

Caring for  
Forests in the  
Eightmile River  
Watershed.



University of  
Connecticut

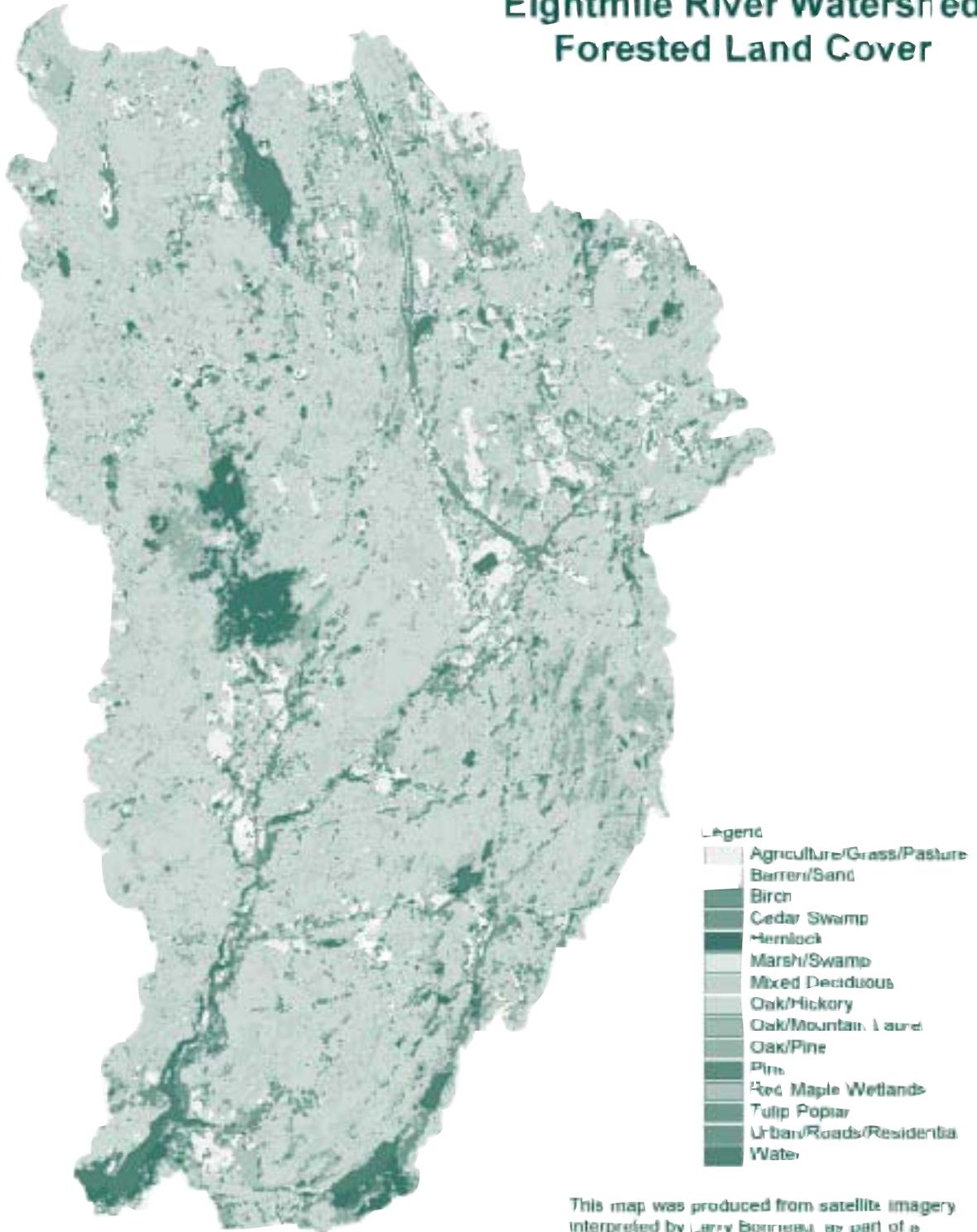
