

Preserving Natural Redding

A GUIDE TO LIVING IN A WATERSHED COMMUNITY



Betty Hill 1920 – 2009

Founder, Redding Garden Club, Redding, CT

On June 16, 1964, after attending the first meeting of the Redding Conservation Commission, Betty Hill established the Redding Garden Club. "The best way to explain the importance of conservation is through garden clubs," she said, and she invited everyone who was interested in conserving the natural beauty of Redding to join.

Led by Betty's energy and drive, the club quickly endorsed the establishment of a Land Trust. To help beautify the town, members sold daffodil bulbs and sponsored town-wide litter clean-ups. Under Betty's leadership, the club launched a youth program, organized flower shows, offered education programs, and soon became an integral part of Redding.

Today, the RGC continues to be a leader in civic beautification and conservation, carrying on Betty Hill's mission to preserve Redding's beauty and to protect our native trees, birds and wild flowers.

It is in Betty's memory, with love and gratitude, that the Redding Garden Club dedicates this booklet.



www.reddinggardenclub.org

Redding Garden Club

Preserving Natural Redding

We're all in it together. The watershed, that is: *"That area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community."*

– John Wesley Powell, scientist geographer

Redding residents share a beautiful community of protected lands and waterways thanks to the town's early protection of open space and to a combination of the Redding Conservation Commission, the Redding Land Trust, The Nature Conservancy, Connecticut's Department of Energy and Environmental Protection (DEEP), the Centennial Watershed State Forest, and the Aquarion Water Company.

Eighty-nine percent of Redding's land drains into the public water supply of communities to our south and ultimately into Long Island Sound. Even if we don't live near a body of water, whatever we allow to contaminate the rain, snowmelt and stormwater that run off our properties can harm the people and wildlife around us.

So, as members of this community, what can we do to protect the quality of our water? First, we can minimize runoff by using permeable surfaces instead of pavement, building rain gardens and collecting rainwater in barrels. Second, we can avoid contaminating the water that does run off with thoughtful land care practices. And, we can dispose of animal and hazardous waste products properly.

Each of us can help to preserve the quality of our water and, therefore, our quality of life.

Follow This Guide To:

- Reduce erosion and water runoff.
- Create a rain garden.
- Adopt organic lawn care practices.
- Learn about invasives and native alternatives.
- Manage deer overpopulation.
- Reduce hazardous waste.



Soil Erosion

Soil erosion is a major environmental concern. Sediment is a source of pollution to our waterways and can result in damage to fish and wildlife. It can clog storm drains, causing streets to flood, posing a danger to residents and requiring costly maintenance. Erosion begins when wind and rain loosen soil and deposit it somewhere else, such as our lakes and streams. Erosion removes valuable topsoil and causes damage to landscaping. Clearing and leveling the land for construction of homes, additions, septic systems, driveways, and yards causes the delivery of excessive sedimentation to areas where it's unwanted. This nutrient-laden sediment encourages the growth of aggressive aquatic plants such as Variable-leaf Watermilfoil (*Myriophyllum Heterophyllum*).



"The dense growth of this plant provides breeding areas for mosquitos and degrades the quality of the water for fish and other aquatic wildlife."

– Invasive Plant Atlas of New England (IPANE)

Look For These Signs Of Erosion In Your Yard

- Small gullies begin to form.
- Tree roots and small rocks are exposed.
- Sediment begins to collect in low-lying areas.
- Soil splashes on windows and outside foundation walls.



Variable-leaf Watermilfoil
(*Myriophyllum Heterophyllum*)

Water Runoff

Each time it rains onto your yard, the water is either absorbed by porous surfaces such as soil, or it runs off impervious surfaces such as driveways, roofs and patios. As the water runs off, it carries with it pollutants such as fertilizers, pesticides, gas and oil. This runoff is cited by the United States Environmental Protection Agency as one of the most significant sources of pollution to our waterways. Rainwater travels through our soil and recharges our groundwater. We need to slow down the speed of our water runoff, giving rainwater more time for absorption. It's also important to collect this valuable resource for use in our gardens.

