2010

Implementation of the Great Works River Non-Point Source Pollution Watershed Management Plan

PREP

Implementation of the Great Works River Non-point Source Pollution Watershed Management Plan

09-060

A Final Report to

The Piscataqua Region Estuaries Partnership

Submitted by
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May 2010

This project was funded in part by a grant from the Piscataqua Region Estuaries Partnership as authorized by the U.S. Environmental Protection Agency's National Estuary Program.

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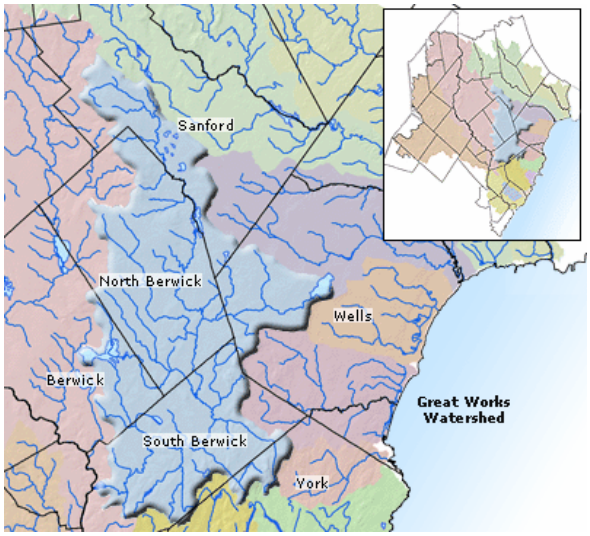


I. Abstract

This project was a collaboration between the Wells National Estuarine Research Reserve, Great Works Regional Land Trust, and the Great Works River Watershed Coalition to implement five of the "Highest Priority" tasks from the Action Plan of the *Great Works River Nonpoint Source Pollution Watershed Management Plan* (2007). The Great Works River drains 6 towns in southwest coastal Maine flowing into the estuary portion of the Salmon Falls and Piscataqua Rivers. The project included involving a steering committee of stakeholders, a buffer outreach effort, updating water quality data, invasive species education, improving access to information, and developing a plan for installing Best Management Practices. This project period was between January 2009 and April of 2010.

II. Executive Summary

The Great Works River drains 84 square miles in the six Maine communities of Sanford, North Berwick, Berwick, South Berwick, Wells, and York. The river joins the tidal portion of the Salmon Falls River at Leighs Mills Dam. The watershed is on the Maine Department of Environmental Protection's *Nonpoint Source Priority Watersheds* list due to high phosphorus and E. coli levels and low dissolved oxygen.

The York County Soil and Water Conservation District produced the *Great Works River Watershed Nonpoint Source Pollution Management Plan* in January of 2007 based on three watershed surveys; Bauneg Beg Lake (1999), southern portion below Bauneg Beg Lake (2000) and the northern portion above Bauneg Beg Lake (2004). The watershed surveys recorded 275 "sites of concern" with 65 of these sites given a ranking of "high priority" due to suspected contributions to non-point source pollution.

This project selected action items from 5 of the 6 "Highest Priority" tasks listed in the Watershed Management Plan for implementation in 2009. These action items included:

1. Continuing the community involvement
2. Provide riparian buffer information program to municipal officials, landowners, and concerned citizens.

3. Update the water quality data from the Watershed Management Plan.
4. Develop a work plan for installing Best Management Practices on identified high priority nonpoint source pollution sites with both private landowners and town road crews.
5. Make residents aware of potential problems with invasive species and solutions.
6. Improve access to information on the Great Works River through the Seacoast Watershed Information Manager website (www.swim.wellsreserve.org).
7. Increase the amount of conservation land in the watershed.

To carry out these tasks, a grant of $8,000 was received from the Piscataqua River Estuary Project and a half time Maine Environmental Educator (Americorps position) was hired from January to December of 2009. The Americorps person was housed and supervised by the Wells National Estuarine Research Reserve. All activities were coordinated with the other two partners – Great Works Regional Land Trust and the Great Works River Watershed Coalition.

All the tasks were successfully completed:

- A steering committee was formed and met three times
- Ten presentations were given with 122 people attending
- An update of the water quality information was compiled and distributed
- Nonpoint source pollution sites were selected for a funding request for remediation.
- Invasive plant information was developed and incorporated into the public presentations
- Additional resources for the river were made available on the web
- Three land conservation projects were initiated.

In addition the working relationship between the three partners was improved with a better understanding of the strengths and constraints of each. As a result the Wells National Estuarine Research Reserve and the Great Works Regional Land Trust worked together on an application to the federal Coastal and Estuarine Land Conservation Program to fund a conservation project on the tidal portion of the Salmon Falls River just below Leigh's Mills (where the Great Works River enters). The Great Works Regional Land Trust and the Great Works River Watershed Coalition had preliminary talks about a possible merger.

III. Introduction

The Great Works River watershed is 23 miles in length and drains 84 square miles (53,760 acres) beginning in Sanford and flowing south and southwest joining the Salmon Falls River at Leighs Mills in South Berwick. The watershed consists of 11 sub-watersheds with 192 miles of rivers and streams, and 30 lakes and ponds with a combined surface area of 425 acres.

Maine Department of Environmental Protection has identified the Great Works River as a "Nonpoint Source Priority Watershed" due to having "significant value from a regional or statewide perspective, and water quality that is either impaired, or threatened to some degree due to nonpoint source pollution from land use activities". Maine DEP has also identified the river as contributing the most significant non-point source input into the Salmon Falls River (and Piscataqua River).

The region is growing with populations rates for the decade of the 1990s of 6% for Berwick, 13% for North Berwick, and 14% for South Berwick which make up 70% of the watershed lands. Developed land covers approximately 7.5% and includes three population centers (South Berwick, North Berwick, and Sanford). This developed land estimate is derived from impervious surface area and may not include developed land on private and unpaved roads.

A Watershed Management Plan was completed by the York Soil and Water Conservation District in 2007 with a goal of "advancing locally supported water quality goals, objectives, and action". The Plan is the result of three nonpoint source pollution surveys conducted from 1999-2004. The surveys resulted in the documentation of 516 nonpoint source pollution observations at 275 sites of concern. 57% of the observations involved soil erosion, bare soil, or inadequate vegetative buffers. Sixty-five of the sites were ranked high priority.

The Watershed Plan contains six Action Items with 37 tasks. This proposal addressed 5 tasks all ranked "Highest Priority" from 5 of the 6 Action Items and brought together three organizations; the Wells National Estuarine Research Reserve, Great Works Regional Land Trust, and the Great Works River Watershed Coalition. Each organization had been working independently on watershed issues in southern Maine and on the Great Works River in particular. This proposal was their first joint effort.

IV. Project Goals and Objectives

The Goal was to implement 5 "Highest Priority" Tasks from the **Action Plan** of the *Great Works River Nonpoint Source Pollution Watershed Management Plan (2007)*. The Wells National Estuarine Research Reserve, Great Works Regional Land Trust, and the Great Works River Watershed Coalition directed and supported the work of a Maine Conservation Corp Environmental Educator (Meri Ratzel) from January to December 2009. The goal was accomplished through the following objectives;

1. Organized Steering Committee meetings for stakeholders.
2. Present buffer information program to municipal officials, landowners, and concerned citizens.
3. Update water quality data from the Watershed Management Plan through to the present.
4. Develop a work plan for installing Best Management Practices on identified high priority nonpoint source pollution sites with both private landowners and town road crews.

5. Make residents aware of potential problems with invasive species and solutions.
6. Improve access to information on the Great Works River through the Seacoast Watershed Information Manager website (www.swim.wellsreserve.org).
7. Increase the amount of conservation land in the watershed.

V. Activities

1. Steering Committee. Three meetings (February, June, and December) were held with representatives of the three partner organizations and community members. The steering committee reviewed and directed the activities of the Americorps member and provided support to the public programs and events.

2. Buffer Campaign. This activity was addressed through a variety of presentations as listed below. The purpose was to reach different audiences including landowners about the importance of land use and water quality. The proposal called for six workshops and ten were completed. Information for the presentations were derived from a number of sources and tailored to fit the audience and circumstances. There were three objectives;

(a) to have different stakeholders realize the direct connection between the land use/ condition of riparian buffers and water quality.

(b) to have attendees understand and be motivated to protect buffers both through their work, ownership, or concern.

(c) to encourage permanent buffer protection through the Great Works Regional Land Trust.

The presentations in chronological order were:

Yardscaping – (Wells Reserve) April 17. Hosted a Yardscaping program - a statewide initiative to reduce the use of chemical pesticides and herbicides in the state of Maine applied by landscape businesses. Gary Fish, of the Maine Bureau of Land Management Pesticides Division and Cathy Neal from UNH Extension were the presenters for this half day workshop targeting landscape professionals working in Southern Maine communities. 23 people attended.

Savage Preserve – (Eliot) May 21. An outdoor informal gathering of neighbors to Great Works Regional Land Trust's new Raymond and Simone Savage Wildlife Preserve on the Salmon Falls River just downstream from its junction with the Great Works River. There was a talk on the significance of natural landscapes in keeping water clean and the role of landowners in managing their properties. Two families approached land trust members afterwards about permanent protection for their lands. 14 people attended.

Grover Lands Celebration – (North Berwick/ Sanford) June 13. A public event including an indoor presentation, PowerPoint, and discussion on the relationship between land use and water quality, invasive species, and permanent land protection followed by an hour long walk on a newly conserved 50 acre parcel on Bauneg Beg Lake (dammed section of Great Works River). 16 people attended.

Bauneg Beg Lakes Association *meeting* – (North Berwick/ Sanford) July 26. The AmeriCorps person was invited to speak at the Association's monthly meeting addressing the issues of water quality, land use, invasive species, and native plantings. A power point presentation was shown. 28 people attended.

Leighs Mills – (South Berwick) August 26. A public event on the effects of intensive human use on water quality with an example of what can be done to restore a riparian area. The GWRLT owns 2 acres and over one thousand feet of frontage on Leighs Mill Pond where the Great Works River joins the Salmon Falls River. This small and heavily used (fishing, boat launching, swimming) site has suffered from bank erosion, storm water, and trash. Great Works Regional Land Trust and the Town of South Berwick joined together to re-direct storm water, restrict parking, re-establish buffer plantings while continuing to allow public use. A poster on the work was created and displayed. 7 people attended.

Leighs Mills before

Leighs Mills before

Leighs Mills after

Using the Internet to Help you Design Your Garden or Yard; Planning for Climate, Soils and Waters (South Berwick) October 8. This class was in cooperation with South Berwick Conservation Commission, and the South Berwick Green Up Committee focused on use of internet tools to help gardeners site plan and design for climate, soils and water quality. Participants were introduced to tools on the internet for locating local temperature, climate zones, soil maps, rainfall data and biome areas. Workshop included a demonstration on how these tools can be used to design specific landscapes incorporating both aesthetic and ecological concerns. Tools offered include USGS/NRCS VegSpec program. 6 people attended.

Kenyon Hill Timber Walk (South Berwick) October 17. A site walk with a forester, harvester, and land trust representative who were implementing a selective timber harvest on a 110 acre Great Works Regional Land Trust property with headwater streams. Included in the talk were how to minimize the negative impacts to wildlife and water quality through using appropriate equipment, best management practices, and perhaps not harvesting every portion of the property. 14 attended.

Kenyon Hill Timber Walk


Beaver dam Great Works tributary


Farm pond


Muddy woods road

Managing Your Backyard, Farm, and Forest*,* Noble Adult Ed (Berwick/ North Berwick) October 26. A 2 hour presentation directed at landowners on how management practices on their properties affects water quality, wildlife, and invasive species with management solutions. Included was a discussion on the cumulative impacts of insignificant landscape decisions on regional natural resources. 6 attended.

Managing Your Backyard, Farm, and Forest, Marshwood Adult Ed (Eliot, South Berwick) November 10. Same as above. 2 attended.

Managing Your Backyard, Farm, and Forest, Marshwood Adult Ed (Eliot, South Berwick) April 6, 2010. Same as above. 6 attended.

3. Water Quality. Recent water quality data was gathered from the partners updating the Water Quality section of the Watershed Management Plan (which went up to 2005). The result is a written and electronically available summary of the data indicating trends and identifying data gaps with recommendations for the Great Works River. This document was handed out and discussed at the December Steering Committee meeting, distributed to the partners, and made available on the SWIM website.

4. BMP. The 65 "High Priority" nonpoint source pollution sites were reviewed according to suitability for a successful on the ground remediation effort. Suitability included the benefits, opportunity for restoration, ability to serve as a model, cost, and funding sources. The result is that the Wells Reserve will be supporting an EPA 319 funding request with the York County Soil and Water District to the Maine Department of Environmental Protection in the spring of 2010. The focus of the grant will be the network of private roads and small "camp lots" that surround Bauneg Beg Lake which have been identified as a source of both sediment and phosphorus to the water. Total funding request is anticipated to be approximately $100,000.

5. Invasive Species. Information on invasive species, their identification, impact, and management was developed and incorporated into the nine presentations that were conducted over the year.

6. Access to Information. The MCC person created a project page on the SWIM website that provided additional information and resources that complimented the

outreach programs and steering committee meetings. She also added relevant resources to the SWIM accessible database.

7. Increase the amount of protected lands. Information on conservation options and the importance of permanent land protection and its relation to wildlife and water resources was incorporated into the nine presentations.

VI. Outcomes

1. Steering Committee / partner coordination. The partner organizations met with one another nine times over the course of this project both at steering committee meetings and at task specific meetings. A better understanding of each organization's strengths and weaknesses was achieved. It became apparent that there are additional opportunities to collaborate – resulting in the grant application to the Coastal and Estuarine Land Conservation Program for tidal shoreline acquisition. Discussion was also initiated on the possibility of the Great Works Regional Land Trust absorbing the Great Works River Watershed Coalition and incorporating its water quality monitoring into its volunteer programs. However it was recognized in that the land trust is not an advocacy organization and does not participate in activities such as zoning enforcement, zoning restrictions, and commenting on development projects, etc. and that the river needs a strong advocate that could be filled by the Great Works River Watershed Coalition. The discussions are continuing.

2. Buffer programs. Ten programs were offered attracting a total of 122 attendees. While the number of attending was adequate overall it did not meet expectations, particularly to the "Backyard, Farm, and Forest" presentations. It was recognized from the beginning that it would be a challenge to get residents to attend a presentation on the importance of riparian buffers as it is not perceived as a pressing issue. The solution was to present the information through different programs at a number of venues working with the three partners as sponsors. This was a good approach and could have worked better but fell short of expectations due to the inexperience on the part of the Americorps person in coordination and publicity. Still the results were positive with three shorefront conservation opportunities resulting directly from the programs – see #7, and many positive comments received.

3. Water quality data. A report for the Great Works River was compiled and distributed both in hard copy, electronically, and posted on the Seacoast Watershed Information Manager website. A copy is included in appendix. The steering committee meetings and partners were instrumental in pulling together the sources of additional information updating from the 2007 Watershed Management Plan.

4. Best Management Practices plan. A funding proposal will be submitted for the installation of Best Management Practices at high priority sites surrounding Bauneg Beg Lake by May of 2010. The project scope is being agreed upon between the Wells NERR and York County Soil and Water District as this report is being written (April 2010).