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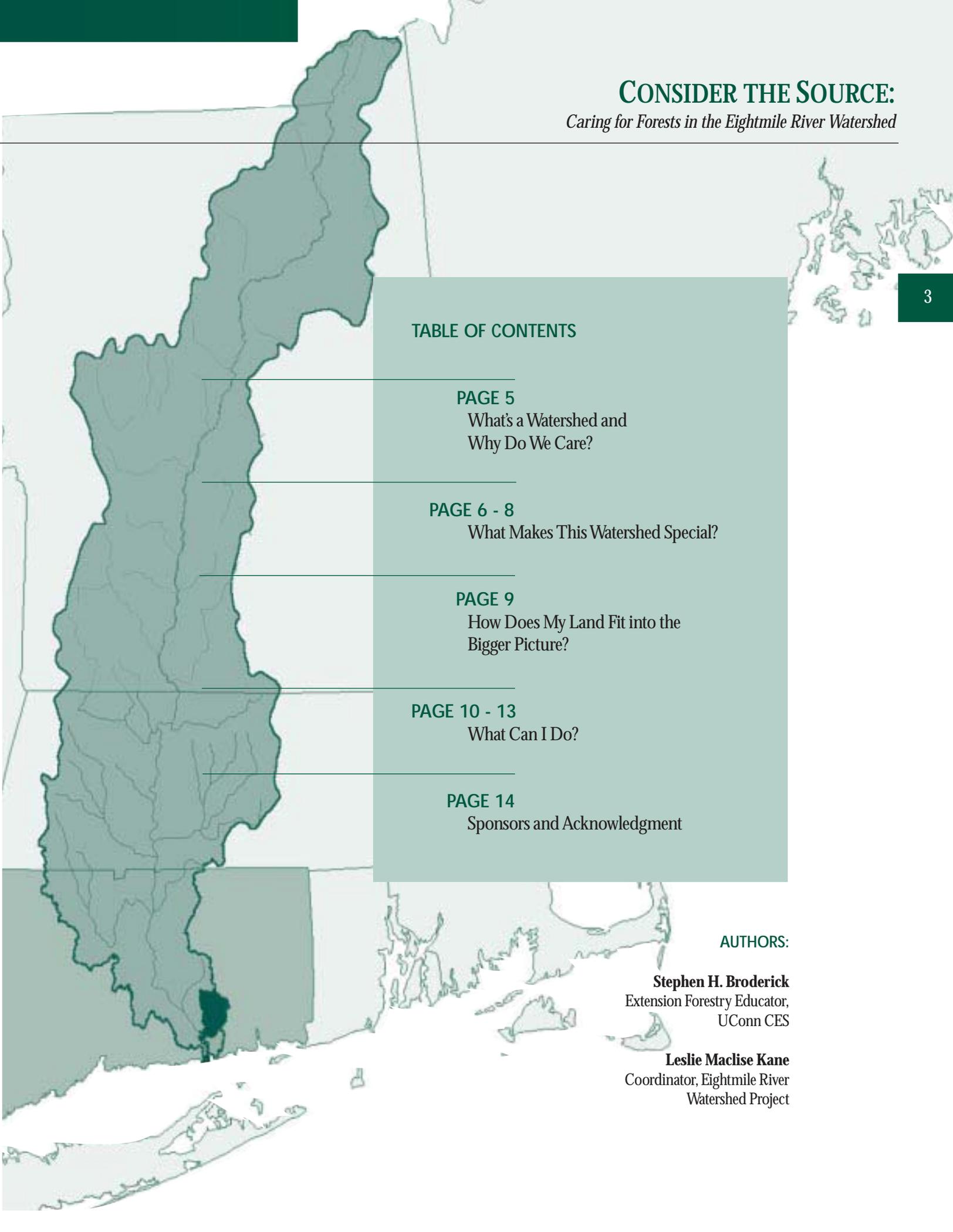


