



Great Swamp Watershed Association

The Passaic River WATERKEEPER® ALLIANCE Affiliate

Across the Watershed

Spring-Summer 2017

Protecting our Waters and our Land for More Than 35 Years

Eating Your Way to a Better World: The Beginner's Guide to Edible Invasive Plants

by Kristina Necovska, Membership Associate

Look back in your own family history and you'll surely find that the cultivation of vegetables, herbs and flowers played a significant role in your ancestors' lives. My grandparents introduced me at a young age to the fascinating world of wild edibles; common nettle, rose, mulberry, sorrel, and purslane became savory nettle pastry, sweet rose petal jelly, mulberry jam, sorrel stew and citrusy purslane salad. Many plants were brought here from other places to be part of vegetable and ornamental gardens.



Unfortunately, some of these grow voraciously in the absence of their native environmental conditions. Managing invasive plants is certainly a frustrating challenge but one silver lining is that we can manage many of these invasives by eating them!

I will discuss three plants that anyone can find, identify, and eat into oblivion; dandelion, common purslane, and garlic mustard.

But First, Some Guidelines:

- First and foremost, only eat a plant you **and** an expert have identified without a shadow of a doubt.
- Second, never eat a large quantity of any plant the first time you try it — you may like it but it may not like you.
- Third, understand the **ITEM** method. **I**dentify your plant to 100% certainty and ensure it is growing at the correct **T**ime of year. If the plant should be flowering in March but you find it in

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Garlic Mustard. Credit: Tony Atkin

From the Desk of the Executive Director



by Sally Rubin

Each January we are sad to see some trustees leave us as their terms expire, but we are always pleased to see new trustees join us. This year, our “freshman” batch of trustees is especially stellar.

Farewell and au revoir to **David Budd**, **Lisa Stevens**, and **Phyllis Fast**. Thank you for your support and we count on seeing you again! We haven’t let you go far, since you’ve joined our Advisory Council.

Welcome and bien venue to the newest members of our tribe. Our new trustees bring great scientific and political acumen to the board.

Chris Obropta, Ph.D., P.E., is the Extension Specialist in Water Resources with Rutgers Cooperative Extension and an Associate Professor at Rutgers. Dr. Obropta and his staff identify and address community water resource issues using sustainable and practical science-based solutions throughout New Jersey. He and his staff have been working with communities to implement green infrastructure practices throughout the urban centers of New Jersey.



Cathy Lee, Ph.D., lives in Mendham and is an Associate Professor and Chemistry Chair at the College of St. Elizabeth. Dr. Lee has taught numerous courses in Chemistry, Physical Science, Earth Science and Science



Education. She also mentors middle and high school students. Dr. Lee has been a volunteer member of our Stream Team for several years and her students participate in our SWaMP (School Water Monitoring

on the Passaic) program.

Anthony Sblendorio lives in Bernards Township and is one of the pioneers of sustainable and regenerative design in New Jersey. In 1994, he founded the landscape architecture and land development firm Back To Nature Home and Garden. The firm developed some of the first ecological/agricultural residential developments in New Jersey. Additionally, Anthony and Back To Nature were the lead master planners for the first LEED Gold certified building in the northeast and the first LEED Platinum building in the state.



Kevin Sullivan also joins the board this year. Kevin is the former mayor and current committeeman in Chatham Township as well as a former Captain in the Marine Corps. He has 25 years of financial market experience and joined Private Advisory Group as Compliance



Director in 2015. Kevin was instrumental in the recent preservation of 136 acres of open space at Giralda Farms.

John DeLaney, Jr., is an attorney and shareholder at Lindabury, McCormick, Estabrook, & Cooper. Jay concentrates his practice on land use, litigation and business advisory groups, as well as employment law, real estate, commercial law, condominium law, and environmental law. Jay has served as Mayor of Morristown as well as having served on Morristown's town council and planning board. Jay is very active in many community and civic groups and has finally made time to join the board of GSWA.