5. Invasive species. The interest in this topic was higher than anticipated at several of the presentations. People were aware of invasive plant species and were looking for management options for control. This aspect will be retained in future outreach efforts / workshops.

6. Improve access to information. Project progress, programs, and background information was maintained on the Seacoast Watershed Information Manager website and available to the partners, steering committee members, and program participants. As with any website, it needs to be kept current and this can be a challenge after a project ends. The Wells Reserve needs to find additional resources to keep this website relevant to the service communities going forward.

7. Increase conservation land. Three conservation projects directly resulted from the buffer information presentations. A fourth property with over 5000 feet of frontage on the River was also conserved in 2010 but was a result of efforts initiated previous to this project. The three projects were:

    a. From the "Grover Lands" event an abutter attended and later called the Land Trust to offer to donate his 2.5 acre forested property. While the amount of land was small it provided over 900 feet of road frontage and an additional 100 feet of shoreline frontage for the 50 acres of adjoining protected land trust land. This will allow space for public access and a shorter walk to the shorefront on Bauneg Beg Lake. This donation was finalized in November 2009.

Grover shorefront on Bauneg Beg Lake

    b. From the "Savage Preserve" event a landowner offered to donate two parcels of forested land (12.3 acres, 1,150 feet shore front on the tidal portion of the Salmon Falls River). This donation was completed in April 2010.

Shoreline protected

c. From the "Savage Preserve" event a realtor attended and said a nearby property she represented (18 acres, 617 feet of shoreline on the tidal portion of the Salmon Falls River) was available. This property is currently forested but had recently been part of an 80 unit subdivision advanced to the Eliot Planning Board. The developers pulled out as the housing market slowed. The Great Works Regional Land Trust negotiated a purchase and sales agreement and submitted (April 2010) a funding request for $642,300 for acquisition funds through the federal Coastal and Estuarine Land Protection Conservation Program.

CELCP proposal shoreline

The challenges facing permanent land protection are capacity of conservation organizations, prioritization of resources needing protection, and acquisition dollars. There are numerous willing landowners. Funding sources – such as CELCP - are getting increasingly complex, competitive, and slow, requiring much patience and perseverance on landowners who choose to participate. This region (southwest Maine, adjacent New Hampshire) has only a few decades at most to protect 90% of all the land that will ever be protected due to development trends. The region will thrive (or not) on its ability to protect the resources that provide clean air, water, and food. Barriers to sustainable land management/use need to be recognized and overcome as it is not possible to permanently protect all the land necessary.

VIII. Appendices

References:

Great Works River Watershed Nonpoint Source Pollution Management Plan, York County Soil and Water District, Forrest Bell, 2007, 86 pp.

Supporting materials:

- Yardscaping flyer
- Outreach Program flyer
- Leighs Mills Poster
- Managing Your Backyard, Farm, and Forest flyer

Power Points – on accompanied CD:

- Invasive Species
- Backyard, Forest, and Farm

Leigh's Mill Pond Site Walk and Talk
August 26, 2009
Sponsored by the Great Works Regional Land Trust

The Pond's Past

With grateful acknowledgment to the Old Berwick Historical Society

Early 1600	Trading posts established at the confluence of the rivers
1643	Land acquired by Humphrey Chadbourn from Sagamore Rowlings
1647	"Indian Island" or the island below the bridge on York County Probate Map;
1690	Lucy and Lt. Humphrey Chadborn flee burning settlement in King Williams War. Carding and milling operations, along with joint saw and grist mills
1769	Thomas Leigh marries into the Chadborn family
1807	Carding and hulling mills join sawdust and grist mills
1825	Capt. Leigh's son, Major Leigh, "engaged building a dam and house on my Mill Privilege …in which we doen 968 days of work, and the whole expsense from $2100 to 2200." The pond is the creation of Leigh's Mills and the impoundments created by these dams. The site of the bridge has changed over years, its most recent change in 1950.
1825	
1837 to 1844	The Yeaton and Ferguson woolen are built; then destroyed by fire
1917	Electrification of the dam
2002	Acquisition of the shoreline by the Great Works Regional Land Trust

Lone pine tree in the center of the pond…what remains of Pudding Hill now swallowed by the waters of the once then marsh

Your Answer to Good Water Quality Begins in Your Home

Minimize pollutants:

- Store/dispose of chemicals/drugs properly; don't put them in the septic tank
- Use haz mat waste collection days, including paints,thinner,solvents
- Eliminate motor oil at recycling stations;
- Prevent motor spills on drives or roads
- Maintain your septic system
- Pump it every 3 years, have it inspected for function/design
- No additives

Reduce runoff

- Minimize impervious surfaces, use garden pavers,install rain barrels, use natural materials
- Divert water rom your roof onto rain barrels, or plant rain gardens at the base of slopes

Filter your water onsite by

- Planting native vegetation with compatible garden varieties
- Plant trees for energy reduction (shade in the summer and wind protection in the winters)

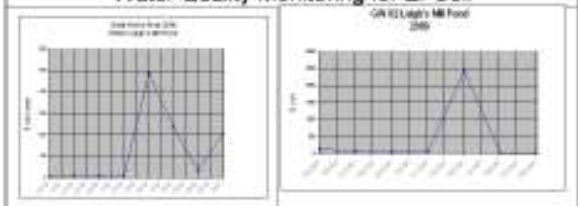
Protect groundwater by

- Planting trees for deep infiltration of rainfall and precipitation
- Siting trees away from septic systems to reduce risk of puncturing sewer lines

Volunteer with Your Lakes Monitorng Group

Great Works River Watershed Council

Water Quality Monitoring for E. Coli



Data on Leigh's Mill Pond has been collected by the state since 1978. However, the Great Works River Watershed Coalition undertook E coli sampling in 2008. Water in ponds, lakes and rivers is tested for ***Escherichia coli***, commonly known as ***E. coli***, to determine whether it is suitable for swimming. *E. coli* is a bacterium that is almost always associated with human or animal feces. Its presence in water means that other disease-causing microorganisms may be present as well.

Volunteers meet twice monthly to sample both water quality along the mainstem of the Great Works River. E coli testing was undertaken to ensure the quality of the water for local swimmers.

2008 data indicates 3 exceedance levels of acceptable swimming standards. 2009 follows up with only one.

The water quality of the pond is classified by the state as eutrophic or compromised by excessive nutrient amounts that feed algal bloom growth in the warmer months. The Great Works River drains directly into the pond, and carries with it pollutants from water users further up the river. Pesticides, chemicals, pharmaceuticals and herbicides settle into the bottom of the pond's impounded waters. Stirring of these sediments, either mechanically or by natural wind blown mixing, can cause blooms to smother the surface waters of the pond and deprive fish of dissolved oxygen in the waters below.

How you can help:

Volunteer and get out on the water. The Watershed Coalition has only 8 volunteers who monitor 12 sites along the Great Works River 7 times each season. Often times in the season, volunteers will have to double up on sample sites if another volunteer is ill or otherwise. A larger group of samplers is needed to maintain the quality of not only the pond, but the entire mainstem of the river. Volunteers can contribute to this effort in a number of ways; those interested in science may wish to take on lab tech roles, anyone good in math with organizational skills can contribute to the data management of what is becoming a decadal project. Anyone with marketing or public outreach skills is highly sought after to spread the message around. For more information, please contact the Great Works Regional Watershed Coalition at [illegible]

Sarah Orne Jewett writing back in 1894:

"Wild grapevines and tangles of clematis are festooned from tree to tree. In August the water brink is gay with cardinal flowers. Everything seems to grow [here], and to bloom brighter than elsewhere. As an old friend once told me, 'If you want six herbs, you can go right there and find them.' The shyest and rarest birds of the region may be seen there, in secret haunts, or at the time of their migration; it seems like Nature's own garden and pleasure ground. The old turf is like velvet, even on the high banks; and here grow great barberry-bushes, as they grow almost nowhere else. There is no doubt that they always mark for us the very oldest New England settlements and the site or neighborhood of old gardens."

GROWING GREENUP

CAN WE HAVE OUR LAWN *AND* A HEALTHY ENVIRONMENT?

- Do we have to forego our lawns altogether to save ourselves and the planet? Probably not, if we are willing to rethink our idea of perfection. An attractive lawn *can* be grown without regular use of pesticides (weed, insect, or disease controls) and little or no added fertilizer.

- Researchers have been analyzing every facet of lawn production and maintenance to see what works and what doesn't. Old guidelines have been refined and new ones developed. Following these amended guidelines will help us to have truly "green" lawns that can significantly reduce the risks for our children, pets, and the environment.

Wells National Estuarine Research Reserve
342 Laudholm Farm Rd.
Wells, ME

Yardscaping for Lawncare and Landscaping Professionals

April 17, 2009

MAINE YARDSCAPING

Featuring information on how to "teach and reach" the green message to your clients, staff and customers

wellsreserve
Wells National Estuarine Research Reserve

What is YardScaping?

"YardScaping is a statewide effort to inspire Maine people to maintain their yards for the safety of kids, pets and the environment by reducing the use of fertilizers, pesticides and herbicides."

The advantages of YardScaping to the lawncare professional include:

- Recruiting willing lawn care professionals to export the message that going green, means growing green… in terms of a healthier planet, and an emerging economy.

- In 2008 Cumberland County's program successfully posted YardScaping materials in four lawn care stores in South Portland as a successful pilot project; now, they offer the materials in 16 stores, including several major nurseries. Additionally, South Portland included brochures with tax bills, reaching more than 8,900 tax payers. Weekly YardScaping advertisements ran in early summer 2007 in the local South Portland Sentry newspaper.

http://www.cumberlandswcd.org/publications/yardscape/EPA_NewsNotes_7-08.pdf

Workshop Details:

When: April 17, 2009
8:30 a.m. – 1:00 p.m.

Where: Mather Auditorium
Wells National Estuarine Research Reserve
342 Laudholm Farm Rd.
Wells, ME

There is no charge for this event, but registration is required.

Program Details:

8:30 – 9:00 am	Registration
9:00 – 10:30 am	**Go Green to Get Green** Marketing Healthy Lawns to Your Customers Gary Fish Maine Yardscaping Partnership
10:30 – 11:00 am	Break
11:00 – 12:30 pm	"**Landscaping at the Water's Edge**" Cathy Neal, UNH Extension
12:30 – 1:00 pm	Master Gardener's Native Wells Native Planting

This program is approved for 3 pesticide applicator recertification credits

"Yardscaping for Lawncare and Landscaping Professionals"

About the presenters:

Gary Fish is coordinator of the Maine *YardScaping Partnership*, and manager of pesticide programs at the Maine Board of Pesticides Control, He is also the recipient of the Friends of Casco Bay 2008 Friend of Casco Bay Award.

Dr. Cathy Neal is an Extension professor and specialist in landscape horticulture at the Univ. of New Hampshire in Durham. The focus of her research, teaching, and extension work is landscape plant production, installation and maintenance. She is co- author of two popular books: *The Best Plants for New Hampshire Gardens and Landscapes* and *Landscaping at the Water's Edge: an Ecological Approach.*

To register please send an email to:

meri@wellsnerr.org and place YARDSCAPING in the subject or call 207 646 1555 x. 125

for more information:
http://www.protectwater.wordpress.com

This workshop is funded by the Piscataqua Regional Estuaries Partnership and the the towns of Wells, Ogunquit and the Laudholm Trust.

- SWIM…a project of the Wells National Estuarine Reserve (http://swim.wellsreserve.org/) is committed to helping you obtain information to protect your property, prevent problems like erosion, and protect water quality, fish and wildlife habitat. We do this by working with, and providing support services to, groups that help shoreline residents like you, pets, and the environment.

- Through simple changes in our actions, within our houses and around our properties, we can help create and preserve healthy waterfront habitat for both ourselves and wildlife – while protecting property values and providing safer and healthier surroundings for our families.

- For more information on these and further watershed activities at the Wells Reserve, contact Americorps volunteer Meri Ratzel at (207) 646-1555 ext 125; or meri@wellsnerr.org.

The artwork on the front of this brochure is an example of submissions the children of Wells and Ogunquit did for the Wells Conservation Commission's "What is Water," poster contest. Total submissions can be seen at the Wells Conservation Commission website: http://www.wellscc.org/.

Wells National Estuarine Research Reserve
342 Laudholm Farm Rd.
Wells, ME 04090

Protecting the Waters of Southern Maine

Watershed Education Events
Fall 2009

How to keep our waters fresh and clean.

wellsreserve
Wells National Estuarine Research Reserve

Thank you to Piscataqua Regional Estuarine Partnership (PREP) and the Towns of Ogunquit and Wells for funding these workshops.

fall watershed
education events

Managing Your Land: Yards, Forests and Farms

- September 30, 2009:
  Wells High School, @7pm
  (207)646-4565
- October 26, 2009,
  Noble High School @7pm
  (207) 676-3223
- November 10,2009, Marshwood High School @7pm
  (207) 676-3223

Learn and discuss how your property, whether a half acre or a hundred, fits into the diverse and bountiful landscape and abundant water resources we enjoy in southern Maine. Lawns, gardens, fields and woodlots can be managed in ways that benefit us as landowners, wildlife and our community

Co-sponsored by the Wells National Estuarine Research Reserve, Great Works Regional Land Trust and Adult Education.

Using the Internet to Help You Design Your Garden or Yard Plan for Climate, Soils and Water

October 8, 2009; 6:00-8:00pm
South Berwick Town Hall
South Berwick, Maine

Participants will be introduced to tools on the internet for locating local temperature, climate zones, soil maps, rainfall data and biome areas.

Co-sponsored by SOBOS, South Berwick Greenup Coalition, South Berwick Conservation Commission and Friends of the South Berwick Library.

Native Returns: Gardening for Wise Water Use

October 13, 2009, 6:00-8:00pm
Wells National Estuarine Research Reserve at Laudholm Farm, Wells

Questions and answers addressing native plants and landscaping for water conservation. Guest speaker: **Shawn Jalbert** of **Native Haunts** nursery will speak on the topic "Culturing for Biodiversity."

Come hear about Shawn's efforts to restore a native landscape in Alfred, Maine.

Co-sponsored by
Wells Conservation Commission and Wells NERR.

Ogunquit River Conference

A Resource for Today and for Tomorrow

November 20, 2009
(Location to be announced.)

A look to the future with an eye on the past; revisiting watershed priorities with a focus on:

- Cooperative efforts of Wells and Ogunquit coordinating York and Ogunquit strategies for protecting land and keeping our waters clean and healthy;
- The economic relationship of water quality to our beaches;
- The status of our clam flats, the cooperative efforts of our local shellfishermen.

For more information, please contact Meri Ratzel, Americorps volunteer, at 207-646-1555 x. 125

"Different peoples choose different ways of interacting with their surrounding environments, and their choices ramify through not only the human community but the larger ecosystem as well"

William Cronon, "Changes in the Land"

Managing Your Backyard, Forest, and Farm

Meri Ratzel
Tin Smith

Wells National Estuarine Research Reserve

Great Works Regional Land Trust

Great Works River Watershed Coalition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© Bill Silliker, Jr.


