

# MASSACHUSETTS ENVIRTHON



Thursday, May 17, 2012

Blackstone River and Canal Heritage State Park, Uxbridge, Mass.

## Welcome!

This year marks the 25<sup>th</sup> year of the Massachusetts Envirothon! That's 25 years that we have been exploring the nature of Massachusetts, practicing conservation skills and stepping up to the challenge of protecting the environment.

There's a new generation engaged in local and global environmental solutions. And they not only work hard, they have fun outdoors, too.

Good luck to your team in today's competition! We hope that the Envirothon offers you a good way to demonstrate and measure the knowledge and skill you have gained, and points you toward a lifetime of environmental stewardship.

But don't forget to take time today to make new friends with people on other teams. Many of you will find yourselves working together to protect our environment for the next 50 years.

And if you're having a good time, if you've had a good year, thank your ecostation volunteers, thank your judges, thank your coach, and thank each other. Make your voice heard about the kind of experiences that are important to you.

Have a great day!

Will Snyder  
Chair, Mass. Envirothon Committee  
University of Mass. Extension

### 2012 Current Issue

#### Sustainable Stormwater Management



*Riverbend Farm Visitor's Center at the Blackstone River and Canal Heritage State Park*

## This Year's Registered Teams

*Not all registered teams are competing on May 17th.*

- Acton-Boxborough Reg. High School
- Bedford High School
- Boston College High School
- Bristol Co. 4H Envirothon Team
- Bristol Co. Agricultural High School, Dartmouth
- David Prouty High School, Spencer
- Doherty Memorial High School, Worcester
- Greater New Bedford Reg. Vo-Tech High School
- Greenfield High School
- Groton-Dunstable Reg. High School
- Hoosac Valley High School, Cheshire
- Hopkinton High School
- Leicester High School
- Lexington High School
- Middleborough High School
- Millbury Jr. Sr. High School
- Monson Environmental Action Team
- Mount Everett Reg. High School
- Newton Community Farm
- Newton Conservators
- Oliver Ames High School, Easton
- Pioneer Valley Reg. School, Northfield
- Quabbin Reg. High School
- R.C. Mahar Reg. High School, Orange
- Reading Memorial High School
- Rockport High School
- Somerset Berkley Reg. High School
- South Hadley High School
- Southeastern Reg. School District, Easton
- Springfield Central High School
- Sugden Library, Spencer
- Sutton High School
- Taconic High School, Pittsfield
- Tantasqua High School, Sturbridge
- Weston/Land's Sake
- Worcester Technical High School

## Inside

Schedule .....	2
Steering Committee .....	2
Station Coordinators .....	2
What Happens at an Ecostation? ..	2
Meet Our Host Site .....	3
My Envirothon Journey .....	3
Roundtables.....	3
2012 Current Issue.....	4
Current Issue Presentation Judges ..	5
Volunteers .....	6
Site Map.....	7
Sponsors.....	8

## Schedule

7:30 - 8:30	Registration for volunteers and judges  Registration for teams. Teams will be assigned to their stations and presentation tent number.  Team pictures
8:00	Orientation for volunteers and judges
8:35 - 8:45	WELCOME and announcements
9:00 - 9:30	<b>First station</b>
9:40 - 10:10	<b>Second station</b>
10:20 -10:50	<b>Third station</b>
11:00 -11:30	<b>Fourth station</b>
11:40 - 12:10	<b>Fifth station</b>
12:15 - 2:00	LUNCH  Meet the Envirothon community!  Games with the Student Conservation Association  Roundtable discussions  Group photo  Evaluations
2:00	Announcement of winners. UMass scholarship and Community Awards



 Find us on  
**Facebook**  
[www.facebook.com/maenvirothon](http://www.facebook.com/maenvirothon)



## Massachusetts Envirothon Steering Committee

### Will Snyder

*Chair, Massachusetts Envirothon Committee*

University of Massachusetts Extension

### Susan Benoit

*Vice Chair, Massachusetts Envirothon Committee*

Massachusetts Division of Fisheries and Wildlife (MassWildlife)