With the addition of Kevin Sullivan and Jay DeLaney to the board, we now have former mayors from four local municipalities. Nic Platt, former mayor of Harding Township and current committeeman, and Guy Piserchia, former mayor and current committeeman of Long Hill Township, joined our board last year.

We are always looking for a few good men and women to join the Board of Trustees and help us further our mission to protect our waters and land. If you are interested in joining us, please contact me at srubin@GreatSwamp.org. 



Across the Watershed

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

GSWA is a member-supported non-profit organization that has been protecting the waters and the land of the Great Swamp Watershed for more than 35 years.

Editor: Sally Rubin

Designer: Ann Campbell

Contributors:

Hazel England

Sandra LaVigne

Sue Levine

Kelly Martin

Kristina Necovska

Jim Northrop

Rick Porter

Dan Ross

Sally Rubin

The Twitter logo, consisting of the word "twitter" in its characteristic lowercase, rounded, blue font.

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Upcoming Events

Breakfast Briefing: How to Build Your Own Rain Garden

Tuesday, March 7, 2017, 8–9:30 a.m.

GSWA Headquarters, 568 Tempe Wick Road, Morristown, NJ

In this in-depth how-to breakfast briefing, GSWA Director of Education and Outreach, Hazel England, will discuss the benefits of managing stormwater by installing a rain garden in your home. Rain Gardens are shallow depressions, planted with shrubs and perennials that absorb stormwater runoff from roofs, driveways, and other impervious surfaces, helping to recharge groundwater, slow flooding, and reduce nonpoint source pollution in our waterways. Hazel will discuss everything from how to pick the right location for your rain garden, to how to create it, and what plants to include. You'll leave armed with the knowledge needed to create your own rain garden this spring. This event is sponsored by Investors Bank, Madison Branch. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Frog Watch Training Workshop

Tuesday, March 14, 2017, 6–7:30 p.m.

GSNWR Helen Fenske Visitor Center, 32 Pleasant Plains Road, Harding Township, NJ

Do you know your spring peepers from your wood frogs? What does a leopard frog sound like and can they be found in your neighborhood? Join GSWA and Tedor Whitman of Cora Hartshorn Arboretum for this hands-on training session to become an

official FrogWatch volunteer. FrogWatch is a citizen science program that uses volunteers' observations to create a database of frog and toad sightings, helping to establish long-term and large-scale data on amphibian populations. During the training, you'll learn how to recognize different species of frogs and toads from their appearance and calls, and how to record your observations into the database. We will work with you to select places around the region to monitor and you will be frog counting in no time! This event is cosponsored by the Great Swamp National Wildlife Refuge. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Stream Assessment Training

Saturday, March 18, 2017, 10 a.m.–3 p.m.

Long Hill Library, 917 Valley Road, Gillette, NJ

If you are interested in becoming a stream monitoring volunteer or just learning more about stream health, this is the training for you! An indoor classroom session helps you learn how to conduct visual and biological stream assessments, and recognize environmental factors that may impact stream health. An outdoor session helps you practice your new-found skills at a local stream site. Afterwards, you will be a fully trained stream assessment volunteer and ready to conduct an assessment! Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Taste of Nature Party
Wednesday, March 29, 2017, 5:30–7:30 p.m.
*GSWA Headquarters, 568 Tempe Wick Road,
Morristown, NJ*

Have you ever tried dandelion wine? Do you know what types of wild plants can be harvested and eaten? Join us for this exciting spin on our always entertaining tasting events, where we will experiment with different food and drink made from New Jersey plants! This event is free to nonmembers and members who bring a nonmember friend as a guest (members coming alone or with other members can join in on the fun too, for a donation of \$25). Not only that — for each nonmember that walks through our door, an anonymous donor has pledged to contribute \$25 to GSWA, and to match any gifts made to the organization, dollar-for-dollar up to \$5000. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Vernal Pool Exploration Hike
Friday, March 31, 2017, 6:30–8 p.m.
*GSWA Conservation Management Area,
1 Tiger Lily Lane, Harding Township, NJ*

With temperatures rising, the forest floor will be hopping with new life as frogs and other amphibians crowd into shallow puddles of water to breed and lay their eggs.