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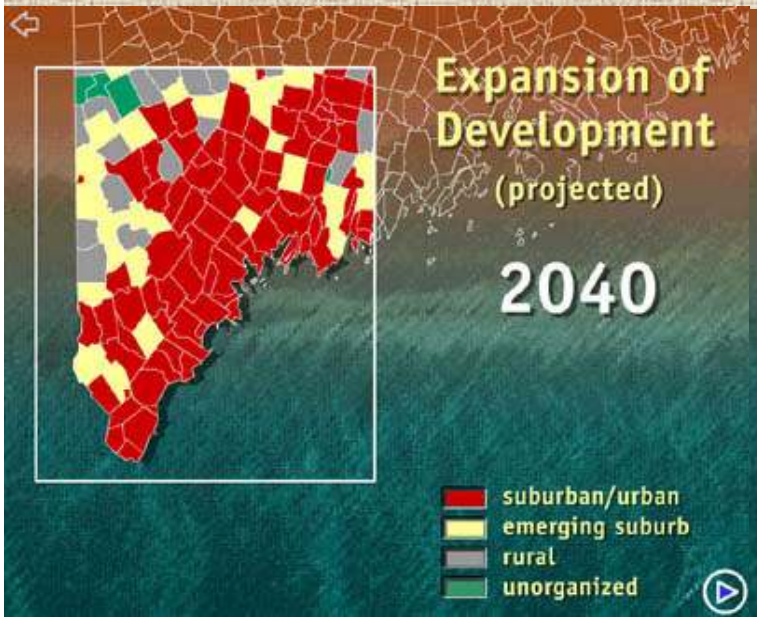
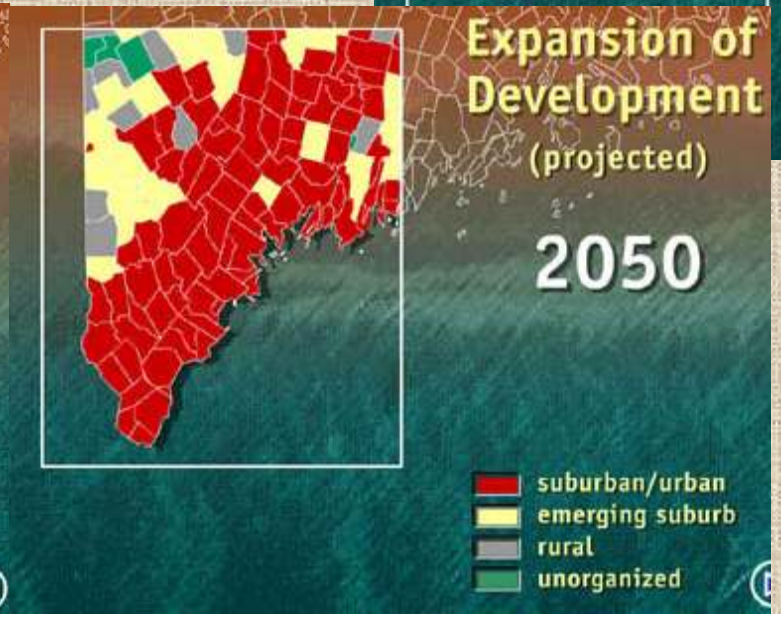
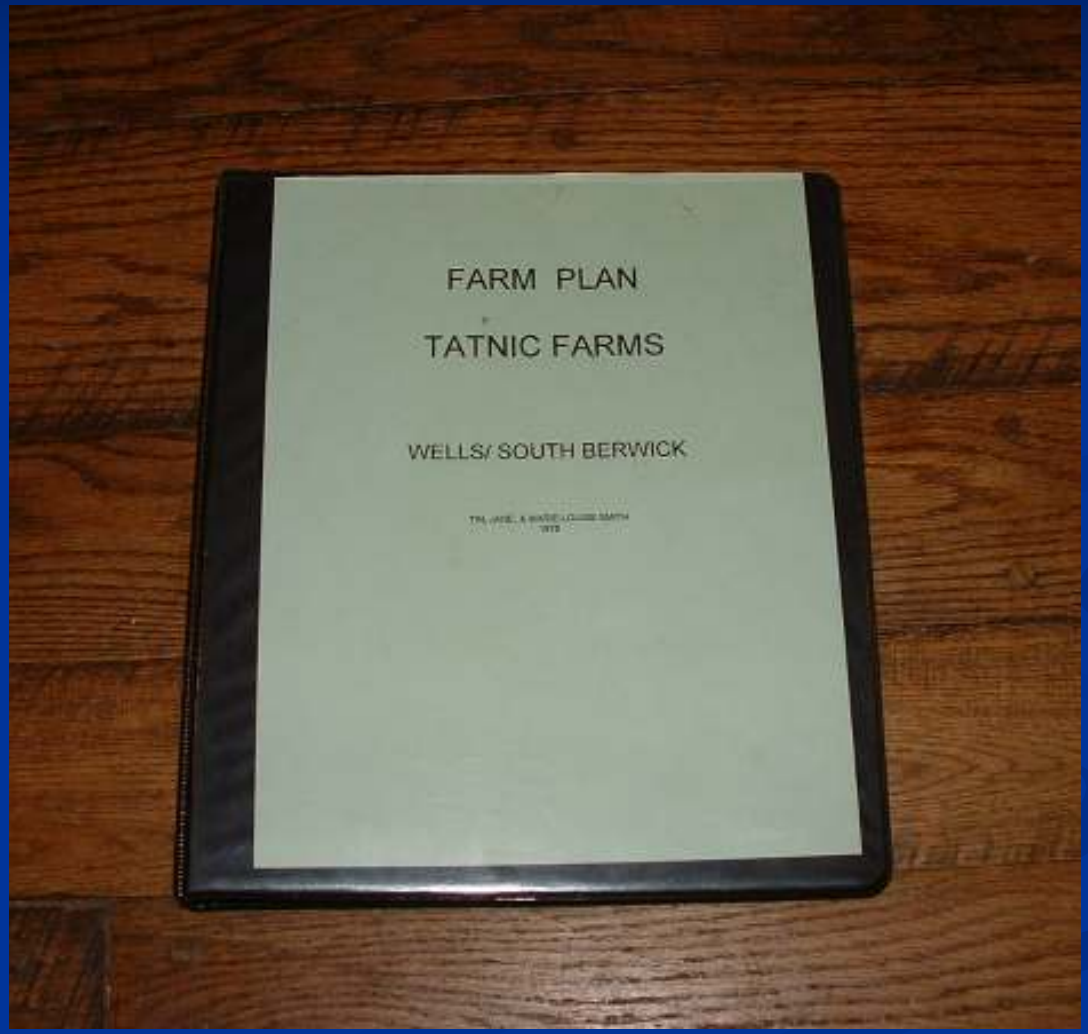
And the future landscape?





Maine State Planning Office

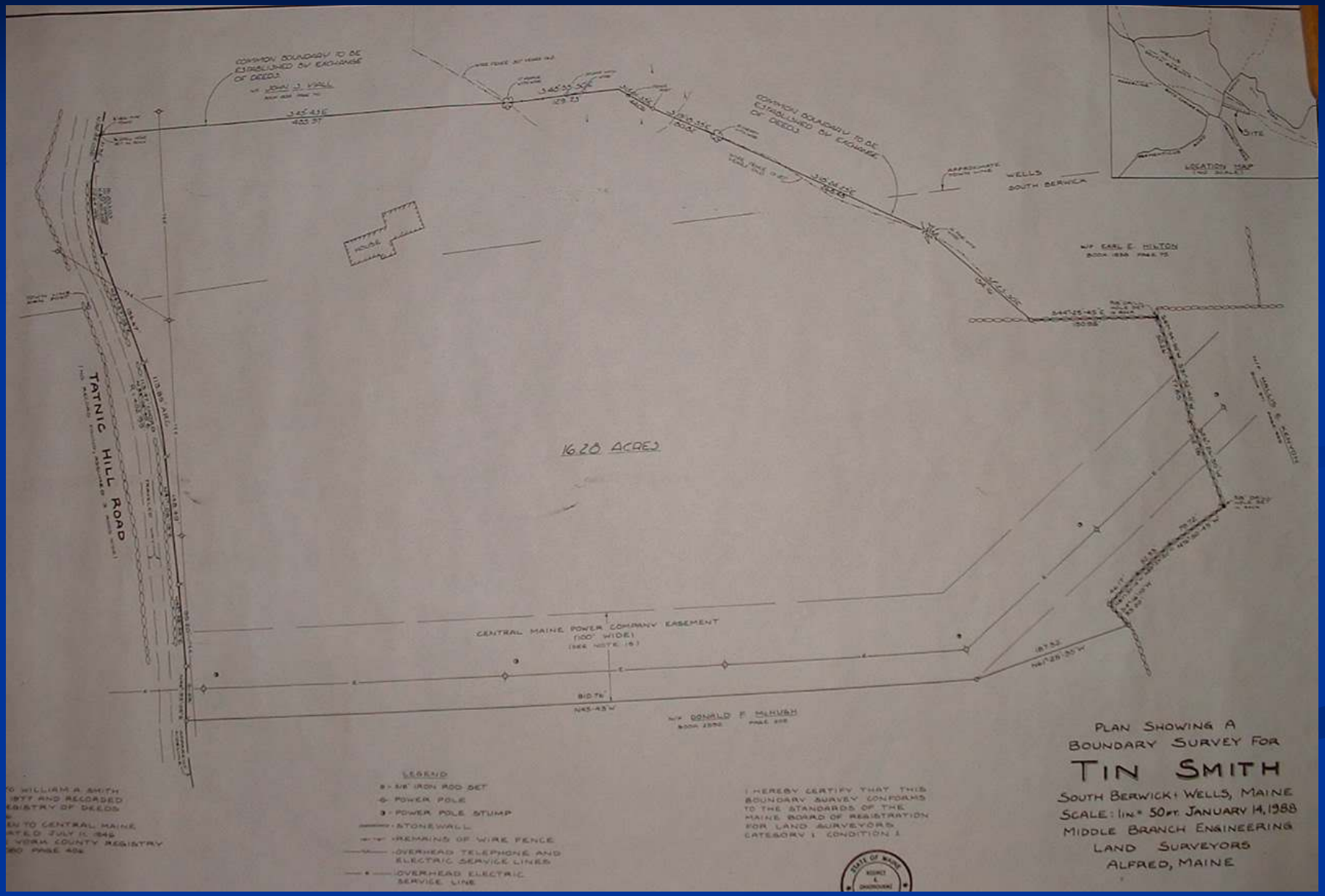
Plan

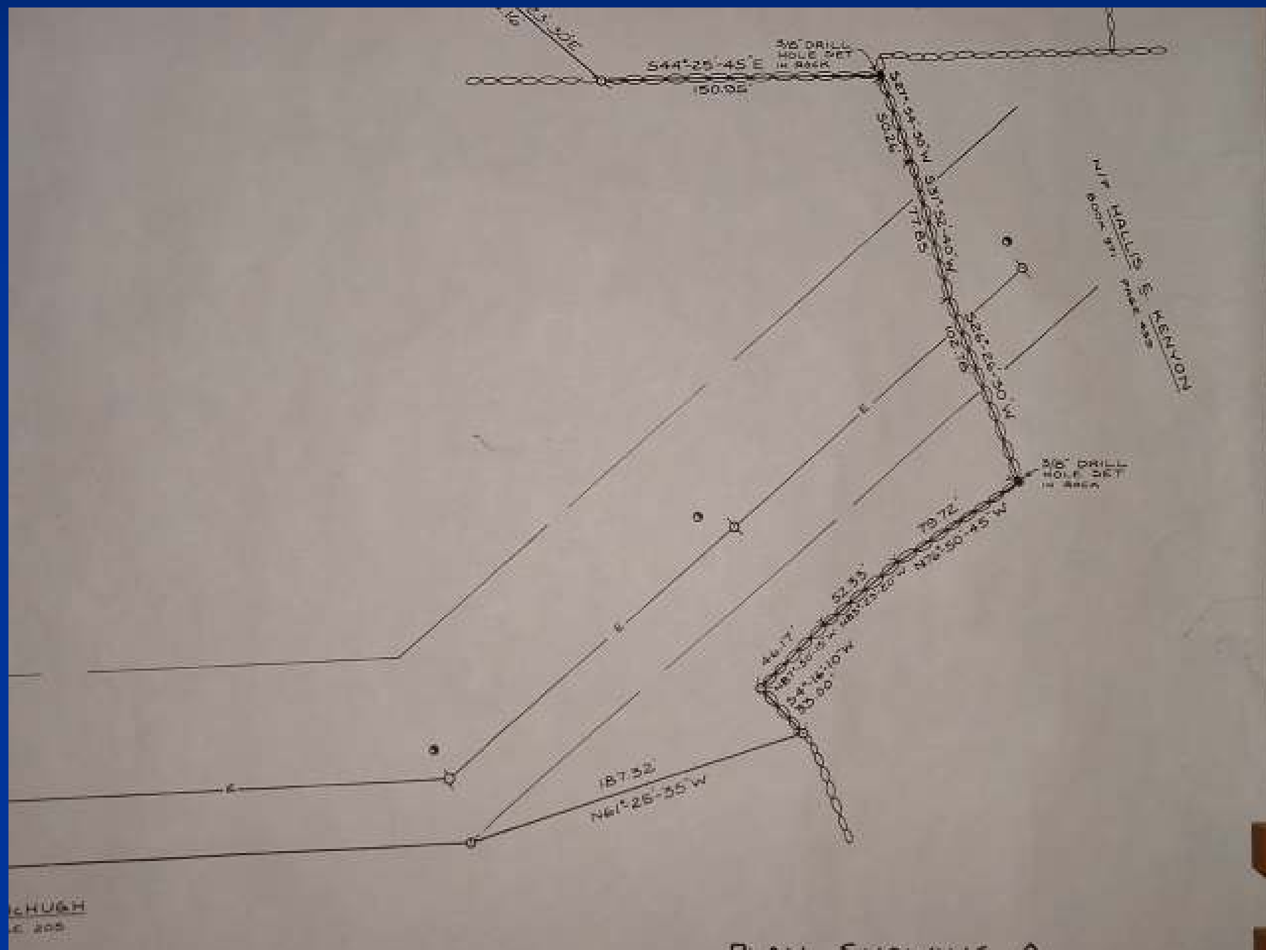


Boundaries

- Survey
- Deed Research
- Walk the land
- Neighbors
- Former owner
- Boundary agreements

Survey

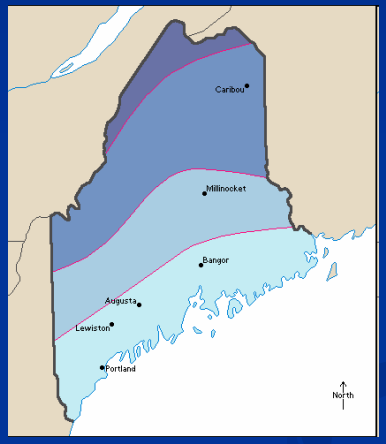

TATNIC HILL ROAD
16.28 ACRES
CENTRAL MAINE POWER COMPANY EASEMENT
(100' WIDE)
WELLS
SOUTH BERWICK
LOCATION MAP
SITE
LEGEND
PLAN SHOWING A
BOUNDARY SURVEY FOR
TIN SMITH
SOUTH BERWICK: WELLS, MAINE
SCALE: 1 in. = 50 ft. JANUARY 14, 1988
MIDDLE BRANCH ENGINEERING
LAND SURVEYORS
ALFRED, MAINE



