Hailey Baranowski Preston Riparian Buffer Proposal 47 River Road, 147 Old Jewett Road, Preston, CT

Goals/deliverables:

- Complete riparian buffer site assessment
- Create riparian buffer layout for 2 sites in Preston
- Suggest plantings and maintenance
- Experience planning process start to finish and produce final product for Preston conservation commission

What is a riparian buffer?

According to the Tennessee Riparian Buffer Handbook, a riparian buffer is, "... the transitional area between land and water that contains a mix of trees, shrubs, grasses and wildflowers"¹. Riparian buffer plantings act as a cushion between the waterbody and human development to protect from anthropogenic impacts. This can help stabilize soils, improve water quality, and introduce wildlife habitat or pollinator area.

Why are riparian buffers important?

- Soil erosion
 - Planting species with fibrous roots can stabilize eroded soils.
- Filter out chemicals/sediment
 - Runoff from the road can be absorbed by a buffer before reaching the adjacent waterbody.
- Flood control
 - Buffers with healthy soil can help absorb excess water, reducing flood risk.
- Habitat for animals or insects
 - Planting pollinator powerhouse species can provide larval habitat and food sources for a variety of animals and insects.
- Aesthetics
 - Appealing arrangements, variety in leaf shape and color, and wildlife sightings will please the public and encourage them to learn more about riparian buffers.

Possible Buffer Sites



146 Jewett Road (500 sq. ft. per side)



147 River Road (1000 sq. ft. rectangle)

Visit Photos



147 Old Jewett Road

Assessment

B. Tennessee Riparian Buffer Site Assessment	B. Answer the following questions to score the candidate buffer planting site and then that score to rank it against other sites being considered for planting. Assign one poin for a "yes" answer. The site with the lowest total score is given the higher priority in planting.
prioritization tool for scoring and comparing it against other potential planting sites.	CANDIDATE SITE ASSESSMENT QUESTIONS Yes (1
I. Project Site Landowner/Address Landowner Name: <u>Site: Mone: / Availania, Land. Consentania,</u> Landowner Contact (Phone): <u>Money: Site: 1952, Uk-weil: Site: 1960</u> Project Sitee: Address: 1950 Old Truckt: CANA, RA	Loss the buffer contain a mix of trees, shrubs, and herbaceous plants (grasses, wildflowers). An deal buffer contains a mix of native vegetation that maximizes a buffer's functions and benefits (see Appendix A). For example, if the area is mostly grasses, it would reterive a size of ervo.
City: <u>Produom</u> Zip: <u>Op2405</u> Land Ownership (circle one): Federal State City NGO (Private) Stream Name (or pracets downstram): <u>OutProduct One</u> One	2 is the width of the existing buffer (mix of trees, shrubs, grasses) on each side of the bank at least twice the width of the waterbody? This question assesses whether there is currently an adequate buffer width and is based on a Variant Beoources Contextuation Service (NortS) guideline.
I. Existing Riparian Buffer Characteristics Does the landowner own land on both sides of the stream? Yes Stream frontage culeft side facing downstream Length in t= Sign Eff Current buffer condition (circle one) Baff Sign DemotMonterStream Example Sign DemotMonterStream Example Sign Example	 will masure into shade-bearing treat A critical function of an unstan lotter to provide a tike approximation shading to a subject of a water. Many aquatic nexts and for cannot survive in ware waters and in usuban areas where the source of runding of the water. Shany aquatic nexts and for cannot survive in ware masters and in usuban areas where the source of runding of the stress of the stress
Existing buffer width (mix of trees, shrubs, grasses) in ft (measure from top of stream bank to buffer edge): 12 S +	important that the stream banks be well protected by an extensive and deep root system.
Stream frontage on right side facing downstream	TOTAL POINTS 2
Length in ft: <u>20F</u> t	NOTES:
Current buffer condition (circle one):	- owner shows lots of enosion
Bare Soil Open/Mowed Shrubs Shrubs/Trees Trees	- CI L C
- Existing buffer width (mix of trees, shrubs, grasses) in ft (measure from top of stream bank to buffer edge): <u> -20 F k</u>	troos atten
Attach a map: Shade in the targeted planting area on a map (e.g., Goagle map, local tax map).	The Tennessee Urban Riparian Buffer Handbook Series
III. Site Assessment A. Is the landowner supportive of the riparian planting and willing to ensure that the riparian buffer will be protected? If NO, eliminate this site as a candidate. If YES answer the questions in Section B.	This handbut is one of a service of supporting appendices to the Tennesse Urban Riport Buffer Handbook. To downkad got to the Urba/m gavagenuture topol/ag forests/urban 8. The tennesse Urban Riparan Buffer 9. Tennesse Bugana Buffer Ste Assessment C. Creating a Tennesse Urban Riparian Buffer 9. The Thread of Unaske Pathatis To Intensee tuban Riparian Buffer 9. The Thread Unaske Pathatis To Intensee tuban Riparian Buffer 9. Organizing and Conducting & Riparian Duffer Community Planning 6. Properly Installing Plants: How to Buffer Tenses Plants
The Tennessee Urban Riparian Buffer Handbook Series B-1	B-2 The Tennessee Urban Riparian Buffer Handbook Sr