These puddles, better known as vernal pools, provide a perfect opportunity to learn more about Mother Nature here in New Jersey. But hurry! They disappear quickly.

Great Swamp Watershed Association's annual Vernal Pool Exploration provides a fun, outdoor learning experience for kids and adults alike. Discover the differences between a spring peeper, a chorus frog, and a wood frog. Find out how far an endangered spotted salamander will walk to find a mating pool. And, learn how much everything we have come to appreciate about the springtime depends on a few unassuming puddles of water on the forest floor. Warm clothing and waterproof footwear — especially hiking boots — are very strongly recommended for this hike.



Spring Peeper
Credit: FynKynd Photography

Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Breakfast Briefing: Microplastics in Our Water
Tuesday, April 4, 2017, 8–9:30 a.m.

Berkeley Heights YMCA, 550 Springfield Avenue, Berkeley Heights, NJ

Microplastics can enter our water from personal care products -- like the little blue sparkles in certain brands of toothpastes, or the tiny plastic balls used in face washes as exfoliants, as well as from the breakdown of

(more events on next page)

Upcoming Events *(continued from previous page)*

larger items, like Styrofoam containers and even from clothing. Wastewater treatment plants are not equipped to remove microplastics, and they never break down on their own. Once they make it to the river, fish and other aquatic life can ingest them. Join GSWA and NY/NJ Baykeeper's Sandra Meola as she discusses her fascinating studies on Microplastics and their effect on our aquatic environments. This event is sponsored by Investors Bank, Madison Branch. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Watchung Reservation Hike Wednesday, April 26, 2017, 4– 6 p.m.

Watchung Reservation, 452 New Providence Road, Mountainside, NJ

Join us for the next installment of "Downstream Adventures" Hiking at Watchung Reservation. We will be exploring scenic gorges, visiting the remnants of the deserted village of Feltville, following alongside the Blue Brook and marveling at Lake Surprise. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

BYO Boat, Guided Paddle on the Passaic Saturday, May 6, 2017, 9–11 a.m. -OR- 11:30 a.m.-1:30 p.m.

*Somerset County Park Commission,
Fisherman's Parking Lot, Approx. 170 Lord
Stirling Road, Basking Ridge, NJ*

Grab your kayak or canoe and join GSWA as we paddle upstream from the Fisherman's Parking Lot at the Lord Stirling Environmental Education Center. We'll traverse beaver dams and explore the river, with Somerset County Park land on one side, and the Great Swamp National Wildlife Refuge

on the other. Our eyes will be peeled for turtles, snakes, migratory birds, and other creatures as we paddle through the peaceful waters.

Please note that there are two times for this event, and each time is limited to eight boats (not individuals). You must bring your own boat, paddles, and personal flotation device (PFD). You will not be able to join the guided paddle without a PFD, which will be inspected before we leave. You should be dressed to get wet (including your shoes) and bring your own water. You will be asked to sign a waiver prior to participation. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Evening Briefing: Using Open Space to Build Storm Resiliency Tuesday, May 9, 2017, 6:30–8 p.m.

*GSWA Headquarters, 568 Tempe Wick Road,
Morristown, NJ*

Join Brooke Maslo of Rutgers Cooperative Extension to learn more about an exciting collaboration between ecologists, engineers, and landscape architects on a floodplain restoration and open space design in an urban community badly impacted by Hurricane Irene and Superstorm Sandy. Brooke will share the work she has spearheaded on the restoration and transformation of urban residential areas purchased through blue acres funding into natural habitats, with improved flood storage potential as recreational areas of community open space. This project highlights the benefits of improving storm resiliency in a community and through example showcases how this can be achieved. This event is sponsored by Investors Bank, Madison Branch.