Ways To Control Erosion And Water Runoff In Your Home Landscape

- Use plantings such as groundcovers that slow the water down and hold soil in place.
- Improve your soil quality by adding organic matter, which increases the ability of the soil to absorb and hold water.
- Terrace steep slopes to give runoff more absorption time.
- Limit the use of concrete and asphalt, replacing them with more porous materials such as gravel, bluestone set in sand, or plant material.
- Use rain barrels attached to downspouts to collect runoff from the roof.
- Plant a rain garden, which collects and filters rainwater.
- Go to Reducing Erosion and Runoff at <http://pubs.ext.vt.edu/426/426-722/426-722.html>.

Reasons To Control Erosion And Water Runoff:

- Sediment pollutes waterways and results in damage to fish and wildlife.
- Erosion removes valuable topsoil.
- Sediment encourages the growth of aggressive aquatic plants and clogs storm drains.
- Water runoff carries pollutants such as fertilizers, pesticides, gas and oil to waterways.



Swamp Milkweed
(*Asclepias incarnata*)



Black-Eyed Susan
(*Rudbeckia hirta*)



New England Aster
(*Aster novae-angliae*)

Rain Gardens

A rain garden is an area planted for the purpose of absorbing excess water from roofs, downspouts and paved areas to prevent erosion. This can be a fun and simple project for your home landscape. Your rain garden can help keep our watershed happy and healthy!

Garden Location:

- Place your garden where it will collect the most amount of runoff.
- It should be no closer than 10 feet from the foundation of your house.
- Locate at least 25 feet away from a septic system drainfield or wellhead.
- Avoid all underground utilities. Remember to dial 811, "Call Before You Dig."
- Place it in partial to full sun.

Soil:

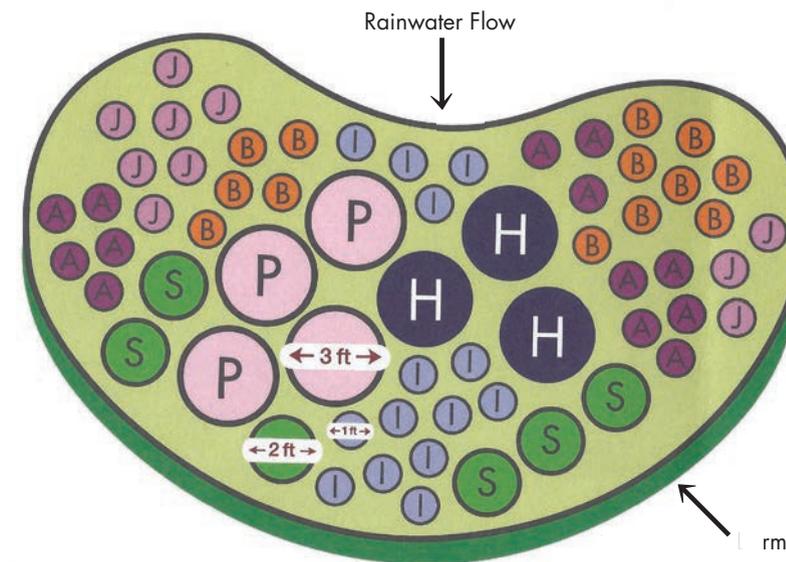
- The best soil for a rain garden is well-drained or sandy soil.
- Before planting, you should till the soil to a depth of 18 inches and amend the soil if needed.
- Make sure you level the garden area. If the yard is sloped, you will need to construct a small berm on the lower end.

Sizing Your Garden:

- Rain gardens can be large or small depending on the amount of runoff involved. Most are between 100 and 400 square feet. To calculate the size of your rain garden, go to <http://nemo.uconn.edu/raingardens/>.

Rain Garden Diagram

10' x 15' rain garden with 1-foot, 2-foot and 3-foot diameter plantings.