The USDI Silvio O. Conte  
National Fish & Wildlife Refuge

## Eightmile River Watershed Forested Land Cover



This map was produced from satellite imagery interpreted by Larry Bourassa as part of a research project at the UConn Laboratory for Earth Resource Information Systems, Storrs, CT

A map of the Eightmile River Watershed in Connecticut, showing the river's course and surrounding land. The watershed boundary is highlighted in a light green color. The map includes the coastline of Connecticut and parts of the surrounding states.

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Sponsors and Acknowledgment

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*This handbook is intended for the private forest owners in the Eightmile River Watershed. **Eighty-five percent of all the land in the watershed is owned privately.** It's **your** forests that are cleaning the air, providing homes for wildlife, and cleansing the ground and surface water that flows into the Eightmile River and out into the Connecticut River at Hamburg Cove.*

*The eightmile River Watershed is a special place: a healthy environment abounding in forests, wildlife and clean water. Private landowners are the key to keeping this landscape rural and its environment healthy. As you make decisions on the future use of your land, we hope you will do so with an awareness of the larger landscape of which you are such an important part.*

*This handbook is a practical guide for forest owners who want to know that the watershed of tomorrow will be a least as healthy and beautiful as the one we enjoy today!*

# You Can

## WHAT'S A WATERSHED AND WHY DO WE CARE?

Gravity is not just a good idea; it's the law. And because it is, water flows downhill. Raindrops that fall on your forest travel down through the soil, cleansed by natural processes, until they reach groundwater. Eventually, they emerge in our streams, ponds and rivers. The sum total of all the land that drains into a given lake or river is called its watershed (Figure 1).

Just as your town's boundaries form a political community, watershed boundaries form a natural, ecological community. If we want a clean river, we can't just think about the river and

the people who live next to it. Every single acre in the watershed contributes to the quality of its water.

When it comes to water quality, forests are the best possible use of land. There's no pavement sending contaminated runoff to streams, no septic systems to fail, no erosion or sedimentation to speak of. In fact, forests actually clean our water, and forested wetlands serve as giant sponges that prevent flooding by absorbing rainfall and regulating its flow.