Registration required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Invasive Plant Identification Workshop
Monday, May 22, 2017, 6-8 p.m.**

Great Swamp Outdoor Education Center, 247 Southern Boulevard, Chatham Township, NJ

What makes a weed a weed? How can you tell your oriental bittersweet from your Japanese barberry and why should you care that you can? Invasive plants are spreading in our forests and open space, and harm the environment as they reduce biodiversity and resources for native wildlife. New Jersey spends millions in labor and resources to remove invasives each year. Join us for this informative, hands on session on how to identify New Jersey's top ten least wanted terrestrial and aquatic invasive plants and appropriate native replacements. You'll never look at burning bush in the same way again!

This program is being run in conjunction with Morris County Park Commission's Great Swamp Outdoor Education Center and the Americorps Watershed Ambassador. Registration required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Spring Night Hike
Saturday, June 3, 2017, 7-9 p.m.**

Primrose Farm, Park at Barret Field, Approx. 15 Brook Drive South, Harding Township, NJ

Hone your inner naturalist and practice your being-out-after-dark skills with Director of Education and Outreach, Hazel England. She'll guide you through the forests of the 116 acre Primrose Farm preserve, to emerge to the incredible hill top meadow, perfect for exploring the spring night sky. With the mating season in full swing, June is the

perfect time to explore the forest in search of active wildlife. We'll listen and look for owls, foxes, spring insects, and other nocturnal creatures. Registration required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Evening Briefing: Climate Change Resiliency
Tuesday, June 6, 2017, 6:30-8 p.m.**

GSWA Headquarters, 568 Tempe Wick Road, Morristown, NJ

Linda Weber, Resiliency Director from The College of New Jersey's Sustainability Institute, will talk about the steps that communities can take to prepare for, mitigate, and adapt to the impacts of climate change in New Jersey. We are already experiencing an increase in severe storms, heavy precipitation countered by periods of drought, a rise in sea level and increasing temperatures, all of which scientists predict will worsen over the coming decades due to global warming. Join us to discuss the tools and programs that will help communities build resiliency to these increasing threats, with a particular focus on protecting marginalized populations. This event is sponsored by Investors Bank, Madison Branch. Registration required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Spring Ephemeral Hike
Thursday, June 15, 2017, 5:30-7:30 p.m.**

GSWA Conservation Management Area, 1 Tiger Lily Lane, Harding Township, NJ

The cool forests and boardwalks of our 53-acre Conservation Management Area are the perfect place to escape to on warm late-spring evenings. With the forest in full

(Events continued on next page)

Get Your Well – or Public – Water Tested Through GSWA

by Kelly Martin, Director of Communications and Marketing

GSWA will be offering our discounted-rate well water testing program again this March, and expanding it to include individuals who want to test their public water as well.

Multiple public water samples did test positive for lead during our program last year. Although the water company tests the water as it leaves the facility, and at various check points, you could have lead pipes or solder that leach into your water between the water main and the tap.

The well test measures several water quality parameters, including total coliform + *E. coli*, nitrates, manganese, iron, arsenic, and lead. The public water test includes lead, with the option to add on copper. Anyone who is interested in taking advantage of this water testing program may pick up a kit from the Harding Township Kemmerer Library

during business hours between March 1 and March 21. All participants will be required to make a \$10 deposit when they pick up their self-guided water sampling kit. The supplied kit must be used to sample the water at home on the morning of **Wednesday, March 22**. All samples must be returned to the Kemmerer Library between 8 a.m. and noon the same day. (Note: Water samples that do not follow specific timetable requirements may not return reliable test results.) The cost for the basic, multi-parameter test is \$125 (this test would normally cost over \$300). The cost for the lead test is \$30. Test add-ons may be purchased for an additional charge. Please call or email Kelly Martin, 973-538-3500 or welltesting@greatswamp.org for details. This test cannot be used to satisfy the requirements of a real estate transaction. 🏡

