
◆ The Watershed News ◆

Volume VI, Issue III

Summer 2004 .

A Quarterly Publication of the Ossipee Watershed Protection Project Published by the Green Mountain Conservation Group

6th Watershed Weekend will focus on wetlands

On Saturday, July 24, the Green Mountain Conservation Group will sponsor the 6th Watershed Weekend at Camp Calumet on Ossipee Lake in Freedom from 1-9 p.m. The theme this year will be wetlands.

Keynote speaker from 4-5:30 p.m. will be Dr. Rick Van de Poll of Ecosystem Management Consultants (EMC) of Sandwich. Since 1998, his company has performed natural resource inventories for the public and private sector of New England. Dr. Van de Poll will explain what a wetland ecosystem is and discuss the role wetlands play in keeping our water healthy.

Watershed Weekend commences at 1 p.m. with a presentation by Gary Springs from New Hampshire Department of Environmental Services. Gary will present information on the Shoreland Protection Act and wetland habitat.

At 2 p.m., David Carroll, author of *Year of the Turtle*, and recipient of the 2001 John Burroughs naturalist award, will speak on turtles and wetland habitat. David will also be available throughout the day to sign copies of his many books.

Mike Marchand, wetland system biologist with New Hampshire Fish and Game, will speak at 3 p.m. about his study of painted turtles. He will also present new information about ways to use wildlife mapping as a planning tool.

Throughout the day, representatives from environmental groups

and state agencies will be present to staff individual information booths.

Twice during the afternoon, UNH Cooperative Extension educator, Bob Craycraft will lead adventures into the field. Bob will teach adults and children about macroinvertebrates and their role in healthy water. Two separate "Bug Collecting" tours will depart from Calumet at 1 and again at 3 p.m.

There will also be hourly pontoon boat excursions on Ossipee Lake narrated by GMCG Board members. Enjoy an opportunity to learn about the ecosystems of Ossipee Lake as well as hear about the water quality work GMCG is doing on the lake.

A barbeque dinner will wrap up the day's events. Following the dinner, there will be evening entertainment with well known New England storyteller, musician and poet, Michael Caduto.

The event is open to the public. A suggested donation of \$15 for adults and \$7.50 for students will include dinner and the evening performance. For more information please call GMCG at 539-1859.

Wetland scientist will lead hike at Heath Pond Bog

Watershed Weekend continues on Sunday July 25, from 10 a.m. to 1 p.m. with an interpretive walk along the Heath Pond Bog in Ossipee lead by Irene Garvey of Abenaki Environmental Services of Tuftonboro. Ms. Garvey has been working in the field of ecological science since 1992 and provides consulting services to entities such as the U.S. Forest Service, Trust for Public Lands, various New Hampshire municipal conservation commissions, as well as to the general public.

The morning will begin at the Heath Pond Bog parking area where Irene will begin with a general discussion about the geological history of the area immediately around the bog. She will then explain how this history played an important role in the formation of the bog. The group will move in and along the fringes of the bog on the established hiking trails where Ms. Garvey will discuss the functions that wetlands play in the health of all ecosystems. She will also present information on the specific values of Heath Pond Bog. This discussion will also include an overview of plant and animal adaptations. The Heath

Pond Bog was designated a National Natural Landmark by the federal government in 1977. This 100 acre preserve with five acre pond is home to an unusual and fragile ecosystem. Much of the immediate area around the bog is made up of spagnum mosses, which often form "floating mats" of vegetation. They may be as deep as nine feet in some places but in others deceptively thin at just a few inches.

To learn more about this fascinating place, please join us for an informative and leisurely walk along the Heath Pond Bog with great views of the Ossipee Mountains to the west and of Green Mountain to the south. Participants should meet at the parking lot for Heath Pond Bog which is located along Route 25, east of Route 16 at 10a.m. Come with your walking shoes, comfortable clothing and of course, some of your favorite bug spray. Bring your binoculars!

To register please call GMCG at 539-1859.

The Watershed News

The Watershed News is a quarterly publication of the Green Mountain Conservation Group, a non-profit, 501(c) 3, charitable organization established in 1997 and dedicated to the preservation of the natural resources in the Ossipee Watershed. The towns of Effingham, Freedom, Madison, Ossipee, Sandwich and Tamworth make up the boundaries of the Ossipee Watershed Protection Project. This watershed includes one of the largest and deepest stratified drift aquifers in New Hampshire. It covers 47 square miles and receives drainage from a 330 square mile area. It is a critically important resource for existing and future community water supplies.