### Doris Wood

*Treasurer/Secretary, Massachusetts Envirothon Committee*

### Tom Anderson

Massachusetts Executive Office of Energy and Environmental Affairs

### Joe Perry

Massachusetts Department of Conservation and Recreation

### Clif Read

Massachusetts Department of Conservation and Recreation

### George Zoto

Massachusetts Department of Environmental Protection

## Non-voting Steering Committee Members

### Al Averill

USDA Natural Resources Conservation Service

### Meg Colclough

Executive Office of Energy and Environmental Affairs

### Bill Dunham

Belmont Enterprises

### Jim Lafley

Massachusetts Department of Conservation and Recreation

### Pam Landry

Massachusetts Division of Fisheries and Wildlife (MassWildlife)

### Julie Martin

Massachusetts Department of Conservation and Recreation

### Liz McGuire

Middlesex Conservation District

### Dominique Pahlavan

Executive Office of Energy and Environmental Affairs

### Diane Baedeker Petit

USDA Natural Resources Conservation Service

### Val Stegemoen

Massachusetts Department of Conservation and Recreation

### Brita Dempsey

*Massachusetts Envirothon Coordinator*

## Station Coordinators/Curriculum Specialists

### Al Averill

USDA Natural Resources Conservation Service

### Jim Lafley

Massachusetts Department of Conservation and Recreation

### Pam Landry

Massachusetts Division of Fisheries and Wildlife (MassWildlife)

### Dominique Pahlavan

Executive Office of Energy and Environmental Affairs

### Joe Perry

Massachusetts Department of Conservation and Recreation

### Clif Read

Massachusetts Department of Conservation and Recreation

### Will Snyder

University of Massachusetts Extension

### George Zoto

Massachusetts Department of Environmental Protection

## What happens at an Ecostation?

At the Massachusetts Envirothon, teams rotate through four ecostations, in addition to giving their Current Issue presentation. Each ecostation has a different emphasis: forestry, soil, water and wildlife.

When students arrive at each ecostation, the examiners instruct them to get into their distinct teams. Teams listen to examiners for a brief time to become familiar with that station, its questions and any other special instructions.

It's then up to the team to determine their strategy in taking the exam. They can break up and use individual strengths (for example, one or two people focus on species ID, while the others do the written section), or go through the exam as a team.

The ecostations generally incorporate questions that are:

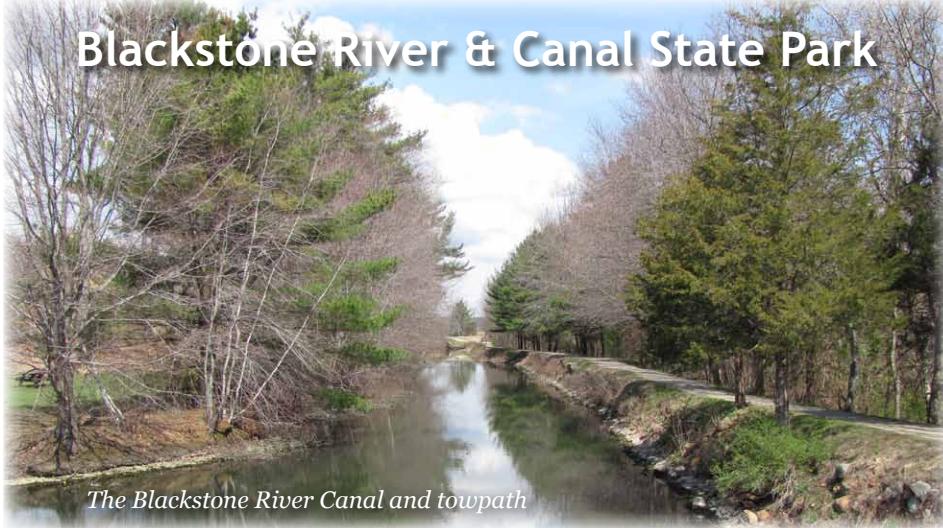
• **Written** - multiple choice, true or false, or fill-in-the-blank.

• **Practical** - This may include species identification, questions that relate to the soils or habitat surrounding the station, and hands-on activities.



## Meet Our Host Site

### Blackstone River & Canal State Park



*The Blackstone River Canal and towpath*

The Blackstone River and Canal Heritage State Park recalls the role of canals in transporting raw materials and manufactured goods between emerging industrial centers.

