

Courses of Change

Blanding's Turtle In The Upper Saco River Floodplain Forest

Back in October of last year, Fryeburg resident and Saco River Corridor Commissioner Elbridge Allen Russell took decisive action to save the life of a turtle attempting to cross Route 302 in Fryeburg. All the physical characteristics and the habitat location of the turtle indicated that it is a Blanding's turtle (*Emydoidea blandingii*), but Blanding's turtles were not previously recorded (by Maine Natural Areas Program) so far up the Saco River Watershed.

After rescuing his reptilian neighbor from the roadway, Mr. Russell contacted the Maine Natural Areas Program to initiate the process of inventorying the rare find. Then the turtle went for a day of educational touring to local schools and Tin Mountain Conservation Center. After taking several turtle mug shots Mr. Russell returned the turtle to the other side of Route 302, since it is typically better to help such critters get where they are bent on going, rather than to put them back, only to have them re-attempt what for them is most often a fatal crossing.

According to Scott Lindsay, Assistant Regional Wildlife Biologist for the Maine Department of Inland Fisheries and Wildlife, "This species inhabits small, acidic wetlands and associated uplands and is largely confined to York and

Cumberland counties. This occurrence is of additional interest because it is in the northern extreme of the species known range in Maine." In an effort to determine the status of the local Blanding's turtle population and identify areas of management concern, ground surveys are being conducted this spring by Woodlot Alternatives, Inc., an environmen-

tal consulting company based in Topsham, Maine.

Blanding's turtles are state endangered species of land turtle that can only be found rarely in areas with vernal pool wetlands. It occurs in the NE US and is imperiled or critically imperiled nearly in every state (or nearby province) that it occurs in. The northern most records of this turtle in Maine were in Bridgeton and now Fryeburg. Also, within the Saco River corridor, previously this turtle was not known to range above the Great Falls Dam in Hiram. But this sighting, within

a 1/4 mile east of Walker's Bridge suggests habit that ranges into the heart of the Upper Saco River Floodplain.

Protecting the turtle's environment is critical, because they take a long time to reproduce. Blanding's turtles live to be 70 years old, but do not become sexually mature until they are about 15 years old. Making it to 15 or 20 years old is a serious problem because the turtles will travel miles to get food, find mates, and breeding sites, and are often hit by cars as they cross roads. The death of just a few individuals every year can lead to the long-term declines and possible extinction of turtle populations. This specimen, at shell length of approximately 9 inches, is at full

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Courses of Change is a quarterly publication of the Saco River Corridor Commission. We encourage our readers to submit ideas for publication in future issues. The deadline for submission in our Fall 2006 edition is August 15, 2006.

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Mission Statement

The Saco River Corridor Commission is committed to protect public health, safety, and the quality of life for the State of Maine through the regulation of land and water uses, protection and conservation of the region's unique and exceptional natural resources, and through the prevention of impacts caused by incompatible development.



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Executive Director's Column...

A few weeks ago, water in our area rivers and streams was looking uncharacteristically low for this time of year. It didn't take long, however, for this situation to change after a prolonged frontal system stalled over New England bringing abundant rainfall. Rainfall was heavy and prolonged so that the rivers filled rapidly as the watershed released the rain into the ground and surface waters. Predictably, the natural system functioned perfectly allowing the soil to absorb to capacity with the excess water overflowing river and stream banks out into the floodplain. These floodplains along our rivers helped to retain and control the water which allows the natural system to cycle nutrients, lessen the impact of sedimentation and enhance the floodplain habitat for the diversity of species that rely on this system.

Sections of Massachusetts and Southern New Hampshire received this same rainfall, but with very different results. As river basins reached capacity and beyond, the water spread into the floodplain but with disastrous effect. Town and city streets flooded, roads were closed, basements and houses were filled and bridges and dams threatened. The cost to clean up and restore the area will be enormous. It was fortunate, indeed, that many lives were not lost.

It may be an over simplification to cite the history of land use in these two areas explaining why precipitation in one area was a disaster, but not in the Saco River Corridor. Certainly, we are discussing entirely dif-

ferent watersheds and there were differences in rainfall amounts, duration and intensity which all play a role. But it is undeniable that on the floodplains of the Saco River, land uses by design are less intense and have allowed the floodplain to respond normally. A collaboration of effort between the towns, the Saco River Corridor Commission and the State of Maine to keep the floodplain in low development uses such as agriculture, forestry and recreation has made a difference. Many of the floodplains along the rivers in Massachusetts and Southern New Hampshire have been developed for housing, commercial uses and other more infrastructure dependent uses. Impervious surfaces, houses and buildings now occupy the land that the rivers formerly used to carry out their natural functions.