The GMCG's purpose is twofold:

1. To provide an organizational structure for a coalition of citizens and local officials interested in identifying sensitive areas within the Watershed in need of protection;
2. To offer public educational events about conservation issues and possible solutions regarding the preservation of this unique natural resource.

Through education and advocacy we strive to promote an awareness and appreciation of our natural resources and encourage a commitment to protect them.

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Shawtown: Uniquely preserved community

Editor's Note: Special Places is a regular feature of the Watershed News, highlighting an historical or cultural resource within the Ossipee Watershed. GMCG continues to endorse the Land and Community Heritage Investment Program (LCHIP), a public-private partnership committed to conservation of New Hampshire's natural, cultural and historical resources. For more information, on LCHIP call 230-9729, or email www.specialplaces.org

BY

CAROL FOORD

Shawtown, its very name suggests hush and quietude. And so it is, so it was; a neighborhood community, School District # 8 in the 1800s—now abandoned. What is Shawtown? It's a stretch of abandoned road in Freedom with overgrown farmstead cellars, wells, school house foundation, a glacial erratic quarried for granite foundation blocks, a steeply rising stonewall encompassing a coveted mountain pasture, a granite bridge, and a small cemetery. The road continues into Madison, and so the two towns were linked by commerce and marriages.

Every town has a few cellar holes, which (if not bulldozed over) have been lost, forgotten or overtaken by returning forests. So, what is so unique about Shawtown that makes it worth preserving, visiting, writing about, talking about, if stonewalls and cellar holes are so commonplace?

Shawtown is a rare example of an entire school district neighborhood still intact on the landscape. Begun in 1822, Shawtown was one of ten neighborhoods that made up the whole of Freedom. Of those ten districts, Shawtown is the only school district completely abandoned. Time and nature has been kind. Shawtown has been preserved and protected by forest succession for a little more than 100 years.

The question begs to be asked. Why? Why was Shawtown abandoned when all other neighborhood districts in Freedom survived and still thrive?

The answer lies in the individual stories of the Shawtown inhabitants. For here we have an open history book, a visual history, a walking tour history of farm life in the 1800's. Here unfolds Freedom's Civil War stories—Shawtown men committed and courageous, losing life and limb at South Mountain, Fair Oaks and Antietam. In their absence, their wives, mothers, sisters and children suffered greatly many succumbing to small pox within a few months of one another.

The soldiers who returned—and most were critically injured—were nursed for years by their mothers or wives. Widows had to fight for pensions they rightfully deserved. But it wasn't enough. No one could compensate these families for their physical and emotional losses. It was no longer possible to work the land. One by one, they left.

The Shawtown sites are a treasure trove of information about who we were in the 1800s. If we don't care, if we let them disappear, if we allow the cellars, the school and the little cemetery to be covered over, we will lose a one-of-a-kind cultural resource, a unique historical asset that belongs to our community.

There is a family name associated with each and every cellar hole in Shawtown: Ward, Stokes, Eldridge, Tyler, Stacy, Foss, Durgin, Harmon, Huckins, and Shaw—people whose descendents still live in Freedom and the area. If we lose these cellar sites, who will care anymore who these inhabitants were and what their contribution to Freedom was?

The cellar holes of Shawtown are a touchstone to our past. They offer the curious passerby the chance to discover, to be surprised, mystified and awed, to wonder, to ask questions and to learn about our past. Don't you wonder about Peter Dana? His lichen-covered gravestone tells us he died in 1852 at the age of 22. Why? And who is Mary's Mountain named for? What was the Treadwell House if no one by that name ever lived there? Might Shawtown have been a route on the Underground Railroad?

Shawtown is an outdoor classroom, an historical archive, a place that holds mysteries, a place of more question than answers. Finding answers simply entices us to ask more questions, learn more. Prodigious groundwork has been laid, but there will always be more story to uncover and share. Shawtown cannot speak for itself. Quietly hidden, the historical sites of Shawtown lure us to discover again and again.

*Carol Foord is a resident of Freedom, Historian and Teacher-naturalist. Shawtown is located on the Trout Pond property
 (See Story page 3)*

Notes from Upstream

Water Quality Monitoring begins new season

The third season of Green Mountain Conservation Group's (GMCG) Water Quality Monitoring (WQM) program is underway. This year, GMCG will continue with the three programs: RIVERS (Regional Interstate Volunteers for the Ecosystems and Rivers of Saco;) Ossipee Lake Tributary Program; Ossipee Lake Lake Hosts.

