

2009

# Connecticut River Estuary Riparian Sampler



photo: Tidewater Institute

Created for the  
Connecticut River Gateway Commission  
By Tidewater Institute

## ABOUT THIS SAMPLER

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The pictures contained in this sampler come from the 2006 investigation of Connecticut River estuary riparian buffers undertaken by the Connecticut River Estuary Regional Planning Agency (CRERPA) and Tidewater Institute (TI).

The intent is to demonstrate what natural and modified riparian buffers look like, with helpful suggestions for enhancing the effectiveness of these important environmental filters.

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*The* wooded and marsh fringe that makes up a large part of the shoreline along the lower Connecticut River is more than just an aesthetic enhancement that provides for pleasant boating experiences on the River. These vital shoreline boundaries, referred to as **riparian buffers**, provide critical environmental services.

Natural vegetation -- with a variety of plants, including low-growing herbs, mid-sized bushes and taller canopy trees -- provide a rough surface that incorporates and reduces potential pollutants from reaching the River and its tributaries. Plant life can slow down and absorb excess fertilizer, for example, sparing the aquatic habitat potentially harmful amounts of chemicals that can have impacts further downstream and ultimately to Long Island Sound.

There is great interest in understanding how much, where and in what shape the riparian buffers in the lower Connecticut River valley are, toward furthering our overall understanding and management of this vital resource in the Long Island Sound region. To this end, the **Environmental Protection Agency**, through the **Long Island Sound Futures Fund (LISFF)**, has funded several important studies of the lower Connecticut River region. In 20xx, a study undertaken by the **Connecticut River Estuary Regional Planning Agency (CRERPA) and Tidewater Institute (TI)** generated a series of GIS maps and datasets that identify parcels, ownership, and riparian buffer status, including the potential for restoration and priority for protection.

In 2007, Tidewater Institute received LISFF money to work with the Connecticut River Gateway Commission and the Connecticut River Estuary Regional Planning Agency to establish recommended vegetated buffer standards for adoption by Gateway towns. This project has sought to craft realistic zoning regulations that will balance land use with the protection of water quality, habitat and the scenic and cultural resources of the lower Connecticut River region. Protection and enhancement of vegetated, or riparian, buffers is the most cost effective way to protect important water resources. Even modest plant buffers can protect stream tributaries and the river mainstem — and ultimately Long Island Sound — from nutrient enrichment and loss of critical living marine resources.

***For more information on these projects and more, please visit the CRERPA website: [CRERPA.org](http://CRERPA.org).***



1. This is a healthy, tidal riparian buffer toward the mouth of the Connecticut River. It maintains a diversity of vegetation – trees, shrubs and tidal grasses. This riparian area has species diversity (a good variety of plants) and structural diversity as well.



2. This is a fine example of a diverse mid-estuary riparian buffer that contains an abundance of predominantly tree and shrub species. The density of vegetation makes it easy to see why wildlife – particularly breeding and migratory birds – finds refuge in such places along the water's edge.



3. Existing natural buffer. Because of slope, this buffer could be enhanced by the addition of native shrubs that would help ensure that the buffer is stabilized and capable of absorbing any runoff from the adjacent lawn.



4. Long slope (gradual) increases likelihood of percolation of runoff from steeper slope adjacent to house. Modest waterfront buffer would ensure that any contaminated runoff doesn't enter the Connecticut River.



5. Partial buffer. Flat land and apparent modest use of property ; even a 10' buffer strip of un-mowed or infrequently mowed vegetation to "rough up" surface would encourage infiltration before any potential contaminants could reach the River.



6. The addition of native vegetation to this bare slope would mitigate the potential for soil erosion and encourage infiltration and uptake of any pollutants that may come from the upslope lawn.



7. This partial buffer may not be up to the task of slowing and incorporating potential nutrients and chemicals from the sloping lawn behind it. Low native shrubs or ornamental grasses would enhance the buffer without sacrificing the view.



8. Even a gentle slope of grass has the potential to send excess nutrients and lawn chemicals directly into the receiving waters without the benefit of a buffer. A partial buffer exists; even a modest added area of native low shrubs would help mitigate this site.



9. The existing cleared slope is a perfect place to add native vegetation that would help prevent soil erosion while also incorporating potential polluted runoff from the lawn.



10. This riverside buffer is a welcomed addition to this residential property. It's location at the base of a steeply sloping lawn may not be sufficient to stop polluted runoff after a significant rain event and would benefit from an intermediate area where the lawn is mown infrequently to help slow runoff.



11. A low slope and partial buffer help mitigate the potential polluted runoff from this residential lawn. A modest low native-shrub border integrated with the shoreline boulders would significantly improve the filtering capability of this buffer.