S44°25'45"E
150.02'
3/8" DRILL HOLE SET IN ROCK
N/F HALLIS E. KENYON
79.72'
52.53'
44.17'
187.52
N61°25'35"W
PLAN SHOWING A

Managing for Water Quality in Your Own Yard

Soils

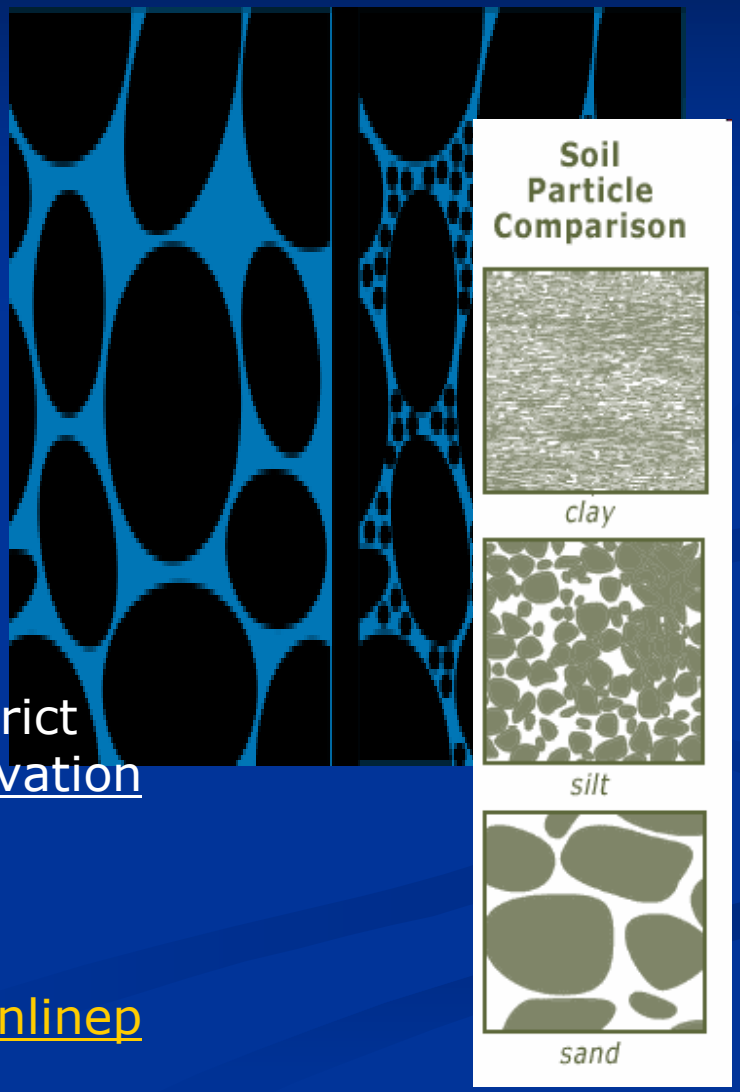


Climate

Water

Soils

- Sandy
- Silted
- Clay

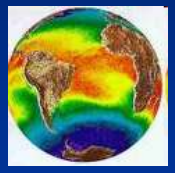


Have your soils tested:

York County Soils and Water District
York County Soil & Water Conservation District
Tel: (207) 324-0888 ext. 214

•http://www.umext.maine.edu/onlinepubs/htmpubs/2286.htm

Climate



Climate Zone Maps

http://www.usna.usda/gov/Hardzone/hrdzon4.html

New zone changes are based on updated temperature information from the 1970's

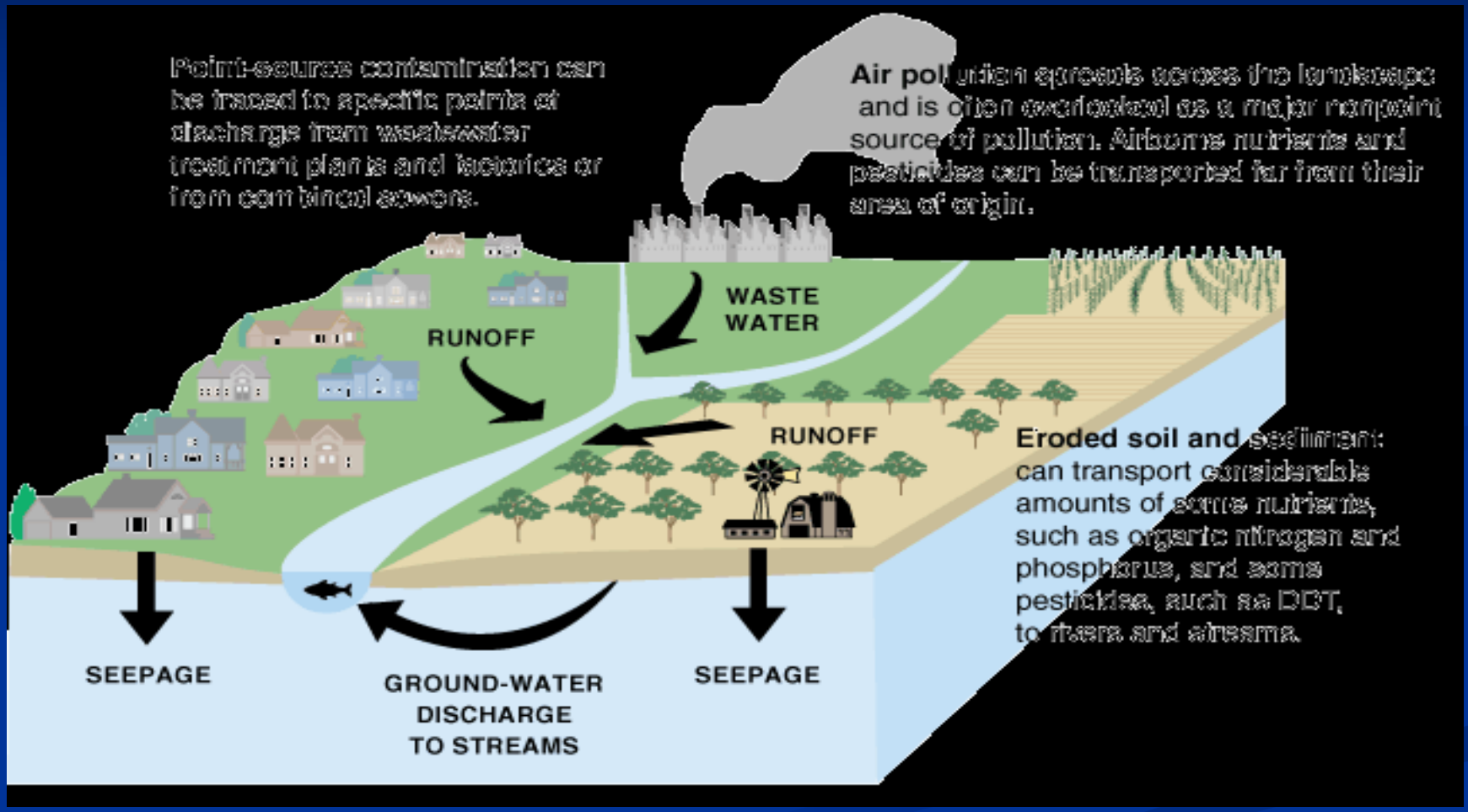
Calculate your rainfall

Plan for seasonal variation

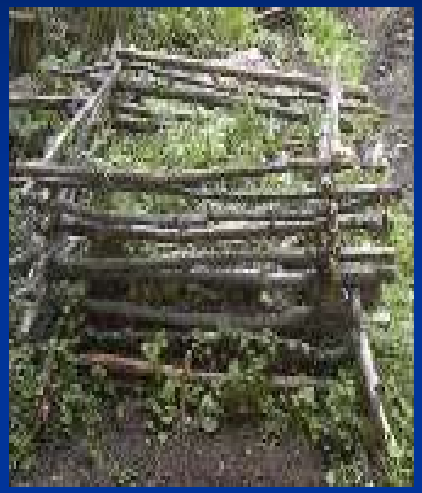
http://www.wolframalpha.com type in south berwick, rainfall

Check for sunlight and exposure…how many hours of sun per day?

Water


Point-source contamination can be traced to specific points of discharge from wastewater treatment plants and industries or from combined sewers.
Air pollution spreads across the landscape and is often overlooked as a major nonpoint source of pollution. Airborne nutrients and pesticides can be transported far from their area of origin.
WASTE WATER
RUNOFF
RUNOFF
Eroded soil and sediment can transport considerable amounts of some nutrients, such as organic nitrogen and phosphorus, and some pesticides, such as DDT, to rivers and streams.
SEEPAGE
GROUND-WATER DISCHARGE TO STREAMS
SEEPAGE

Treat the Soil, not the Plant

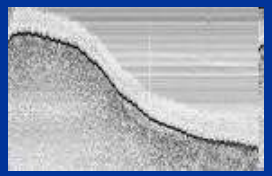


COMPOST ORGANIC MATTER TO AMEND YOUR SOILS

Maine Organic Farmers Interpretation of a USDA soil test

http://www.mofga.org/Portals/2/Reports/MOFGA%20FS%201%20Interpreting%20a%20Soil%20Test.pdf

Checking for compacted surfaces



- Excessive foot traffic
- Hardpan compacted surfaces
- Ice heaved areas

LOOK FOR LEVEL SURFACES, AVOID COMPACTED SOILS!!

REusing Runoff – Minimize Flows that Exit the Site

Reuse water collected for the garden or the lawn

Slow down the flow as it passes through the yard

Site your garden near a water source

Remove all toxins from areas near water

Use proper disposal methods

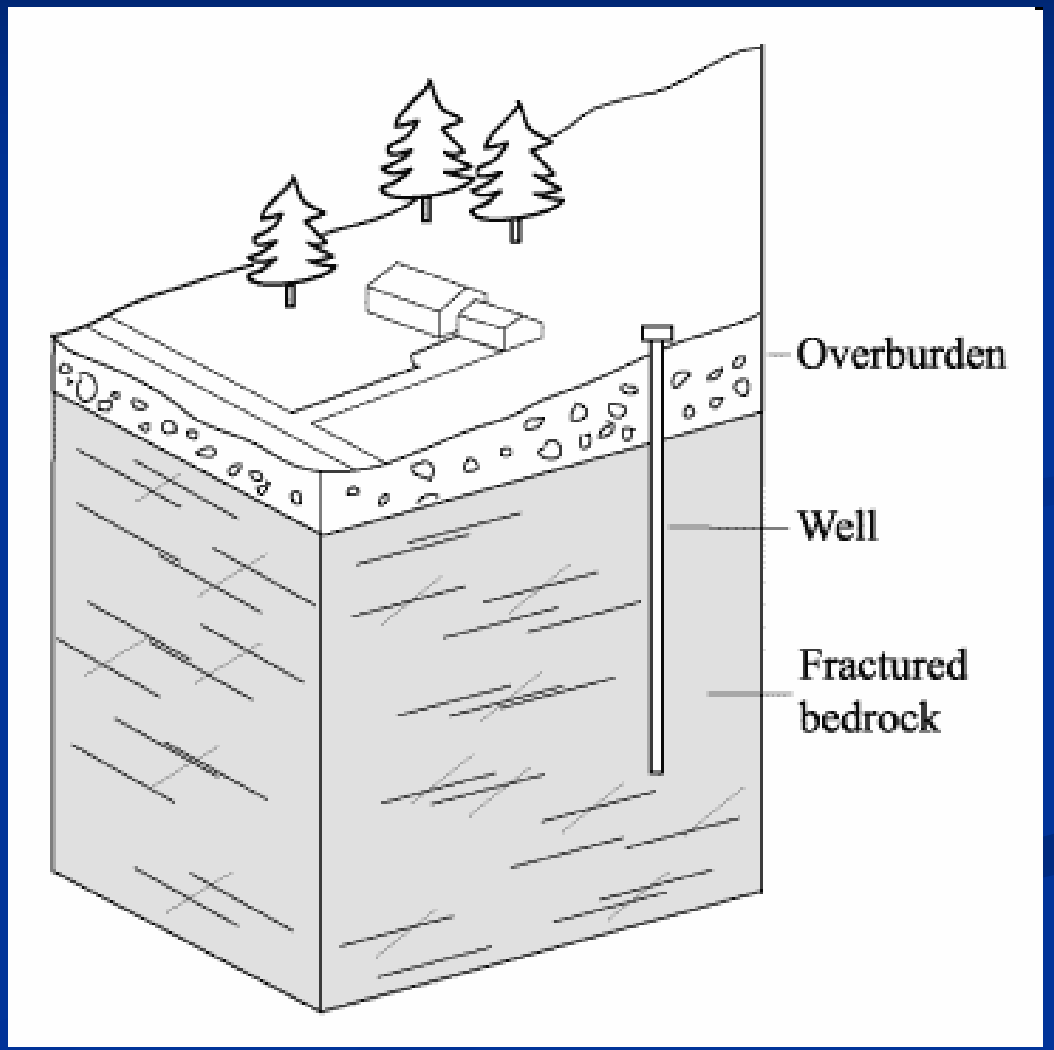
Don’t pressure wash, clean cars near storm drains

1 quart of oil spilled can destroy groundwater an area of up to 3 large football fields

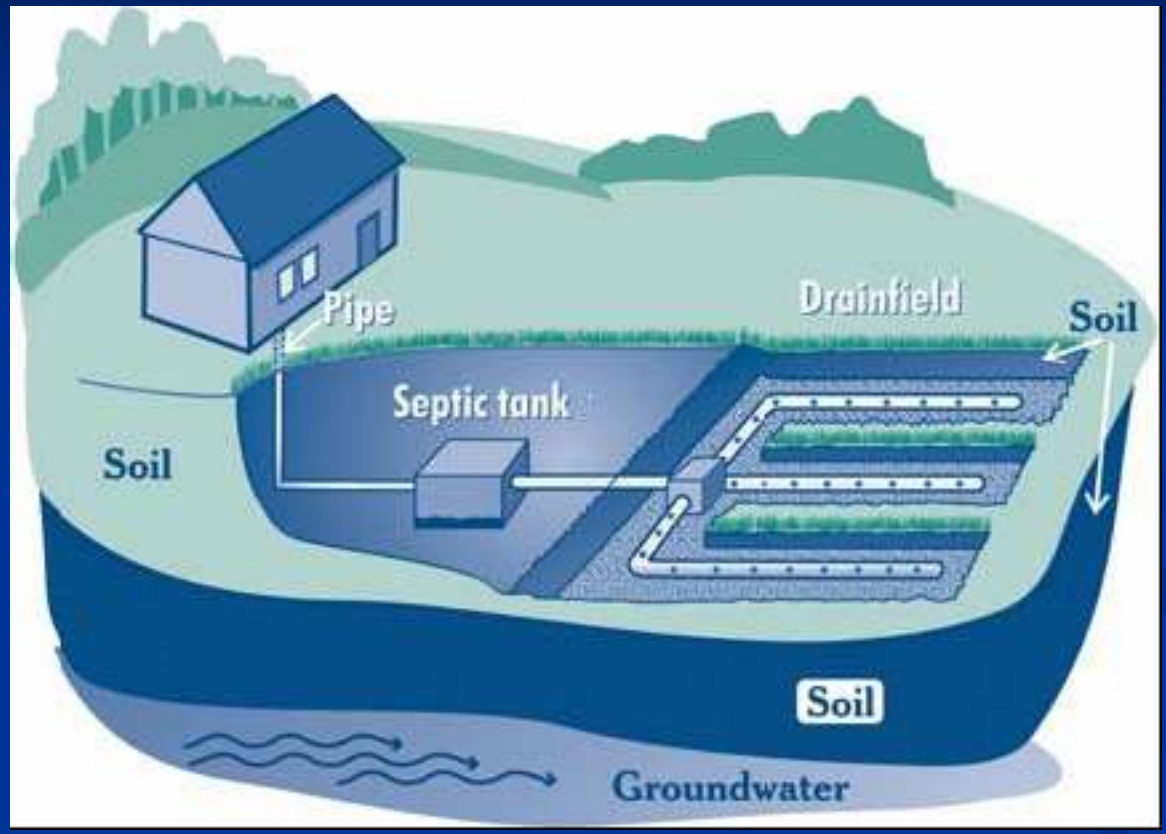
Dispose of oils at oil recycling centers, service s[illegible]ions