The **RIVERS** program samples 16 sites across the six towns of the Ossipee Watershed. Working closely with experts at the University of New Hampshire and Cooperative Extension as well as with town conservation commissions, new sites have been added or changed so that we can better monitor the water quality over time. We have received financial support from the towns in the Watershed as well as from UNH to partially fund the chemistry costs of the water sampling. We are also grateful for funding from New Hampshire Department of Environmental Services, New Hampshire Charitable Foundation and Timberland. GMCG monitors the water for 17 parameters in all. Volunteers monitor for pH, temperature, dissolved oxygen, and turbidity and UNH analyses water samples collected by the volunteers for total phosphorus and other nutrients. While many parameters are influenced by natural causes, some specific land uses can impact the quality of surficial waters. By testing the water for these parameters, GMCG hopes to observe trends in the water quality over time and in turn, draw firm conclusions about the quality of the water based on scientific evidence.

Sampling takes place twice a month. All sampling must be completed before 9 a.m. because certain water quality parameters, such as dissolved oxygen, are affected by increasing water temperatures as the sun warms the water. Data must continually be collected at the same sites so that we can monitor the changes

in water quality over time.

The **Ossipee Lake Tributary** program samples the 15 tributaries on Ossipee Lake. GMCG is pleased to continue a second year of work with the six youth camps on the lake: Camp Calumet, Camp Huckins, Camp Cody, Camp Robin Hood, Camp Marist and Camp Tohko. Our former partners in 2003, the Ossipee Lake Alliance (OLA), will be responsible for the deep water tests on the bays in the Lake. We will continue to share our data from both of these programs.

The **Lake Host** program marks the third year of partnering with the Ossipee and Freedom Conservation Commissions and New Hampshire Lake Association to sponsor Lake Hosts at the public boat launch on Route 25 on the Pine River.

Anyone interested in becoming a volunteer or learning more about the WQM program, please contact GMCG's WQM Program Coordinator Jennifer Smith at 539-1859. Call today to adopt a site near you!

Jennifer Smith is GMCG's WQM Program Coordinator. She recently graduated from St. Michael's College in Vermont with a degree in biology. She has had extensive field work, including working for U.S. Fish and Wildlife Service, studying walleye habitat in the Missisquoi River. She also spent the fall of 2003 in Kenya working for the Center for Wildlife Management researching techniques of wildlife management through collection and biostatistical analysis of field data. Jennifer brings strong field skills and a lot of enthusiasm with her to the 2004 GMCG WQM program!

Notes from Down Stream

“ Borders? I've never seen one, but I heard that they exist in some people's minds.” Thor Heyerdhal

Snapping turtles laying eggs in the sand,.. a cow moose and her calf wading in a shallow pool,...the fantastic explosion of greenery as spring comes to the river banks. The Saco River volunteer water quality monitors have seen these sights and much more as they've gone about testing the river's health.

The Saco River Corridor Commission (SRCC) just completed week five of water quality monitoring. That means we're a third of the way through the biweekly testing that will continue into late October 2004. As in previous years, the overall health of the Saco, Ossipee and Little Ossipee Rivers appears good. Dissolved oxygen, pH, nitrogen, and bacteria levels generally fall in the “acceptable” range.

Bacteria counts are expected to rise as the weather warms and recreationists flock to the river, especially around Fryeburg. Sanitation is a big concern when campers congregate close to the river.

The late May sampling was noteworthy because it took place during an extended rainy period. Turbidity rose (relative to what we usually find) all along the Saco River from Fryeburg to Biddeford. This illustrates the impact nonpoint source pollution – in this case, erosion – can have on a river system. Storm water runoff carries sediment from dirt roads, bare fields and ditches

into the rivers. In places where turbidity was especially high, we plan to investigate the source(s), and work to fix them.

We've joined forces with a home school network to monitor water quality at the public boat launch in Saco. The kids, ages 8 to 12, have latched on to the program with zeal. They do a remarkably thorough job.

SRCC staff instruct the students on other river-related science projects, as well. In early June, the kids learned how to measure stream flow using oranges and other citrus fruit, a stopwatch, yardstick and tape measure. Dubbed the “orange races,” the time trials were very close, with oranges winning by a navel. The lemons a few students brought along did pretty well, too, but limes don't float very well; we discovered they're not the fruit of choice for measuring stream flow. Ah, the magic of scientific inquiry!

