

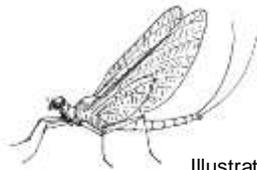


# Monitoring the White River:

## A School-Based Watershed Education Program

### Spring 2014 Newsletter

It was a long wait for spring this year, but now summer is coming fast, and the countdown to the end of school is on! As things wind down in your classrooms, many of you have been busy planting trees, throwing crayfish traps into the river, shuffling through streams with kick-nets, and wrapping up the 2013-2014 school year.



Illustrated by Susan Sawyer © WRP

This has been the 4<sup>th</sup> year of *Monitoring the White River* (MWR) and things are going strong! This year alone, we worked with 21 teachers at 14 schools scattered throughout the watershed from the headwaters of the White and its tributaries all the way down to the mouth. With your help we brought 400 students out to the river to explore their place in the watershed and to conduct hands-on science. 111 of those kids got out to the river more than once with teachers digging deep into river science and doing multiple MWR units.

Many other students in our watershed studied the river with their teachers on their own and others used the Stream Table on loan from the Ottauquechee Natural Resources Conservation District. We're always happy to go into your classrooms, but we're also pleased to support teachers doing programs on their own by providing teaching kits from our Lending Library. For us it's all about encouraging teachers and kids to get out and learn about the rivers in their backyards, and we're happy to help in any way we can!

The 2013-2014 *Monitoring the White River* program was generously funded by the Jack & Dorothy Byrne Foundation, Vermont Watershed Grants program, and Wellborn Ecology Fund. We're optimistic about securing ongoing funds and we'll send out more information during the summer months about 2014-2015 school year programs. If you have any questions, are interested in learning more about MWR program opportunities, or would like to know more about our Lending Library, please contact Emily Miller at [emily@whiteriverpartnership.org](mailto:emily@whiteriverpartnership.org) or (802) 763-7733.

The **MWR units** listed below can be tailored to address individual school goals.

- *Crayfish* – key members of river and riparian food webs
- *Riparian Track & Sign* – evidence of wildlife activities along river corridors
- *Riparian Trees* – planted to improve water quality and fish & wildlife habitat
- *Waterbugs* (benthic macroinvertebrates) – indicators of river health and water quality
- *Watershed Restoration* – on-the-ground projects that improve water quality and habitat:
  - Culvert replacement and retrofits
  - Riparian tree plantings
  - Alternative stream bank stabilization projects and more!

## Watershed Restoration: Trees for Streams

The WRP has worked with schools to plant trees along the White River for years, but this spring marked the first time we officially combined *Monitoring the White River* education programming with on-the-ground tree planting projects. The new *Watershed Restoration: Trees for Streams* unit was introduced to teachers at our spring networking meeting in March and over 100 students in grades 6-12 participated in the unit in May – a really wonderful start!

In each participating classroom, WRP Project Manager Greg Russ gave an interactive presentation that highlighted the important water quality and habitat benefits gained through planting buffers and outlined the steps involved to develop a planting plan for a particular site. For the fieldwork component, students joined Greg and WRP partners to plant hundreds of trees along the White River in Stockbridge, Rochester and Royalton.



Greg also worked with a several groups of students to create a tree planting plan using the Vermont Natural Resource Atlas web-based mapping tool. With Greg's guidance, students



were able to zoom in on a specific planting site; to determine soil types, natural communities, and native tree species that might be present; and to generate a list of native tree and shrub species to plant in the buffer. There was a lot of interest in using the Vermont Natural Resources Atlas to create tree planting plans, so we plan to strengthen this component of the unit in the future.

Students from Randolph Union Middle and High Schools plant trees along the Upper White River in Rochester (top and bottom).

## Aligning MWR with the Next Generation Science Standards

Like everyone in the world of education, we've been working to understand the Next Generation Science Standards (NGSS) and to align our units with the NGSS to better support our teachers. To accomplish this goal, Watershed Education Consultant Jenna Guarino has started working through our MWR units with an eye to NGSS. Starting with our winter Track and Sign Unit, Jenna has made changes and additions to address the new standards and also to incorporate teacher feedback. One important change has been to shift the focus of the Track and Sign Unit slightly so that we spend some quality time learning about food webs, an essential piece of NGSS for many grades. Jenna has created a food web activity that will allow teachers to meet the Performance Expectations related to this important standard. We plan to update all MWR units, including a list of the Performance Expectations addressed by each, during the coming years. Stay tuned!

### Grateful for feedback

Thanks to all of you who have taken the time to complete surveys and questionnaires after participating in MWR programs! We depend on your feedback to shape future MWR programs and events.

Everyone has their own reasons for doing river-based research with their students, including getting kids outside, connecting students with their local environments, giving classroom learning a real-world context, hitting particular standards, and engaging in scientific inquiry and citizen science – they're all great!

Here are some comments from MWR teachers this year:

- ❖ *"Going into the field and catching the crayfish themselves made our lessons [about habitat and animal inquiry] all that more meaningful and enhanced student understanding of these local animals."*
- ❖ *"Great opportunity to apply classroom knowledge to real world experiences."*
- ❖ *"The kids loved being outside and were excited to use what they learned from the slideshow in identifying tracks."*
- ❖ *"Students get to understand their local watershed and threats to its biological future."*
- ❖ *"A hands-on local watershed activity – awesome!"*



Students from Tunbridge Central School identify crayfish along the First Branch in Tunbridge.



**Snapshot of MWR's Watershed Education Network (participants since 2012)**

<u><b>MWR Schools</b></u>	<u><b>Supporting Organizations &amp; Agencies</b></u>
Bethel Elementary School Braintree Elementary School Brookfield Village School Chelsea Public School Dothan Brook School (Hartford) Hartford Memorial Middle School Mid-Vermont Christian School (Quechee) Newton School (Strafford) Ottauquechee School (Hartford) Randolph Elementary School Randolph Union Middle School Rochester School Sharon Elementary School South Royalton Schools Stockbridge Central School The Pomfret School The Sharon Academy Tunbridge Central School Vermont Technical College Whitcomb High School (Bethel)	Canaday Family Charitable Trust Clear Water Carbon Fund Ecotone Education (Verdana Ventures LLC) Four Winds Nature Institute Friends of the Winooski Green Mountain National Forest Jack & Dorothy Byrne Foundation Mascoma Savings Bank Foundation Ottauquechee Natural Resources Conservation District Upper Valley Linkages for Environmental Literacy U.S. Fish and Wildlife Service Vermont Department of Fish and Wildlife Vermont Water Quality Division Wellborn Ecology Fund
<p align="center"><b>Questions about MWR?</b>            Emily Miller, WRP Monitoring Coordinator  <a href="mailto:emily@whiteriverpartnership.org">emily@whiteriverpartnership.org</a>            (802) 763-7733</p>	<p align="center">Visit the White River Partnership's website for White River watershed information and maps, links to Water Quality Reports and other resources, and more: <a href="http://www.whiteriverpartnership.org">www.whiteriverpartnership.org</a>.</p>