



Spotlight on Our Streams A Report on Great Brook's Water Quality

by Kelley Curran, GSWA Director of Water Quality Programs

In early 2008, GSWA's Stream Team commenced a three-year water quality study of Great Brook under our Adopt-a-Stream program. This study follows on the heels of a similar three-year study that was conducted on Loantaka Brook from 2005-2007. This year marks the beginning of our third year of monitoring Great Brook at six sites located between the stream's origins in Morris and Harding Townships and its point-of-entry into the Great Swamp National Wildlife Refuge. Samples collected quarterly by GSWA to obtain any seasonal variations that might affect water quality are submitted to an analytical laboratory to determine concentrations of total dissolved



solids (TDS) as well as several nitrogen and phosphorus-bearing nutrients. These contaminants are of concern as they are frequently associated with stormwater runoff problems in watersheds.

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Sustainable Living: Small Steps, Big Rewards

by Hazel England, GSWA Director of Education and Outreach

GSWA's new *Sustainable Living* series has been created to help homeowners make small, informed behavior changes that lessen negative impacts to our environment. Multiplied community-wide, these changes can cumulatively reap big environmental and water quality rewards.

Here are just a few simple changes you can make to live more lightly in the Great Swamp watershed community:

Green your lawn

You may feel that nothing says green like a green grass lawn. Unfortunately, in the quest for the perfect lawn, many of the products we use find their way downhill into streams and surface water supplies, fertilizing algae that grow in ponds, and necessitating costly removal of nitrates and pesticides from drinking water supplies.

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From the Desk of the Executive Director



by Sally Rubin

If you haven't yet heard, New Jersey has started a program called Sustainable Jersey and many of our communities are participating. You might wonder, as I did, what "sustainable" means.

When I was in school, I was taught the first place you go with a question is to a dictionary or an encyclopedia. Now, of course, you go to the Internet! So I Googled "sustainable" and "sustainable living," and here's what I found.

Sustainable means to maintain, to support, to keep or keep going, to provide for. Sustainable living means having environmental responsibility, to live with minimal negative impacts, capable of being continued with minimal long-term effect on the environment, conserving our resources to ensure their continued availability.

Cherry Hill, NJ has defined its sustainable community as one that balances the needs of its economy, ecology, and a healthy society. A sustainable community meets its present needs without compromising the ability of future generations to meet their own needs.

There are many simple yet effective ways we can each reduce our environmental impact through sustainable living. Begin by reducing water usage. The water we use in our homes reduces groundwater recharge and surface water availability. Once you turn on the tap, all that wastewater that is generated must be treated. These processes cost money and require the use of chemicals and energy.

Creation and transportation of potable water also costs money and requires the use of chemicals and energy. So when you reduce your water usage you are getting twice the value for your effort. Less water needs to be treated to enter your house and less water needs to be treated leaving your house.

Here are some simple things you can do to reduce your indoor water usage:

- Install low flow showerheads — if 1,000 homes install low flow showerheads, 22 million gallons of water would be saved annually.
- Install faucet aerators — you use less water and the pressure is the same.
- Reduce shower time.
- Use a dishwasher instead of washing by hand, but only run the dishwasher when it's full.
- Use a high-efficiency washing machine and only run loads of laundry when the machine is full.
- Don't run the tap while shaving or brushing your teeth.

You should also reduce unnecessary water waste outdoors. Water your lawn and garden only twice per week, early in the morning or late in the afternoon; water for no more than 30 minutes. Lawn and garden watering should only be supplemental to natural rainfall and may not always be necessary. Automatic sprinkler systems should be installed with operational rain sensors. Use drip irrigation

for more direct watering and less waste. Use rain barrels to capture and use rain water. Install native and drought resistant plants to minimize the need for watering.

Other sustainable initiatives include recycling, composting, improved landscape management through reduced fertilizing and an integrated pest management program. You can utilize multiple approaches to pest control that minimize pesticide use, which is harmful to both human and environmental health. Follow instructions for usage of fertilizers and pesticides and spot treat areas rather than broadcast spraying. Learn to tolerate some weeds. Plant wildflowers to reduce the amount of lawn area and cut the lawn to a minimum of three inches, leaving grass clippings in the lawn for natural fertilizer. Native species, less fertilizer and less lawn area increase wildlife habitat and promote biodiversity. Plant more trees for carbon sequestration, soil stabilization and shade.

Population growth and development are putting increasing demands on our limited water supply and natural resources. Not only must we use our resources more efficiently, we must grow more intelligently. Implement some environmentally friendly initiatives yourself and get involved in your community. Encourage your community to participate in the Sustainable Jersey program (www.sustainablejersey.com). Remember, smart growth does not have to be an oxymoron. 

Great Swamp Watershed Association extends its sincere appreciation to Pfizer Inc for sponsoring the printing of this issue of *Across the Watershed*.

ACROSS THE WATERSHED

is a publication of the **Great Swamp Watershed Association**.

GSWA is a membership-supported non-profit organization that protects the water you drink and the places you love. We preserve the natural beauty and promote the health of the local environment now and for the future.