Jeff Stern is the Water Quality Director with SRCC in Cornish, Maine. GMCG has been partnering with SRCC on the Water Quality Monitoring Program since 2001.

Conservation Conversations

Editor's Note: *Conservation Conversations is intended to provide a forum for the Conservation Commissions in the six towns of the Ossipee Watershed to share news of their activities and an opportunity to find creative solutions regarding watershed issues.*

Think Locally; Act Watershed.

Effingham

The Effingham Conservation Commission recently donated its yearly one hundred and fifty dollars to send members of the third grade to conservation camp on the coast of Maine. Helping send Effingham youth to conservation camp has long been a tradition of the commission.

The commission has made a donation to GMCG toward the water quality monitoring program. GMCG tests 3 sites in Effingham; one on the Pine River on Elm Street and two on the Ossipee River.

The commission would also like to welcome new member, Neil Socha. Mr. Socha has agreed to a one term.

Freedom

The Freedom Conservation Commission continues to support the Friends of Trout Pond, Green Mountain Conservation Group and the Trust for Public Land to acquire the land known as Trout Pond for a Town Forest.

Ossipee

The Ossipee Conservation Commission will be hosting a Town Forestry Workshop on Saturday, July 31st. At this workshop, the commission will present a written management plan for the town owned forests. This workshop is open to the public.

The commission voted unanimously to donate \$1000 to GMCG for the Water Quality Monitoring in Ossipee. Last year, GMCG spent \$3,224 on water sampling throughout the town of Ossipee. The commission also agreed to co-sponsor another year of Lake Hosts on the Pine River. GMCG will partner with the towns of Ossipee and Freedom on this program. The boat launch on Route 25 will be staffed by Lake Hosts on Friday afternoons and all day Saturday and Sunday. Lake Hosts will present information about milfoil to visitors and inspect boats entering and exiting the lake for this invasive weed.

Madison

The Madison Conservation Commission will be hosting its yearly Old home Week walk on Tuesday August 3rd to explore the back parcel of the Ward Land near the town offices. We have engaged Forest Land Improvement to blaze a nature trail and have employed Tin Mt Conservation to lead the walk. There will also be a discussion about the walk and the future of the land at the Town Hall that night. The needs of the Town's Public Works Department must balance with ecological concerns as well as aesthetics.

Conservation commission members recently had the opportunity to walk the 71 acre newly conserved land donated by Louise Wold on Tasker Hill Road. The commission sponsored a detailed plan for the property and will be able to soon lay out a trail that will open the property to hikers. Meanwhile, the Commission has hired Dwight Ellis of Madison to make trail markers for the Madison Cascades. He has also created six new beautiful signs for other properties that the commission manages, including the first sign for the Burke Forest, given generously to Madison by the Burke family in 1925, and for the first sign for Loon Island in Silver Lake, generously given to the town by the Kitchen family in 2004.

The biggest news is that the commission has decided to proceed with updated wet land designations so that prime wetlands can be defined in the future if needed. MCC is gathering information from DES so that a cost proposal can be presented to the Town Meeting in 2005.

Finally, the commission would like to publicly thank Frannie Kennett for the years that she served on the Commission—she has recently retired!

DES reviews CMI proposal in Tamworth

Local activists continue to follow Club Motorsports Inc.'s (CMI) plans to develop a racetrack on Mt. Whittier in Tamworth. On April 12, the Tamworth Conservation Commission (TCC) held a hearing on CMI's wetland permit, attended by 120 people. Public comments covered noise, water quality, wildlife impact, local ordinances, and mitigation plans. On April 22, TCC sent comments to New Hampshire Department of Environmental Services (DES) recommending the permit be denied. TCC observed that wetland delineations were incorrect, and requested that wetland impacts be reduced, and alternative mitigation sites be identified.

On April 27, DES held a public hearing on CMI's Dredge and Fill Permit application. Over 500 people attended; reportedly this was the largest crowd DES had ever seen for such a hearing. On May 21, DES wrote a letter of deficiency, asking CMI for more information before deciding on the permit. CMI has until Sept 18 to respond. DES asked for corrected wetland delineations, a course redesign to reduce wetland impacts, wildlife studies, and details on

conservation easements for proposed mitigation sites.

SB 458 is a new law that took effect May 4, exempting CMI's facility from local control. The bill defines a "private driving instruction and exhibition facility", and exempts it from the towns Race Track Ordinance. CMI lobbyists wrote the bill, and quietly pushed it through the legislature. The town's Race Track Ordinance regulated 22 different areas of operation, including noise, hours of operation, safety, security, and insurance. These controls are now gone. While the bill clearly targets Tamworth, neither the State Representatives nor selectmen were aware of its passage or impact. Senator Kenney chaired the Senate Transportation Committee which held the first hearing on the bill.