Plant Selection:

- Choose plants that tolerate both wet and dry conditions.
- The best plants are low maintenance and native to Connecticut.
- Make sure they can tolerate partial to full sun.
- Use different heights to give depth and dimension.
- Use a combination of grasses, flowers and shrubs.

Diagram Plant List:

- A** New England Aster
- B** Butterfly Milkweed
- H** Highbush Blueberry
- I** Blueflag Iris
- J** Joe Pye Weed
- P** Sweet Pepperbush
- S** Switchgrass



Green Your Lawn

Herbicides and pesticides used in the yard contaminate stormwater runoff, an increasing cause of beach closures. They can be tracked into the house and absorbed by children and pets. And they move up the food chain from plants, insects and microbes to birds, fish and other wildlife, and eventually to people. Organic land care protects the water and every creature that depends on it.

First, consider reducing the size of your lawn. A healthy lawn will outcompete weeds and resist insects, thus reducing the need for chemicals.

To Establish A Healthy Lawn:

Test the soil to identify and remedy deficiencies, and choose grass seed suited to your conditions.

Mow to a height of 3 inches to help grass outcompete weeds.

Water the lawn once a week if needed. This encourages the growth of deep roots that will resist drought. If your lawn does dry out, it is only dormant. It will green up with the next good rain.

Compost uncontaminated yard waste and spread it in planting beds to enrich the soil. Leave grass cuttings on the lawn to hold moisture and provide nutrients.

Use organic plant foods if needed. Chemical fertilizers create lawns that are dependent on heavy feeding, and the excess pollutes runoff. Organic fertilizers are released gradually, so they are absorbed by the plants.



Organic options to combat pests and diseases are increasingly available, including insecticidal soap, horticultural oil, and plant-based extracts. For approved products, go to www.omri.org. Click on "Find Products."

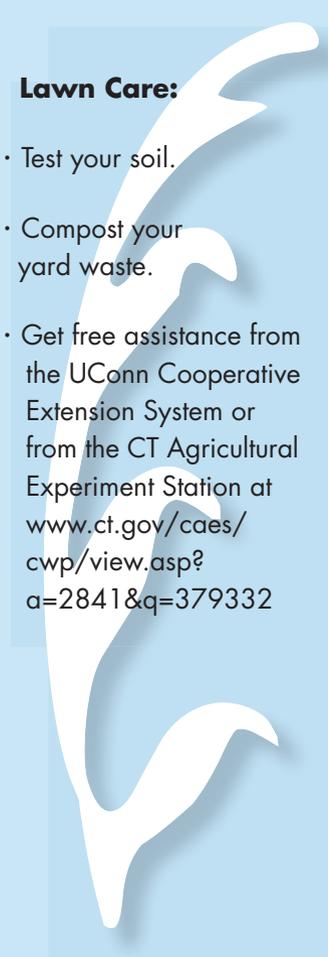
If you hire a **lawn care company**, choose one that practices eco-friendly methods and Integrated Pest Management (IPM). Look for companies accredited by Northeast Organic Farming Association (NOFA) at www.organiclandcare.net. Click on "Homeowners."

Resources:

- Test your soil. Go to www.caes.state.ct.us and click on "Programs & Services" or www.soiltest.uconn.edu/factsheets/LawnGarComCps.pdf for information.
- Compost your yard waste. www.ct.gov/caes/lib/caes/documents/publications/fact_sheets/forestry_and_horticulture/backyard_composting.pdf
- Get free assistance from University of Connecticut Cooperative Extension System. In Bethel: 67 Stony Hill Rd., Bethel, CT 06801, 203.207.8440 or contact your local agricultural experiment station.