Test your well for contaminants

Maine drinking water testing for your well: http://www.informe.org/hetl/



Pump and inspect your septic tank



For extensive information on septic systems: See Spruce Creek Septic Social Presentation

http://www.protectkitterywaters.org/Kittery%20Septic%20Social%20Presentation.pdf

The Design Process

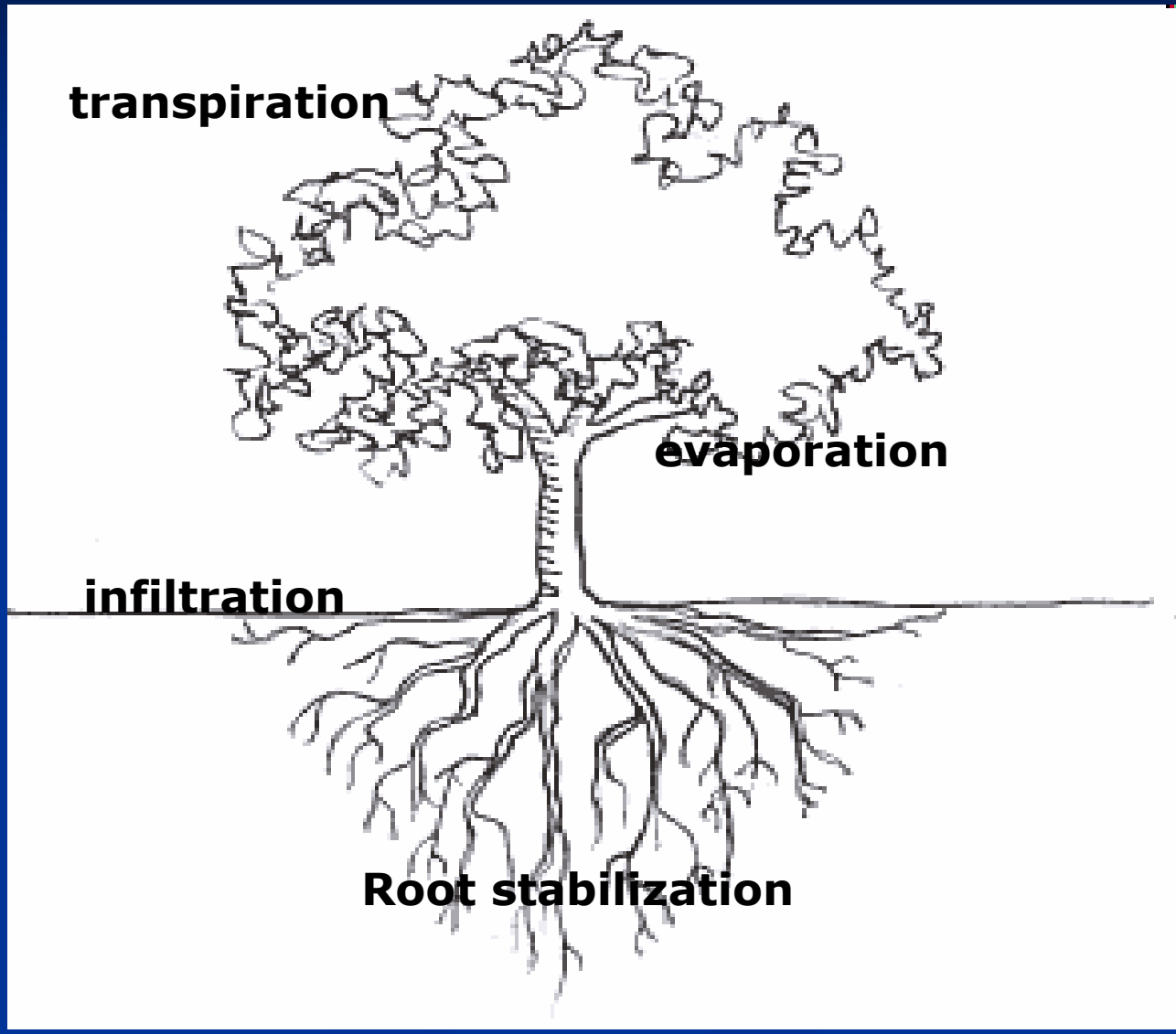
Laying out Your Design

- Create a plot plan
- Measure out your areas (or retrieve them from a survey)
- Draw in hardscape lines
- Define plantings with bubble zones
- MARK ARROWS FOR WATER ZONES, coming in and leaving property

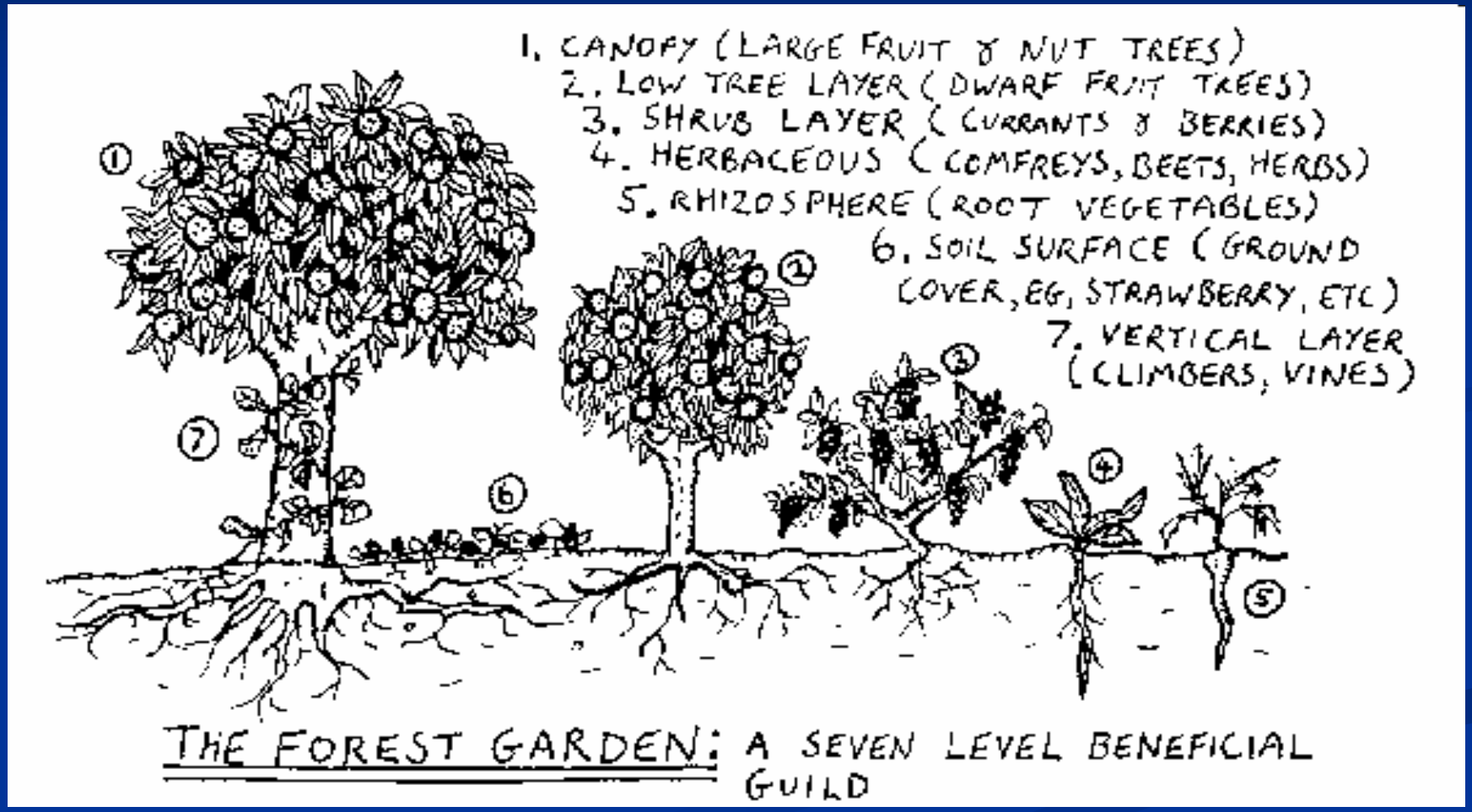
Privacy

Water Quality Improvement

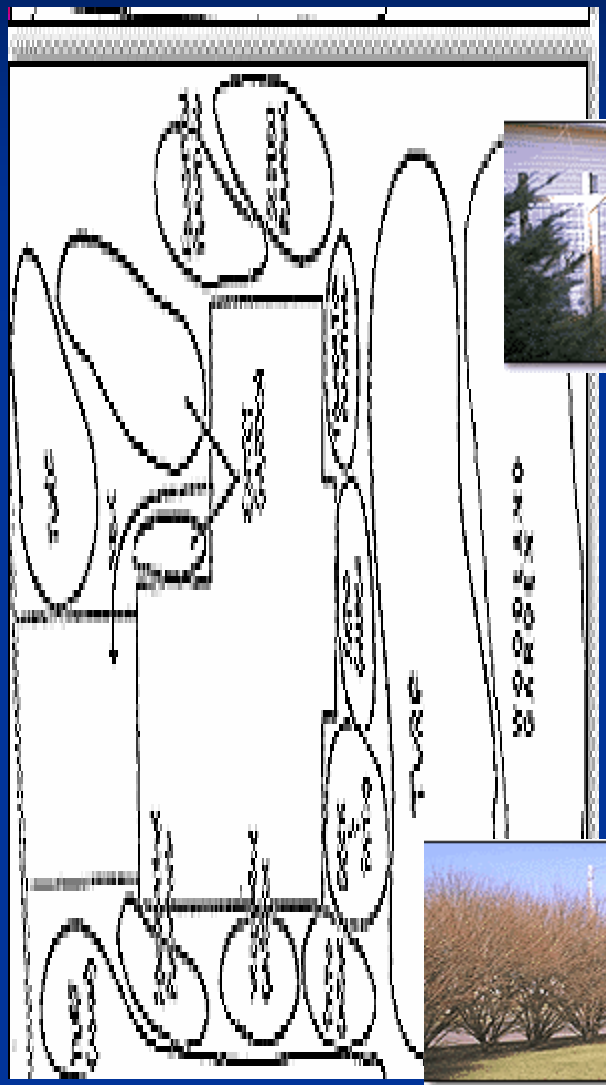
denitirification

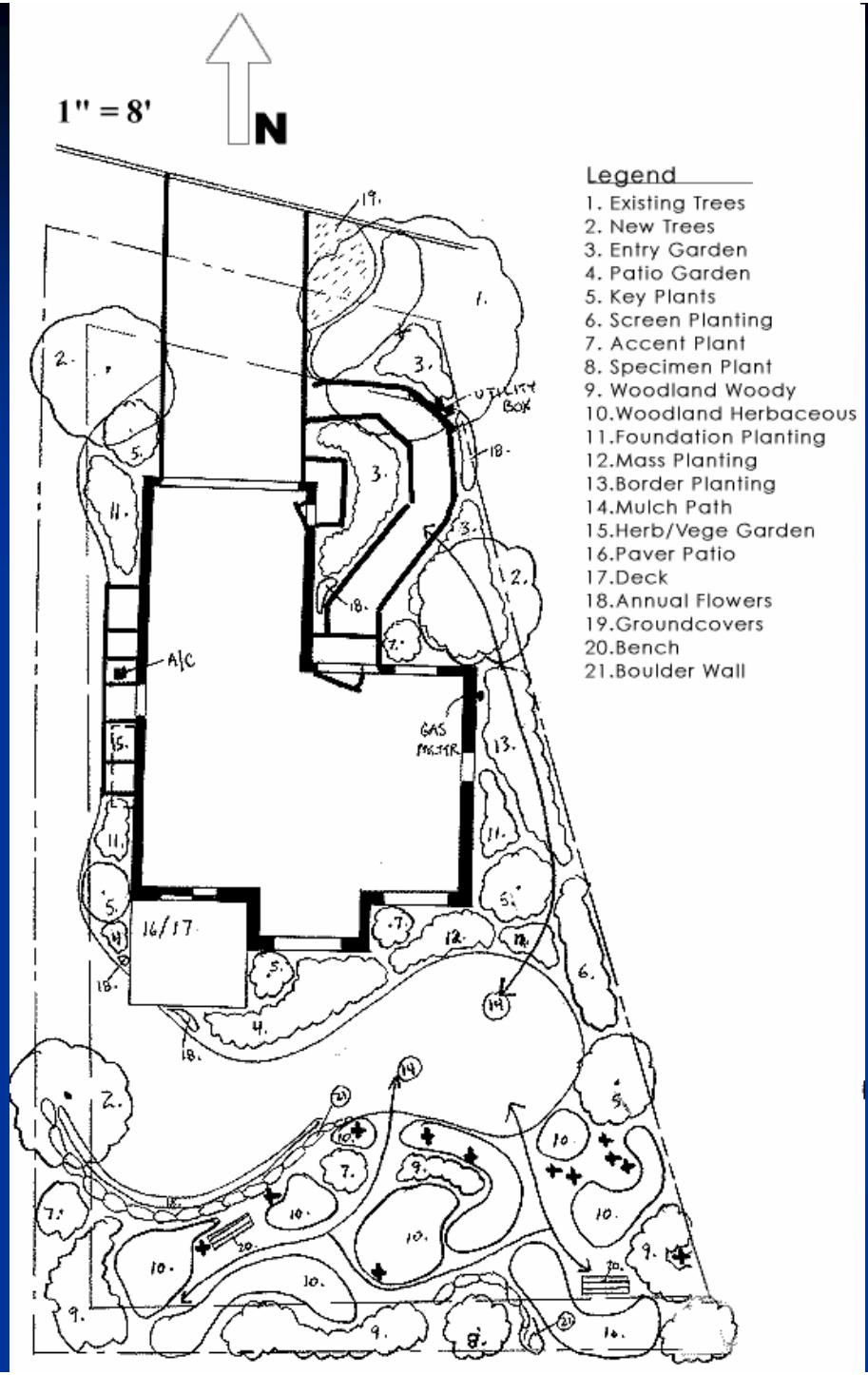


Jams, Jellies and Fruits



Bubble zone Planning





Incorporating "bubble zones" into your plot plan

Use tracing paper layers to work with various designs of color, shape, height and seasonality

Planting Materials

- Diversification – fast riparian trees for root systems
- Slow growing upland trees for shade, woody debris
- Conifers for denitrification for nutrient processing in winter months
- Shrubs for slowing stormflow
- Native grass for trapping sediment

Witchazel nutlets in fall.