- Score 2/4
- No points for criteria 2 or 4

Areas of concern:

- Eroded banks, frequent flooding
- Invasives found at site (autumn olive)



47 River Road

Assessment

B. Tennessee Riparian Buffer Site Assessment	B. Answer the following questions to score the candidate buffer planning site and then us that score to rank it agains to ther sites being considered for planning. Assign one point for a "yes" answer. The site with the lowest total score is given the higher priority in planning.
prioritization tool for scoring and comparing it against other potential planting sites.	CANDIDATE SITE ASSESSMENT QUESTIONS Yes (1)/ No.(0)
I. Project Site Landowner/Address Landowner Name: <u>Hiddon Attres Comportuitd</u> Landowner Contact(Phone/Imail: <u>300-85716252</u> Profest Stores 400-85716252	1. Des the buffer contain a mix of trees, shrubs, and herbaceous plants (grasses, wildflowers). An ideal buffer contains a mix of native vegetation that maximizes a buffer's functions and burnefits (see Appendix A). For example, if the area is mostly grasses, it would receive a zone of zono.
Copy Protection Joint Control Copy Control Copy Copy Copy Copy Copy Copy Copy Copy	2. Is the width of the existing buffer (mix of trees, shrubs, grasss) on each side of the bank at least twice the width of the waterbody? This question assesses whether there is currently an adequate buffer width and is based on a Natural Resources Commention Service (NOSS guideline.
II. Existing Riparian Buffer Characteristics Does the landowner own land on both sides of the stream? (Yes) No	J. Does the site offer shading to the stream or contain seedlings or saplings that will matter info shad-bearing trees. The provide at least partal shadings to the adjacent watemup to adjacent of an urban buffer is to provide at least partal shading to the adjacent watemup to adjacent of an urban areas where the source of runoff is often from blacktop, shading by trees of urban areas.
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Stream frontage on right side facing downstream N/A • Length in ft:OPT	NOTES: TOTAL POINTS 1
Current buffer condition (circle one): Bare Soil Open/Mowed Shrubs: Shrubs:/Trees Trees	2 J marg parts
 Existing buffer edge): OFE	
Attach a map: Shade in the targeted planting area on a map (e.g., Google map, local tax map).	The Tennessee Urban Riparian Buffer Handbook Series This handout is one of a series of supporting appendices to the Tennessee Urban Riparian
III. Site Assessment A is the landware supportive of the riparian planting and willing to ensure that the riparian buffer will be protected?	Buffer Handbook. To download go to http://ng.ov/agriculture/hopic/ag-forests-unban A. The Tennesse Buparan Buffer B. Tennesse Buparan Buffer Ste Assessment C. Creating a Tennesse Urban Riparian Buffer D. Tennesse Altweiß Berrich Ster Vir
If NO, eliminate this site as a candidate. (VES) inswer the questions in Section B.	 Terrinesse ratio en japanan Huans, Luis E. The Thread I Invasive Burks to Tennessee Urban Riparian Buffers F. Organizing and Conducting a Riparian Buffer Community Planting G. Properly Installing Plantics Hook Plant Trees and Shrubs
The Tennessee Urban Riparian Buffer Handbook Series B-1	B-2 The Tennessee Urban Riparian Buffer Handbook Seri

- Score 1/4
- No points for criteria 1-3

Areas of concern:

- Runoff from road
- Lack of biodiversity
- Eroded banks

Recommended Flora For wet-moist soil conditions with occasional flooding

All information on plant species pollinator interactions and bloom time from Julianna Barrett's Native Plants for Riparian Corridors in Connecticut.