Upcoming Events *(continued from previous page)*

bloom, Great Swamp Watershed Association Director of Education and Outreach, Hazel England, will guide you in identifying spring ephemerals and lead you to explore the numerous vernal pools filled with frogs, tadpoles, and frog eggs. Hiking is on our flat mulch and boardwalk trails in Harding Township. Registration required. Register online at GreatSwamp.org, or call (973) 538-3500. 🏡

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.

by Dan Ross, Education Associate

With the long cold days of winter nearly behind us, and the hours of daylight beginning to lengthen, we can now turn our attention towards the season of ephemeral beauty. I am of course referring to spring time, when naked tree branches begin to bud up in various hues of red, the snow and ice make their final retreat and our brightly feathered friends begin to return in abundance to the forests. What a time to be alive!



A trillium blooming in the spring

Slowly the Eastern Skunk Cabbage pokes its purple and green blossoms out of the snow banks warming the air around it. Robins hop along inquisitively, with an ear to the semi-frozen ground, listening for plump earthworms. Streambanks become engaged with snow melt and are recharged from groundwater sources. Elsewhere the diminutive Trout Lily takes advantage of its dappled foliage to grab up the scattered rays of early spring sunlight.

Vernal ponds spring to life with a cacophony of Spring Peepers and Chorus Frogs searching for prospective mates on the first

warm rainy nights of the season. Turtles begin to climb out of the mud where they have been residing over the winter. Truly the world is astir with activity, and a sight to behold!

Throughout the watershed, nature collectively exhales a long deep breath and readies itself to begin anew, a fresh start, a chance for a new beginning. So is true for us all. Despite the challenges we face as individuals and those that the environment will also inevitably face as well, nature perennially reminds us that the dreary days of late winter eventually give way to the burst of vibrant resilience of spring renewal.

So shake off those winter blues and get out into nature! Explore a new park that you may not have had the opportunity to venture to, or revisit an old stomping ground and observe the bounty of Blood Root, Trilliums, and May Apples. Get close to the ground to admire the Spring Beauties which have blanketed the forest floor. Dust off the binoculars and hit the trails in search of the return of Scarlet Tangiers and Yellow Throated Warblers. Search the woodlands for newborn fawns and the stir of squirrels leaping from the tree canopy.

Nature does not charge admission and simply asks that you take only photographs and leave only footprints so that others too may enjoy its splendor. This spring, be sure to join Great Swamp Watershed Association as we hike through new downstream locations and return to some familiar ones. Take

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Edible Invasive Plants *(continued from page 1)*

October, there may be a chance that it is a very clever lookalike. Be certain that it is found in its own correct and clean **E**nvironment. Some plants like to be found in very wet soil, so if you find one growing on a dry hillside, chances are you have the wrong plant. Never collect any edible plant from a roadside. Finally, prepare the plant per the correct **M**ethod. The young parts of the common nettle are edible and delicious but only after boiling and discarding the water several times.

If you can follow these general rules, you can enjoy the wonderful world of wild edibles.

Dandelion (*Taraxacum officinale*)

What can be said about dandelion that has not already been said about this humble flower? The word “dandelion” comes from the French “dents de lion” or tooth of the lion, so named for its toothed petals. This plant is a friend of the human race, having been eaten as early as 25,000 years ago. While it is an invasive here in the States, it is also unfairly treated with herbicides when a much better use would be to simply eat it away. It was an ancient Roman staple and is included in ancient herbals. Happily, every part of this plant is edible. Have it as you like it; for fans of bitter flavors, eat dandelion leaves in a salad, similar to escarole, or sauté

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 kmartin@GreatSwamp.org so you don't miss out on our new monthly e-newsletters.