This park, which straddles the Uxbridge-Northbridge town line, is operated in conjunction with the Blackstone River Valley National Heritage Corridor, which extends from Worcester to Providence, RI.

Spurred by the expansion of textile manufacturing along the Blackstone River in the early 19th century, the Blackstone Canal was built to link Central Mass. to the Atlantic via Providence.

Between 1828 and 1848, segments of the river were paralleled by the canal on

which horse-drawn boats carried freight and passengers between Worcester and Providence. Initially highly successful, the canal was made obsolete by the completion of the railroad in 1847.

Most of the canal structures are now gone, but the remains of lock chambers, dams, bridges, workers' housing, and a company store remind us of the rich industrial history of the Blackstone River Valley.

Visitors can walk along restored sections of the Blackstone River Canal and Towpath from the River Bend Farm Visitors Center. A 1000 acre natural area offering walking and hiking paths, canoe access, picnic areas and a broad expanse of the Blackstone River known as Rice City Pond, which is a great area for watching wildlife. ♦

### My Envirothon Journey: Paul Clifford

The Envirothon was the beginning of my journey within the environmental field, granting me the opportunity to learn extensively about current issues, meeting established individuals while gaining experience.

I was a member of the Bristol County 4-H team from 2003 through 2005, an experience and a team I would not trade for anything, for it was my team, my coach and the Envirothon that helped me focus my concentration towards the environmental field when choosing a college and a major.

I continued my environmental education at Franklin Pierce University in Rindge, NH, graduating with a Bachelor's

degree in Environmental Science in 2009. Going beyond my studies, I sat on numerous boards and committees, establishing myself as an intricate part of the community, tirelessly working on sustainable initiatives.

I joined the Department of Conservation and Recreation last year as a Park Interpreter at Blackstone Heritage State Park, where I was able to give back to the community by providing educational programs about the historical and ecological significance of the park.

Currently I am the Visitor Service Supervisor at Borderland State Park.

I am honored to be back with the Envirothon! It was because of the

## Roundtables

When the testing is over, everyone is invited to unwind, meet new friends from across the state, and share community and environmental connections at the Roundtable discussions.

Roundtables are freewheeling, small-group discussions about a place, a question, or an idea of your choice.

Every team is invited to bring their presentation materials and start a conversation about what they have found in their communities. Community Award teams are especially encouraged to offer a roundtable.

Here's how it works:

- For each team that wants to offer a roundtable, two or three "home team" members share their team's topic with three or four visitors.
- The place buzzes with ideas, opinions, and concerns as each home team presents their topic and visitors offer their own questions and views.
- Every 5-10 minutes, visitors leave one table, move on to another, and the process begins again. Team members take turns sitting at the home table and visiting other tables.

EVERYONE is welcome to visit the roundtables!



2005 Bristol County 4-H team



Paul Clifford

opportunities presented to me by the Envirothon, my coach and all the men and women, who give their time, knowledge, experience and enthusiasm, offering others like me this unique and rewarding experience. ♦

# Sustainable Stormwater Management

## Background

Stormwater is polluted runoff from rain events or snowmelt. It results when nonpoint source pollution is washed off the land into streams, rivers, ponds, and other surface waters. Both water quality and water quantity are dimensions of the problem.

In a naturally vegetated watershed, natural processes absorb runoff, moderating the quantity of water that flows over the land surface. Natural processes also filter the water to maintain a healthy quality for human use as well as for the ecosystem.

Where human activity (particularly nonpoint source pollution and development that increases impervious surfaces) becomes a significant element in a watershed, these ecosystem services can become strained. In these systems, maintaining water quality and quantity requires more human management and incurs higher costs.

Through most of history, our approach to stormwater management has been to engineer ways to move polluted runoff “away” as quickly and efficiently as possible.

The 20th century was marked by large scale, resource- and energy-intensive projects such as urban storm sewer systems and river levees that moved problems downstream.



In the 21st century, new approaches to managing stormwater are emerging in response to the desire for systems that are lower cost and more environmentally friendly. A variety of practices and technologies fall under sustainable stormwater management, including low impact development (LID), green infrastructure, and conservation design.

