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Selected Internet Resources on Vegetated Buffers

This internet resource list was prepared by Russ Cohen of the Riverways Program, within the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement. Russ has graciously provided comments on the merits of each website. Enjoy your search.

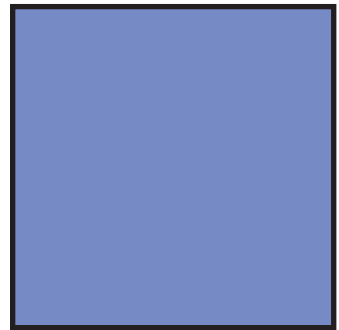
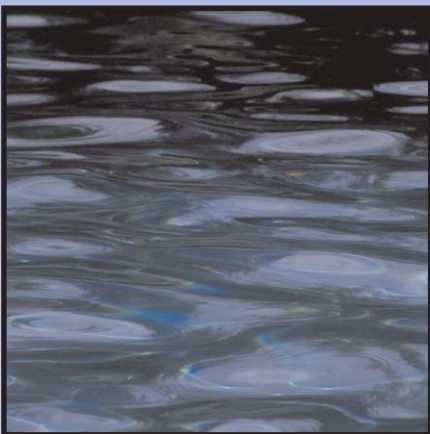
- Riparian Buffers fact sheets, prepared by the Connecticut River Joint Commissions (CRJC) of VT/NH.: <http://www.crjc.org/riparianbuffers.htm> [NOTE: These are excellent. If you don't look at any other reference materials listed in this document, be sure to check out this one.]
- Riparian buffer fact sheets on the functions and values of naturally vegetated riparian areas, prepared by Russ Cohen, Riverways Programs:
<http://www.state.ma.us/dfwele/river/rivfstoc.htm>.
- Impacts of Development on waterways. Center for Watershed Protection (CWP) and the Stormwater Manager's Resource Center (SMRC) <http://www.cwp.org> and <http://www.stormwatercenter.net> [CWP is one of the country's best resources on protecting streams and watersheds from the adverse impacts of development. CWP's web site provides advice on buffer design as well as model ordinances requiring the establishment and/or retention of vegetated buffers along waterways. It is also worth looking at two articles on CWP's web site entitled "The Architecture of Urban Stream Buffers" and "Invisibility of Stream/Wetland Buffers: Can Their Integrity be Maintained?"].]
- Massachusetts Wetlands Protection Act Regulations:
<http://www.state.ma.us/dep/brp/ww/files/310cmr10.pdf> [Note: The section referring to the Riverfront Area resource area is at pp.81-92; the preface discussing the 12/20/02 amendment to the WPA regulations relating to "perennial vs. intermittent" can be found at pp.1-4.]
- "A Homeowner's Guide to Nonpoint Source Pollution", also put out by the Connecticut River Joint Commissions:
<http://www.crjc.org/pdffiles/homeguide.pdf>
- Riparian Forest Buffer information from the Chesapeake Bay Program:
<http://www.chesapeakebay.net/info/forestbuff.cfm> [NOTE: under the "Publications" section on this page you will find a link to a .pdf version of a 481-page document entitled "Chesapeake Bay Riparian Handbook: A Guide for Establishing & Maintaining Riparian Forest Buffers". An excellent resource, often cited in this manual.]
- "Why Restoring Shoreland Vegetation is Important" [and how to do it] - from Wisconsin Cooperative Extension:
<http://www.uwex.edu/ces/shoreland/Why2/whyres.htm>.
- Research on Shoreland Systems, from Wisconsin DNR - a wealth of information + hot links to research papers on the value of vegetated shorelines for water quality and other functions:
<http://www.dnr.state.wi.us/org/water/wm/dsfm/shore/research.htm>



- "Riparian Areas: Functions and Strategies for Management" [<http://books.nap.edu/books/0309082951/html/index.html >](http://books.nap.edu/books/0309082951/html/index.html) [This is the title of a new book produced by the well-respected National Academy Press and National Research Council. An on-line version of the book may be viewed for free on-line at this Web address. A description of the research project that led to the publication of this book can be read at [<http://www4.nas.edu/webcr.nsf/ProjectScopeDisplay/WSTB-U-98-01-A >](http://www4.nas.edu/webcr.nsf/ProjectScopeDisplay/WSTB-U-98-01-A). I have not yet had a chance to review this information in detail, but from the looks of it, it is a carefully and extensively researched publication put together by an impressive team of experts on the topic.]
- "The Use of Riparian Buffers to Reduce Nonpoint Source Pollution from Development", a report to the Maine Legislature's Joint Standing Committee: [<http://www.state.me.us/dep/blwq/report/buffer.pdf >](http://www.state.me.us/dep/blwq/report/buffer.pdf)
- "Width of Riparian Zone for Birds", a very good research paper prepared by the U.S. Army Corps of Engineers: [<http://www.wes.army.mil/el/emrrp/pdf/si09.pdf >](http://www.wes.army.mil/el/emrrp/pdf/si09.pdf)
- "Streamside Science" information from the state of Oregon: [<http://www.oacd.org/fs05stbu.htm >](http://www.oacd.org/fs05stbu.htm) and [<http://www.planning.ci.portland.or.us/pdf/hps_sci_sum.pdf >](http://www.planning.ci.portland.or.us/pdf/hps_sci_sum.pdf)
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- "Riparian Forest Revegetation for Water Quality Improvement" - from Minnesota: [<http://www.hort.agri.umn.edu/h5015/97papers/hanson.html >](http://www.hort.agri.umn.edu/h5015/97papers/hanson.html)
- Healthy lawns and gardens without chemicals brochure and demonstration plot, Marblehead, MA: [<http://208.56.92.121/community.old/PDF/Lawn.pdf >](http://208.56.92.121/community.old/PDF/Lawn.pdf)
- Why Phosphorous is a problem and what to do about it, from the New York State Federation of Lake Associations: [<http://www.nysfola.org/phosphorus/>](http://www.nysfola.org/phosphorus/)

