

dcr

Massachusetts



The newsletter for owners of land protected by a Watershed Preservation Restriction (WPR) held by the Department of Conservation and Recreation (DCR), Division of Water Supply Protection.

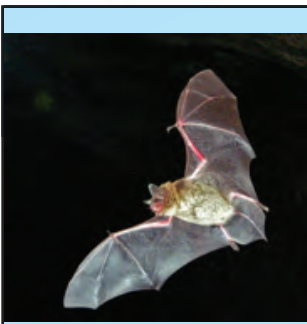
Summer 2012

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BioMapping

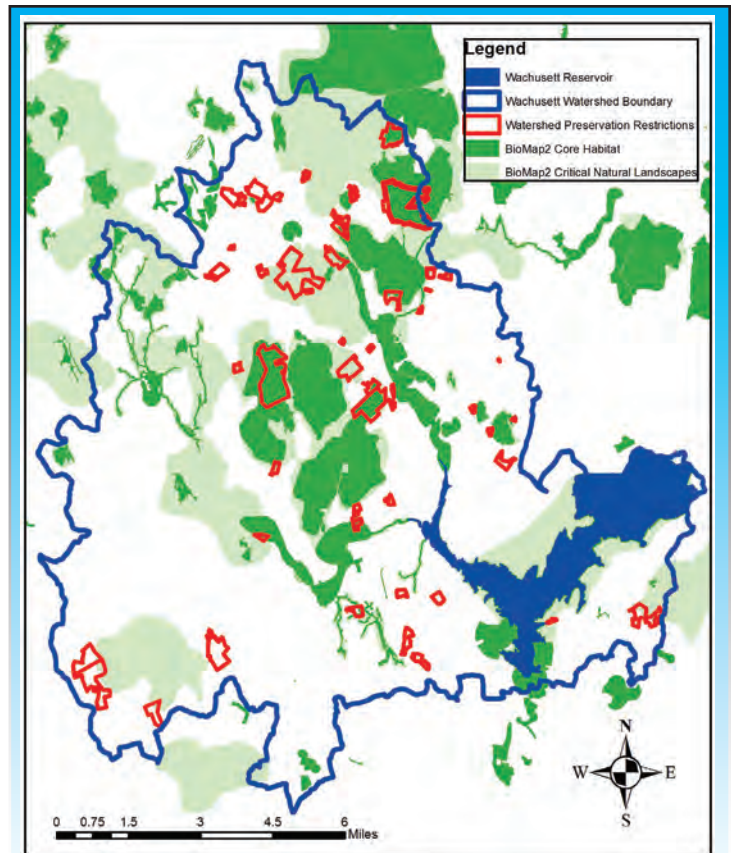
A computer tool used to help preserve natural resources

Watershed Preservation Restrictions (WPRs) have one main purpose – to protect water quality so the water that enters the Quabbin and Wachusett Reservoirs, and ultimately becomes drinking water for over 2 million people, is as clean as possible. In protecting the watersheds of these reservoirs, however, we are protecting much more than just water quality.

The Massachusetts Department of Fish and Game's Natural Heritage and Endangered Species Program along with The Nature Conservancy's Massachusetts Program recently developed BioMap2, a map of the most important areas in the state for the protection of biodiversity. This map is available in print and also in an online viewer (see Page 3). The report "BioMap2: Conserving the Biodiversity of Massachusetts in a Changing World" can be found on the MassWildlife website; it describes the methods by which BioMap2 was created and some potential uses.

The original 2001 BioMap was widely used to plan conservation. Nearly 70% of lands protected by the state, local government, and non-profits over the last decade were identified as priorities in BioMap. BioMap2 updates the information to reflect that much of the land not protected has been developed. Scientists also now have a greater understanding of some of the rare species and important ecosystems that the map seeks to protect. BioMap2 contains both "Core Habitat" and "Critical Natural Landscapes" to show different scales of protection that are necessary.

Core Habitat are smaller pieces of land that are critical for certain species or natural communities. Twenty four percent of the state is covered by Core Habitat, but its prevalence on DCR WPRs is slightly greater at 28%. Core Habitat is made up of various components.



BioMap 2. Wachusett Reservoir watershed with WPRs shown in red.

There are three that are most prevalent on WPRs.