More sustainable stormwater management strategies for the 21st century may include:

- ✓ Maintain and make use of ecosystem services to reduce costs and effort.
- ✓ Address water quality issues by preventing pollution in the first place.
- ✓ Address water quantity issues as close to the source (where the precipitation falls) as possible.
- ✓ Protect the quality and quantity of water for downstream people and ecosystems.
- ✓ Plan for changing precipitation patterns that are occurring as part of climate change

Under the federal Clean Water Act, the US Environmental Protection Agency works with the Mass. Department of Environmental Protection, issuing permits for stormwater discharges by urbanized or urbanizing municipalities.

Whether or not your community is required to have a permit, there is much opportunity for nonpoint source pollution prevention and stormwater management by individuals and municipalities.

## The Problem

Teams were asked to imagine that they were asked by their town's select board or city's mayor to make a presentation to the public about “stormwater management for the future.” What are the problems and solutions? What is the highest priority stormwater issue to be addressed?

These officials have heard the terms sustainable stormwater management, green infrastructure, and low impact development. They want an assessment of whether such strategies will be appropriate in specific instances in the community. They also want recommendations for how citizens, including young people, should be involved.

The challenge was twofold: This audience needs a big picture overview of stormwater issues in the watershed. But the team must also choose a specific high priority issue and convince officials to take certain steps to remedy the problem for the long run.

## How it works

Teams make their presentations to a panel of about eight judges. The judge's job is to listen, ask good questions, assess the team's work, and give feedback on their research, their proposal, and their presentation.

Teams have 15 minutes for their presentation, followed by 10 minutes when the judges can ask questions. Five of the judges will give the team a number score, while the others focus on providing written comments. An average score will be generated for the competition. ♦

## Community Awards

Teams work hard to prepare for their Massachusetts Envirothon Current Issue presentations and they deserve recognition for this work!

The Community Awards are presented to teams who do thorough and wide-ranging Current Issue research and teams that take action in a service project based on what they learn.

The Community Awards provide important visibility for teams, schools and communities. These awards are optional and noncompetitive.