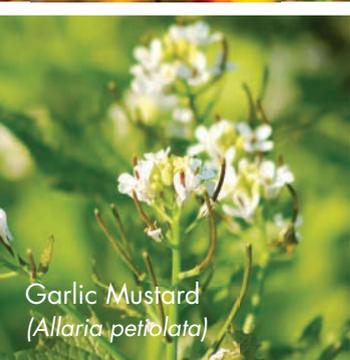
Lawn Care:

- Test your soil.
- Compost your yard waste.
- Get free assistance from the UConn Cooperative Extension System or from the CT Agricultural Experiment Station at www.ct.gov/caes/cwp/view.asp?a=2841&q=379332

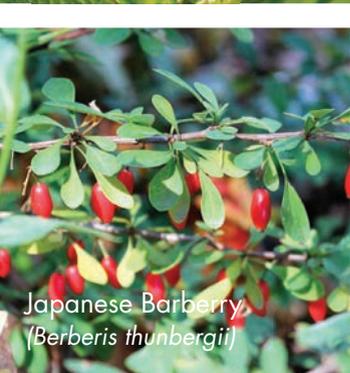




Bittersweet
(*Celastrus orbicularis*)



Garlic Mustard
(*Allaria petiolata*)



Japanese Barberry
(*Berberis thunbergii*)

Invasive Plants Found In Redding

Defining Invasives

Invasive plants are non-native and have been brought to the USA accidentally or were introduced and have escaped cultivation. They frequently originated in China and Japan in areas having the same temperate climate, but in our country have no local control to keep their growth in check. They are considered to be undesirable because they outcompete native plants and so affect habitat adversely for natives. Loss of biodiversity affects the whole food chain.

Burning Bush (*Euonymus alatus*) A deciduous shrub growing 2-10 feet with corky, winged stem ridges and opposite, oval leaves which turn red in the fall. It produces red-purple berries which are eaten and dispersed by birds.

Bittersweet (*Celastrus orbicularis*) An aggressive, deciduous vine that twists around and strangles other vegetation. It has alternate, rounded, glossy leaves, produces red-orange fall fruits, orange colored roots, and spreads by bird dispersal and root suckering.

Common Reed (*Phragmites australis*) A perennial grass that forms dense monocultures in moist areas through rhizomes and seed dispersal in fresh or brackish water. It has outcompeted the native Phragmites, and can grow 10-12 feet tall with silvery plumes that form in the fall.

Garlic Mustard (*Allaria petiolata*) This biennial herb forms a rosette of heart-shaped leaves in the first year. In the early spring of the second year, white flowers are produced, which by summer become dried brown stems containing huge numbers of seeds that persist in the ground for up to 8 years. It quickly establishes along roadsides and forest edges. The crushed leaves have a garlicky odor.

Japanese Barberry (*Berberis thunbergii*) A thorny, dense, twiggy, deciduous shrub that grows 2-8 feet. Early spring leaf-out of usually green, occasionally purple, small, oval leaves, shades out native plants, adversely affecting habitat for native wildlife. It produces red berries in the fall.

Japanese Knotweed (*Polygonum cuspidatum*) An herbaceous perennial growing up to 12 feet, with hollow stems and square-based pointed leaves, it produces white flower clusters in late summer. It forms dense monocultures by underground rhizomes and seed dispersal, and dies back in fall.

Purple Loosestrife (*Lythrum salicaria*) This herbaceous perennial grows 4-10 feet, with whorled leaves and striking magenta flowers in summer. In moist areas, it outcompetes native wetland plants that have higher nutritional value for wildlife. Insect biological controls are being used with success.

Swallowwort (*Vincetoxicum nigrum nigrum [black] and V. rossicum [pale]*) Herbaceous, twining, perennial plant which has naturalized in the Northeast, displacing native plants important for wildlife. It can grow from 3-6 feet in one season, and has insignificant rotten-smelling flowers in late spring. Later, fruit pods form, which release seeds dispersed by wind via silky parachutes. Monarch butterflies can mistake this member of the milkweed family and deposit eggs on the plants which will not develop.

Multiflora Rose (*Rosa multiflora*) An aggressive, thorny, deciduous shrub with arching canes that form monoculture thickets, spreading by cane tip rooting and producing up to one million seeds per plant per year. Very fragrant whitish pink flowers in late spring are followed by red rose hips.

