



Monitoring the White River: A School-Based Watershed Education Program

Winter 2014 Newsletter

Winter has settled on the river, but – as you all know – life continues both beneath the ice and along the edges. Things are pretty similar here at the White River Partnership's Monitoring the White River (MWR). We have wrapped up our fall programs and stowed away our in-stream monitoring equipment, but we are gearing up for winter programs and field work, and thinking ahead to our spring programs and a teacher's workshop in March.

Winter is a good time to pause and reflect on the great work MWR participants have accomplished this year. We are delighted that our network of participating teachers has expanded – 8 teachers participated in MWR for the first time this fall. Increased teacher participation means MWR programming is reaching more students – over 200 students in grades 2 through 12 participated in a MWR program this fall. That's a lot of kids – nice work! A few fall highlights follow on the next page.

We routinely hear anecdotes about how MWR programs affect the larger community. As you all know, if kids are excited about what they're learning, they bring their knowledge home and share it with their families. We



You never know what you'll discover when you start turning over rocks – a happy Bethel student shares his find.

We love to hear about kids dragging their parents down to the river to turn over rocks and look for crayfish and caddisflies; to find wildlife tracks in the snow; or to explain why trees along the river are so beneficial. Excited and informed kids care about the environment in their own back yards and aren't shy about sharing their knowledge and opinions. Thank you, educators, for inviting us to your schools and helping us raise students' awareness about our watershed!

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* – projects implemented to improve water quality and habitat (culvert replacement and retrofits, riparian tree plantings, and more)

The 2013-2014 Monitoring the White River Program is generously funded by the Wellborn Ecology Fund (WEF), allowing us to provide watershed education free-of-charge to schools within WEF's Upper Valley service area.

Fall MWR Highlights

Five teachers and 80 2nd- and 4th-grade students from Dothan Brook School in Hartford teamed up to study **crayfish** this September. Although all 5 teachers are new to MWR, crayfish aren't a new topic for Dothan Brook School. Each year Dothan Brook 4th graders use crayfish to conduct habitat preference trials. Through the field work component of the MWR Crayfish unit, students caught crayfish themselves, which provided a real-world context for their studies.



Dothan Brook 4th graders take field notes while 2nd graders measure crayfish.

The topic of this fall's Teacher Networking Meeting and Workshop was **culverts** – one of the new Watershed Restoration units that we're very excited about. What's so exciting about culverts you ask? Hear us out!



Teachers make culvert observations at the MWR Fall Networking Meeting and Workshop in Sharon.

Culverts are man-made structures that allow streams to pass under roads. If working properly, they can minimize flood damage and connect upstream and downstream fish habitat. But poorly functioning culverts can increase flood damage and create barriers to fish passage and habitat connectivity. Modern culvert design enhances *flood resiliency* and *fish friendliness*. Studying culverts naturally integrates a variety of math, engineering, economics and ecology concepts.

The MWR Culvert unit breaks down complex issues in an easy-to-understand way. We're planning to implement the unit for the first time this spring with 3rd and 4th graders and will keep folks posted as materials become available.

As part of their participation in MWR's ***Watershed Restoration: Trees for Streams*** unit, Whitcomb High School students helped develop a planting plan for a riparian buffer restoration project at Hurricane Flats Farm in South Royalton. Whitcomb's botany class has worked with the WRP to plant and monitor riparian trees in the past, but this year marked the first time they used their plant identification skills and riparian buffer knowledge to generate a planting plan with the help of WRP's Project Manager, Greg Russ. The class hopes to implement their plan by planting trees to help restore the buffer at Hurricane Flats Farm next spring.



Exploring the riparian zone in winter

The MWR **Riparian Track & Sign** unit provides an opportunity to think about the wildlife that use the river all year round, particularly the mammals, and the adaptations they make to survive the winter. It's also a great way to get outside during those long winter months! This January, students from Bethel, Chelsea, Hartford (Ottaquechee School), Sharon, and South Royalton plan to explore riparian habitats around their schools with MWR watershed educator Jenna Guarino.

Are you interested in exploring the winter landscape on your own? Check out the MWR Riparian Track and Sign unit on our website (whiteriverpartnership.org/teacher-resources) or get in touch with us to borrow a Riparian Track and Sign Teaching Kit. The kit includes field guides to tracks, scat and sign along with tracking equipment, all of which should help you get the most out of your winter excursion. If you do head out to the river this winter on your own, we urge you to be mindful of safety – we've included a list of safety considerations in the online unit.

Illustrated by Susan Sawyer © WRP

Companion presentation for tree plantings

Spring is tree planting season for the WRP and we depend on interested teachers and students to help us plant over 2,500 trees along the river each year. This year, we want to provide a little more context for these plantings through our new MWR **Watershed Restoration: Trees for Streams** unit. The unit includes a pre-planting classroom presentation that explains the rationale behind planting riparian buffers; selecting tree species for each planting site; and more. As with all MWR units, we can adapt the presentation to suit different grade levels. We'll be in contact with folks next spring about participating in our tree plantings, but feel free to get in touch if you have any questions.



Pomfret School students plant trees at Hurricane Flats Farm in spring 2013.



Illustrated by Susan Sawyer © WRP

Spring Workshop & Networking Meeting Thursday, March 13th from 3:30-6pm Whitcomb High School, Bethel

Buffers! Our focus for the Spring Workshop and Networking Meeting will be riparian buffers and tree plantings. It will be a great overview of the importance of buffers and a chance to learn more about why we're always looking to plant more trees! The meeting will include information about the WRP's "Trees for Streams" program and how it fits into MWR's units and your classroom.

We'll be inside for this one and will provide a snack to keep you sharp. Please RSVP to Emily at 802-763-7733 or emily@whiteriverspartnership.org.

Save the
Date!



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

<u>MWR Schools</u>	<u>Supporting Organizations & Agencies</u>
Bethel Elementary School Braintree Elementary School Brookfield Village School Chelsea Public School Dothan Brook School (Hartford) Hartford Middle School Mid-Vermont Christian School (Quechee) Newton School (Strafford) Ottauquechee School (Hartford) Randolph Elementary School Randolph Union Middle School Sharon Elementary School South Roylton School The Pomfret School The Sharon Academy Tunbridge Central School Whitcomb High School (Bethel)	Canaday Family Charitable Trust Clear Water Carbon Fund Four Winds Nature Institute Friends of the Winooski Green Mountain National Forest Mascoma Savings Bank Foundation Ottauquechee Natural Resources Conservation District Upper Valley Linkages for Environmental Literacy U.S. Fish and Wildlife Service Verdana Ventures Vermont Department of Fish and Wildlife Vermont Water Quality Division Wellborn Ecology Fund
<p align="center">Questions about MWR? Emily Miller, WRP Monitoring Coordinator emily@whiteriverpartnership.org (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: www.whiteriverpartnership.org.</p>