## Current Issue Presentation Judges

**Lara Beth Aniskoff**, UMass Dept. of Environmental Conservation

**Mark Bartlett**, Norfolk Ram

**Kathy Baskin**, Executive Office of Energy & Environmental Affairs

**Linda Benevides**, Executive Office of Energy & Environmental Affairs

**Jani Benoit**, Ph.D., Wheaton College Chemistry Dept.

**Kim Bent**, Catch The Science Bug

**Daniel Bourdeau**, Geosyntec Consultants, Inc.

**Richard Burke**, USDA Farm Service Agency

**Jennifer Carlino**, Town of Norton

**Warren Chamberlain**, State Commission for Conservation of Soil, Water, & Related Resources

**Priscilla Chapman**, Mass. Audubon Society

**Peter Church**, Mass. Dept. of Conservation & Recreation

**Michael Clark**, Satuit Consulting, Inc.

**Stephanie Cooper**, Executive Office of Energy & Environmental Affairs

**Melissa Cryan**, Executive Office of Energy & Environmental Affairs

**Kathleen Davis**, Ph.D., UMass School of Education

**Paula Davison**, Mass. Dept. of Conservation & Recreation

**Cindy Delpapa**, Mass. Dept. of Fish & Game

**Maryann Dipinto**, Mass. Dept. of Environmental Protection

**Christy Edwards**, Mass. Dept. of Fish & Game

**Matthew Evans**, Ph.D., Wheaton College Chemistry Dept.

**Linda Eyster**, Mass. Association of Science Teachers

**Fred Farmer**, State Commission for Conservation of Soil, Water, & Related Resources

**MaryJo Moubry Feuerbach**, U. S. Environmental Protection Agency

**Renée Fitsik**, Geosyntec Consultants, Inc.

**Patrick Garner**, Mass. Association of Conservation Commissions

**Priscilla Geigis**, Director, Mass. Dept. of Conservation & Recreation - State Parks & Recreation

Judges as of May 15, 2012



**Mike Gildesgame**, Appalachian Mountain Club

**Matthew Goode**, Suffolk County Conservation District

**Mary Griffin**, Commissioner, Mass. Dept. of Fish & Game

**Bruce Griffin**, New England Environmental, Inc.

**Michele Grzenda**, Mass. Association of Conservation Commissions

**Stephen Herbert**, Director, UMass Center for Agriculture

**Doug Hjorth**, Louis Berger Group, Inc

**Kenneth Kimmel**, Commissioner, Mass. Dept. of Environmental Protection

**Edward M. Lambert, Jr.**, Commissioner, Mass. Dept. of Conservation & Recreation

**Marion Larson**, Mass. Wildlife

**Joseph Larson**, Ph.D., The Environmental Institute, UMass Amherst

**Don Lewis**, Mass. Association of Conservation Districts

**Paul Lyons**, Mass. Dept. of Conservation & Recreation - Water Supply Protection

**James T. Mailloux**, Alden Research Laboratory, Inc.

**Ann McGovern**, Mass. Dept. of Environmental Protection

**Ray McKinnon**, Mass. Dept. of Conservation & Recreation - Blue Hills Reservation

**Carl Melberg**, U.S. Fish and Wildlife Service

**Bill Moulton**, Mass. Dept. of Conservation & Recreation - Water Supply Protection

**Joan Muller**, Waquoit Bay National Estuarine Research Reserve

**Gerry Palano**, Mass. Dept. of Agricultural Resources

**Laila Parker**, Mass. Dept. of Fish & Game

**Melissa Patterson**, Student Conservation Association - Mass.

**Jane Peirce**, Mass. Dept. of Environmental Protection

**Hon. George N. Peterson, Jr.