Japanese Stiltgrass (*Microsyrhium vimineum*) This annual grass grows 2-3 feet tall, with lance-shaped leaves, pale green in early summer. It is widely adaptable to dry or moist conditions, invading forest and garden and roadsides. It produces up to 1,000 seeds per plant per year and establishes a seed bank in the soil which persists up to 5 years.

How To Control Invasives

- **Manual Control:** Hand pull, dig out, remove flowers and seed heads before maturity.
- **Mechanical Control:** Mow repeatedly before seed production; use a weed wrench.
- **Chemical Control:** Use herbicides and pesticides when needed. Always carefully read the labels and use the recommended amount for the specific area, wearing personal protection.

Some Suggested Native Alternatives To Plant

Trees

Eastern Redbud, *Cercis canadensis*
Red Cedar, *Juniperus virginiana*
American Holly, *Ilex opaca*
Red Maple, *Acer rubrum*
Shadbush, *Amelanchier canadensis*
Dogwood, *Cornus florida*
Pagoda Dogwood, *Cornus alternifolia*

Shrubs

Virginia Rose, *Rosa virginiana*
Mountain Laurel, *Kalmia latifolia*
Sweet Pepperbush, *Clethra alnifolia*
Winged Sumac, *Rhus copalina*
Highbush Blueberry, *Vaccinium corymbosum*
Chokeberry, *Photinia pyrafolia* (red), *P. melanocarpa* (black)
Arrowwood, *Viburnum dentatum*
Bayberry, *Myrica pensylvanica*
Inkberry, *Ilex glabra*

Herbaceous Perennials

Christmas Fern, *Polystichum acrosticoides*
Cinnamon Fern, *Osmunda cinnamomica*
Butterfly Weed, *Asclepias tuberosa*
Baneberry, *Actaea alba*
Cardinal Flower, *Lobelia cardinalis*
Great Blue Lobelia, *Lobelia syphyllitica*
Bluestar, *Amsonia tabernaemontana*
Foamflower, *Tiarella cordifolia*
Little Bluestem, *Schizachyrium scoparium*
Switchgrass, *Panicum virgatum*
Phlox, *Phlox divaricata*, *subulata*, *maculata*, *paniculata*
Wild Columbine, *Aquilegia canadensis*
Joe Pye Weed, *Eupatorium purpureum*
White Wood Aster, *Eurybia divaricata*
Wild Geranium, *Geranium maculatum*

Resources:

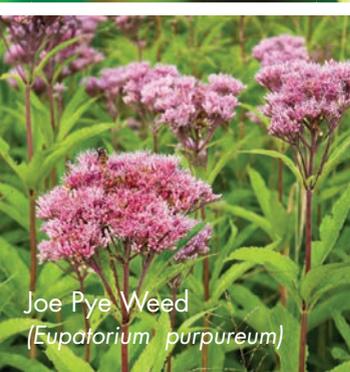
- Connecticut Audubon
www.ctaudubon.org
- Invasive Plant Atlas of New England
www.eddmaps.org/ipane/
- Connecticut Invasive Plant Working Group
www.cipwg.uconn.edu/
- Invasive Flowers & Plants in CT
www.flowersplantsinct.com/invasive_index.htm
- Invasive Species Information from the USDA
www.invasivespeciesinfo.gov/unitedstates/ct.shtml



Red Maple
(*Acer rubrum*)



Highbush Blueberry
(*Vaccinium corymbosum*)



Joe Pye Weed
(*Eupatorium purpureum*)



Mountain Laurel
(*Kalmia latifolia*)



Red Trillium
(*Trillium erectum*)



Indigo Bunting
(*Passerina cyanea*)



Swamp Chestnut Oak
(*Quercus michauxii*)

Deer Overpopulation

The overpopulation of deer in Redding is dramatically altering our ecosystem as well as impacting the health of our residents. Without the management of the deer herd the future of our forest is at risk, and tick-borne diseases will continue to be on the rise.