And, last but not least:

- List of Native Plant Species Suitable for Planting in Riparian Areas in Mass., prepared by Russ Cohen: [<http://www.state.ma.us/dfwele/river/pdf/rivSp01NL.pdf >](http://www.state.ma.us/dfwele/river/pdf/rivSp01NL.pdf) [Note: A similar document prepared by Michael Abell of DEP is awaiting final approval by DEP Boston.] If you are interested in edible native plants, visit this site.



Glossary





Glossary

Ecosystem: an environmental community, based upon the interaction between climate, soil, topography, plants and animals. When functioning, this system is self-sustaining.

Edge habitat: the area where two or more habitat types, such as forestland, grassland, or wetland, meet is called edge. Edge habitat is a place where plants and animals from each of the adjoining habitats mix.

Effluent: wastewater from a septic system or wastewater treatment plant that enters a water body.

First flush: the first half inch to 1 inch of precipitation that accumulates and becomes stormwater runoff. First flush runoff gathers pollution as it washes the earth's surface, and as such it carries the highest concentration of pollutants.

Food chain: a sequence of organisms in which each is the food of the next organism in the sequence. For example, in an aquatic system, a young mosquito is food for a trout, which is food for an osprey.

Food web: all the interconnected and circular food chains in an ecosystem. This system is more inclusive and reflective of an ecosystem than the simpler food chain. For example, if the young mosquito mentioned above escapes the trout, it may later be food for a frog, which is food for a fox. Or the mosquito may escape all of the above and prey upon humans, which then allows it to complete its life cycle and lay eggs in the nearest water body.

Forbs: non woody vegetation including grasses, flowers and ferns.

Habitat: an organism's home, including areas that provide cover, food, shelter, water and breeding sites.

Infiltration: percolation of water and chemicals through the soil.

Ion: an atom or molecule that carries a net charge (negative or positive).

Microorganisms: organisms so small that they are invisible to the human eye.

Nonpoint Source Pollution: diffuse pollution being delivered to a waterbody with no discernible pathway. Whereas "point" sources of pollution, such as pipes or ditches, can be easily pointed to, Nonpoint Source Pollution often travels in runoff and is invisible, so that it is not so easily pointed to.

Retention time: the time it takes for water to travel from its original source to a receiving waterbody or other specific point. The water can travel in surface runoff, streams, rivers, or subsurface flows.



Sheet flow: runoff that flows over the ground as a thin, even layer rather than concentrated in a channel.

Soluble nutrients: nutrients dissolved in water or other solution. Soluble nutrients such as phosphorus and nitrogen are in forms that can readily be used by plants. The presence of soluble nutrients can have an immediate effect on algae and plant growth in water bodies.

Stormwater runoff: overland flow of water due to rainstorms or snowmelt

Subsurface flow: the underground flow of water through soil or bedrock. This flow moves down gradient, often heading toward surface water bodies. It is often an important source of recharge water in times of low rainfall or drought.

Transpiration: the uptake of water by plants, which they then use in life processes and give off as moisture through their pores.

Vegetated buffer: an area of natural vegetation along the shoreline of a water body or wetland, buffering that resource from human activity

Velocity: speed of movement.

Vernal pool: Vernal pools (also known as ephemeral pools and temporary woodland ponds) typically fill with water in winter due to rising groundwater and rainfall and remain filled through the spring and into summer. Vernal pools usually dry completely by the middle or end of summer each year, or at least every few years. Occasional drying prevents fish from establishing permanent populations. Many amphibian and invertebrate species rely on breeding habitat that is free of fish predators.

Water bodies: a generic term used throughout this manual, referring to rivers, streams, lakes and ponds

Watershed: The area of land from which all surface water and groundwater flows from higher elevations to a common body of water