Trees

- Betula nigra (black birch, river birch)
 - early pollen avail, pollinated by birds, supports Mourning Cloak and Dreamy Duskywing butterfly both verifiably found in New London county³
 - fibrous root system⁴
- Acer saccharinum (silver maple)
 - early nectar avail, larval host for Cecropia silk moth verified in NL County³
- Salix nigra (black willow)
 - birds and mammals eat, larval host for many butterflies, bloom later in spring as a pollen source for native bees.

- Good erosion control⁸

Shrubs

- Aronia melanocarpa (black chokeberry)
 - Late may/ early june bloom, birds eat the fruit in summer.
 - Low maintenance and fruits are edible for humans.
 - Fibrous root source¹¹
- Viburnum opulus (guelder rose)
 - Pollinator Powerhouse (butterflies, bees, bumblebees)¹²
 - Spring bloom
 - Summer fruit for birds is also edible for humans
 - Low maintenance
 - Fibrous root source¹⁴

Grasses

- Carex stricta (tussock sedge)
 - Larval host for Skipper spp. and Black Dash (verified in NL county)³
 - Food for birds
 - Bloom in late spring but provide year-round services

Herbaceous Plants

- Hibiscus moscheutos (rose mallow, crimson eyed mallow)
 - Showy (pretty for people seeing the buffer)
 - Can tolerate standing water
 - Great along streams¹⁶
- Mimulus ringens (allegheny monkeyflower)
 - Good for boggy locations
 - Deer resistant
 - Attracts bumblebees, butterflies, hummingbirds
 - Larval source for Baltimore checkerspot and Common buckeye¹⁸
 - Maintenance deeply spade around perimeter of monkeyflower planting twice a growing season²⁰
 - Spring and late summer
- Rudbeckia lacinia (tall coneflower)
 - Pollinates bees and butterflies
 - Bird food

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Buffer Composition

47 River Road



147 Old Jewett Road



Maintenance

- Early successional habitat in buffers is often marked by the new growth of weeds. Weeds around the base of plantings should be removed. Different weeds require different treatment plans the <u>Weed Control Handbook</u> should be referenced for guidance.
- Long-term, some tree management may be necessary to ensure the root system does not damage nearby roads. Suggested tree species in this plan are able to be grafted for new trees when necessary, and can be performed by a community member or arborist.
- Monitoring the area for invasives is important in ensuring the success of planted species. An identification guide for invasives could be created to educate landowners on the management and safe removal of these species.

Uncertainties and Solutions

- Regarding the success of initial plant growth and adaptation to planting:
 - Watering. Particularly carex stricta and hibiscus moscheutos should be kept damp consistently throughout summer to ensure their healthy adaptation to the soil.
- Regarding disrupting plant growth by human interaction:
 - Signage. A sign including information on riparian buffers and species found at the site could increase public interest at the site. Including a warning of the dangers of disrupting the habitat will encourage the public to stay off the growing area.
- Regarding litter/waste management:
 - Must be handled at landowner discretion. Suggested area is monitored periodically for trash.

Future Directions

- Current buffer only provides runoff and erosion control due to small width. In the future, a wider buffer would increase ecosystem benefits. At 47 River Road, this would look like relocating the road to the left to increase the buffer width. While this would improve water quality from road toxins, it would be an expensive move, while pushing noise closer to homes. At 147 Old Jewett Road, expanding the buffer further downstream where more invasives and degraded environments can be found could help revitalize these habitats.