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Watershed Watch – Environmental Hot Spots

As part of our mission to protect the water you drink and the places you love, GSWA advocates for responsible development practices and promotes intelligent land use. We work to ensure compliance with environmental regulations and legislation at all levels of government. Here are some areas we are currently focusing on:

Morristown

As previously reported, last summer a developer cut down 22 mature trees on Woodland Avenue. In addition to the imposition of fines, the developer is required to plant 20 native species trees. Because of the limitations on site, these trees will be planted off site. GSWA has worked closely with the town of Morristown to determine appropriate locations within the town and the Great Swamp watershed. We have requested that the trees be planted at Lidgerwood Park this spring. We are pleased to have been able to work collaboratively with the town council, planning board, environmental commission and engineering department to facilitate this resolution.

Citizen Advocacy Program Guide Available On-line

You can view and download a copy of our CAP booklet “Be Heard” at <http://www.greatswamp.org/PDFs/Beheard111109wcovers.pdf>.

Morristown

GSWA has been working with Morristown to evaluate the feasibility of dredging Foote’s Pond. Princeton Hydro will be doing soil sample analysis to determine what, if any, contamination would be contained in the dredge materials.

Chatham

Chatham Day School has submitted an application for new buildings, additional parking, and remediation of minor contamination. GSWA has concerns regarding tree removal, steep slopes and the remediation process. We will actively participate in the application process.

Bernardsville

Bernardsville Centre, owner of the Kings shopping center on Route 202, has submitted plans to develop the lot between Kings and Friendly’s. GSWA is primarily concerned with storm water impacts on the already degraded Penns Brook. We worked with the Somerset Hills School District in its application for an artificial turf field and the district paid for a preliminary site condition survey to evaluate the drainage conditions. We worked with Shop Rite in 2009 in its application to expand its parking, and Shop Rite agreed to install dry wells to retain a one-year storm on site. We are currently working with the US Fish & Wildlife Service to get funding for a study of potential remediation projects for Penns Brook. We will be actively participating in the Bernardsville Centre application to ensure that it appropriately addresses the storm water concerns.

Bernards Township: Millington Quarry

As we’ve said before, this issue will be with us for a long time. Both the Township and the quarry have submitted findings from the first round of fill investigation. The investigation has not complied with the scope required by DEP. Nonetheless, the results are telling.

The limited surface water sampling from the drainage pond indicates arsenic in excess of Surface Water Quality Standards. This pond is regularly pumped and discharged into the Passaic River.

The fill testing indicates that arsenic may potentially leach from certain fill soils on site and impact ground water and/or surface water.

The preliminary ground water sampling indicates arsenic and lead exceeding the Ground Water Quality Standards.

Further, one or more contaminants were detected at concentrations exceeding Residential Direct Contact Standards at 66% of the sample locations, and one or more contaminants were detected exceeding Ground Water Soil Screening Levels at 100% (yes, that’s 100%) of the sample locations.

The Township expert has concluded that the imported fill is “generally not soil from virgin clean sources... [and] a significant portion of the fill may have been obtained from demolition sites.”

We will continue to monitor this matter closely. On the bright side, no further fill has been imported for months and the township is now actively and aggressively monitoring the investigation and communicating with the Department of Environmental Protection. 

Sustainable Jersey

We are pleased to congratulate Bernards Township, Chatham Township, and Morristown on becoming certified in the Sustainable Jersey program. Additionally, Bernardsville, Mendham Borough, Mendham Township, Morris Township, Long Hill, and Madison have all registered to become certified. GSWA anticipates working with these towns to help them accomplish their goals of becoming more sustainable.

Interested in volunteering?

Fill out our volunteer profile at www.greatswamp.org/VolProfile.htm, or e-mail volunteer@greatswamp.org.

Workshops for Educators

Great Swamp Watershed Association facilitates several useful workshops for K-12 formal and non-formal educators, who will experience activities they can use back in the classroom or Nature Center to teach across the educational curriculum. These workshops provide activities relevant to the local environment and will be linked with the online resources of Verizon's thinkfinity.org.

Each of these six-hour hands-on workshops, led by Hazel England, an

experienced naturalist educator, is offered at \$25/person, which includes breakfast and activity guides. They confer six NJDOE Professional Development credits too!

Workshops will be held at the Great Swamp Watershed Association offices at 568 Tempe Wick Road, Morristown. For more information contact Hazel, Director of Education and Outreach, at 973-538-3500 x20 or hazele@greatswamp.org.

Schoolyard Habitat Enhancement Workshop

Wednesday, April 14, 9 a.m. - 3 p.m.