**, Mass. State House of Representatives

**Bill Pula**, Mass. Dept. of Conservation & Recreation

**Timothy Randhir**, Ph.D., UMass Dept. of Environmental Conservation

**Vandana Rao**, Executive Office of Energy & Environmental Affairs

**Heidi Ricci**, Mass. Audubon Society

**Joseph Shoenfeld**, UMass Center for Agriculture

**Madeline Snow**, UMass Lowell - Lowell Center for Sustainable Production

**Richard Starkey**, Greenfield

**Marcia Starkey**, Tower Hill Consultants

**Jennifer Steel**, Mass. Association of Conservation Commissions

**Rick Sullivan**, Secretary, Energy & Environmental Affairs

**Carol Szocik**, Mass. Dept. of Agricultural Resources

**Mary Trudeau**, Wetland Scientist

**Johanna Zabriskie**, Mass. Dept. of Fish & Game

**Sally Zielinski**, Ph.D., Mass. Association of Conservation Commissions

**Joel Zimmerman**, Mass. Dept. of Conservation & Recreation - Water Supply Protection



## Volunteers

**Maria Beiter**, Mass. Dept. of Conservation and Recreation

**Kim Bent**, The Science Bug

**Joan Boegel**, Genzyme, a Sanofi Company

**Anna Churchill**, Belmont Enterprises

**Loryn Dion**, Franklin County Conservation District

**Jenn Dorfield**,

**John Dunbar**, Middlesex County Conservation District

**Bill Dunham**, Belmont Enterprises

**Shawn Finn**, USDA Natural Resources Conservation Service

**Alynda Foreman**, The Louis Berger Group, Inc.

**Norma Forgione**, Mass. Dept. of Conservation and Recreation

**Dan Giza**, Alden Research Laboratory, Inc.

**Justin Gonsor**, Mass. Dept. of Conservation and Recreation

**Terry Hamilton**, Millbury Jr./Sr. High School

**John Hayes**, Salem State University

**Lynn Hildenbrand**, Mass. Dept. of Conservation and Recreation

**Susan Ingalls**, Mass. Wildlife

**Joshua Knox**, Holyoke

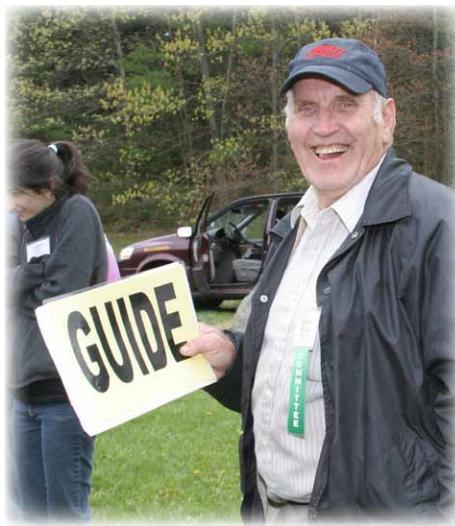
**Jim Lagacy**, Mass. Wildlife

**Andrea Langhauser**, Mass. DEP

**Richard LeBlanc**, Mass. Dept. of Agricultural Resources

**Amanda L'Etoile**, Berkshire Natural Resources Council

**Austin Mason**, Consulting Forester



**Elizabeth McGuire**, Middlesex Conservation District

**Paul Meleski**, Worcester

**Lois Melican**, Mass. Dept. of Conservation and Recreation

**Paula Packard**, Mass. Dept. of Conservation and Recreation

**Chuck Pernaa**, Mass. Dept. of Conservation and Recreation

**Les Perry**, Mass. Dept. of Conservation and Recreation

**Bill Rand**, US Fish & Wildlife Service

**Tim Rayworth**, Mass. Dept. of Conservation and Recreation

**Judy Reilly**, Millbury

**Glenn Rosenholm**, U.S. Forest Service

**Jennifer Schafer**, Mass. Dept. of Conservation and Recreation

**Bob Schrader**, Univ. of Mass. Extension

**Guy Shepard**, Professional Environmental Services, LLC

**Joe Smith**, Mass. State Comm. for the Conservation of Soil, Water & Related Resources

**Jennifer Soper**, Mass. Dept. of Conservation and Recreation

**Lisa Trotto**, Worcester County Conservation District

**Catherine Ulitsky**, USDA Natural Resources Conservation Service

**John Veale**, Mass. Wildlife

**Kristina Wiley**, USDA Natural Resources Conservation Service

**Dave Williams**, Middlesex County Conservation District

**Amy Wilmot**, Mass. Dept. of Conservation and Recreation

## Student Volunteers

### Greenfield High School

Vasiliki Balis	Michael Grover
Nickolas Brandl	Garrett Hudson
Rachel Clark	Manisha Malik
Isaac Como	Eyan Raymond
Eleni Diakolambrianos	Casey Robinson
Connor Eckstrom	Danielle Townsley
Paraskevas Felogloy	Anna Walker
Kayla Ford	Nicholas Wells
Olivia Graves	Chris Wilkins