Common Purslane. Credit: Jason Hollinger

the leaves with garlic and olive oil. The flower heads can be sautéed and are not bitter but mushroom-like in flavor.

Common Purslane (*Portulaca oleracea*)

This is a plant native to the Mediterranean and Middle East that is sold in markets all over Europe, but seldom bought or sold here in the States. Why is that? Someone could make a killing marketing this thing. Common purslane is an extremely healthy and beneficial weed. It contains vitamin A, C, B, iron, potassium, magnesium, seven times more beta carotene than carrots, and contains more omega-3 fatty acids than any other plant; so ditch the fish, purslane's where it's at, people! It is not known to soak up pollutants as other plants do, it really is a wash-and-go kind of weed. It has a sweet lemony flavor — not much needs to be done

to prepare it, toss it in a salad and you're all set. It is a succulent creeper and can be identified by its small yellow flowers, red stems and plump leaves. Do not confuse it with the pink-flowered purslane, which is native and very bitter.

Garlic Mustard (*Alliaria petiolata*)

If there's any plant that deserves a total-war eradication it is garlic mustard. Garlic mustard is a European native that was brought over as a food staple originating somewhere on Long Island in the late 1860s. It is also known as "Poor Man's Mustard" because it was common, healthy and free! Insidiously, garlic mustard can produce up to 8,000 seeds per plant with a near 100% germination rate. Along with Billy Joel and Bill O'Reilly, garlic mustard makes the list of the most annoying things to ever come out of Long Island. There are no poisonous lookalikes with this plant, so have at it. You can identify it by its rounded toothed leaves, which produce a pungent onion or garlic-like aroma when crushed. You can cook it as you would other dark leafy greens, discarding the tough thick stems.

Try this recipe:

Dandelion Patties

1 cup packed dandelion heads (no greens or else the patties will be bitter)
1 cup flour
1 egg (or ¼ cup egg replacer such as ground flax and water)
¼ cup milk of your choice
½ cup chopped onions
¼ tsp salt and ¼ pepper
½ tsp garlic powder
¼ tsp favorite herb (oregano, basil, parsley work well). Go nuts with your seasonings, the sky is the limit.

Mix all ingredients together until well coated. Form into patties and pan fry in oil, turning until crisp on both sides. Makes 4-5 very nutritious vegetable patties.

If you want to learn about more plants you can eat or how to handle non-edible invasives, be sure to check out our upcoming "Taste of Nature" party on March 29th at 5:30 p.m. here at GSWA Headquarters or our "Invasive Plant Workshop" on May 22nd at the Great Swamp Outdoor Education Center in Chatham Township. 🌿

New Beginnings (continued from page 9)

part in the fight against invasive species by attending our Taste of Nature Party on March 29. Search for owls under the light of the full moon, or just go for a walk of peaceful reflection at our Conservation Management Area on Tiger Lily Lane in Harding, but whatever you do, be certain to get out and experience all that nature has to offer this spring! 🌿

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 GreatSwamp.org for more information.

2015 Great Swamp Watershed Report Card

by Sandra LaVigne, Director of Water Quality

GSWA monitors the water quality of the five streams within the Great Swamp Watershed; Great Brook, Loantaka Brook, Primrose Brook, Black Brook, and the headwaters of the Passaic River. Over the last three years (2014 – 2016) the Adopt-a-Stream Program has focused on Black Brook and Primrose Brook while continuing to monitor stations on the other streams as well. In 2014, my predecessor, Laura Kelm, put together the first GSWA Water Quality Report Card. This was a wonderful tool to answer our most frequently asked question, “How’s the water?” The report card was formatted to give an at-a-glance overview of the water quality to the general public. It notes where issues have been reported, addresses potential reasons for what is happening, and offers suggestions everyone can use to ensure our waters stay clean and healthy for years to come.