Enhancing your school ground creates habitat for wildlife, can help improve water quality, and offers students areas to study without costly field trips. You don't need a country setting for habitat enhancement to work, and to offer teaching opportunities. Learn about the process of creating an outdoor place for learning, including mapping, site design, and correlation to your existing curriculum. This workshop is suited for K-12 educators in all subject areas. This program will spend some time outside. 🌿

GSWA "Wish List"

Here are just a few examples of how member support is making a difference:

- \$25 buys a pond study kit for one classroom
- \$50 buys a stream flow kit, including "rubber duckies" for stream monitoring
- \$100 helps buy native shrubs for restoration of the CMA
- \$250 sponsors community outreach and education presentations and teacher workshops
- \$500 helps fund advocacy programs on the importance of preserving and protecting our limited natural resources
- \$1,000 buys deer exclosure fencing for three acres at the CMA

To make a donation, visit www.greatswamp.org or call Debra Dolan at 973-538-3500, x21.



*Marsh Wren.
Photo by Blaine
Rothausser.*

Become a Stream Team Volunteer

Want to learn how to help collect data that is used by GSWA and the NJ Department of Environmental Protection (NJDEP) to gauge the health of our streams?

GSWA's Visual Assessment Training program is designed to train volunteers to gather data on water bodies that are currently not being assessed by our staff or the NJDEP. This important data can be used in several ways. At the local level, it provides valuable information to municipalities. At the watershed level, it helps to identify or follow up on areas in need of attention or remediation. At the state level, it serves to identify impaired waterways and provide baseline information for further studies.

You might be surprised to learn that a great deal of useful monitoring can be done just by observing streams and waterways and

taking detailed notes on what you see. Even simple information, like stream depth and width, or the location of pools and riffles, can be helpful. What wildlife is observable? What plants? Is the water surface covered with algae or a film? What condition are the stream banks in? Are there trees overhanging the water? Through visual assessment, team members can be the first to discover pollutants or man-made hazards in our waterways.

The next training session, consisting of a classroom presentation followed by a field demonstration, will be held on **Saturday, May 1st** from 9:30 a.m. – 1:00 p.m. at GSWA Headquarters, 568 Tempe Wick Rd., Morristown. If you're interested, contact Kelley Curran, Director of Water Quality Programs at 973-538-3500 x16 or kcurran@greatswamp.org. 

Calling Volunteers! National River Cleanup Day

Come out and join GSWA on **Saturday, April 10th**, 9:30 a.m. – noon, to tackle pollution and clean up Loantaka Brook as part of National River Cleanup Week 2010. The public is encouraged and invited to help.

This popular annual event, presented by American Rivers, raises public awareness of the magnitude of trash

accumulating in our nation's waterways. We'll be joining tens of thousands of other volunteers across the country working at hundreds of cleanup sites to remove debris from local rivers and streams.

Interested volunteers should contact Kelley Curran, Director of Water Quality Programs, at 973-538-3500 x16 or kcurran@greatswamp.org. 

Spring Educational Programs

Learn more about what's going on in and around the swamp by joining friends and members of GSWA for one or more of these educational programs. We ask that you pre-register to learn meeting locations and other information. Wear sturdy footwear and bring a snack for the walks. Bring binoculars or wildlife guides if you have them. These programs are free for members. For non-members, the fee is \$10 per adult, \$5 for each child five and over, and \$30 per family. To register, visit www.greatswamp.org and click on our secure Event Registration page, or call our Event Info line at 973-538-3500 x22.

New...

Biodiversity Celebration — New Jersey's Best Kept Secret

Thursday, April 29, 7 - 9 p.m.

GSWA Headquarters at 568 Tempe Wick Road, Morristown

Blaine Rothausser, a professional environmental consultant and wildlife and landscape photographer, will help explain, in incredible photographic detail, why the fourth smallest state, having the greatest population density, ranks tops in species diversity. We're not just talking raccoons and robins! We're talking about plants that eat meat and salamanders that breed under ice, frogs that crystallize and snakes that feign death.

Creatures of the Swamp — Pond Dip for Families

Sunday, May 2, 11 a.m. - 12:30 p.m.

GSWA Conservation Management Area, Tiger Lily Lane, Harding Township

If you don't know a pollywog from a hellgrammite, or a crayfish from a pond strider, we have the solution! Come and find out who the creatures of the swamp are and what lives in the ponds and streams of the Great Swamp with a "pond dip" especially for families. We will use dip nets to catch creatures, examine them and let them go. Make sure to wear old clothes and footwear that can get wet – oh, and don't carry your electronics in your pockets...in case you become a creature of the swamp!! Children under 5 are free.

Moonlight Hike

Sunday, May 23, 7 - 8:30 p.m.

Wildlife Observation Center, Great Swamp National Wildlife Refuge, Long Hill Township

While we don't guarantee the moonlight, there will be plenty of nature to learn about on this night hike around the watershed. We may hear many animal inhabitants including owls, frogs, night insects and other night noises, perhaps even coyotes calling! We'll play some games to learn more about night senses, and revel in being out after dark without a flashlight!

New...

Star Gazing Party

Saturday, May 1, 8:30 - 10 p.m.

GSWA Headquarters at 568 Tempe Wick Road, Morristown

Is it a bird? Is it a plane? Is it the Orion Nebula? If you've ever wondered what it is you are looking at when you gaze heavenward, join GSWA and the volunteers of the New Jersey Astronomical Association for answers. Volunteers will point telescopes at some of the most fascinating objects visible in the night sky. Participants can wander from 'scope to 'scope to learn more about astronomical objects. A device known as a sky scout will help absolute beginners find a name for whatever they are looking at. A back-up date will be scheduled in the event of cloudy skies.