- **Species of Conservation Concern.** BioMap2 includes the locations of 435 native plant and animal species listed under the Massachusetts Endangered Species Act, as well as several other wildlife species and natural habitats listed as needing conservation in the State Wildlife Action Plan. The map does not include every occurrence of these species, just the more robust ones that are most likely to survive if protected. Around 20% of WPRs contain some mapped habitat

Meet the Staff

Jim Taylor, Regional Planner, Graphic Artist, WPR Inspector

Jim Taylor has worked for the Division for over 15 years as a planner, graphic artist, and a WPR inspector. As a graphic artist, Jim is introduced to a project, such as this newsletter, and then finds the best way to relay the message to the audience. WPR inspections require learning the legal and physical characteristics of the protected land in concert with an appreciation for nature and its processes. "At the outset, I never knew my career path would lead me here, but I can't imagine a more satisfying job than helping to protect both drinking water and the Massachusetts landscape."

In his off time, Jim works with wood,

creating folk art that celebrates local wildlife. Jim typically puts scraps or found objects to use in a pragmatic New England way. "I could depict more colorful animals, such as Zebra or Toucan, but they don't have the significance of those I come across hiking, camping, or merely doing yard work. When one studies the animals in our region, their subdued beauty, born of practical need, becomes clear."

Jim also has an eye for antique automobiles. Don't be surprised if he shows some enthusiasm if he comes across an old 'woods car' or sees

a classic parked in your barn while inspecting your WPR.



Photo: Jim French

Jim Taylor with his folk art. From the left: moose head wall shelf, Downy Woodpecker, Brook Trout.

Land Owner Profile

Dr. William Foye, Long-time land conservator

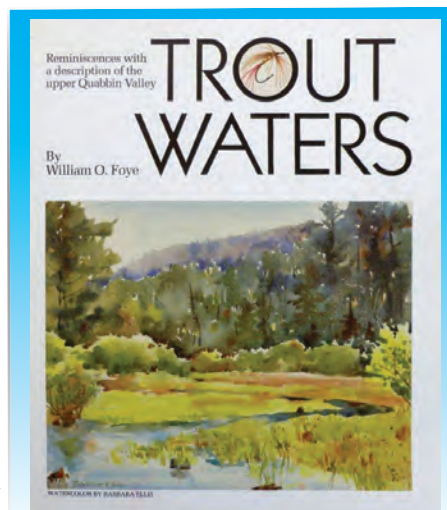
Some are lucky to be brought up in a family that treasures the outdoor life. William Foye's father and grandfather taught the lad to love the woods and streams of the north Quabbin area around their Athol home. Little could his family then know how much he would accomplish in his remarkable lifetime. His inquisitive mind would lead him to an education in chemistry at Dartmouth College and the University of Indiana. The young man became Dr. Foye, and in this capacity would excel in teaching, research, and writing within the pharmaceutical field. The textbook that would become a standard in this realm of study is titled *Foye's Principles of Medicinal Chemistry*.

His indoor profession, however, never eclipsed his outdoor passion. Time would always be found to revisit the Quabbin wilds. He would, when chances came, purchase lands made available along some of his favorite streams.

A prolific writer, Dr. Foye would publish more books. *Trout Waters*, printed in 1992, married his knowledge of chemistry with that of trout fishing to describe

and advocate for the health of cold water habitats in the north Quabbin region. *North Quabbin Wilds* is a 2002 collection of his poetry and essays.

We came to know Dr. Foye in 1990 when he conveyed the first of two Watershed Preservation Restrictions to the MDC (now DCR) on 186 acres along Fever Brook in Petersham. This tract was critical in protecting the integrity of this pristine Quabbin tributary. That same year, he donated



Dr. Foye's book about cold water fish habitat.

a conservation restriction to the Mt. Grace Land Conservation Trust on an additional 167 acres in North Orange.

He was not done. In 1994, a second Quabbin tract of 59 acres along Hop Brook was placed under a WPR, to be followed in 1995 with yet another gift of a North Orange 52 acre conservation restriction to Mt. Grace which abuts the first parcel.

This one man combined his boyhood love of the land with his accomplished professional success to ultimately protect 464 acres of natural beauty in perpetuity. His actions have resulted in unmeasured advances in landscape protection by others who follow his example, read his words, and appreciate his vision for a vibrant and healthy environment.

Dr. Foye is now being cared for in his sunset years by Lila, his wife of 36 years. Their son, Owen, is following in his dad's footsteps with the indomitable multi-generational spirit of land stewardship that holds such an important place in the hearts of the Foye family.