The View From The Valley, a report prepared in 1973 by the Saco River Environmental Advisory Committee, clearly pointed out the risks of developing the floodplain. The advice in the report discouraged development and was timely and prudent. Shoreland zoning plays a role at the town level for all development along waterways, and in the Saco River Corridor, the Commission's performance standards and jurisdiction follows the floodplain up to 1,000 feet from the river's normal high water mark. Commission standards prohibit residential development and septic systems in the floodplain. In instances where there is a building in the floodplain and additional

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Water Quality Update

With Memorial Day comes sunny weather, warm temperatures, and hopefully many opportunities to visit your favorite swimming hole. In addition to the unofficial start of summer, Memorial Day also signifies that it is time for the Saco River Basin Water Quality Monitoring Program to begin testing for swimmability at five different locations throughout the corridor. Those spots include Fiddlehead Campground in Fryeburg; below Hiram Falls in Hiram; Balch Lake located in Acton and Newfield; Lake Arrowhead located in Limerick and Waterboro; and finally at Skelton Head Pond located in Dayton.

In order to determine swimmability at a site, volunteers of the monitoring program must carefully collect five sterile water samples. In order to help ensure sterility the containers used by the volunteers are pre-sealed, opened under water and capped under water. The volunteers must also wear gloves when collecting the water sample. These containers are stored on ice until they can be dropped off at Katahdin Analytical Services in Westbrook, Maine. The samples must be in the hands of the lab within 6 hours of collection in order to be viable samples.

Escherichia coli is a bacteria that is found specifically in the intestines of warm-blooded animals including birds and mammals. The number of individual *E. coli* bacteria in the feces that one human passes in one day averages

between 100 billion and 10 trillion. For this reason, the Commission tests for the presence of this bacteria as a possible indication of sewage contamination. Although the *E. coli* bacteria is not harmful by itself, it can be accompanied by other disease-causing bacteria (pathogens) that also lives in the intestines of warm blooded animals. Therefore, when testing reveals high levels of *E. coli* there is a possibility that there may also be high levels of these other pathogens that do pose of health risk for swimmers and other direct contact recreationists.

When we send the five samples to the lab, they pour the samples onto mediums that provide the necessary conditions to allow any *E.coli* bacteria present to grow. After 24 hours the lab technician literally counts how many spots are on each petri dish and counts each spot as a colony. Each colony that was counted is averaged together using a fancy equation called a geometric mean. The State of Maine has a threshold of 126 colonies per 100 ml as their cutoff for determination of swimmability. If the results are less than 126 colonies the water is deemed swimmable. Results greater than or equal to 126 colonies will result in the lab giving us a call and then we pass the information on to the appropriate town from where the samples were taken.

The cost of each swimmability test is \$50. For the average testing season, the Commission spends

approximately \$2,100. Those costs can go up when and if there is a result that does indicate the waters are not swimmable. Even though high *E.coli* levels can indicate possible sewerage contamination, high levels can also result from a deer passing through just moments before our volunteer visits the site in the early morning hours. Consequently when high levels are reported the SRCC retests the same spot immediately to be sure that the readings are accurate. On average, 8 times out of 10 the second test comes back well below normal. Typically, this would rule out a possible septic system leak. More likely this situation would be the result of some other natural, transient occurrence of *E.coli* bacteria.

We encourage you to contact us at the office if you have questions regarding our swimmability testing or the water quality monitoring program in general.

“A river seems a magic thing. A magic, moving, living part of the very earth itself.”

-- Laura Gilpin

Cryptogram Challenge

I think for many people either you love cryptograms or you hate them. I challenge you to give this one a try. The solution is on the bottom of page 5 (no peeking)! *Here's a little hint to get you started: T = H*

OTR ZNV ZTYVRZ VDO DV NZ JNO YV NZ.
 OTR CYIRCZ LWDQ VDO MPZO, JNO OTCDNXT NZ.
 -- FDTV GNYC

Blanding's Turtle

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adult size, so would likely be at least 15 to 20 years old.

Because Blanding's are so susceptible to road kill and potential local extinction, the Maine Department of Inland Fisheries & Wildlife (MDIFW), the Maine Department of Transportation (MDOT), and The Nature Conservancy (TNC) have begun to cooperate on a long-term program to enlist volunteers to adopt key road segments throughout York County to monitor

road-crossings and count and map road kills of both rare and common turtles. When looked at in relation to the types of wetlands that turtles use and nearby roads, we humans can identify specific road segments that are high risk for turtles.