Works Cited

- 1. Department of Agriculture. "Urban Riparian Buffer Program." TN Division of Forestry, Sept. 2015, https://www.tn.gov/agriculture/forests/urban/buffer.html.
- ArcGIS Web Application, https://cteco.maps.arcgis.com/apps/webappviewer/index.html?id=bc58b6b55b3145fc97d d736a6d140e8c.
- "Regional Species Checklists." Regional Species Checklists | Butterflies and Moths of North America, 2023,

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https://www.butterfliesandmoths.org/checklists?species_type=All&tid=45657.
```

- "Betula Nigra." Betula Nigra Plant Finder, https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=2 77830.
- 5. Betula Nigra.

https://cherrycreeknursery.com/wp-content/uploads/2015/06/Birch-Heritage-Single.jpg.

- "Silver Cloud Silver Maple (Acer Saccharinum 'Silver Cloud') at Millcreek Nursery Ltd." Millcreek Nursery Plant Search Resource, 2017, http://search.millcreeknursery.ca/11050005/Plant/1645/Silver Cloud Silver Maple.
- 7. "Black Willow (Salix Nigra)." Forestry Images, 24 Aug. 2012, https://www.forestryimages.org/browse/detail.cfm?imgnum=5472489.
- 8. "Salix Nigra." Salix Nigra (Black Willow) | North Carolina Extension Gardener Plant Toolbox, https://plants.ces.ncsu.edu/plants/salix-nigra/.
- 9. "Aronia Melanocarpa." Ashwood Nurseries a Growing Passion, 2023, https://www.ashwoodnurseries.com/shop/plants/shrubs/aronia-melanocarpa.html.
- "Aronia Melanocarpa." Aronia Melanocarpa (Black Berried Aronia, Black Chokeberry) | North Carolina Extension Gardener Plant Toolbox, https://plants.ces.ncsu.edu/plants/aronia-melanocarpa/.
- 11. New England Wild Flower Society (http://plantfinder.nativeplanttrust.org). "Aronia Melanocarpa." New England Wild Flower Society, 2023, https://plantfinder.nativeplanttrust.org/plant/Aronia-melanocarpa.
- 12. New England Wild Flower Society (http://plantfinder.nativeplanttrust.org). "Viburnum Opulus Var. Americanum." New England Wild Flower Society, 2023, https://plantfinder.nativeplanttrust.org/plant/Viburnum-opulus-var-americanum.
- 13. "Viburnum Opulus Highbush-Cranberry." Native Plant Trust: Go Botany, 2023, https://gobotany.nativeplanttrust.org/species/viburnum/opulus/.
- 14. Leeth, Frederick. "Viburnum Opulus (European Cranberry Bush)." Backyard Gardener, 21 Sept. 2016,

https://www.backyardgardener.com/plantname/viburnum-opulus-european-cranberry-bus h/.

- 15. The Xerces Society (2016), Gardening for Butterflies: How You Can Attract and Protect Beautiful, Beneficial Insects, Timber Press.
- 16. "Hibiscus Moscheutos (Hardy Hibiscus)." Gardenia.net, https://www.gardenia.net/plant/hibiscus-moscheutos.
- 17. "Hibiscus Moscheutos (Swamp or Eastern Rose-Mallow)." Master Gardeners of Northern Virginia, 17 Aug. 2022,
- https://mgnv.org/plants/native-plants/perennials/hibiscus-moscheutos/.
 18. Leeth, Frederick. "Viburnum Opulus (European Cranberry Bush)." Backyard Gardener,

21 Sept. 2016, https://www.backyardgardener.com/plantname/viburnum-opulus-european-cranberry-bus h/.

- 19. "Mimulus Ringens Allegheny Monkey-Flower." Native Plant Trust: Go Botany, 2023, https://gobotany.nativeplanttrust.org/species/mimulus/ringens/.
- 20. Hassani, Nadia. "Knowing about Rhizomes Helps You Make Smart Plant Choices." The Spruce, The Spruce, 5 Aug. 2022, https://www.thespruce.com/rhizomes-2131103.
- 21. "Rudbeckia Laciniata Green-Headed Coneflower." Native Plant Trust: Go Botany, https://gobotany.nativeplanttrust.org/species/rudbeckia/laciniata/.
- Bentrup, G. "5.10 Protection and Safety." Conservation Buffers Design Guidelines for Buffers, Corridors, and Greenways, USDA. Forest Service, Southern Research Station, Asheville, 2008.
- 23. Public Domain Pictures Free Stock Photos. https://publicdomainpictures.net/.