Spring flowering

What makes Hobblebush spectacular-interesting flower clusters, both in arrangement and size; dish-sized tropical looking leaves.

Acer pensylvanicum, Moosewood or Striped Maple, showing bark coloration.

Shrubs

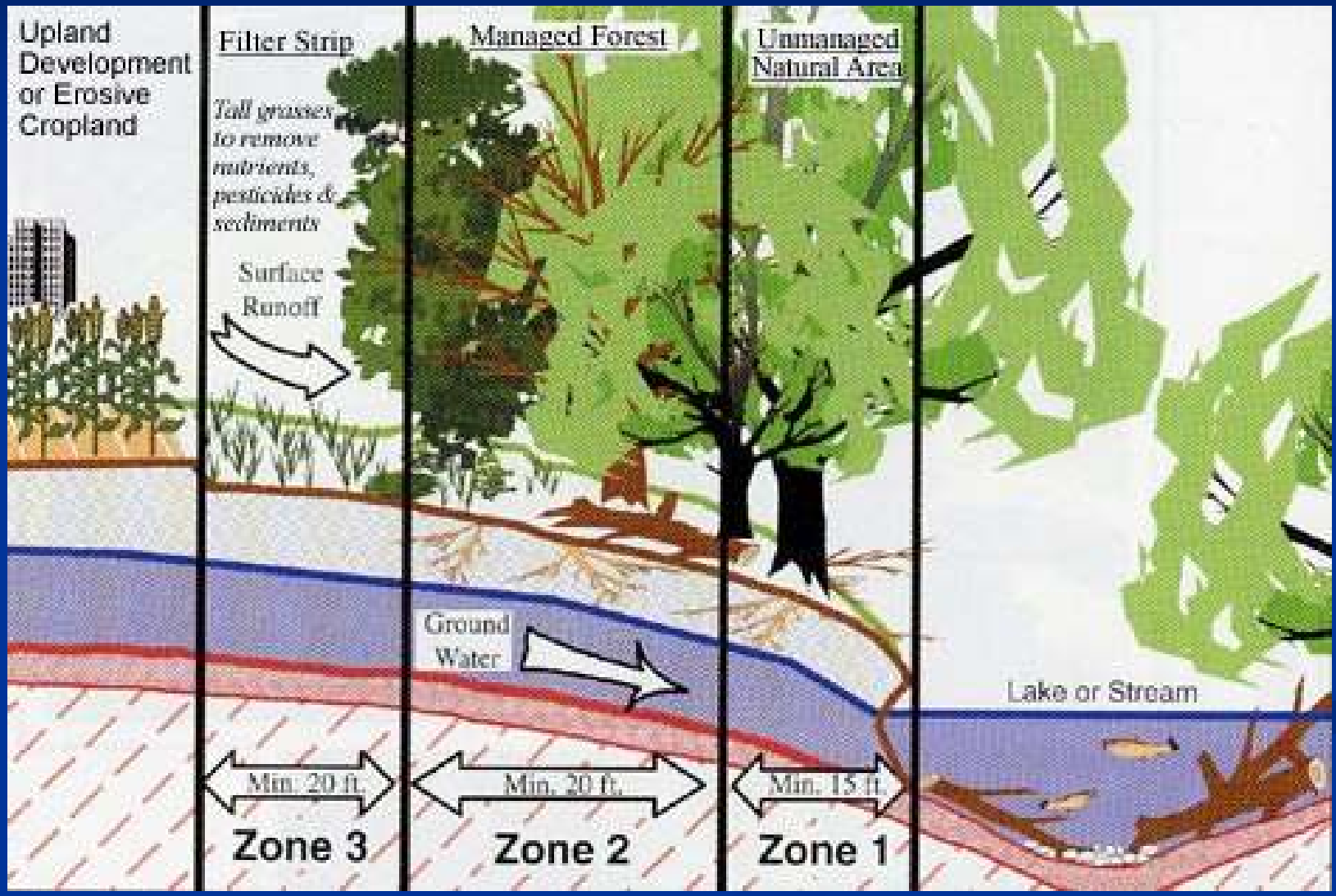
Epigaea repens, Trailing arbutus or Mayflower


Groundcover

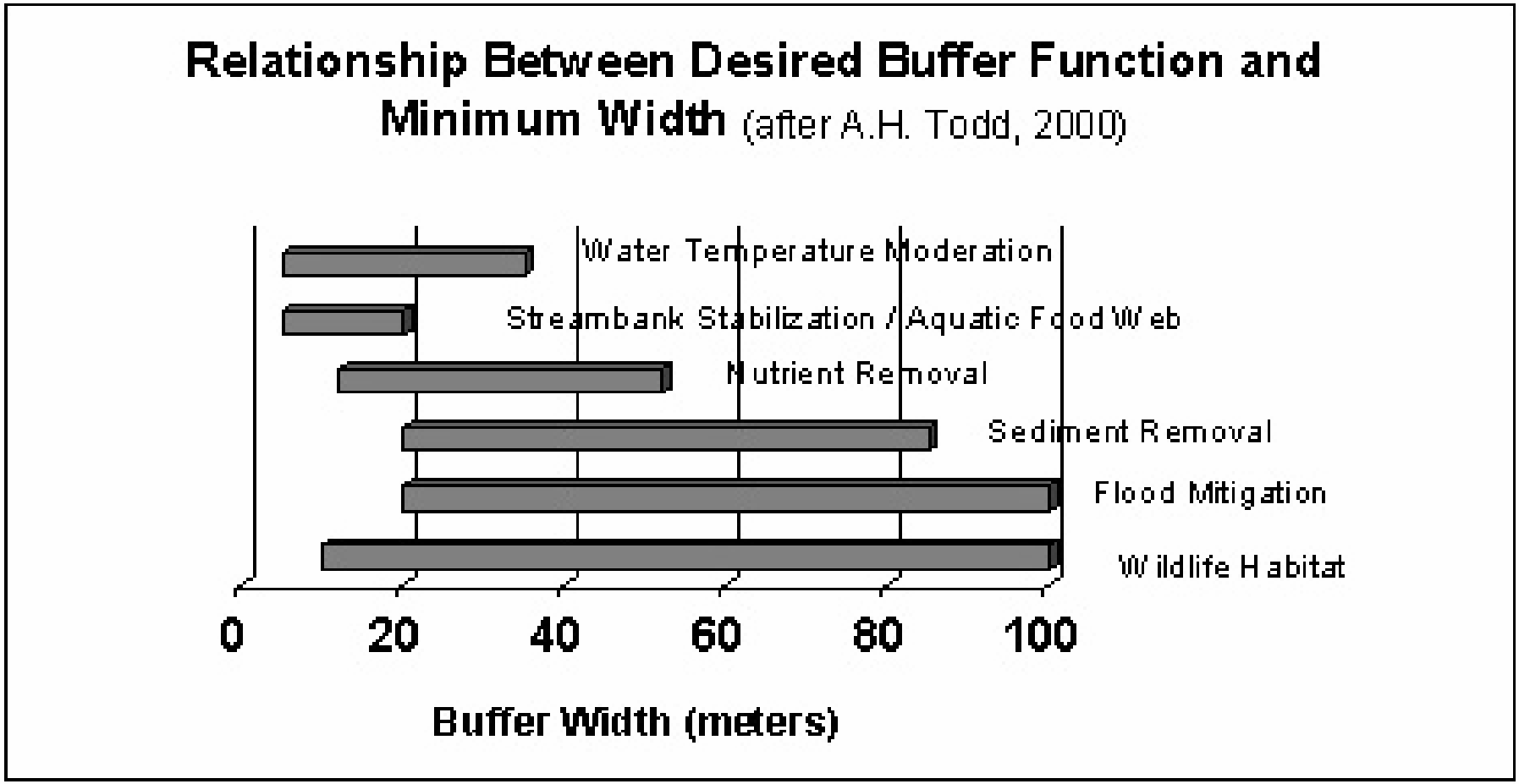
Managing your Yard, Farm or Forest

- For more information, please refer to Resources under the Projects page at the SWIM (Seacoast Watershed Information Manager) website:
- http://swim.wellsreserve.org/
  - ***http://protectwater.wordpress.com/riparian-buffers/***

Zone Landscaping at a Bigger Scale



How wide should a buffer be?

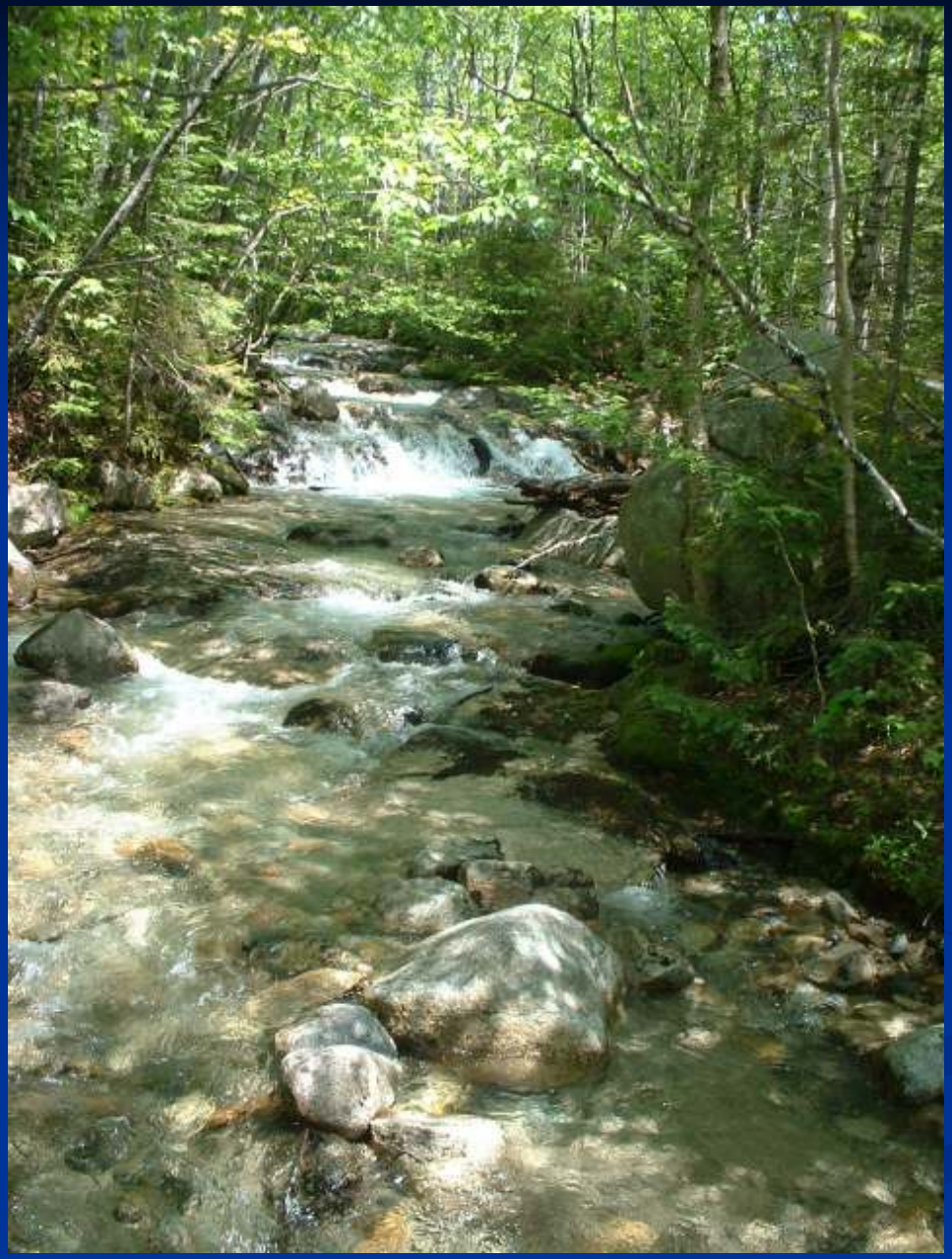


Maintenance Tips

- **Healthy plant systems grow and change over time**
  - Staggered or accelerated growth – dependent on nature, climate, weather events
- **Go back occasionally and see if your planting systems incorporate the integrated landscaping principles.**
  - Stick to your original plan...things can take some time establish.
- full landscaping at maximum cost in the first year, or staggered plantings over time, trees first, bushes, sedges, and plants in following years will minimize initial outlay.
- **As plant systems mature, some plants will thrive while others may not. While you observe the landscape,**
  - you'll see plants that move toward the sun and others that stay in the shadows. Don't rush to make changes;
  - see what the system does on its own. You'll be in for some interesting and pleasant surprises.