Please feel free to voice any concerns about this proposal to your local representatives and municipal officials.

(See related story page 5)

*Watershed Birder***Birds of the Watershed Wetlands**

BY SUSAN LEE

Wetlands are highly productive ecosystems, supporting a variety and abundance of organisms. Wetlands are particularly attractive to birders because of the number of birds it is possible to see in a day.

The term "wetlands" includes fresh and saltwater systems; still and moving water; permanent bodies as well as areas of seasonal flooding; damp ground and deep water. Wetland birds occur throughout the entire range. The Ossipee Watershed includes three of the four major types of wetlands. To see birds of the Salt marsh and tidal flats, Watershed birders will need to follow our rivers to their outlets along the coast.

Our area's abundant lakes and ponds support, and provide nesting sites, for numerous swimming birds including Common Loons, the uncommon to rare Pied-billed Grebe, Common Mergansers, as well as ducks (Wood Duck, Hooded Merganser and Mallard) and geese. In recent years there have been significant declines in Loon populations in the northeast. In New England in particular acid rain has caused a collapse in the food chain in many lakes, leaving nothing for Loons to eat. Lead fishing sinkers have also been implicated in loon mortality. Legislation to limit, if not outlaw, the sale of lead sinkers in New Hampshire, has recently been passed. Many more birds use lakes and ponds in the Watershed as stop-over points during migration. These include Ring-Necked Duck, Teal, and Common Goldeneye.

Riparian areas (rivers and streams) of the Ossipee Watershed provide habitat for many types of birds, not just ducks. Belted Kingfishers dive for fish

from tree branches over hanging rivers and ponds, then return with their catch to a favorite branch repeatedly whacking the fish against the branch until it stops wriggling and can be safely swallowed head first. Bank swallows excavate nest holes often in large colonies in exposed sandy river banks along rivers. Cliff swallows build mud nests under bridges along many rivers and small streams throughout the Watershed and are easily seen from a canoe or kayak. Barn swallows which typically nest inside buildings, also hawk for insects low over the water. Great Blue Herons, Spotted Sandpipers, and Green Herons are found along the edges of streams and ponds. Hummingbirds frequently build their nests on branches overhanging or near streams. Tree swallows follow rivers during migration since rivers usually provide reliable source of insects. Where there are many dead trees and standing water, Tree swallows will nest close to one another. Otherwise they nest individually in wooded swamps or open woods and fields near water. Northern Rough-winged swallows also nest near water.

Freshwater marshes are what we often think of as the typical "wetland." There is a long list of birds that breed in the freshwater marshes of the Watershed, including wading birds, waterfowl, rails, wrens, blackbirds, and sparrows. American Bittern are usually found in the marsh at ASNH's Thompson Preserve in Tamworth. Virginia Rail like freshwater emergent marshes. Common Snipe breed in marshes, bogs and wet meadows throughout the Watershed. American Woodcock also use wetlands during migration and breeding season. Brown Creepers, a common but uncommonly seen tree climber, inhabits wooded swamps and mature woodlands near water. Preferring damp coniferous and

mixed woodlands near water, Winter Wrens are common along streams in the Watershed. Red-winged Blackbirds, Swamp Sparrows, Common Yellow-throats, and Alder Flycatchers all inhabit our Watershed marshes.

Some birds not thought of as "wetland" birds at all commonly nest in or near wetlands to be close to their food source. The Northern Saw-whet Owl, the Whip-poor-will, Purple Martin, and the Chimney Swift are all found around the wetlands of the Ossipee Watershed.

Throughout the Northeast, changes in water and wetland birdlife have resulted from three main causes. In addition to acid rain, other chemical contamination of wetlands occurs from fertilizer, toxic sprays, and metallic pollutants. Probably even more important is the outright loss of wetlands owing to drainage, diversion and landfills. The third cause is fragmentation of larger wetland tracts into patchy, small pocket marshes, often the result of drainage and landfill. Many wetland species, such as American Bittern and Swamp Sparrow, need large, unbroken expanses of marsh. Conservation efforts aimed at saving wetlands benefit all of these birds.

Susan Lee, GMCG's regular Watershed Birder columnist, is an avid birder and a longtime resident of the Ossipee Watershed. Share bird sightings or comments with her by e-mail at : leegull1@earthlink.net.