Secret Places of the Watershed – A Natural History Hike

Sunday, June 13, 11:00 a.m. - 12:30 p.m.

GSWA Conservation Management Area, Tiger Lily Lane, Harding Township

The Great Swamp Watershed Association owns 50 acres in Harding Township that we maintain as a Conservation Management Area. This forested wetland contains vernal pools, streams, and woodland with wildflowers and wildlife aplenty. We will take a morning stroll along the boardwalk trails, listening for birds and watching out for native plants in bloom. Cool and shady, we will escape the heat of summer in this important restoration area. 🌲



*Male yellow-rumped warbler.
Photo by Blaine Rothausen.*

Spring Breakfast Briefings

GSWA continues its series of popular monthly breakfast meetings this spring. Each briefing is from 8:00-9:30 am at GSWA Headquarters, 568 Tempe Wick Rd., Morristown. A hot breakfast buffet is included. Donations are appreciated.

Tuesday, April 13: Strategic Open Space & Farmland Preservation

Presented by: Jon Wagner, VP of Conservation Programs at Conservation Resources

We still need a strong effort to preserve open space in the Great Swamp Watershed and throughout NJ. Learn the basics of open space and farmland preservation planning, and take part in an interactive open space planning activity.



Wood Frog. Photo by Blaine Rothausen.

Tuesday, May 11: Sustainable Living 101

Presented by: Hazel England, GSWA Director of Education and Outreach

Sustainability is the ability of people and communities to conduct their lives in ways that meet their current and future needs without damaging the environment or depleting a resource, like the Great Swamp watershed. Learn some simple changes you can make in your daily lives that will make your home, yard, and community a more sustainable place. 🌲

GSWA Experts Available to Speak to Area Groups

Do you wonder, “What is in my water?” or “What can I do to ensure clean water for my children?” These and other questions about water quality, land preservation, and local efforts to protect the environment can be answered by GSWA’s Speakers Bureau, who will present interesting, hands-on presentations that will educate and inspire members of your local club or group. Call today for more details: (973) 538-3500 x13.

GSWA Announces Changes to its Board of Trustees

We are pleased to announce that **Ben Wolkowitz** has accepted the position of board chairman for 2010. A former Managing Director at Morgan Stanley, Ben currently runs Madison Financial Technology Partners. Ben's non-profit experience includes serving as chair of Kent Place School and chair of Temple Sinai. He is an active member of the Madison Rotary Club. Ben has been an active supporter of GSWA for many years, having served most recently as a trustee and chair of GSWA's Education & Outreach committee. Ben and his wife, Lois, reside in Madison.



Outgoing board chair, David Budd, remains committed to GSWA's mission through his continued involvement on our land use and development committees. Also leaving the board at the end of 2009, Frank Stillinger promises to keep his feet wet with the Science & Technology committee and continued restoration of the Conservation Management Area.

GSWA would like to extend a warm welcome to two long-time supporters, Bob Crocco and Paul G. Steck, who joined the board of trustees this year. Bob, a retired executive, has been actively involved for the past few years in helping to restore GSWA's

Conservation Management Area. He and wife, Margaret, live in Morristown. Paul, a long-time resident of Summit, is retired owner and president of Paul G. Steck, Inc. He has held directorships in a number of organizations over the past forty years, and now lives in Green Village with his wife Ruth.

Returning to the board this year after a one-year hiatus, are Anne Essner, former GSWA board chair, and Nancy Miller-Rich, Group VP, Global New Ventures and Strategic Commercial Development, Merck. Welcome back! 🌱

Great Swamp Watershed Association 2010 Board of Trustees

Debra Apruzzese
Robert Crocco
Edmund M. DeVeaux
Anne Essner, *Secretary*
Paul Hackett, *Treasurer*
Edward G. Kirby, Ph.D.
James MacDonald
Nancy Miller-Rich
Patricia Moody
Adam Slutsky
Paul G. Steck
Dot Stillinger
Steven Tasher
Ben Wolkowitz, *Chairman*

Low Impact Development, High Value Results

by Kristin Vanderbilt, GSWA Summer Intern

Low impact development (LID) is a relatively new concept in stormwater management.

LID is a site design strategy that attempts to manage stormwater as close to its source as possible, and treat it as a resource rather than as waste. Techniques include integrated and distributed stormwater retention and detention areas, reduction of impervious surfaces, and the lengthening of flow paths and runoff time. Other approaches include the preservation and protection of environmentally sensitive sites using riparian buffers, wetlands, steep slopes, mature trees, flood plains, woodlands, and highly permeable soils.

LID principles are based on controlling stormwater at the source by the use of small-

scale controls that are distributed throughout the site. These designs have many functions that incorporate alternative stormwater management practices. Some designs include functional landscaping that act as stormwater facilities, flatter grades to lands, depression storage and open drainage swales. The system of these small controls can reduce or eliminate the need for a centralized best management practice (BMP) facility that controls stormwater runoff. Although traditional stormwater control measures have been documented to effectively remove pollutants, the natural hydrology is still badly affected which can have severe damaging effects on ecosystems, even when water quality is not compromised on site.