The 2015 Water Quality Report Card combines the data collected by our Stream Team volunteers and GSWA staff over the course of the year. We have updated some of the Report Card features this year, allowing for a deeper understanding of what is going on in our watershed. On the visual component of the Report Card, arrows have been added (up or down) indicating improvement or decline in water quality. Road salt, which impacts the water quality of many of our streams, was broken out by season in the 2015 Report Card for a better understanding of both how and when it is effecting our waters. Finally, in 2015 we moved the grading of our macroinvertebrates to the NJ High Gradient Macroinvertebrate Index, to make our data consistent with other organizations in the state.

Primrose Brook and the Passaic River Headwaters, and their tributaries, continue

Have You Considered Including GSWA in Your Estate Plans?

Designating the Great Swamp Watershed Association as a beneficiary in your will is a sure way to continue your support for our work and sustain it long into the future. It could also be a way to make a much larger gift than is possible during your lifetime.

Specific language in your will should of course be reviewed with your attorney. For more information on GSWA’s Planned Giving program, please contact Sally Rubin, Executive Director at (973) 538-3500 or srubin@greatswamp.org.

Do you already have GSWA named as beneficiary in your will? Please let us know, we would love to thank you and recognize your support in our next newsletter. *Perhaps your commitment can be an inspiration for others to do the same.*

to be the healthiest streams in the watershed. Nitrogen, a nutrient that can exacerbate plant and algae growth and have a negative impact on macroinvertebrates in excessive levels, decreased significantly in both the Passaic River Headwaters and Primrose Brook in 2015. The overall macroinvertebrate index in both streams improved in 2015, which may be linked to the decrease in nitrogen.

Great Brook and its tributaries represent the middle of our water quality range at GSWA. Visual assessments on these streams show increased sedimentation and erosion. This has impacts on macroinvertebrate habitat as well as nutrient inputs. In Great Brook, the nitrogen levels were increased overall in 2015. Road salt also continues to be a problem in the more developed areas of the stream. A higher percentage of developed area with impervious surfaces cause the rain water runoff to move more quickly into the streams, the higher velocity causing erosion and carrying more nutrients with it. In areas where there is less development and more open space and forest, the waters are slowed down by the vegetation and absorbed into the ground, where the nutrients are filtered out and by native plants.

Black Brook and Loantaka Brook have the lowest water quality in our watershed. They are highly impacted by the development near their respective headwaters. Erosion, increased nutrient levels (both phosphorus and nitrogen), and increased sedimentation, as well as elevated levels of road salt, contribute to low quality macroinvertebrate

populations. In 2015, the visual assessments on Black Brook did show improvements in the buffers (areas of native vegetation along stream banks) and a slight decrease in the level of nitrogen in the waters.

The 2015 water monitoring data indicated a number of issues that are impacting the water quality across the watershed. Below are a few of those issues, along with solutions and ideas that everyone can use to help improve water quality:

- Increased sediment and erosion: Planting native multi-stemmed plants such as shrubs at the bottom of sloped areas in your lawn can help reduce runoff speed and nutrient levels in the runoff. Also, breaking up large areas of mowed lawn with small gardens containing native plants can help.
- Road Salt: Use road salt only when necessary and consider using alternative compounds that are more environmentally friendly such as Calcium Magnesium Acetate (which is also pet friendly).
- High bacteria levels: Pick up after pets, even in the yard, and be sure to maintain septic tanks regularly.