Help secure funding for Trout Pond

"I am only one, but still I am one. I cannot do everything, but still I can do something." Edward Everett Hale

Nearly three years ago, the Green Mountain Conservation Group (GMCG) began a partnership with the Friends of Trout Pond (FTP) and the Trust for Public Land (TPL) to conserve the 2,600-acre parcel of land in Freedom and Madison known as Trout Pond. What began as a seed of a dream, has blossomed into a wonderful community project to create a Freedom Town Forest.

With a purchase and sale agreement secured by TPL and a unanimous vote for a Town Forest at Town Meeting in March, the final leg of three years of work begins—fundraising. In 2003, the project was awarded a \$250,000 grant from the New Hampshire Land and Community Heritage Investment Program toward the purchase of the property.

This year, the Trout Pond project is available for protection under the Federal Forest Legacy Program. To protect this land, an appropriation of \$1.2 million is needed from the Forest Legacy Program in Fiscal Year (FY) 2005 Interior Appropriations bill.

If you support this project, it would be helpful to let your members of congress know. This is the largest privately owned parcel of land in Freedom. The property is linked to six other parcels of conserved land, including the West Branch Pine Barrens Preserve, the Madison Town Forest, the Everett Parker conservation easement land, and the McNair conservation easement.

Funding from the Forest Legacy program in FY 2005 would help

form a 5,362-acre block of conserved land. FTP, TPL and GMCG will procure the land, and turn it over to the Town of Freedom as a Town Forest. The New Hampshire Department of Resources and Economic Development will hold a conservation easement on the land to insure that it remains a working forest long into the future. The Town of Freedom will have an opportunity to purchase a small section of this property for other future municipal use and will be responsible for managing the land as Town Forest. A Town Forest Committee would oversee stewardship of the tract's natural resources for low-impact recreational uses such as hiking, fishing, hunting, cross country skiing, and snowmobiling.

Furthermore, protecting this land would facilitate the future restoration and preservation of a globally-rare pitch pine-scrub oak barrens plant community. One of the most uncommon natural communities in New Hampshire, small remnants of this wildfire-dependent habitat are being actively restored across the southern part of the state.

Congress will consider its priorities for the Forest Legacy Program for FY 2005. Below is contact information for your members of congress. Encourage their support for \$1.2 million for the Trout Pond project.

To voice your support for this project please contact:

The Honorable Judd Gregg
U.S. Senate
Washington, D.C. 20510
Phone: (202) 224-3324
FAX: (202) 224-4952
mailbox@gregg.senate.gov

The Honorable John Sununu
U.S. Senate
Washington, D.C. 20510
Phone: (202) 224-2841
FAX: (202) 228-4131
mailbox@sununu.senate.gov

The Honorable Charles Bass
U.S. House of Representatives
Washington, D.C. 20515
Phone: (202) 225-5206
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The Honorable Jeb Bradley
U.S House of Representatives
Washington, D.C. 20515
Phone: (202) 225-5456
FAX: (202) 225-5822
www.house.gov/bradley

Note: Due to recent events on Capitol Hill and the speed at which appropriations may move in Congress, we encourage you to fax or e-mail your letter to ensure receipt. Remember to include your return address within the body of any email or fax.

Summer Calendar

SATURDAY, JULY 24TH WATERSHED WEEKEND: WETLANDS. What is the role Wetlands play in keeping our water clean? Keynote speaker, Dr. Rick Van de Poll, naturalist, will give a slide presentation on wetland habitat and the role it plays in regulating water quality. Other speakers will include David Carroll, noted author and naturalist; Mike Marchand, wetland biologist with Fish and Game; Gary Springs, NH DES; and Jeff Lougee ecologist with The Nature Conservancy. There will also be interpretive walks, guided pontoon boat and canoe tours, BBQ dinner, and an evening of stories and song with popular New England performer, Michael Caduto. *Camp Calumet, Freedom, 1-9 p.m. See story page 1 or call GMCG at 539-1859.*

SUNDAY JULY 25TH WATERSHED WEEKEND: WETLAND HIKE AT HEATH POND BOG Irene Garvey, noted wetland scientist and founder of Abenaki Environmental Services will lead a walk through the Federally protected Heath Pond Bog Natural area and discuss wetland habitat. *Meet at Heath Pond Bog, Route 25, Ossipee, 10 a.m. - 1 p.m.* dress appropriately and bring a lunch and water. *See story page 1 or call GMCG at 539-1859.*