*House along the Eightmile River.*



**FIGURE 1**  
*The Eightmile River Watershed.*

# Make A Difference

## WHAT MAKES THIS WATERSHED SPECIAL?

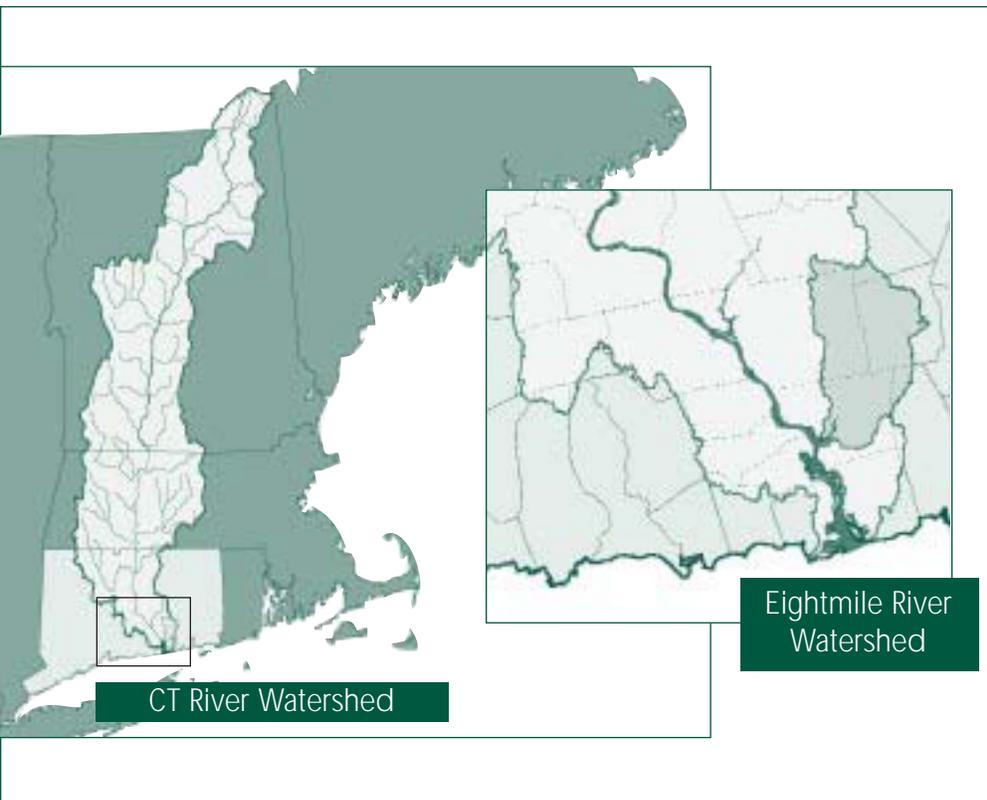
### *Location*

The lower Connecticut River, known as the Tidelands Region (Figure 2) lies squarely within the Boston-Washington DC megalopolis, one of the most densely populated and fastest growing regions on earth. Yet despite its location, after 400 years of settlement much of the Tidelands Region remains remarkably rural and unspoiled.

### *Ecology*

The Connecticut River is the longest river in New England. Its 15,000 square mile watershed runs from Canada to Long Island Sound. Because there has never been a city at its mouth, its tidal marsh system is today among the least developed and most pristine in the entire United States. Despite decades of abuse, the river, its tributaries and the forests that surround them teem with diverse and healthy plant and wildlife populations.

The region's enormous ecological value has been reflected in both national and international recognition. In 1993, The Nature Conservancy named the 480 square miles of the river affected by tides, and its watershed, "The Tidelands Region", and declared it one of forty "Last Great Places" in the western hemisphere. Two years earlier the U. S. Congress had declared the entire Connecticut River and watershed as the Silvio O. Conte National Fish & Wildlife Refuge, and the Tidelands Region quickly became one of the Refuge's highest conservation priorities. In 1995, U.S. Department of Interior Secretary Bruce Babbitt came to Connecticut to recognize the Tidelands as a wetlands of international importance under the international Ramsar Convention guidelines. Finally in 1998 the Connecticut River was named one of fourteen newly designated "American Heritage Rivers."



**FIGURE 2**

*The Eightmile River Watershed is a key component of the greater "Tidelands Region."*

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The Eightmile River Watershed is a critically important piece of the Tidelands ecosystem. The river itself, including Hamburg Cove, contains numerous rare and endangered species and is important waterfowl habitat. Efforts are underway to restore Atlantic salmon and other *anadromous* fish that once bred here (fish that are born in a stream, swim out to salt water as adults and return to the stream to spawn).

The forests and fields within the Eightmile watershed are equally invaluable. Over 80% of the watershed is forested, creating large expanses of unbroken woods (Figure 3). Such "unfragmented" forest is increasingly rare in Connecticut, and deep woods wildlife species are found here that exist in few other places. Several are listed as rare, endangered and/or species of special concern. Of course, our forests provide many, many other benefits as well, including clean air and

water, outdoor recreation, an almost endless list of forest products, and beautiful open space essential to the cherished rural character of our region.

### History

The landscape of the Eightmile River Watershed has experienced a long and fascinating history of human use, and abuse. Native Americans used the watershed's vast natural resources including wild rice, abundant game and fish.

When colonists, farmers and later, industrialists arrived, they changed the landscape dramatically. The Eightmile River was an important source of water and power, and the region served as a gateway to the critically important Connecticut River waterway. They built dams in the river and cleared nearly all of the forest for agriculture. Along the way, they left us with the beautiful New England landscape we all identify with: the rolling hills, beautiful historic homes



*Aerial photo of the south end of the Connecticut River and Eightmile River Watershed.*



*In 1997, the First Selectmen of East Haddam, Lyme and Salem signed an Eightmile River Watershed Conservation Compact, pledging to work together to protect the region's environment.*

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and cemeteries, and untold miles of stone walls flowing through once cleared fields that have grown back to forest over time. Today, the landscape of the Eightmile includes many important historic and archaeological treasures.

But history has left us another legacy: an increased responsibility for protecting, and restoring where necessary, a healthy environment. For centuries our ancestors used these rivers and streams as dumping grounds for all types of waste. By the mid twentieth century, the Connecticut River had come to be known as America's best landscaped sewer. Since the 1970's, the cleanup of the Connecticut River and its tributaries has brought dramatic and wonderful improvements in water quality. But the watershed's environment will only continue to improve if its landowners plan responsibly for the future.