An established rain garden in bloom. Garden intercepts runoff before it reaches the impervious surface.

Conventional stormwater conveyance systems are designed to collect, transmit and discharge runoff as efficiently as possible. The objective is to create a highly efficient drainage system, to prevent on-lot flooding, improve drainage and quickly transmit runoff to a centralized facility or stream. However, the problem with conventional runoff control systems is that they decrease groundwater recharge, increase runoff volume and change the timing, frequency and rate of discharge. These changes can cause flooding, water quality degradation, and stream erosion. This approach only controls the rate of runoff, which allows significant increases in runoff volume, frequency and duration of runoff from the predeveloped conditions and provides the leeway for further degradation of receiving waters.

The use of LID practices offers both economical and environmental benefits. LID measures, which can be less costly than traditional stormwater control, result in less disturbance of the developed area, and conservation of natural features. Cost savings for control mechanisms are not only for construction, but also for long-term considerations as well.

Today, New Jersey faces the issue of urban sprawl, which is a form of development that destroys green space, promotes more car usage and widens urban areas, putting pressure on environmentally sensitive areas. "Smart growth" strategies are designed to reconfigure development in a more eco-friendly and community style.

Become a Certified Rain Garden Specialist

The New Jersey Agricultural Experiment Station (NJAES) and Rutgers Cooperative Extension are offering a Rain Garden Certification Program where you can become a Rain Garden Specialist (RGS) or Rain Garden Specialist and Trainer (RGST).

This program offers its participants a one-day classroom training and a half-day hands-on training, where participants construct a rain garden together. A commitment to participate in a refresher course every two years is required. The program is being offered in North Jersey **May 4-5**, in Central Jersey **April 26-27**, and in South Jersey **May 10-11**. The fee is \$25, and garden experience is not required!

There is an opportunity to not only learn how to install a rain garden in your own yard, but also to become a resource for others interested in doing the same.

For more information and to register for this program, visit <http://water.rutgers.edu>.

LID provides many opportunities to retrofit existing urbanized areas with pollution controls, as well as address other environmental issues in newly-developed areas. LID techniques, such as rooftop

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The Watershed's Ten Most Wanted

by Blaine Rothausser, CMA Biologist

Much of what you see as green outside your window has come from faraway places like China, Japan and South America. Floral malefactors have taken root in our soil, all in a blink of geologic time. Invasive species integration



Lesser celandine (*Ranunculus ficaria*) covering forest floor

results in ecological monocultures that all can bear witness to anywhere open space exists in our watershed (see examples below). Our ability to move around the globe with facility due to technological advancements in transport has inadvertently shuffled the diversity of life's deck. Travel, shipping, and air cargo have allowed non-native plants and plant products to hitch a free ride to paradise. When they disembark, or for that matter when our plants arrive somewhere else, they flourish in areas free of the shackles that kept their numbers bound in their original place of origin. Namely, they become liberated of competition from their native counterparts and the biological associates that have co-evolved to control their ability to dominate. Given the right set of circumstances their new home is nothing shy of a free for all.

Let me provide you with my list of the ten most wanted floristic offenders in our watershed, and some nice native counterparts that could be planted if the targeted invasive plant were controlled:

1. **Japanese Barberry** (*Berberis thunbergii*): Dominant species in the shrub layer of Jockey Hollow. Could be replaced with maple-leaved viburnum (*Viburnum acerifolium*).
2. **Multiflora rose** (*Rosa multiflora*): Dominant shrub of open meadows and forest edges on the Loantaka Brook reservation. Can be replaced with many native meadow herbs like the butterfly-loving orange milkweed (*Asclepius tuberosa*), or, if you prefer berry-producing shrubs, staghorn sumac (*Rhus glabra*) and highbush cranberry (*Viburnum trilobum*) would be a fine addition to your open meadow.
3. **Japanese Stilt Grass** (*Microstigeum vimineum*): Dominant herbaceous plant in GSWA's Conservation Management Area (CMA), although control measures are currently being instituted. Can be replaced with an array of shade tolerant native herbs (see link to Bowman Hill Wildflower Preserve below).
4. **Japanese Knotweed** (*Polygonum cuspidatum*): Found along any rural road in the watershed where compact and disturbed soils dominate. A good native alternative is arrowwood viburnum (*Viburnum dentatum*), which does well

in a variety of mixed soil conditions and edge habitat.

5. **Garlic Mustard** (*Alliaria petiolata*): Found in any woodland where deer browsing is significant and soils are disturbed; arguably our most wanted forest interior invasive reprobate. Like stiltgrass, it can be replaced with many native herbaceous plants (see link to Bowman Hill Wildflower Preserve below).
6. **Wineberry** (*Rubus phoenicolasius*): This weakly-leaning shrub can be found dominating most forested edges in our watershed, including Foot's Pond Pocket Park, along the forested edges of the pond. If you can control deer from these habitats, the incredibly beautiful Canada Lilly is a welcome alternative (*Lilium canadense*).