SUNDAY, AUGUST 1TH THE FRIENDS OF TROUT POND AND THE FREEDOM CONSERVATION COMMISSION will host a tour of the future Freedom Town Forest from 1-4 p.m. Visitors will have the opportunity to either hike or join a hay ride up to Trout Pond. The tour will be guided by local foresters who will discuss the natural resources on the property and how to manage a town forest. Participants should meet at the Pequawket Trail entrance on Ossipee Lake Rd. at 1 p.m. For more information please call 539-4587

TUESDAY, AUGUST 3RD THE FRIENDS OF THE EFFINGHAM LIBRARY will host **Lions, Tigers, Monet**—a nature drawing class for young people in the 3rd-6th grades with Wakefield artist, **Hector Livingston.** *Effingham Library, Center Effingham 3-4:30.* For more information or to register, call Hector evenings at 522-0154 or the Effingham Library at 539-1537.

FRIDAY, SEPTEMBER 10TH, THE GREEN MOUNTAIN CONSERVATION GROUP (GMCG) will host a regional introductory meeting of the Watershed Coalition Initiative with Environmental Planner, Steven Whitman of Jeffrey H. Taylor & Associates. GMCG will be working with Steven Whitman and the communities in the Watershed in 2004 and 2005 to explore the role of natural resource based planning. The purpose of this project is to instill in our communities a reverence for planning that promotes understanding and appropriate use of the natural environment. The project will help citizens gain the capability to envision a future that encompasses the needs of society and reflects the principles of sustainability. By the end of the project municipalities will be equipped with a better understanding of the tools and methodologies that can be used in their community to plan for the future, while respecting precious natural resources. Natural resource based planning gives people the ability to link actions on specific parcels of land to larger regional systems. It is up to us to plan with vision, and our greatest responsibility is to retain what we treasure. *Runnells Hall, Chocorua 7-9 p.m.*

For more information, please contact GMCG, 539-1859.

Your Membership Will Make a Difference. Please Renew Today!

(Please make checks payable to Green Mountain Conservation Group P.O. Box 95, Effingham, NH 03882)

Raindrop ___ \$10 Puddle ___ \$15 Vernal Pool ___ \$25 Stream ___ \$50 River ___ \$75
(student membership) Pond ___ \$100 Lake ___ \$250 Aquifer ___ \$500 Other ___

NAME _____

ADDRESS _____ PHONE _____

Alternate Address _____

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Permit No. 10

The Watershed News

GMCG
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Effingham, NH
03882
(603) 539-1859
www.gmcg.org

Deadline for Autumn
Newsletter is September 21.

EVERY PERSON CAN MAKE A DIFFERENCE AND EACH PERSON SHOULD TRY.

A Wish
BY
MADELINE BERRY

This is a wish
I'll waste on the fish
To stop all pollution
To save our poor ocean
From the oil and junk
And all of the gunk
And that is my wish
I'll waste on the fish

*Madeline Berry is 10 years old
and lives in Wolfeboro. She will
enter 5th grade at Carpenter
School this fall.*

How Groundwater recharges the Ossipee Aquifer

BY ROBERT M. NEWTON

The Ossipee aquifer is the largest stratified drift aquifer in the state of New Hampshire. It provides abundant, clean, groundwater to most businesses and residents living within its boundaries. We take for granted that this resource will always be there, but continued land development poses a direct threat. It is perhaps best to visualize the nature of this threat by considering how the aquifer is recharged. Groundwater moves through aquifers from high areas of recharge to low areas of discharge.

Recharge areas are places where water enters the aquifer via infiltration through the ground. For recharge to occur there must be permeable soils and the water table must be below the land surface. Recharge is episodic. It occurs during rainstorms and snowmelt events. A major recharge event will introduce a lot of water into the aquifer and most of this will, initially, be stored as groundwater within the recharge area, as reflected by a rise in the water table. In time, this newly infiltrated water moves as groundwater flow, away from the recharge areas, through the aquifer system, towards the discharge areas.

Groundwater discharge occurs at lower elevations where the water table is at or near the land surface. Groundwater discharge occurs through seeps, springs and direct discharge to both lakes and streams. Direct discharge of groundwater to streams is called baseflow. During dry periods, all of a stream's flow is provided by groundwater entering the stream through baseflow.

Groundwater flow is controlled by gravity or simply stated; groundwater flows downhill. What this means is that the recharge areas will always be higher than the discharge areas and lakes and streams will often be in the discharge zone as they are generally the lowest places in the landscape.