Forests


Wildlife habitat
Recreation
Firewood
Timber
Water Quality



Access


Kioti
Kioti

Crossing Water

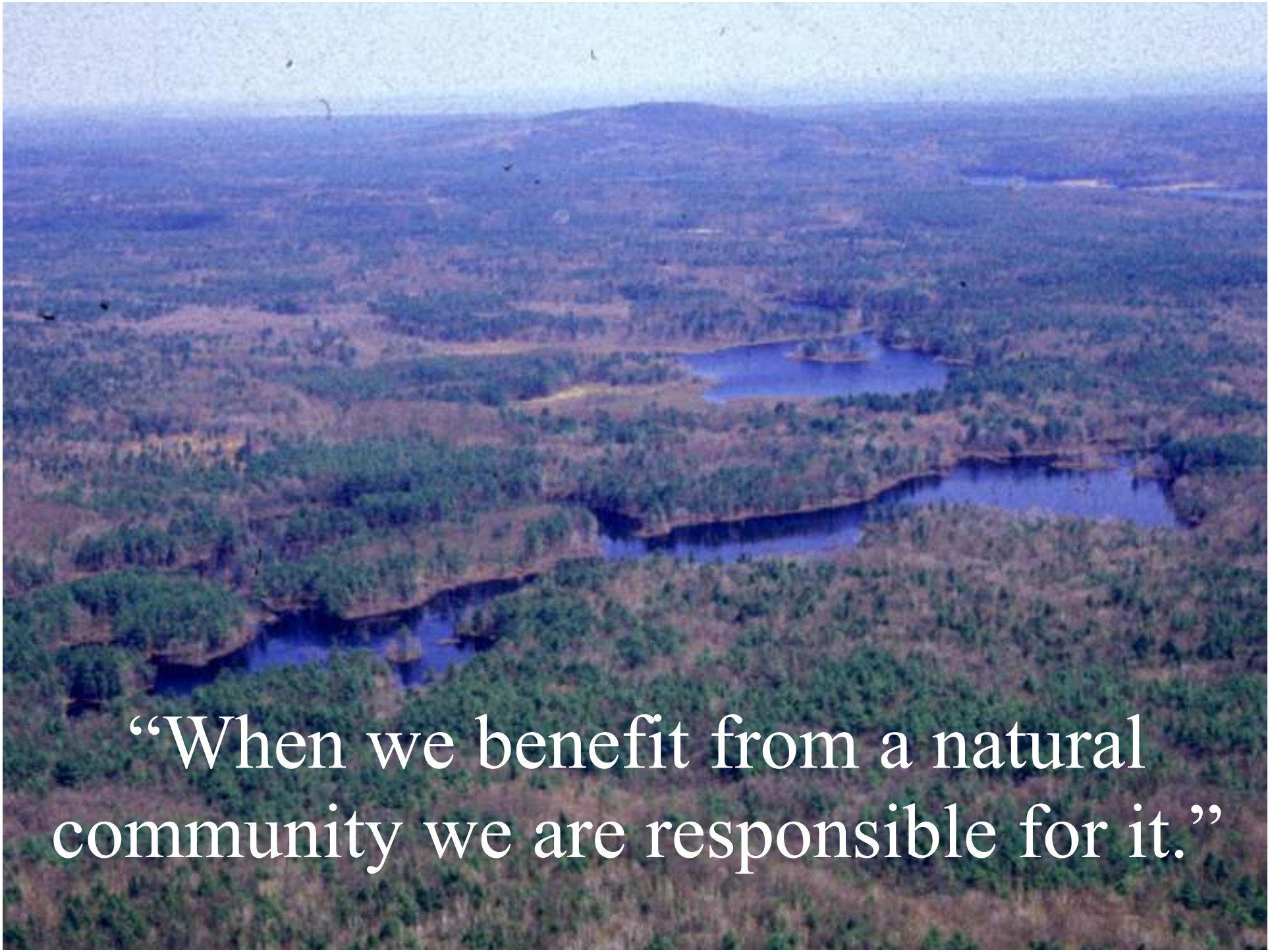
Woods Roads & Hazards


Farms


Food
Wildlife habitat
Recreation
Water Quality


DEBBIES
Garden Bride
9.8.07


THE HAMEL CHILDREN'S CENTER
THE YORK RIVER WATERSHED
THE CENTER
FOR WILDLIFE


“When we benefit from a natural community we are responsible for it.”

Controlling Invasive Plants and Creating Biodiversity

State of Maine Terrestrial Invasives

U. Maine Cooperative Extension

Asiatic Bittersweet *(Celastrus orbiculata)*

Autumn and Russian Olive *(Elaeagnus umbellata ,angustifolia)*

Black Swallowwort *(Cynanchum louiseae)*

Common ,Glossy Buckthorn *(Rhamnus cathartica and Frangula aln*

Garlic Mustard *(Alliaria petiolata)*

Japanese Barberry *(Berberis thunbergii)*

Japanese Honeysuckle *(Lonicera japonica)*

Japanese Knotweed *(Fallopia japonica)*

Japanese Stilt Grass *(Microstegium vimineum*

Lesser Celandine *(Ranunculus ficaria)*

Mile-a-Minute Weed *(Polygonum perfoliatum)*

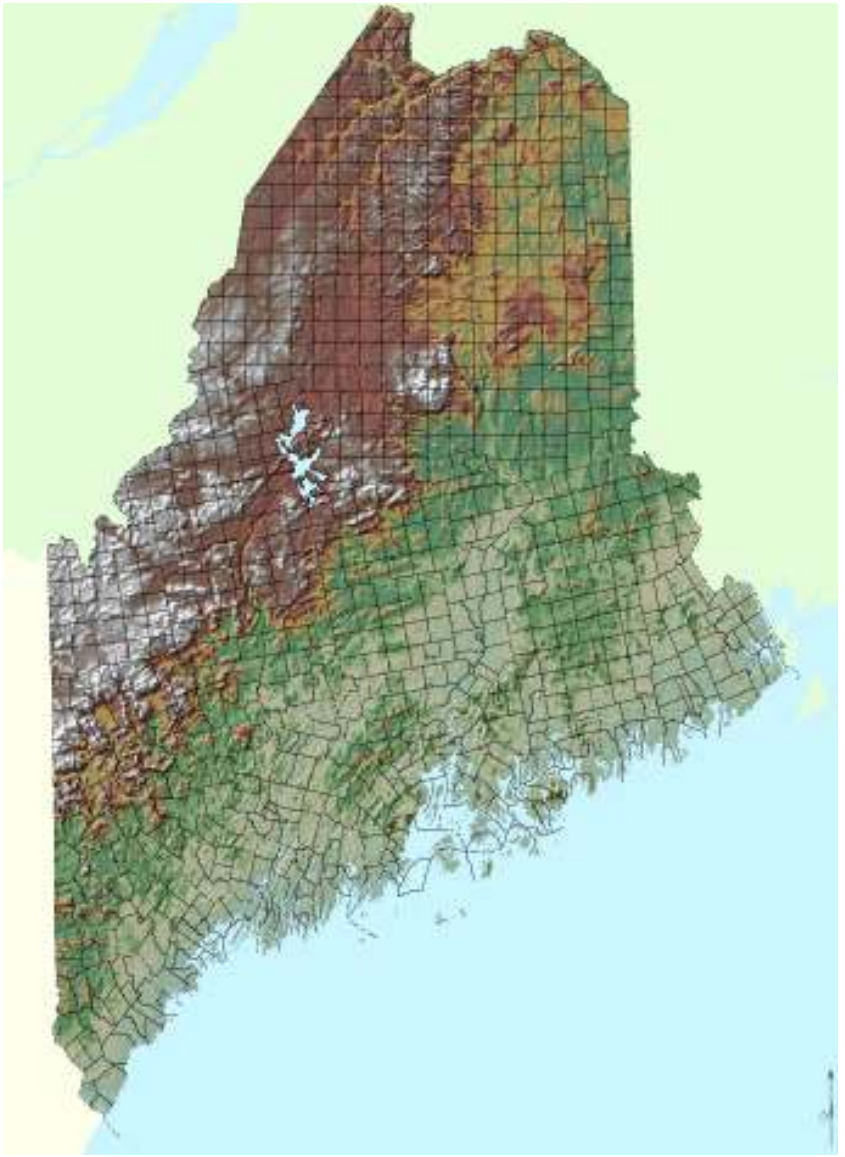
Multiflora/Rambler Rose *(Rosa multiflora)*

Porcelainberry *(Ampelopsis brevipedunculata)*

Purple Loosestrife *(Lythrum salicaria)*

Major Invasives in Southern Maine

- Purple Loosestrife
- Garlic Mustard
- Japanese Knotweed
- Bittersweet
- Phragmites
- Honeysuckle Bush
- Barberry
- Buckthorn



State of Maine Aquatic Invasives

U. Maine Cooperative Extension

Eurasian Watermilfoil *Myriophyllum spicatum*
Hydrilla *Hydrilla verticiliata*
Yellow Floating Heart *Nymphoides peltata*
Water Chestnut *Trapa natans*
European Frogbit *Hydrocharus Morus-ranae*
Brazilian Elodia *Egeria densa*
Curly Leaf Pondweed *Potamogeton crispus*
Parrot Feather *Myriophyllum aquaticum*
Variable Watermilfoil *Myriophyllum heterophyllum*
Fanwort *Cabomba caroliniana*
European Naiad *Najas minor*

Purple Loosestrife

(Lythrum salicaria)

- Perennial lives for ten or more years
- A single plant can produce 2.7 million seeds
- Cutting before flowering (easy with weed whip) contains plants
- Biological control beetles are having success
- Roots woody and hard to pull.

Garlic Mustard

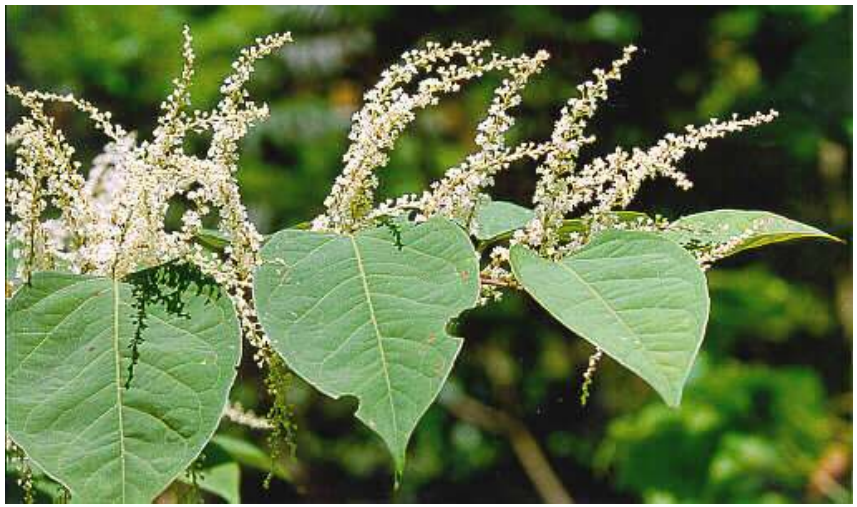
(Alliaria petiolata)

- **Biennial**
- **Grows in shad or sun**
- **Forms monocultures**
- **Up to 12 year seed bank**
- **Pull entire plant when in flower**
- **May soon have biological control**

Japanese Knotweed

(Polygonum cuspidatum)

- Spreads by plant fragments or seeds
- Forms dense thickets
- More root mass than stem and leaf mass
- Spreads rapidly
- Hard to control



Asian Bittersweet

(Celastrus orbiculatus)

- Woody stem vine
- Climbing on and covering trees and shrubs
- Can grow up to 60 ft.
- Seed spread by birds

Common Reed

(Phragmites australis)

- Invades and covers freshwater wetlands
- Roots secrete acid to dissolve roots of native plants
- Spreads one meter a year
- Winter stands become fire hazards

Honeysuckle Bush

(Lonicera morrowii)

- Out competes native plants
- Sun or shade
- Will grow almost anywhere
- Bird dispersal
- Low nutritional value for birds

Barberry

Berberis thunbergii, B. vulgaris

- Invades woodlands
- Deer avoid thorns and over browse native plants
- Toxic bark
- More attractive to pollinators
- Still available in nurseries

Buckthorn

Frangula alnus

- Dense stands shade out under story and prevent native seedlings from growing
- Causes diarrhea in birds that jeopardize migration
- Large root systems make eradication difficult

Multiflora Rose

(Rosa multiflora)

- Forms impenetrable thickets up to 15 feet high
- Spread by birds
- One plant can produce ½ million seeds
- Seeds viable for 20 years

Invasive plants are "Green"
So what is the problem?

- They diminish wildlife
- They eliminate native plants
- They lower biodiversity
- They reduce ecologic, aesthetic, and economic value

Strategies for Management

Eradication

- Preferred approach
- Is it realistic for site?
- Cost and effort feasibility
- Probability of re-infestation (seed bank and re-sprouting)

Manage

- Requires long term commitment
- Less initial effort
- Less impact on habitat

Methods

- Pulling
- Cutting
- Covering
- Burning
- Chemical

Herbicides

- For home use – ALWAYS READ LABLES – before using

- Read treatment protocol for each invasive species

- A Masters License is required for anyone hired to apply herbicides

Goals and Objectives

- **Prevent invasive monocultures**
- **Decrease invasives ability to dominate and spread**
- **Give native plants a competitive edge**

Strategies for Restoring Biodiversity

Intervention
vs.
Benign Neglect

- **Identify the invasives**
- **Research species managements**
- **Determine wildlife and habitat needs**
- **Create a management plan**

Controlling Invasives

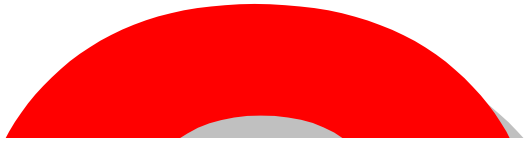
Control of invasive weed species in lawns, gardens, and on golf courses costs approximately $36 billion per year.

· $100 million annually is invested in the control of invasive aquatic species.

· Current livestock losses to invasive species are estimated to be approximately $9 billion per year.

· The total annual cost of invasive weeds to the U.S. agricultural economy is approximately $26.4 billion.

· Approximately $2.1 billion in U.S. forest products are lost each year to invasive plants.



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- **· The total annual cost of invasive weeds to the U.S. agricultural economy is approximately $26.4**
- **billion.**
- **· Approximately $2.1 billion in U.S. forest products are lost each year to invasive plants.**

The Newsletter of Great Works Regional Land Trust Summer 2009

Great Works

photos by Katie Goulet

Grover Lands
Donation in North Berwick

The Grover Family, residents of Maine and of North Berwick in particular for over 300 years, completed the donation of three parcels of family property to Great Works Regional Land Trust in February. The parcels, all in North Berwick, total 71 acres. Two of the parcels have frontage on Bauneg Beg Pond and include woods, wetlands, and vernal pools. From the third there is a view of Bauneg Beg Mountain.

The project started in 2005 when Ray Grover of Virginia contacted the Trust and asked if we would be interested in accepting family lands which had been passed down from generation to generation. Trust members Katie Goulet, Linda Trombley, and Jean Demetracopoulos walked the properties and quickly agreed that there was considerable conservation value present on each of them. Ray then set out on the task of getting the heirs - all 13 of them scattered around the country – in agreement and signed onto the deed. "I'm glad we could get it done!" said Ray. It culminated in the office of Attorney Bruce Whitney in South Berwick last February 9th with the transfer of the deeds.

The parcels were then placed under the Tree Growth Current Use Tax program, thanks to a forestry plan written by forester Dave Parker of North Berwick. Management plans are still in the formation stages but will likely include a combination of low intensity recreational access, water quality protection for Bauneg Beg Pond and Great Works River, protection of wetlands and vernal pools, and some timber harvesting.

Dedication of the Grover Family Lands

Saturday, June 13, 2009 • 9:30-11:00 am

Bauneg Beg Grange Hall, Morrell's Mill Road, N. Berwick

9:30 - Social period and refreshments

10:00 - Dedication

10:15 - "Role of Landowners in Protecting Water Quality" with questions and discussion

11:00 - Walk on Grover Family Land

Great Works Regional Land Trust

Your local land trust in the communities of the Berwicks, Eliot, Ogunquit and Wells

Stewardship…

Trail Work & Bridge Building

This year's trail building and rehabilitation work will be focused on Orris Falls Conservation Area. We have a Maine Conservation Corps crew coming to help us build a small footbridge over the stream that becomes Orris Falls. They will also be working to repair and prevent further erosion damage on the steeper portion of the trail that leads from the overlook at Tatnic Ledges to Balancing Rock.

Tuesday, June 23 - Wednesday, July 1, 8-4 each day. You can join the crew for a few hours or an entire day - or bring a picnic lunch to the hungry workers. **Any and all help during this period will be greatly appreciated.**

Call Darrell DeTour, GWRLT Stewardship Coordinator, at 207-646-3604 if you are interested in this or other **ongoing stewardship projects**, such as **invasive species removal**, **making signs** for our properties, **building bird nesting boxes**, or **chainsaw work** on some of those downed trees along the trails.

3rd Annual Raffle to Benefit Farmland Protection Fund!!