### ***Threats and Opportunities***

Yes, the Eightmile River watershed is a special place. But many of the things that make it special are at risk. Foreign plants like purple loosestrife and insects like the hemlock woolly adelgid have invaded the region, killing native plants and altering the environment. Poor timber harvesting practices are reducing the value of our forests and their productivity for future generations.

Most importantly, our forests are being lost altogether, converted by the hundreds of acres for housing, commercial development and other uses. Not since the great farming era of colonial times has so much forest been lost. And this time, as we cover the landscape with structures, roads and parking lots, the loss promises to be much more permanent.

***You and your fellow private landowners own 85% of the watershed, which means you hold the key to its future. No other group will have more influence on what the watershed of tomorrow will look like and become.***

Change is inevitable, and economic growth is important. But how that change and growth will unfold is a hugely important question. Armed with knowledge and a concern for the future, forest owners can manage change in a way that both meets their needs and protects the watershed's environment and quality of life.



*Non-native plants like purple loosestrife and insects like the hemlock woolly adelgid have invaded the region, killing native plants and altering the environment.*

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## HOW DOES MY LAND FIT INTO THE BIGGER PICTURE?

You may know where your boundaries are, but the fox and wild turkeys in your forest neither know nor care. Your forest is not an isolated island. It's one piece of a larger, interconnected ecosystem. The water in your stream comes from a neighbor's land and you export it to another neighbor. The turkeys feeding in your forest today will be far away by this time tomorrow. And that white pine or tulip poplar grove that you've always taken for granted could well be the only one of its kind for miles around.

In recent years a lot of attention has been paid to the notion of *biodiversity*, which is short for biological diversity. Biodiversity means the number and kinds of living organisms, from herons to birch trees to fungi, that are native to a given area. Biodiversity is a measure of our biological wealth, and a certain amount of it is essential for our natural environment to function.

Loss of biodiversity is hastened by forest fragmentation. All wildlife need a certain amount of forest through which to travel in search of food, water, cover, and mates. Some species, such as black bear, bobcat, and interior forest birds require hundreds or even thousands of contiguous acres.

When a large forest is fragmented into house lots, these deep woods species lose yet another place to reproduce and thrive. When a streamside forest

is replaced by manicured lawn, a wildlife corridor is severed and fish habitat is degraded. When forest understory plants are removed to create a park-like appearance, certain plant species may lose their last foothold for miles around.

If too much diversity is lost, an ecosystem essentially collapses. It becomes unable to renew itself: its species, its soils and its habitats. Natural processes like decomposition, oxygen and nutrient cycling, upon which we all depend, begin to break down. As Gifford Pinchot, the founder of the U.S. Forest Service, once wrote, "A nation deprived of its liberty may win it; a nation divided may reunite. But a nation whose natural resources are destroyed must inevitably pay the penalty of poverty, degradation and decay." Examples of this are all too common around the world today.

On the other hand, knowledgeable landowners can and do make land use decisions that have a positive effect on the environment and biodiversity. They create or maintain streamside plant buffers. They learn which plant communities on their land are the most productive or unusual, and take steps to enhance them. And if they need to develop some land, they do so in a way that minimizes forest fragmentation and protects unique habitats.

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## WHAT CAN I DO?

What follows are a series of specific, practical steps you can take in that piece of the Eightmile River watershed that is currently in your care. Which ones you take will depend on your individual goals and needs.

### 1 FOREST PRESERVATION - ensuring that some or all of your forest will remain undeveloped beyond your ownership.

Landowners who wish to ensure that their property will always remain undeveloped can do so by donating by placing a conservation restriction on the property. You the landowner will retain all other ownership rights, including the right to sell, bequeath or otherwise convey ownership to someone else. Because the Eightmile River watershed is recognized at several governmental levels as an important conservation region, most owners who do so will be eligible for a significant income tax deduction that allows them to recover much of the donated value.

Landowners can also elect to donate some or all of their land to a local land trust (the same tax deductions apply). Some may choose to take these steps now, others choose to do estate plans that provide for permanent protection after their lifetime.

If your land abuts existing permanent open space, contains rare or endangered species or has other important resource attributes, you may be able to sell your land or development rights to the state, a local land trust or your town.