Ecological Impact

Native plants, birds and mammals create an intricate web of life. Each species' life cycle is dependent on the others. The loss of one species can affect the entire ecosystem. White-tailed deer devour the understory of the forest. They can cause a collapse in native plant species and allow alien invasive species to flourish. Young trees are vital to the life of a forest, and without these saplings there is no forest regeneration. We are in danger of losing native flowers such as Red Trillium (*Trillium erectum*) and Yellow Lady's Slipper (*Cypripedium parviflorum*). The deer have become an ecological "stressor" for birds and other wildlife that depend on the vegetation of the forest floor for food and nesting.

"White-tailed deer impacts are significant. Unless something is done, habitat degradation will continue." – Connecticut Audubon Society

Health and Safety Impact

There is a direct correlation between high deer densities and higher incidences of tick-borne diseases. These diseases can be a serious threat to you, your family, and your pets. Lyme disease, Babesiosis, Ehrlichiosis and Powassan (POW) Virus are examples of some of these threats. The white-tailed deer is the primary host for the adult tick to successfully reproduce and lay thousands of eggs. Collisions between cars and deer are a real safety concern. They can cause personal injuries, property damage and sometimes even fatalities.

"Accumulating evidence from Experiment Station scientists and others indicates that the abundance and distribution of the tick is correlated with deer density, and the increase in Lyme disease is related to the resurging deer population."

– Kirby C. Stafford III, Ph.D., CT Agricultural Experiment Station, New Haven

What can you do to help reduce deer numbers?

- Redding has appointed a deer warden to help residents with their deer management. The warden will match an experienced, licensed hunter to your specific requirements. www.townofreddingct.org/public_documents/reddingct_police/deer
- Be Safe Redding matches licensed hunters with property owners. The success of this effort has resulted in other towns in Fairfield County implementing similar programs. www.BeSafeRedding.org
- Fairfield County Municipal Deer Management Alliance. www.deeralliance.com

Problems Related To Overabundant Deer Herds:

- Deer are the primary hosts for the adult tick that transmits Lyme disease, Babesiosis, Ehrlichiosis and Powassan Virus.
- Overbrowsing has caused loss of native plant species as well as impacted the diversity and numbers of birds and small mammals.
- Deer-vehicle accidents cause human injuries, fatalities and property damage.



Household Hazardous Waste

A household hazardous product is one whose use or disposal can pose a threat to human health or to the environment. The offenders may be obvious, such as fuels or pesticides, or less obvious, such as batteries, flea collars, shoe polish, and medicines. When used or disposed of improperly, these products can introduce harmful chemicals into our water, soil, and air. Steps can be taken to reduce the potential impact of hazardous products:

Think Before You Buy

Read labels carefully. Look for “signal words” such as DANGER, WARNING or CAUTION. Consider how you plan to use the product and, ultimately, how you may need to deal with unused product.

Reduce Hazardous Waste In The Home

Do you really need the item? Can you make do without it? If not, then:

Substitute A Less Toxic Alternative

Less toxic alternatives are available for many household products, such as cleaning supplies. If you cannot find a substitute, try to use up all the product or...



Recycle Leftovers

By sharing products with a friend or donating leftovers to an organization that can use them.

Dispose Of Waste Properly

Do not pour liquids down the drain or on the ground as they can pollute soil and groundwater; do not toss in the garbage as incineration may introduce chemicals into the air.

Helpful resources and links

For more information, you may contact the Town of Redding Transfer Station at 203.938.3026. You may also contact The Housatonic Resources Recovery Authority (HRRRA), a regional, governmental, waste management and recycling authority serving eleven municipalities, including Redding, in western Connecticut. 203.775.4539 or www.hrra.org/index.php

For more information regarding product selection, substitution, and disposal:

- www.dec.ny.gov/docs/materials_minerals_pdf/hhwma.pdf
- www.epa.gov/osw/conservation/materials/hhw.htm
- marc.org/Environment/Solid-Waste/Household-Hazardous-Waste/Safer-Alternatives

Remember To Think Before You Buy!