Incorporating safe crossings and signs and seasonal press releases will be an important strategy for partners including the state and local roads planners and maintainers to employ.

Conservation partners who work and live along the Upper Saco River look forward to the completion of the habitat survey and to taking further steps to protect our new-found reptilian neighbor.

Article by Stefan J. Jackson, Saco River Project Director, The Nature Conservancy

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Executive Director's Column ...Continued from Page 1

square footage is proposed, the Commission requires that the design be certified by an architect or engineer to be able to withstand the hydrologic force of the 100-year flood.

Floodplain areas along our rivers will

continue to be protected by the Saco River Corridor Commission for all of the natural values and benefits that they represent. Because the river's natural behavior is protected, the agricultural and recreational uses will be preserved and the rich habi-

tat and diversity of species that flourish will persist.

Dennis Finn has been the Commission's Executive Director since 1995.

Notes From Upstream

Watershed residents will soon delve into the fascinating underwater world of predators, parasites, and curious creatures capable of clinging to rocks and secreting silken nets, pinching and blood sucking, and developing amazing strategies for surviving in one of the most dynamic environmental on earth. This year, GMCG and local volunteers will investigate local waterbodies for macroinvertebrates, (organisms without a backbone and visible to the naked eye), as part of the DES biological assessment program.

Also called benthic organisms, these creatures are an extremely important part of the river ecosystems, serving as the base of the food web and providing an important food source of many wildlife species. Most benthic macroinvertebrates are aquatic insects or the aquatic stages of insects. They also include such things as clams, snails, mussels, worms, spiders, and crayfish.

Benthic organisms are typically abundant in most streams and can be quickly identified by experienced biologists. Minimal equipment is

necessary for collection, and the process can provide a cost effective approach to assessing habitat and water quality in streams and rivers. Vermont already uses this method of water quality monitoring for their surface waters. In the Ossipee Watershed, where volunteers have helped to collect physical and chemical water quality data for four years, macroinvertebrate sampling will provide a more complete picture of watershed health by contributing to the understanding of stream biology as it is connected to water chemistry.

Collecting macroinvertebrates is fun and easy, and even more importantly, different species and populations act as indicator organisms for the ecosystem. With their simple physiology, these organisms are capable of limited physical or spatial movement, therefore, they have limited abilities to adapt to changes to their environment. As a result, their response to ecosystem disturbance is almost immediate. Some species are considered pollution *intolerant*, such as stoneflies and mayflies. Their presence indicates minimal disturbance

to their habitat. Some species, like worms, midges and fly larvae, are classified as pollution *tolerant* species, and are capable of withstanding stresses better than pollution intolerant species. An over abundance of tolerant species indicates pollution.

The study this year may help determine if water quality has changed since sites in the watershed were first sampled between 1997 and 2001, and may also indicate if pollutants, such as volatile organic chemicals or heavy metals, are affecting local waterways. Look for sampling dates and a fall presentation in the next newsletter.

Tara Schroeder is the Program Director for the Green Mountain Conservation Group's RIVERS Water Quality Monitoring Program which began four years ago. If you have any questions, Tara can be reached at the GMCG's Freedom Office at 603-539-1859.

Cryptogram Solution

The sun shines not on us but in us.
The rivers flow not past, but through us.
-- John Muir

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COURSES OF CHANGE - SPRING, 2006

- Our newsletter is available on the web at www.srcc-maine.org. If you would like to receive this publication electronically, please send us your e-mail address.
- Has your address changed? If so please let us know!

Images From The Corridor

This photo was taken along the bank of the Saco River looking upstream off Depot Street in Buxton, Maine at the site of the old Rogers Fibre Mill. The SRCC issued the Environmental Protection Agency a permit in 1998 to perform a complete clean-up of the site including building demolition and hazardous waste removal. The project, which came with a price tag of approximately \$3 million began in July of 1998 and was completed in October of 1999.

The old mill was over 100 years old and was used by the Rogers Fibre Company to manufacture fiberboard materials from 1917 to 1980. The company merged with Colonial Board Company in 1967 and was

known from that point on as CBC's Rogers Fibre Division.

Today, the SRCC performs water testing at the site as part of the Saco

River Basin Water Quality Monitoring Program. For testing results please contact the Commission Office or visit our website located at www.srcc-maine.org.