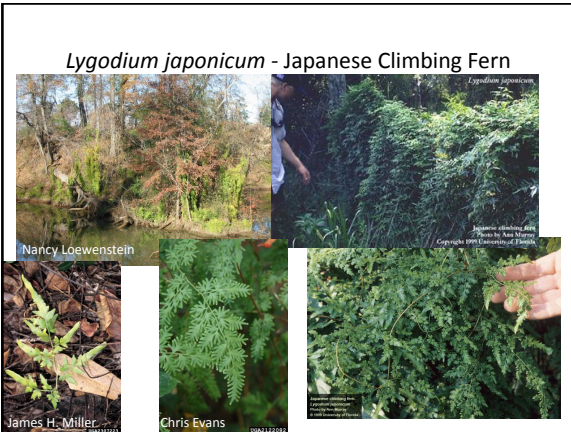
Photos: AU Horticulture
Photos: ACES

***Lonicera japonica* – Japanese Honeysuckle**

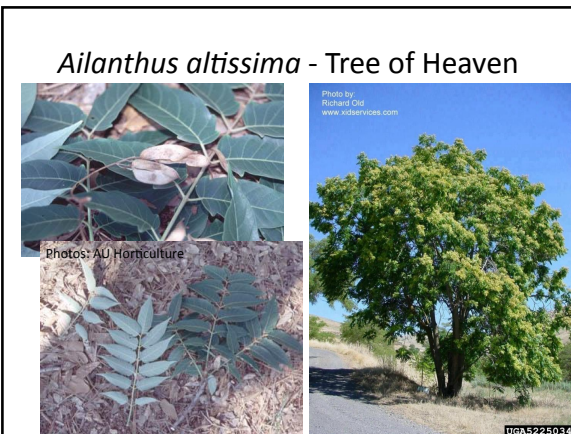
- Semi-evergreen to evergreen woody vine
- Vigorous climbing and trailing vine
- Red-brown stems
- Fragrant white flowers that fade to yellow - April to August
- Flowers in axillary pairs, tubular shaped
- Opposite simple leaves
- Rounded base with pointed tip
- Shiny black fruit - June to March



Photos: ACES



- Lygodium japonicum* - Japanese Climbing Fern
- Perennial fern with climbing twining fronds
 - Deciduous lacey, finely divided fronds
 - Light green fronds spring to fall turning to tan brown in winter months
 - Red or green wiry stem, hard to break
 - Forms dense canopy, chokes out other vegetation
 - Wind and water dispersed spores, rhizomes below ground
 - Chemical, mechanical, biological, and preventative controls



Ailanthus altissima - Tree of Heaven

- Deciduous tree with a shallow root system
- Alternate, odd or even pinnately compound leaf with 10 to 41 leaflets
- Long tapering tips and lobed bases
- Light green to red stalks
- Small yellow-green flowers – April to June
- Single samara fruit, twisted tips – July to February

Photo: Chuck Bargeron UGA1150026

Invasive Removal

- Physical removal
- Foliar Application
- Cut and paint
- Basal spray

Photos: ACES

Cut Stump Treatments

- Selective
- Little to no damage to surrounding vegetation
- Allows roots to stay in hold soil in place
- Minimal amount of herbicide used
- Herbicide dyes available
- Safety glasses
- Check label for other PPE

Photos: ACES

Cut Stump Treatment - Chinese Privet



Photos: Stephen Enloe

Cut Stump Before



Photos: ACES

Cut Stump After



Foliar Application

- Woody and herbaceous vegetation
- Late spring, summer and early fall treatment
- Woody species up to 8'
- Climbing vines
- Herbaceous species at least 12-24" tall
- Active ingredient is species dependent



Backpack foliar treatment of Chinaberry
Photo: Stephen Enloe

- Good coverage at terminal growing point
- Spray to wet coverage
- Over-application = wasted herbicide
- Safety equipment
 - Eye protection
 - Check label for required PPE
- Surfactants, spray indicators, and antifoaming agents available



Excessive herbicide application. Note the pooling at the leaf tips.
Photo: Stephen Enloe

What happens when we ignore it?



Photo: JESSICA Roberts Brown

There is hope!



Photo: ACES

06/10/2011

Resources

NC State Cooperative Extension
<http://www.ces.ncsu.edu/>

ALOA - auburnalabama.org
<http://www.auburnalabama.org/WRMDir/ALOA/Stormwater%20-%20stream%20Buffers.pdf>

NCSU – Riparian Buffers
<http://www.bae.ncsu.edu/programs/extension/wqg/sri/riparian5.pdf>

Alabama Smart Yards
<http://www.aces.edu/pubs/docs/A/ANR-1359/ANR-1359.pdf>

NC Forest Health Highlights 2010
http://fhm.fs.fed.us/fhh/fhh_10/nc_fhh_10.pdf

NC Forest Service
<http://ncforestservice.gov/publications/Forestry%20Leaflets/FM15.pdf>

A Field Guide for the Identification of Invasive Plants in Southern Forests
 J. Miller, E. Chambliss, S. Enloe and N. Loewenstein

Resources

City of Raleigh - Environment and Sustainability
<http://www.raleighnc.gov/environment>

City of Winston-Salem Stormwater Division
<http://www.cityofws.org/default.aspx?mod=Article&id=411>

Alabama Smart Yards, Florida Friendly Landscaping, Tennessee Yards and Neighborhoods

ACES Timely Information Articles http://www.aces.edu/timelyinfo/Ag%20Soil/2010/December/Dec_2010_E.pdf
http://www.aces.edu/timelyinfo/Ag%20Soil/2010/December/Dec_2010.pdf
http://www.aces.edu/anr/crops/documents/Timelyinformationsheet_CutStumpHerbicideTreatmentforControllingInvasivePlants.pdf

Invasive Plants of the U.S.
www.invasives.org

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