- **Reduce** hazardous waste in the home.
- **Substitute** less toxic alternatives.
- **Recycle** leftovers when possible.
- **Dispose** of waste products properly.

Additional Resources

- Nature Conservancy. www.nature.org/ourinitiatives/regions/northamerica/unitedstates/connecticut/placesweprotect/index.htm
- Centennial Watershed State Forest. www.ct.gov/deep/cwp/view.asp?A=2716&Q=447970#map
- Redding Land Trust. www.reddingctlandtrust.org/
- Redding Conservation Commission. www.townofreddingct.org/Public_Documents/ReddingCT_Conservation/commission

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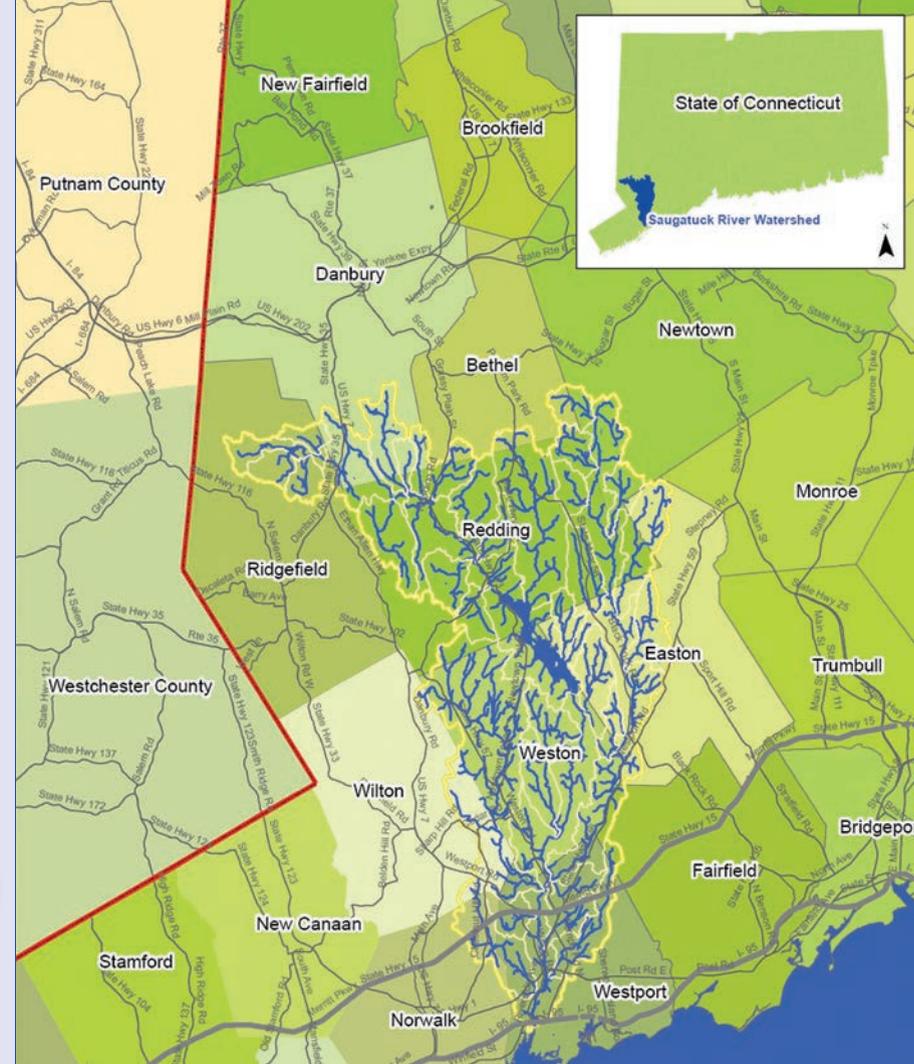
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Map of the Saugatuck River Watershed

Provided by:



Figure 1. Regional Context

- Connecticut / New York State Boundary
- Freeways
- Primary / Secondary Roads
- Subwatershed Boundaries
- Waterbodies
- Watershed Boundary



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