12. A steep slope and lack of direct shoreline buffer suggest that this site is at risk for generating polluted runoff. However, the “roughness” of the slope vegetation (plant height) contributes toward infiltration before any polluted water can reach the shoreline.



13. This shoreline buffer of natural vegetation provides an opportunity for any polluted runoff to be assimilated into the buffer plants or soil before reaching the River. It also provides valuable wildlife habitat.



14. The length and relative flatness of this residential lawn help mitigate potential impacts from polluted runoff; however, the lack of a direct shoreline vegetated buffer increases the chances that unwanted chemicals reach the River. Low-growing native shrubs incorporated along the stone frontage would help slow down and incorporate any pollution originating from the lawn.



15. Multiple land owners could invest in an attractive shoreline buffer that would not impede either views or access, and could go a long way toward protecting the river from any excess pollutants coming from these lawns.



16. An entirely natural riparian buffer performs multiple functions: it filters pollutants, mitigates flood water, moderates temperature, creates an aesthetic backdrop and provides diverse wildlife habitat.



17. This municipal property could serve as a demonstration site for native riparian buffers as attractive amenities that also serve important environmental benefits.



18. A modest, low native buffer along the water would not substantially detract from this visual expanse of lawn, and could play an important environmental role protecting the water quality of the Connecticut River.



19. Even invasive plant species, such as this buffer of Japanese knotweed, can provide important environmental benefits (although may be undesirable for other reasons and best replaced by native species.)



20. The low slope and close proximity to the water of this lawn make the need for a vegetated buffer even more important. Leaving even a fifteen foot buffer of infrequently mown grass (such as a fescue mix) or wildflowers would make an environmental difference without sacrificing a view or access.



21. This natural buffer compliments the setting of this house while also performing important environmental functions. An organically managed lawn would ensure that polluted runoff does not reach the water.



22. Although the low slope and relative length of this lawn improve the chances for any polluted water infiltration, its proximity to the water and lack of any shoreline vegetation that could slow runoff down or take it up make this property a good candidate for a buffer.



23. A poster child for riparian buffers! This property demonstrates the potential for maintaining a wooded shoreline buffer and a stellar view both from and to the water. A healthy riparian buffer includes stratification of trees, shrubs and herbaceous plants, and provides wildlife habitat, organic nutrients to the water, and an attractive and reasonably low maintenance lawn alternative.



24. Although wooded, this steep-sloped property may lack enough understory vegetation – shrubs and herbaceous plants – to prevent overland flow of potentially polluted water from the house/yard above, especially from late summer thunderstorms. A modest buffer at the top (or bottom) of the slope would help ensure protection.



25. This residence is nestled within a fully functioning and healthy shoreline riparian buffer that provides abundant habitat for wildlife, organic nutrients to the river system, and shoreline shading for near shore aquatic organisms.



26. Although there is a modest shoreline buffer along this property, a small opening to the waterfront could easily transport excess fertilizer and chemicals from the adjacent, sloping lawn. Water bars could be used to redirect overland flow of potentially polluted water away from the water and into the bordering riparian vegetation.



27. Intact riparian vegetation can complement and soften shoreline buildings, in addition to providing important water quality benefits.



28. A home this close to the water has little space to buffer land use from the river. Just the same, even a row of ornamental grasses planted along the water's edge would help moderate potential water pollution inputs, and would provide low maintenance landscaping.



29. Two shoreline residences demonstrate different buffer treatments: the house on the right has allowed natural vegetation to dominate, while the house on the left has chosen to maintain a lawn. Both properties have the benefit of a modest shoreline buffer. Perhaps excess nutrients from the lawn have helped fuel the invasive *Phragmites* reed grass in front of the house on the left?



30. This shoreline buffer is diverse and occupies the modest slope in front of this residence's lawn, creating an important tool to accumulate and assimilate any nutrients or chemicals leaving the lawn area.



31. Although this is a long and relatively gentle sloping lawn, the newly cut shoreline buffer reduces the possibility of this area providing the important buffer services of healthy and diverse natural vegetation.



32. The steepness of this slope places a lot of pressure on the toe of slope vegetation to moderate any overland flow of potentially polluted water, particularly after a significant storm event. Even so, the remaining buffer vegetation appears diverse and full, increasing its effectiveness.



33. The end of this long, gentle slope is finished with a dense vegetated buffer that likely minimizes any potential for polluted water reaching the river.



34. Even though there is a modest shoreline buffer on this property, the slope of this lawn increases the potential for any polluted runoff to make it into the River.