### 2 FOREST AND WILDLIFE STEWARDSHIP - creating a practical plan to enhance your forest and the benefits it provides.

Forestry is the science and practice of producing human benefits from the forest while protecting its long-term health and productivity. Clean water, wildlife habitat, family recreation opportunities, firewood, timber and maple syrup are but a few examples of the many benefits forests provide to people. Forest stewardship plans, written by certified professional foresters, are blueprints that show the landowner how to produce these benefits while protecting the environment.

The benefits that Eightmile River watershed forests provide cannot be conserved in state parks and forests alone. Linking together stewardship plans on private forests is critical.

#### Things you can do:

1. For information on conservation restrictions, gifts of land to land trusts, or protecting land through estate planning, contact your local land trust, the UConn Cooperative Extension System (860) 774-9600, the Land Trust Service Bureau (860) 344-0716, or a conservation law attorney.
2. For information on the state Department of Environmental Protection (DEP) Land Acquisition Program, call (860) 424-3016 or visit their web site at: <http://dep.state.ct.us/Outdorec/strategc.htm> and click on "Land Acquisition and Management".
3. For information on the state Department of Agriculture Farmland Protection Program, call (860) 566-3227.
4. For information on town level open space protection programs, call your town hall or town Conservation Commission.

#### Things you can do:

1. For a no-cost, on-the-ground, one-on-one consultation in your forest with a professional forester from the state Department of Environmental Protection (DEP) Division of Forestry, call (860) 424-3630, or visit their web site at: <http://dep.state.ct.us/NaturRes/strategc.htm>
2. The Forest Stewardship Incentive Program (S.I.P.) will reimburse landowners for up to 75% of the cost of hiring a private professional forester to do a comprehensive stewardship plan for you on your forestland. Call 1-888-30WOODS. (or visit [www.canr.uconn.edu/ces/forest](http://www.canr.uconn.edu/ces/forest))



Nearly all of them involve learning about your forest, so that your land use decisions are informed and enlightened ones. We hope you find them useful, and we're sure that future generations will thank you.

### 3 HABITAT RESTORATION -

improving streamside or other areas that have been degraded by past disturbances or use.

The long history of use (and sometimes abuse) in the watershed has changed the landscape dramatically, and not always for the better. Water quality and wildlife habitat have been damaged or even destroyed in many cases by intensive past uses. One of the most rewarding things a landowner can do is work with professionals to restore a degraded habitat, and watch with delight as the plants and wildlife return.

#### *Things you can do:*

1. Become a Partner for Wildlife. If you have a likely site, the Silvio O. Conte National Fish & Wildlife Refuge (of which the Eightmile River watershed is part) will help plan, implement and pay for a habitat restoration project. Contact the Refuge at (413) 863-0209 (e-mail R5RW\_SOCNWR@mail.fws.gov)

2. Enroll in the Wildlife Habitat Improvement Program (WHIP). WHIP's purpose is to help private landowners restore and protect wildlife habitats, aquatic habitats and threatened and endangered species habitats. WHIP will pay up to 75% of the cost of projects designed to accomplish these goals. Contact the USDA Natural Resource Conservation Service at (800) 805-8313.

### 4 CONSERVING BIODIVERSITY -

finding and protecting rare species or plant communities that might be on your property.

Research done by the DEP and the Eightmile River Watershed Project has identified several plant communities and other habitats that are particularly rare in the watershed, and in some cases beyond:

Rare Statewide and potentially found in the Eightmile River watershed:

- Sandplain grasslands
- Pitch pine-scrub oak forests
- Surface springs, seeps and cold headwater streams
- Grassy glades, traprock ridges and vernal pools
- Undammed streams and rivers
- Atlantic white cedar swamps

Rare locally and found in the Eightmile River watershed:

- Other coniferous forests (eastern white pine, eastern hemlock)
- Tulip poplar forests
- Early succession (brushy, seedling/sapling sized) habitats

#### *Things you can do:*

1. If you think you may have one of these habitats on your property, contact the Department of Environmental Protection Natural Resources Center (860) 424-3540, or the Connecticut Chapter of The Nature Conservancy (860) 344-0716.
2. Work with a certified professional forester to build the protection/enhancement of the habitat into your forest stewardship plan (see item 1.2 above).