- Jim French

for species of special concern. BioMap2 does not disclose what species a given area protects, as some species are targeted by collectors. For example, there are WPRs that protect portions of the Ware and Quinnapoxet Rivers that are habitat for species of special concern.

- **Aquatic Cores.** Aquatic Cores are defined as the most intact river corridors in the state that provide habitat for fish and other species. Nineteen percent of WPRs contain aquatic cores. Fever Brook (shown at the bottom of this page) is an example of an aquatic core – its clear, cool water provides habitat for many fish and invertebrate species as well as providing clean water for the Quabbin Reservoir.

- **Forest Cores.** Forest Cores are the best examples of contiguous forest that are least impacted by roads and development. Sixteen percent of WPRs contain Forest Core habitat. Three of the forest cores are in the center of the Wachusett Reservoir watershed, shown on Page 1. The WPRs in these forest cores have birds, wildlife, and wildflowers that can only be found in large parcels of intact forest.

Critical Natural Landscape consists of larger pieces of land that support wide-ranging native species and intact ecological processes. Thirty-four percent of the state is covered by Critical Natural Landscape, but its prevalence on our WPRs is significantly greater, at 53%. Like Core Habitat, Critical Natural Landscape has various components; there are two that are most prevalent on WPRs.

- **Landscape Blocks.** Landscape Blocks are large areas of “predominantly natural vegetation” including forests, wetlands, rivers, lakes, and ponds. Forty-five percent of WPRs contain portions of landscape blocks. The Quabbin watershed is made up of two large landscape blocks, in which most of the WPRs are nestled, with only a small section of more developed land in between these two blocks. Moving east to the more populated watersheds, the landscape

blocks become smaller. There are 11 landscape blocks, most around 1,000 acres, in the Ware River and Wachusett Reservoir watersheds. All but one of these blocks has a WPR in it. Protecting these landscapes provides habitat for larger wildlife such as bear and moose that require a lot of land to survive. Intact landscape blocks are also necessary to maintain beneficial ecological processes, such as the filtering of the water that ultimately winds up in the reservoirs.

- **Aquatic Buffer.** Critical Natural Landscape also includes a buffer around the rivers and streams included in the Aquatic Core Habitat. Twenty three percent of WPRs contain part of the aquatic buffer. These WPRs help to protect the species that use both the rivers and the adjacent uplands. In addition, protecting the land around the rivers protects the water quality within the rivers.

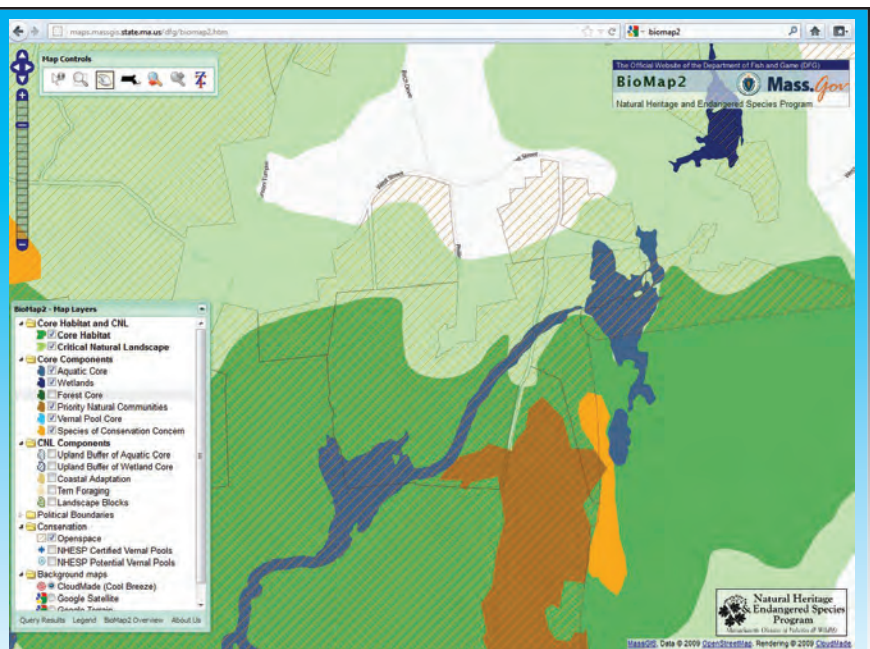
Other components of Core Habitat are Priority Natural Communities, Vernal Pools, and Wetland Cores. Critical Natural Landscape also includes Wetland Buffer and Coastal Adaptation to Sea Level Rise. These other components, describe in detail by the BioMap2 report, were found with lesser frequency on WPRs.