### Millbury Junior/Senior High School

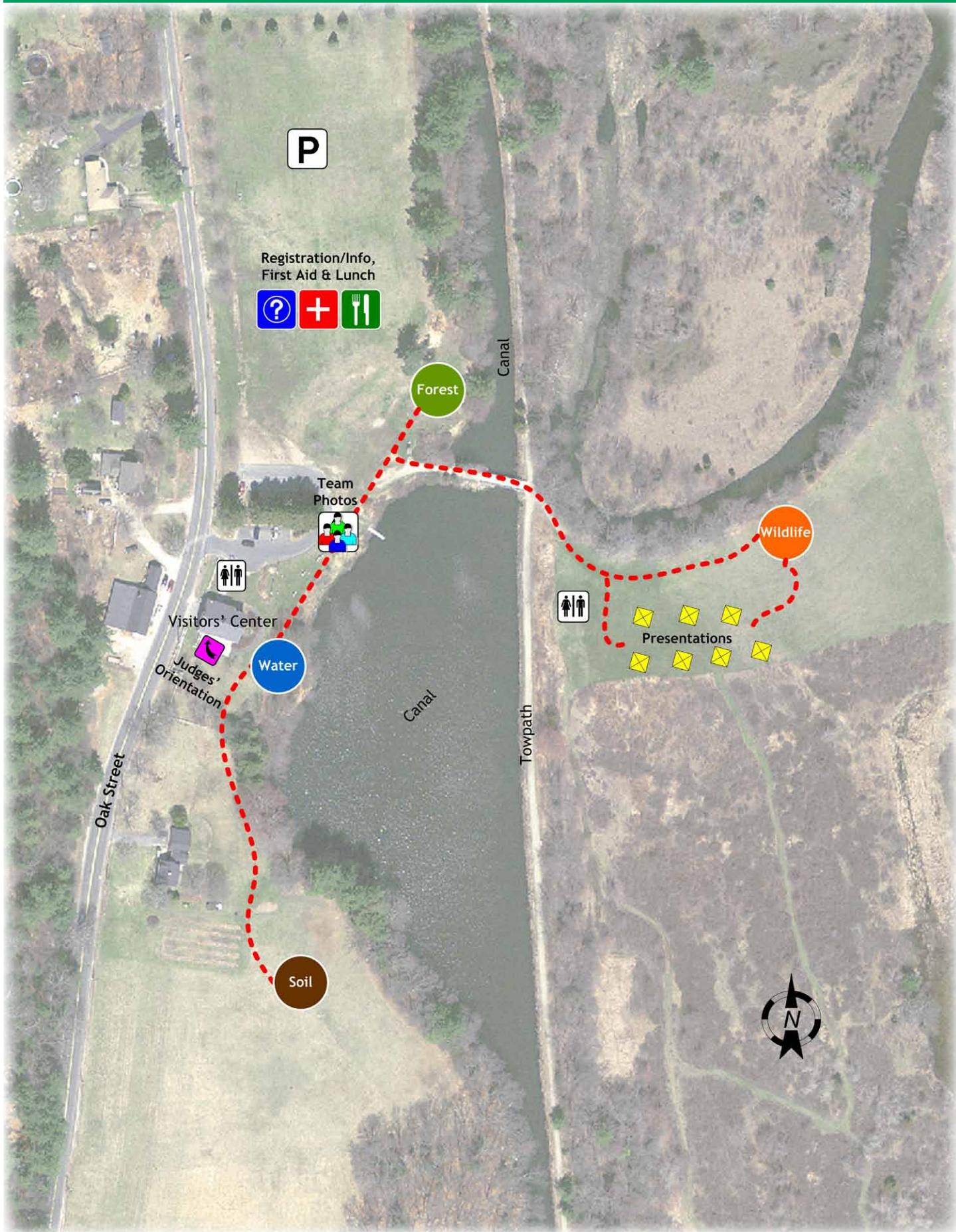
Merissa Belaska	Evelyne Joyce
Tim Bernard	Shannon Latour
Taylor Caforio	Emily Leite
Nicole Chionchio	Hannah Lynch
Gina Chionchio	Ryan Mercier
Heather Daley	Ben Miles
Emily Dame	Allison Murray
Haley Dwindell	Ryan Pelchat
Merrie Gardner	Victoria Prominski
Taylor Garnes	Courtney Schultz
Khanh Khanh Huynh	Nikki Stafinski
Elizabeth Jaeger	Caryna Wright
Robert Johnson	



### Did you know?

When the Envirothon program started in 1979 in Pennsylvania it was known as the Environmental Olympics. In 1988 the name was changed to the Envirothon.

[Site Map](#) | Blackstone River & Canal Heritage State Park



## Thank you to our sponsors!

### Blackstone River and Canal Heritage State Park

*Host of the 2012 Massachusetts Envirothon*

*Val Stegemoen, Park Supervisor*

and thanks to all the Massachusetts Department of Conservation and Recreation staff who made this event possible.

**The Massachusetts Envirothon is a program of the Massachusetts State Commission for Conservation of Soil, Water & Related Resources.**

**Our work would not be possible without contributions of time, resources and funding from a variety of donors, including:**

Berkshire Conservation District

Cape Cod Conservation District

Environmental Business Council of New England

Greater New Bedford Regional Vocational-Technical High School

Hannaford Supermarkets

Massachusetts Association of Conservation Districts

Massachusetts Department of Conservation and Recreation

Massachusetts Department of Environmental Protection

Massachusetts Division of Fisheries and Wildlife (MassWildlife)

Massachusetts Executive Office of Energy and Environmental Affairs

Middlesex Conservation District

Museum of Science, Boston

New England Aquarium

U.S. Forest Service/Massachusetts Department of Conservation and Recreation

University of Massachusetts Amherst, College of Natural Sciences

University of Massachusetts Extension

USDA Natural Resources Conservation Service

Wegmans

Wheaton College

Worcester County Conservation District

Worcester Technical High School

A special thank you to the committee, judges, volunteers, coaches, agencies, organizations, schools, parents and all whose hard work and support make the Massachusetts Envirothon possible!