Wineberry (*Rubus phoenicolasius*)

7. **Tall Reed Grass** (*Phragmites australis*): Common in open wetland areas, specifically the Chatham Township high tension wire right-of-way between southern Boulevard and Myersville Road. Native Cattail (*Typha sp.*) and

berry producing shrubs like elderberry (*Sambucus canadensis*) are much better served in wetland areas.

8. **Bush Honeysuckles** (*Lonicera sp.*): Almost any moist deciduous forest patch in the watershed makes a comfortable home for these highly invasive shrubs. In the CMA beyond the Silver Brook portrays an understory dominated by this shrub, which GSWA has controlled through labor-intensive measures. Can be replaced with choke berry (*Arbutus sp.*) and spice bush (*Lindera benzoin*).
9. **Autumn Olive** (*Elaeagnus umbellata*): River Road Park in Bedminster is rife with this aggressive tree-like shrub. Could be replaced with any of the aforementioned berry-producing shrubs.
10. **Chinese Thistle** (*Lespedeza cuneata*): Bamboo Brook Park in Chester has been invaded by this field herb to a point where very few native plants penetrate the spaces between. Nothing shy of burning and herbicidal treatment will eradicate this monster, but once controlled a native mix of meadow and herb seed could help in the process of reclamation.

This is my professional interpretation of our watershed's most aggressive non-native plants based on years of field observation and trend watching, yet it is far from complete and your observations may differ. For example, some might argue that I should have included the wetland-loving purple loosestrife (*Lythrum salicaria*) and mugwort
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PSEG: A Generous Corporate Supporter Helping GSWA Make a Difference

by Jim Northrop, Land Use Committee Member

Already the most densely-populated state in the U.S., New Jersey is threatened by growing sprawl and the very negative consequences of full build-out.

Land use regulation is part of the solution, but it is not enough. Residents of all ages must become engaged — they must be educated and encouraged to care about current controversial land use issues, as they arise, and then help find intelligent solutions for sustainability.

The Great Swamp Watershed Association has actively conducted educational programs to promote broad understanding of what makes local environment healthy. This is made possible through the generosity of over 1,500 members in over 40 municipalities throughout central and northern New Jersey, and from generous grants from foundations, government sources and corporations concerned about sustainability. Of the latter, Public Service Enterprise Group (PSEG) is a leading example.

This year, PSEG provided a \$10,000 grant to support and grow several GSWA educational programs. Going back at least until 2004, PSEG has funded annually a variety of GSWA educational and outreach activities. In fact, in 2004, PSEG funded salary to establish the new GSWA position of Director, Education and Outreach, thereby enabling Hazel England to join our staff.

This year's grant will support many education workshops, reaching approximately 1,000 students with direct hands-on environmental education oppor-



Accepting the check from PSEG's Russ Furnari, Environmental Policy Manager, PSEG Services Corporation, is Sally Rubin, GSWA Executive Director (far right), and (L to R) Ben Wolkowitz, GSWA Board Chairman, Sarah Rosen, GSWA Director of Development, and Hazel England, GSWA Director of Education and Outreach.

tunities. Also, an environmental science project for high school youth, monitoring water from the Passaic River, is underway. This grant will help GSWA continue its outdoor educational programs for kids and their families.

Again, this spring, the PSEG grant will enable presentations for adults, such as the popular *Breakfast Briefings*, and a series of practical sustainability sessions for homeowners entitled *Sustainable Living*.

Our thanks to PSEG is not for critical educational program funding alone. Over the years, talented PSEG employees have served on GSWA's Board of Trustees.

Members and friends of GSWA are grateful that a large and geographically dispersed company like PSEG does more than just talk about the importance of environmental sustainability in the Great Swamp Watershed. 🌲

Welcome New Members

Special thanks to the following donors who became members of GSWA between August 18, 2009, and February 1, 2010:

Mr. Travis Anderson, Morristown
Mr. & Mrs. Raymond Arciszewski, Morristown
Mr. Richard E. Batherman, Morristown
Mr. & Mrs. David C. Berman, Far Hills
Mr. & Mrs. Frederic Bernstein, Morristown
Ms. Nita Blatt, Berkeley Heights
Ms. Denise Bone, Madison
Mrs. Janet Boni, Morristown
Mr. & Mrs. Frank Bridges, Millington
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Mr. Jeff Danker, Chatham
Ms. Linda DeLap, Morris Plains
Mr. Warren Disch, Summit
Ms. Arlene Driscoll, Madison
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GSWA also thanks those new members who wish to remain anonymous.

Please be sure to let us know if you change your e-mail address. Send a note with your name, address, and old e-mail address to ddolan@greatswamp.org so you don't miss out on our monthly e-newsletters.

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We also thank those donors who chose to remain anonymous.

Know Someone Who Would Like to Become a Member?