The Core Habitat, Critical Natural Landscapes, and their sub-components all overlap in many locations. All parts need to be protected in order to sustain Massachusetts’ mix of plants and animals and its ecosystem processes as the world changes. By protecting your land through a WPR that was designed to protect the cleanliness of the greater Boston drinking water supply, you also help to protect the Commonwealth’s biodiversity.

- Caroline Raisler

BioMap2 Web Map

You can find out what BioMap2 features are on your property or in your town on the interactive web map found at <http://maps.massgis.state.ma.us/dfg/biomap2.htm>. This example shows some of the Core Habitat and Critical Natural Landscape components in the Fever Brook area of Petersham. Most of the hatched parcels are WPRs, though some is other protected open space, including land owned by DCR Division of Water Supply Protection.



Wildlife on Your Land

A "Bat-astrophe" in the making?

Due to the specter of Gothic lore, bats are often misunderstood, but their place in the web of life is quite important as pest controllers, pollinators, and seed dispersers. There are over 1,200 species of bats world-wide, but only seven species have been documented in Massachusetts. All seven are insectivores; several are threatened or endangered. Bats are one of the most voracious predators of night flying insects, and a typical Little Brown Bat, *Myotis lucifugus* (the most common in the state), may consume up to 1,000 mosquito sized insects per hour.

Bats can be found roosting in attics, old barns and other man-made structures, but winter hibernation usually takes place in caves. They mate in the fall, just before hibernation, but females don't give birth until early spring. As the bats awaken, females leave the cave to form nursery colonies in warmer protected locations. After 1 to 2 months, the birth of usually a single 'pup' takes place. Bats can live 15-20 years, compared to a white-footed mouse which typically lives only 3-4 years.

Unfortunately, bat populations are on the decline here in Massachusetts, due to continued habitat loss as well as the increasing threat of White Nose Syndrome (WNS). New development and the ongoing urge to clean up backlands and woodlots has placed constraints on viable roosts. However, within just the last few years, WNS has emerged as the greatest threat to bat populations.

This 'syndrome' is a fungus that grows on the snouts of hibernating bats, particularly those wintering over in cave colonies, where close proximity to one another and cool damp conditions are just right for

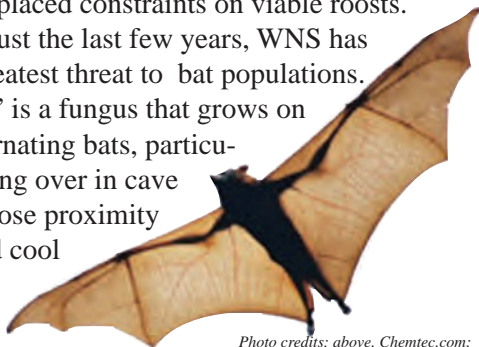


Photo credits: above, Chemtec.com; above right, NY DEC.

the blight to flourish. As the 'fuzz' thickens, it wakes the bats from their slumber, causing them to stir and often fly around in search of non-existent food. As a result, their fat reserves, upon which they are dependant, are prematurely exhausted and the bat's die

of starvation before next seasons food supply becomes available. To date, millions of bats in the Northeast have died from the disease, and populations have declined by 80%.

First documented in Massachusetts in 2007, WNS is believed to have been unknowingly introduced in upstate New York in 2006 from Europe, carried on boots and equipment of cave explorers. WNS is likely passed between bats through close contact. Research continues, but for now, science has been unable to stop the spread. While the outcome is unknown and populations could stabilize in the future, it is feared that some common bat species may become extinct as soon as 2020.

How You Can Help

Because of WNS in Massachusetts, MassWildlife is making an appeal for bat colony reports from property owners who may have a summer colony of 10 or more bats. Please provide the location (street address), type of structure where the bats reside, number of bats in the colony, and your contact information by calling (508) 389-6360 or emailing mass.wildlife@state.ma.us. For further information on bats and WNS visit the following websites: www.batcon.org (Bat Conservation International), www.caves.org (National Speleological Society), and www.whitenosesyndrome.org (U.S. Fish and Wildlife).

- Jim Taylor



Little Brown Bat with White Nose Syndrome.

dcr
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