

Stream Buffer Maintenance

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Riparian Buffers



Overview:

- Make a goal and a Maintenance plan, who is going to do the maintenance? First three to five years most important!
- Site Prep (altering species makeup)
- Tree plantings and seeding
- Invasive/Pest I.D.(regional problem species)
- Managing and monitoring techniques (IPM)!
- Public awareness and signage
- Summary

Goals and planning

- What are our goals?
 - Simple no-mow zone or a full scale stream restoration?
 - Grasses or Trees?
- Detailed maintenance plan!
 - All too often the maintenance side of a riparian buffer is overlooked
 - Realize that there will be a good deal of work, especially in the first three to five years when establishing a buffer.
 - A lot of the work within the buffer might be unconventional for some. It's ok to step out of a previous maintenance (mowing) routine.
 - Make sure people working within the buffer are qualified/trained to do so especially when dealing with chemical treatments, i.e. pesticide certifications.

Site Preparation

- Invasive wipeout!
 - An ounce of prevention = a pound of cure!
- What native vegetation to keep
 - Identify any native tree and shrub species in which will benefit the riparian buffer and protect them during site prep.
- Soil prep
 - Soil test- then fertilize and prepare as needed.
 - PH very important

Installation



Choosing Grasses or Trees

Grasses:

- Great job of absorbing excessive nutrients, pollutants and water runoff.
- Maybe the only option for golf courses and utility easements.
- Provide wildlife habitat for nesting cover, food source and deter unwanted geese.

Trees:

- Reduce water temperature by shading waterway.
- Reduce erosion of banks by extensive root structure.
- Reduces invasive vegetation when established by canopy cover.

Both:

- Combines all benefits which in ecological benefits is good
- Requires more detail work (careful mowing and spraying)

Ernest seeds riparian mixes



Northwest PA Man-Made Wetland

Seeding and Tree planting

- Seeding:
 - Ernest Conservation Seeds has a great selection of riparian mixes that are designed to be native to our area.
 - Try to promote native warm season grasses: Switchgrass, Indian grass, Eastern Gamagrass ect.
 - Add jute mesh to stabilize bank while establishing buffer and seeding.
- Tree Planting:
 - Time of year fall or spring, also depends on tree availability.
 - Tubes or no tubes?
 - Tubes protect trees better (spraying, mechanical injuries, deer and other animals), but require more maintenance and cost more.
 - Different types of tubes, aesthetics?

Tree Tubes

- New and the old



• Types of trees and shrubs to plant:

- Red Maple
- River Birch
- Sycamore
- Smooth alder
- Elderberry
- Persimmon
- Green ash * limit extent planted due to threat of Emerald Ash Borer
- Sweet gum
- Yellow poplar
- Black gum
- Loblolly pine
- Swamp white oak
- Pin oak
- Willow oak
- Shadbush
- Red chokecherry
- Silky dogwood
- Gray dogwood *
- Winterberry holly
- Cottonwood



Live Stakes

- Live stakes are cuttings from trees that are transplanted to stream banks.
- Species to use:
 - Redosier dogwood *
 - Black willow
 - Buttonbush
 - Pussy Willow



Deer Problems



Managing problem wildlife

- Erosion control



Controlling Invasive Species

- Weed I.D.- local problem species:

Tree of heaven- *Ailanthus altissima*



Invasive cont...

- Japanese Hops- *Humulus japonicus*



Invasives cont..

- Poison Hemlock:



- Canadian Thistle- *Cirsium arvense*



Invasives cont..

- Teasel: Biannual



Invasives cont...

- Jimsonweed:



Invasives cont..

- Giant Ragweed:



Invasive control

- Controlling techniques

- Spraying

- Auqamaster or Rodeo (Glyphosate based) around waterways

- Mechanical

- Reduced mowing to once a year, after August 15th (nesting season)!
 - Spot weed-eating

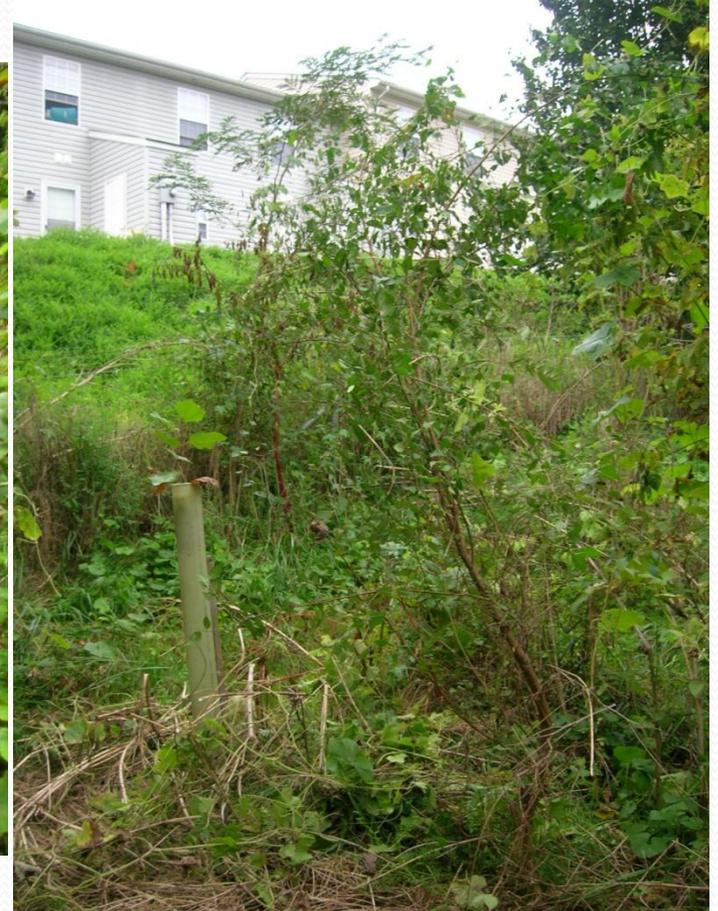
- Manual

- Digging and Hand pulling: especially with trees that are overgrown with invasive vines.

- Why?

- Non-native invasive plants take over large areas, limiting native plant growth. This process is know as monoculture (only one dominate plant)
 - We as land managers should promote diversity in our buffers to maximize the buffer's environmental service and integrity.

Japanese hops manual removal



Weed Control

- Spraying and hand pulling



Pond Management

- Removing invasive aquatic weeds
 - Mechanical removing of aquatic weeds
- Nutrient management
 - Removing weeds reduces nutrients in pond
- Removing invasive fish
 - Goldfish and other undesirables that effect native fish species.
- Stocking Program
 - Stock appropriate levels of native game fish for recreation
- Aeration
 - Fountains and aerators , increase D.O. levels and reduce algae by creating surface movement.

Pond Buffers

- Reduce geese presence and filter nutrients



Indiangrass at Golf Course

Invasive goldfish control



Ponds Cont...



Trash Removal

- Important for public opinion and aesthetics of a buffer.
 - Urban runoff and storm water creates a lot of trash in buffer areas during flooding.
 - Organize groups to help out with this reoccurring problem



Monitoring

- Weekly monitoring visits
 - Stay on top of invasive and erosion problems
 - Might want monitor effects of your buffer on water quality. (before and after)



Signage Public Outreach

- Educational signs are important to the community for understanding the importance of Riparian Buffers.



Summary

- Plan ahead and make a maintenance plan
- Plant native vegetation
- Control invasive weeds
- Reduce mowing and start no-mow zones
- Trash removal
- Educate the public whenever possible
- Enjoy the benefits from your new riparian buffer!
- Stream Buffer Maintenance Handbooks