GSWA relies on members like you to help protect our watershed's natural resources. So please pass this newsletter along, and encourage your friends and neighbors to join us! Visit www.greatswamp.org for more information.

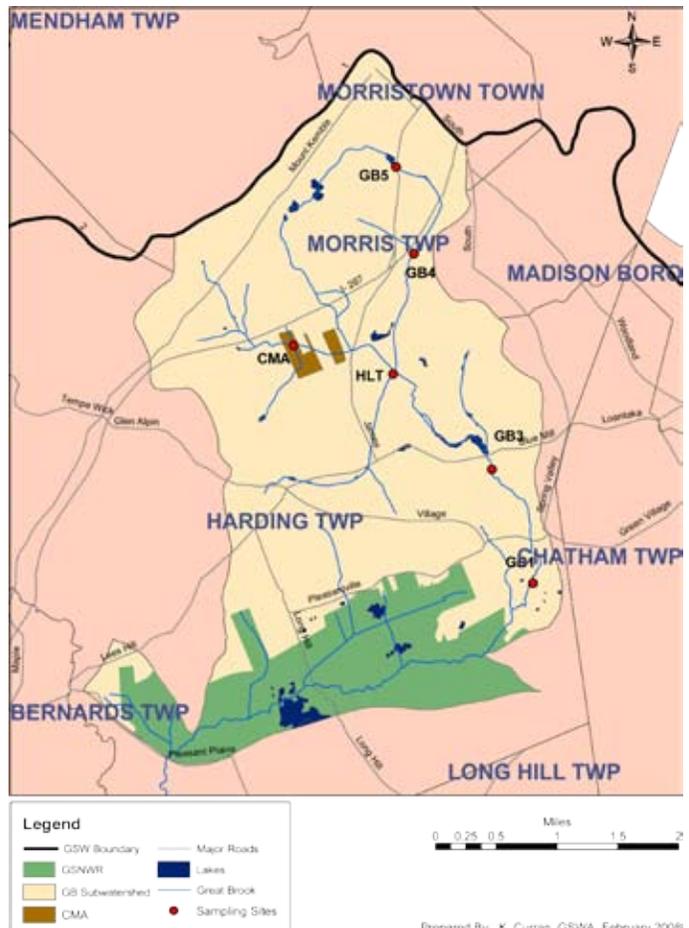
Great Brook (continued from page 1)

Once results are received from the laboratory (generally six weeks after submission), they are compared with the New Jersey Surface Water Quality Standards. The good news is that for the parameters covered by our monitoring, Great Brook meets the applicable standards most of the time. Exceptions are elevated levels of TDS and chloride observed in February 2009, four cases of total phosphorus exceeding limits during 2008 and six times when pH fell outside the standard range (four in 2008 and two in 2009).

The upper reaches of Great Brook flow through a more heavily developed part of Morris Township close to Morristown, where it is vulnerable to contamination by deicing materials deposited on local roads and parking lots. Our analysis confirms that the principal constituents of road salt, sodium and chloride ions, contribute significantly to the TDS concentrations in Great Brook. Although deicing materials are used only in winter, their retention in soils and subsequent leaching into shallow groundwater can lead to year-round contamination of our streams. The concentrations of these contaminants can fluctuate depending on the quantity of salt applied and the quantity of water flowing in the stream, which

affect the degree to which any incoming contaminants are diluted. Our results show that Great Brook is consistently less impaired than Loantaka Brook, but not as clean as the northernmost reaches of Primrose Brook and the Upper Passaic River.

We anticipate “more of the same” with regards to Great Brook’s water quality in 2010. A more detailed summary report for the first 18 months of the study can be found on our website. We will be producing a second similar report at the end of this year. In 2011, we plan to focus our efforts on the analysis of Black Brook’s water quality. 🌲



Low Impact Development *(continued from page 13)*

retention, permeable pavements, and disconnecting rooftop rain gutter spouts are valuable tools that can be used in urban areas.

There are many significant benefits of low impact development. Its effectiveness demonstrates that LID is a simple, practical, and universally applicable approach for treating water runoff. Researchers have shown the practices to be successful at removing common pollutants, including nutrients, metals, and sediment. Since many LID practices pass runoff into groundwater, they help to maintain lower surface water temperatures as well. LID also improves environmental quality, protects public health, and provides a multitude of benefits to the community.

Because of its emphasis on natural processes, LID is often less costly than conventional stormwater controls. LID practices can be cheaper to construct and maintain, and have a longer life cycle cost than centralized stormwater controls. The need to build and maintain stormwater ponds and other conventional treatment methods will be reduced and in some cases be eliminated. Developers benefit by spending less on pavement, curbs, gutters, piping, and more.

Working at a small scale allows volume and water quality control to be tailored specifically to the site characteristics. Since pollutants vary across different types of lands

and from site to site, the ability to customize stormwater management techniques and the degree of treatment provides a significant advantage over conventional management controls. It makes efficient use of the land for stormwater management and does not interfere as much as conventional techniques. It promotes less disturbance of the landscape and conservation of natural features, which enhances the aesthetic value of the property, and makes it more desirable to homebuyers, property users, and commercial customers.