In defending the location of their proposed racetrack in the recharge area, Club Motorsports Inc used a map showing their site was located outside the area of highest transmissivity. Transmissivity is a term used to describe how much water can move through an aquifer. It can be described as the amount of water, in gallons per day, which flows through a slice of the aquifer one foot wide, under a hydraulic gradient of 1 foot per foot. It has nothing to do with recharge. In some aquifers the highest transmissivities occur in areas where there is over a hundred feet of clay

separating the aquifer from the land surface that prevents any recharge from occurring.

Recharge areas are classified as primary, secondary or tertiary. Primary recharge areas are located directly within the area of the aquifer while secondary recharge areas are located on slopes that drain directly into the primary recharge areas. Tertiary recharge areas are areas that lie within the watershed of streams that flow into the area of the aquifer.

Primary recharge areas need to be protected, as they are the primary source of aquifer water. Any land disturbance in these areas that reduces infiltration will reduce recharge. Developments that add impermeable surfaces like roads, parking lots, even the roofs of houses will reduce recharge. Developments in these areas should be limited to residential housing on large lots with most of the land left in its natural state.

Primary recharge areas are particularly susceptible to the introduction of chemical contaminants into the aquifer. Any contaminant spilled on the ground here will quickly infiltrate and start moving through the aquifer. Groundwater flow is slow, generally less than five hundred feet per year, so it takes time for contaminants to move through the groundwater system. By the time they are detected, it is too late.

Secondary recharge areas are also important. Although they do not lie directly on the aquifer, much of the water that falls on them is eventually discharged to the primary recharge area where it infiltrates. The boundary between the primary and secondary recharge areas is often the site of wetlands that serve to buffer runoff from the hillside so that it has time to infiltrate into the primary recharge area.

Tertiary recharge areas are not as important. Water from these areas moves across the aquifer as stream flow and generally doesn't have as much of a chance to infiltrate. However, there are situations, especially during dry periods, when these tributary streams can infiltrate significant quantities of water to the aquifer through direct streambed infiltration.

Continued development in the primary and secondary recharge areas of the Ossipee Aquifer increases the risk of contamination. If development continues in the way it has in the past, then we can expect a number of future contamination incidents. There are two things that can be done to minimize the risk. The first is to begin the process of creating municipal water systems in areas that are

most at risk. While this does not prevent contamination, it does reduce the risk of people getting sick. Water quality monitoring and wellhead protection are feasible for municipal wells but there is simply no way to effectively monitor the water quality of domestic wells. The second is to adopt aquifer protection ordinances in all of the area towns and to create a regional groundwater protection advisory committee. With proper planning and protection of recharge areas, the area can grow and prosper into the future.

Figure Caption:

Water entering the primary recharge area infiltrates downward to the water table, enters the groundwater system and flows toward the discharge areas. Water runs from the secondary recharge area to the primary recharge area where it also infiltrates into the aquifer.

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The Sapling Young Conservationists Musings

Spring was a season of rainy days in the Ossipee Watershed. Rain soothes us with its rhythm and assures us with a promise of the water we need for life. Our watershed is precious to all of us. Fifth grade students at the Effingham Elementary School have written poems about the rhythm, promise and nurturance of spring rain.

The Rain

By John Remmetter

When the rain falls I feel like
I'm not alone
like the rain is alive
like it's my friend and when I talk to it
it replies drip drop pitter patter
so I say, "What's the matter?"
again it replies
pitter drip
patter drop

Rain

By Keely Gendron

Drip drop a splatter on my face
wet and cold on my face puddles
come faster and faster till
suddenly silence it stops and all
is Blue

Rain

By Cuinnn McConnell

Rain falls and falls
faster and faster
as it hits the ground it
forms a puddle then
mud then a flood
then slows down
slower and slower
then stops

Rain

Rain

By Melissa Nadeau

Swish goes the water as
I swim by.
The little fish tickle my feet.
The cool spray of the water hits my face.
I float on water.
My eyes shut as tight
as a zipper on a coat.

Editor's Note: Katie Remmetter, Effingham resident and GMCG member, recently spent a day at the Effingham Elementary School with Louise Wroblewski of Tamworth. Katie and Louise, both writers, have been encouraging students to turn to natural resources for creative inspiration. Watershed awareness is more than just understanding the science of our resources. It involves using all of our senses and recognizing all aspects of who we are as a culture.