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## 5 POND AND/OR STREAM MANAGEMENT - protecting or enhancing water quality and aquatic habitats.

The Eightmile River watershed's glacial landscape has many ponds and streams scattered throughout. Each is significant in its contribution to overall water quality in the watershed. Efforts are currently underway to enhance fish habitat in the Eightmile River and its major tributaries, including the reintroduction of Atlantic salmon. If you have a pond or stream in your forest, learning a little about what is, or could be living there, and how to keep it clean and healthy can be very rewarding. It can also contribute in an important way to the watershed's natural environment.

### *Things you can do:*

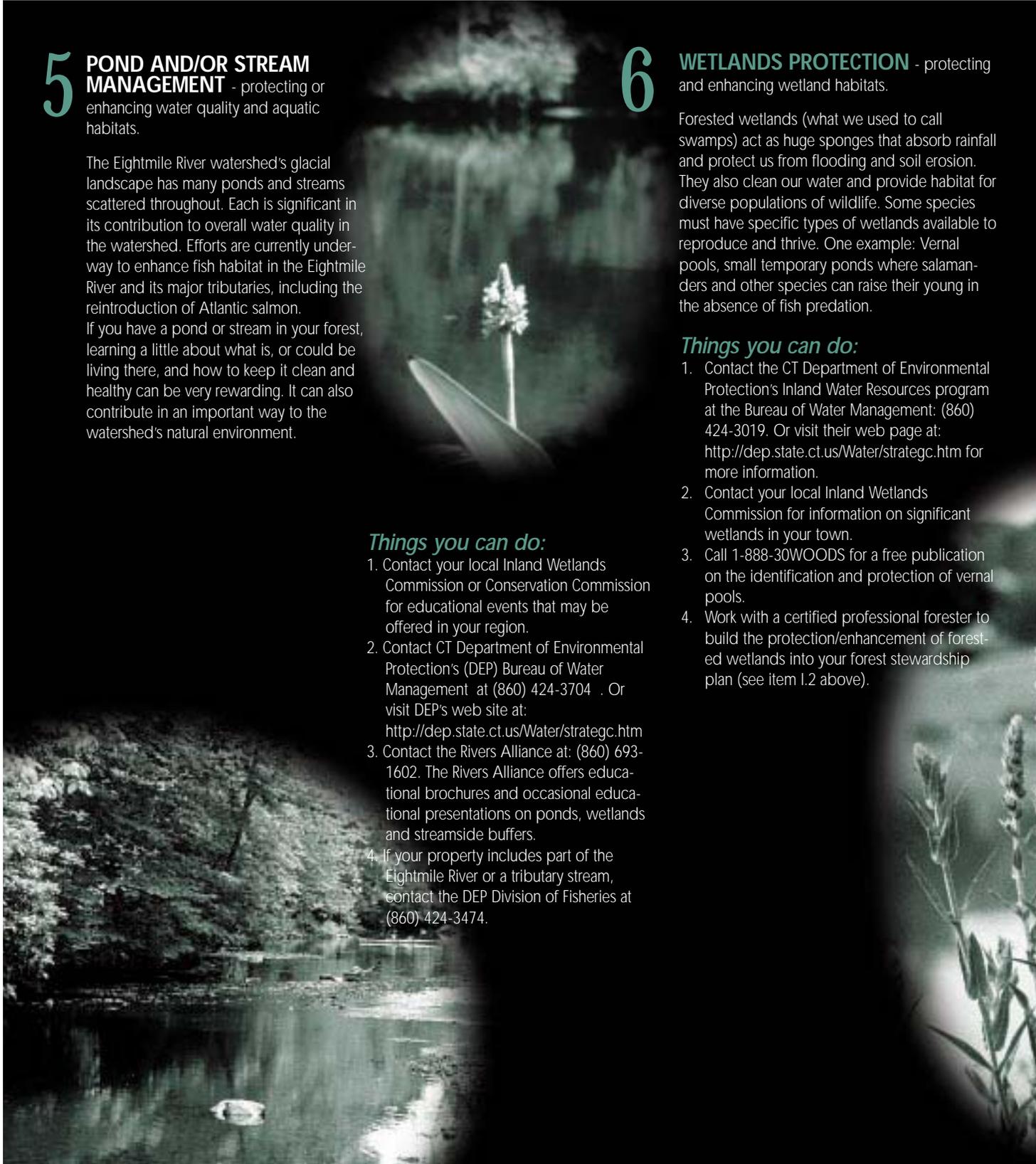
1. Contact your local Inland Wetlands Commission or Conservation Commission for educational events that may be offered in your region.
2. Contact CT Department of Environmental Protection's (DEP) Bureau of Water Management at (860) 424-3704 . Or visit DEP's web site at: <http://dep.state.ct.us/Water/strategc.htm>
3. Contact the Rivers Alliance at: (860) 693-1602. The Rivers Alliance offers educational brochures and occasional educational presentations on ponds, wetlands and streamside buffers.
4. If your property includes part of the Eightmile River or a tributary stream, contact the DEP Division of Fisheries at (860) 424-3474.