New environmental regulations are geared toward protecting water quality and stabilizing degraded streams, rivers, lakes, and estuaries. This encourages a broader thinking than centralized stormwater management. Developers and local governments are continuing to find that LID saves them money, contributes to public relations and marketing benefits, and improves regulatory expediencies. LID connects people, ecological systems, and economic interests in a desirable sustainable approach.

Sources:

(A) "Chapter 12: Low Impact Development" in: *Stormwater Strategies. Community Responses to Runoff Pollution*. Natural Resources Defense Council, May 1999. www.nrdc.org/water/pollution/storm/chap12.asp

(B) *Low Impact Development (LID). A Literature Review*, U.S. Environmental Protection Agency, October 2000. www.epa.gov/owow/nps/lid/lid.pdf. 

Make an Investment in the Great Swamp's Future

More than 50 years ago, local residents saw the natural beauty of the Great Swamp area threatened by the plan to build a jetport and fought to preserve the natural resources of the region. They succeeded.

Almost 30 years ago, the Great Swamp Watershed Association was created to permanently protect and improve the water resources in the region, and continues to protect our local environment by monitoring local streams, advocating for intelligent land use and educating our communities.

Today, you can make an investment in the Great Swamp's future by making GSWA a part of your legacy — helping your children and your children's children enjoy clean water and the natural habitat of the Great Swamp watershed for years to come.

There are many ways to make an investment in the Great Swamp's future. You

can make a bequest to GSWA by including a provision in your will. You can also consider gifts of real estate or gifts that will provide you with income for your lifetime.

For more information on how you can make a gift to GSWA, contact Sarah Rosen, Director of Development, at 973-538-3500 x18 or rosen@greatswamp.org. 

Bequests to the Great Swamp Watershed Association

The following language may be helpful as you create or revise your will:

I give (\$ _____) (or a specific asset such as securities, real estate or other property), or (_____ % of the residuary of my estate) to the Great Swamp Watershed Association for its ongoing programs in environmental conservation and education.

ACROSS THE WATERSHED is also available electronically

Help reduce our print and mailing costs by signing up for electronic delivery of future issues of *Across the Watershed* at www.greatswamp.org, or send an e-mail with your name and address (so we can identify you in our member database) to ddolan@greatswamp.org. By giving GSWA your e-mail address, you'll also receive our monthly e-newsletter, which provides

timely information on upcoming programs and events along with news on what's happening in and around the watershed.

Your e-mail address will be used solely for the purpose of sharing information with you about GSWA-related programs and events. We will not provide your e-mail address to any other person or entity without your permission.

Sustainable Living *(continued from page 1)*

Pesticides, incorrectly applied, can have a deleterious effect on water health, without actually improving lawn appearance. Think of walking barefoot over lush grass. Do you really want to be stepping in a chemical soup as you go?

Raise the bar on your mower to a higher cut, helping your lawn develop lush, resilient growth. Leave clippings to break down and naturally fertilize your grass for free, and use a slow release dolomite limestone to give your lawn a vitamin tonic, avoid drought stress and become more pest resistant. If you use a landscaping company, they should abide by your wishes to leave clippings or apply lawn care products of your choice. With a small shift in thinking you can have a healthy lawn without overuse of chemicals.

“Dump No Waste”

Clean up after yourself...and your dog! Everything that lands on the ground has the potential of winding up in our streams and groundwater, including dog waste, petroleum derived cleansers from driveway car-washing, motor oil, winter de-icing products, and everyday trash. Pet waste should be bagged and disposed of in the trash. Check to ensure

your town has a pet waste ordinance and lobby to initiate one if they don't.

Tread lightly

Storm drains and drainage basins were not designed to be landfills! While we may not notice many of the pollutants that are washed into storm drains by rain and storm water runoff (e.g., road salt, residual motor oil left on roadways, etc.), we can be vigilant about not adding to the contaminants that flow from street to stream. Many people don't realize that more often than not, storm drainpipes lead to the stream and not to the sewer. Don't sacrifice stream health for the sake of community aesthetics or convenience by throwing debris (trash, used motor oil, yard waste, etc.) into neighborhood storm drains.

Get involved and be vigilant

There are many ways you can help make our world and, in particular, the Great Swamp watershed a more sustainable place. These are just some of the ways you can make a difference...and lead by example. You might also get involved with the efforts of the communities participating in Sustainable Jersey. Visit www.SustainableJersey.com to learn more. 

Ten Most Wanted *(continued from page 15)*

(*Artemisia vulgaris*), one of the hardest plants to eradicate. In some forested areas where the human footprint is most intense, the invasive/non-native species can outnumber the indigenous ones. The hope is that through recognition that this alien invasion threatens the very framework by which all local ecological processes are predicated, we can start the process of healing the land one parcel at a time.

If you would like help identifying target areas for restoration, including your own backyard, contact Blaine Rothausser at blaine@e-naturaleyes.com. For more information on native and non-invasive plant species, visit the Bowman Hill Wildflower Preserve website at www.bhwp.org/native/index.htm. 



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