Enjoy a complete lobster dinner, served by our volunteers, with lobsters and steamers donated by Ogunquit Lobster Pound. Start with a stroll around our own Beach Plum Farm in Ogunquit.

The evening will be accompanied by bluegrass band ***High Pines*** with Keith Fletcher, Neil Ramsdell & Cathy King on fiddle, mandolin & bass.

- For up to 10 people, on a weekend in September, at our mutual convenience.
- Drawing will be held at the Members Lobster Roll Social, August 1st.
- Tickets $5 each, 5 for $20.

Mail in your chance to win with the tickets enclosed with this newsletter, or call the office for more. Last year we raised over $900 for Farmland Protection!

Great Works River Watershed Education

The Wells Estuarine Research Reserve, in partnership with the Great Works Regional Land Trust and the Great Works River Watershed Coalition, will be holding a series of trainings on how to take care of your land with water quality protection in mind. This series is funded by the Piscataqua Region Estuaries Partnership.

Saturday, June 13, 9:30-11:30am, Bauneg Beg Grange, Morrell's Mill Road, N. Berwick This event will start off with refreshments and a social period followed by a brief recognition of outstanding environmental stewardship by the Grover family of North Berwick, the Great Works River Watershed Coalition and Great Works Regional Land Trust. At 10:15 there will be a 30 minute program on the role landowners play in protecting water quality with time reserved for questions and discussion. At 11:00 there will be a guided walk on the newly conserved Grover Family Lands located at West Fifth Street, N. Berwick.

Wednesday, August 26, 6:00-7:00pm, Leigh's Mill Pond, S. Berwick *DEMONSTRATION WALK / TALK* Learn more about erosion control and the effects of stormwater runoff and sedimentation on the health of our rivers and streams. Visit an "overly loved" land trust property and learn what steps are being taken and why to help address this problem.

Saturday, October 17, 9:00-11:00am, GWRLT Kenyon Hill Property Ogunquit Road, S. Berwick *DEMONSTRATION WALK / TALK* Visit 113-acre Kenyon Hill and learn why and how GWRLT is harvesting timber on this property that contains wetlands and shoreland along the Ogunquit River.

Offered through Adult Education Fall 2009:

Managing Your Land with Water in Mind: Yards, Forests, and Farms: Learn and discuss how your property, whether a hundred acres or half an acre, fits into the diverse and bountiful landscape and abundant water resources we enjoy in southern Maine. Lawns, gardens, fields, and woodlots can be managed in ways that benefit us as landowners, wildlife, and our community. Come join Wells National Estuarine Research Reserve, GWRLT, Great Works River Watershed Coalition, and other landowners for an evening of information and discussion.

Wednesday, September 30th, 7:00 – 9:00 pm, Wells High School. Call 646-4565 to sign up.

Monday, October 26th, 7:00 – 9:00pm, Noble High School, N. Berwick. Call 676-3223 to sign up.

Tuesday, November 10th, 7:00 – 9:00pm, Marshwood High School, S. Berwick. Call 384-5703 to sign up.

Doug Mayer Joins Board of Directors

When Brad Sterl wanted to find an Ogunquit replacement for himself on GWRLT's Board of Directors, he didn't have to look far. Neighbor and fellow Ogunquit Conservation Commission member **Doug Mayer** was not only superbly qualified, but interested, and he accepted the invitation.

Doug has made Ogunquit his home since the mid-60s, though his job for 20 years as Ship's Officer and Navigator for Woods Hole Oceanographic Institute took him away for months at a time. Having earned a degree from the University of Maine system in biology and earth science, the work filled his desire to be involved in an environmental field. His spouse, Khristine Kostis, is an artist who has contributed to GWRLT's art auction.

One of Doug's first summer jobs as a youth was cutting trails for the new Mt. Agamenticus ski area and he says "I have beeen thrilled over the years to learn the extent to which those lands have been protected. I'm drawn to the concept of natural corridors from Mt. Agamenticus to the ocean...perhaps some day people will be able to comfortably hike from the top of Mt. A to Ogunquit Beach."

The Newsletter of Great Works Regional Land Trust Fall 2009

Great Works

PIECING TOGETHER THE PUZZLE:
Farms, Forests and Water

It is not about land, or acres, or projects, but about all the life that occurs in that thin layer from a few feet underground to the tops of the trees.

Farms, Forests, and Water is the title of the Land Trust's just released Strategic Conservation Plan providing the guideline for the organization's land protection efforts over the next 15 years. Why farms, forests, and water? Because these three landscapes provide what we and our communities need to thrive; clean air, clean water, and food. When we depend on the resources of natural communities it is our responsibility to manage those communities in a sustainable way. Land conservation accomplishes this goal by protecting these resources for generations to come.

This document is the result of two years of work, dozens of meetings, and includes the input from 179 people in our communities. The Wells National Estuarine Research Reserve was a key partner in the development process as well as producing all the maps in the final copy. The Plan will help Board members focus their work and communicate to funders and the six towns the Trust's top priorities and why.

Turn to page 10 for some details of the Plan.

- Tin Smith

Great Works Regional Land Trust

Your local land trust in the communities of the Berwicks, Eliot, Ogunquit and Wells

GREAT WORKS
Regional Land Trust
www.gwrlt.org

P.O. Box 151 · South Berwick, ME 03908
Office: Beach Plum Farm
610 Main St., Rte. 1, Ogunquit
207-646-3604
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From the president…

Every glittering pearl of dew, or snowflake,
or pelt of rain, conceals energy from the sun…

This is the opening line in Lorus and Marjorie Milne's *A World Alive – The Natural Wonders of a New England River Valley*. The prologue continues:

> *…From the sun each day come the calories required to free molecules of water into an invisible vapor, to be randomly distributed by the wind. The molecules again condense, and gravity propels the moisture through the soil, eventually to trickle out of the springs to the deep reaches of the river.*

Our land trust, through the energy provided by volunteers, operates in much the same way, with water representing the good works done by Great Works. We cannot fathom how this will spread, whether as vapor or liquid. But spread it will and the lives of others we will never know will be the better for it.

Jill Crosbie recently resigned from the Board and though she also resigned as Chair of the Stewardship Committee, we are glad that she will continue to contribute to Great Works as an active member of the committee.

Thank you to all who share their time and talent doing important work, with compensation in the form of satisfaction earned from a job well done.

Jack Kareckas

Wells National Estuarine Research Reserve, in partnership with Great Works Regional Land Trust and Great Works River Watershed Coalition, is holding a series of Adult Education courses on how to take care of your land. This series is funded by Piscataqua Region Estuaries Partnership.

Learn and discuss how your property, whether a hundred acres or half an acre, fits into the diverse and bountiful landscape and abundant water resources we enjoy in southern Maine. Lawns, gardens, fields, and woodlots can be managed in ways that benefit landowners, wildlife, and our community. Come join other landowners for an evening of information and discussion.

Managing Your Land: Yards, Forests, and Farms

Wednesday, September 30th, 7–9pm, Wells High School. Call 646-4565 to sign up.
Monday, October 26th, 7–9pm, Noble High School. Call 676-3223 to sign up.
Tuesday, November 10th, 7–9pm, Marshwood High School. Call 384-5703 to sign up.

GREAT WORKS REGIONAL LAND TRUST
is dedicated to the protection of the natural, historic, agricultural, scenic and recreational resources within the Maine communities of
Eliot, North Berwick, South Berwick, Berwick, Wells and Ogunquit.
Great Works Regional Land Trust is a nonprofit, tax-exempt corporation under Section 501(c) (3) of the Internal Revenue code (a).
Contributions are tax-deductible.

THE NEWSLETTER OF GREAT WORKS REGIONAL LAND TRUST Winter 2010

Great Works

Piecing Together the Puzzle: Water

When we speak of protecting the waters of our region, we are speaking of protecting riparian areas; those places where the land meets our rivers, streams and ponds. Although a relatively small part of the landscape, **these shorelands are a critical piece of healthy ecosystems.** They are the connections between the land and water and greatly influence the quantity and quality of water in our streams and lakes.

Southern Maine is blessed with an abundance of water resources, both fresh and marine. The quality of this water as measured by clarity, chemical make-up (pH and dissolved oxygen) and presence or absence of pathogens has been declining in recent decades. This decline in water quality is due to specific places were wastewater or stormwater is added to rivers, streams and ponds ('point sources') and 'non-point sources', typically diffuse and widespread changes to the land or practices on the land within a watershed. The Great Works River is listed as a 'High Priority Watershed' on the Maine Department of Environmental Protection's Nonpoint Source Priority Watershed List.

Protecting riparian buffers is a key management strategy to controlling nonpoint pollution. **Riparian buffers act as a natural sponge and prevent pollutants from reaching surface waters in several ways: filtering pollutants out of stormwater, slowing the flow rate of stormwater runoff, and reducing the volume of stormwater runoff.** Additionally, vegetated riparian zones along rivers and streams provide shading, habitat, and food sources for wildlife and aquatic organisms.

Riparian lands, or shoreland zones, have the added value that life is simply richer along the water. They are the transition zones between upland communities and aquatic communities and often include characteristics of multiple communities, resulting in areas that are structurally diverse and very productive. Shoreland zones are known for an impressive biodiversity. According to Maine Audubon, up to 85% of Maine's vertebrate species use the shoreland zone at some time during their lives.

We are happy to announce that GWRLT recently accepted two important donations of riparian land along the Great Works River and we anticipate receiving a third parcel along the Salmon Falls River this winter. The permanent protection of these ribbons of land bordering important water bodies ensures that the critical ecological services they provide will remain intact and functioning forever.

If you are a landowner with riparian land, whether it be half an acre or a hundred acres, what you do with your land and how you manage it affects water quality. If you would like to learn more please visit our website, www.gwrlt.org, or sign up for our course "Managing Your Land: Yards, Forests & Farms", April 6th through the Marshwood Adult Education program.

riparian (ri*pâ'ri*an)

Relating to or inhabiting the banks of a natural course of water. Riparian zones are ecologically diverse and contribute to the health of other aquatic ecosystems by filtering out pollutants and preventing erosion.

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The Herrick and Stevens Parcels -

2 important donations of riparian land along the Great Works River

Herrick Parcel

Donor: Don Herrick

Size: 2.2 acres

Location: North Berwick, on west side of Bauneg Beg Pond, abutting our 50-acre Grover parcel.

Conservation values:
Frontage along Bauneg Beg Pond: 100 ft.
Riparian buffer. Increases conserved block of land to 52 acres.

Advantages: provides better GWRLT access to the Pond and allows for parking off of Morrell's Mill Road.

Stevens Parcel

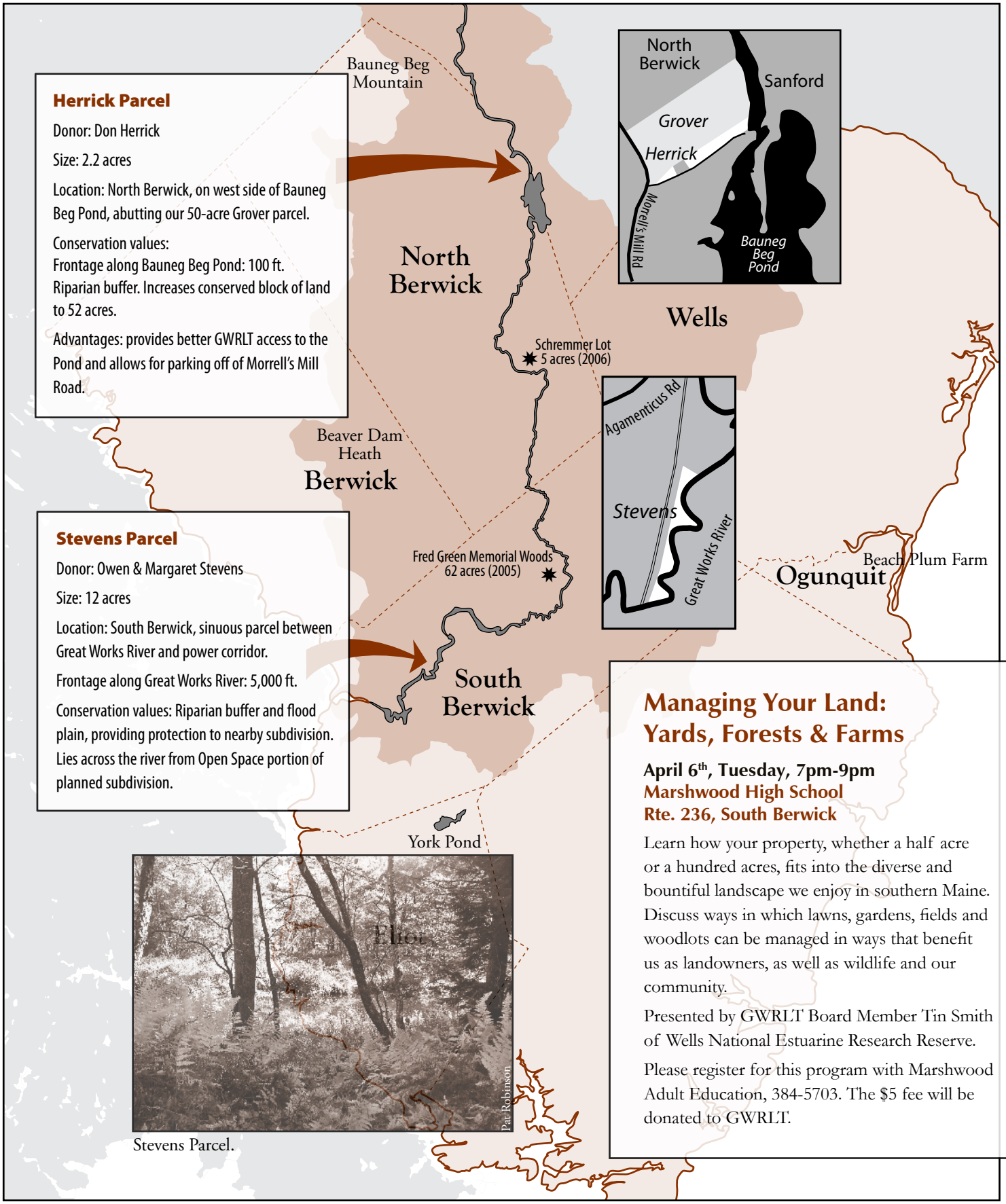
Donor: Owen & Margaret Stevens

Size: 12 acres

Location: South Berwick, sinuous parcel between Great Works River and power corridor.

Frontage along Great Works River: 5,000 ft.

Conservation values: Riparian buffer and flood plain, providing protection to nearby subdivision. Lies across the river from Open Space portion of planned subdivision.



Stevens Parcel.

Managing Your Land: Yards, Forests & Farms

April 6th, Tuesday, 7pm-9pm
Marshwood High School
Rte. 236, South Berwick

Learn how your property, whether a half acre or a hundred acres, fits into the diverse and bountiful landscape we enjoy in southern Maine. Discuss ways in which lawns, gardens, fields and woodlots can be managed in ways that benefit us as landowners, as well as wildlife and our community.

Presented by GWRLT Board Member Tin Smith of Wells National Estuarine Research Reserve.

Please register for this program with Marshwood Adult Education, 384-5703. The $5 fee will be donated to GWRLT.