## 6 WETLANDS PROTECTION - protecting and enhancing wetland habitats.

Forested wetlands (what we used to call swamps) act as huge sponges that absorb rainfall and protect us from flooding and soil erosion. They also clean our water and provide habitat for diverse populations of wildlife. Some species must have specific types of wetlands available to reproduce and thrive. One example: Vernal pools, small temporary ponds where salamanders and other species can raise their young in the absence of fish predation.

### *Things you can do:*

1. Contact the CT Department of Environmental Protection's Inland Water Resources program at the Bureau of Water Management: (860) 424-3019. Or visit their web page at: <http://dep.state.ct.us/Water/strategc.htm> for more information.
2. Contact your local Inland Wetlands Commission for information on significant wetlands in your town.
3. Call 1-888-30WOODS for a free publication on the identification and protection of vernal pools.
4. Work with a certified professional forester to build the protection/enhancement of forested wetlands into your forest stewardship plan (see item 1.2 above).



**7 PROBLEM SPECIES CONTROL** - identifying, controlling and/or preventing exotic invasive species that impact the health of native plant communities.

There are a surprising number of invasive and exotic plant species found throughout the watershed, and indeed throughout Connecticut. Most frequently these species are found in disturbed areas at the edge of the forest and along roads. Once established, many invasives can quickly spread and overrun less aggressive native species. Control and where possible elimination of these invasives helps protect the diversity of native species.

**Things you can do:**

1. For a free set of Invasive Plant Species Fact Sheets, or for advice on controlling exotics on your forestland, contact the Connecticut Chapter of The Nature Conservancy. (860) 344-0716
2. For more information on invasive non-native plants, contact the Connecticut Invasive Plant Working Group: Les Mehrhoff (860) 486-1889; email: [vasculum@uconnvm.uconn.edu](mailto:vasculum@uconnvm.uconn.edu). or Donna Ellis (860) 486-6448; e-mail: [dellis@canr1.cag.uconn.edu](mailto:dellis@canr1.cag.uconn.edu)



**8 DEVELOPMENT STRATEGIES** - reducing the impacts of land development on the ecosystem.

Economists and demographers predict that the Eightmile River Watershed will experience increased development pressure (particularly residential development) in the years ahead. Study after study has shown that new residential development actually costs towns more money than it provides in new taxes, but local zoning regulations and tax structures continue to encourage sub-division.

All land development results in some loss of forests and biological diversity. Creative, well planned development, however, can help to lessen the overall environmental impacts.

**Things you can do:**

1. Contact your town planner, the local Regional Planning Agency or Council of Governments for information on creative development techniques that protect land and natural resources.
2. Contact the University of Connecticut Cooperative Extension Center's Nonpoint Education for Municipal Officials (NEMO) Program for information on creative development techniques, and/or for a fact sheet series on reducing impervious surfaces. (860) 345-4511 or visit their web site at: <http://www.canr.uconn.edu/ces/nemo>



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The Connecticut Chapter of The Nature Conservancy

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