You can read the full 2015 Water Quality Report Card on our website at *GreatSwamp.org*. If you have any questions regarding the Report Card, feel free to contact our Director of Water Quality Programs, Sandra LaVigne at sandral@greatswamp.org. Look for our 2016 GSWA Water Quality Report Card in April of this year. 🌱

Great Swamp Watershed W

Stream	Macro-invertebrates*	Visual Stream Assessment	Bacteria	Dissolved Oxygen	W Temp
Black Brook	Very Poor ↓	Good ↑	Very Poor ↓	Good	Exc
Great Brook (main stem)	Poor ↑	Good	Good ↑	Excellent	Exc
Bayne Brook	 	Poor	Excellent ↓	 	Exc
Silver Brook	 	Poor	Very Poor ↓	 	Exc
Loantaka Brook	Very Poor ↓	Good	Very Poor ↓	Excellent	Exc
Passaic River (main stem)	Good ↑	Good ↓	 	Excellent ↑	Exc
Branta Pond	 	 	Good ↓	 	Exc
Primrose Brook (main stem)	Good ↑	Good	Good ↓	Excellent	Exc
Mount Kemble Lake Tributary	 	 	 	Good	Exc
Great Swamp Watershed Outlet	 	 	Very Poor ↑	Excellent ↓	Exc

Key				
Excellent	Good	Poor	Very Poor	No Data
Arrows indicate a >.5 change from the 2014 data and correspond to the grade (not the measurement).				

Water Quality Report Card

Water Temperature	pH	Road Salt**	Water Clarity	Nitrogen	Phosphorus
Excellent	Excellent	Winter Fall Spring Summer	Excellent	Very Poor ↑	Poor
Excellent	Excellent	Winter Fall Spring Summer	Good	Good ↓	Good
Excellent ↑					
Excellent ↓					
Excellent	Excellent	Very Poor ↓	Good	Very Poor ↓	Very Poor ↓
Excellent ↑	Excellent	Winter Fall Spring Summer	Good	Excellent ↑	Excellent
Excellent					
Excellent	Excellent	Excellent	Excellent	Excellent ↑	Excellent
Excellent	Excellent	Excellent	Excellent	Good ↑	Excellent
Excellent ↓	Excellent	Winter Fall Spring Summer	Poor	Excellent	Good

*Macroinvertebrate (MIV) scores are much lower than 2014, but this may be due to changes in analysis methods (e.g. identifying 100 instead of 200 MIVs per site, identifying all specimens to genus level, different scoring metric)

**Road salt data has been broken up by season to better capture the impact of salt runoff in the winter months.

Unravelling the Tangled Tale of Fishing Lines

by Hazel England, Director of Education, Outreach, and Land Stewardship

The spaghetti-like tangle of plastic line, juxtaposed with delicate stems of pretty blooming Trout Lilies spearing the plastic coils and enshrining the mummified body of a young mallard chick is a striking memory of a walk along a Passaic streamside with my kids I would rather forget.

The young mallard had encountered first hand the dreadful effects discarded fishing line can have. Unsightly tangled coils of nylon monofilament, and kite strings of lines, dangling colorful lures from overhanging tree branches, are more than just trash edging Passaic tributaries and streams- they are deathtraps for wildlife.

Sadly, nylon monofilament lines discarded by recreational anglers can act as trap, noose and net for many an unsuspecting bird, small mammal, turtle or frog. Discarded fishing line has long been an issue at favorite fishing haunts along the streams of Great Swamp, and indeed, along the entire length of the Passaic River. Fishermen, paddlers, and hikers have been aware of the problems discarded and entangled fishing lines and the hooks can cause by witnessing the animals impacted. But a picture is worth a thousand words, and through social media sharing, distressing pictures of birds ensnared in line have broadened the general public's awareness to the problem in recent years.

Monofilament line is supremely strong; it is used precisely because it has such high tensile strength for its weight — great news for the angler hoping to hook a monster,

but bad news for the environment. It can take several hundred years for nylon monofilament to break down if discarded. While present in aquatic habitats, it poses a variety of risks to wildlife. Wading birds that wander shorelines to feed risk being caught by neck, leg, or wings in the spring-like coils of discarded line. Perching birds are frequently killed when they fly into fishing line caught in tree branches, and line can often be ingested by animals where it causes slow, painful starvation as it fills the creatures gut, interfering with proper digestion.

The colorful Baltimore oriole — a frequent streamside Passaic River resident, constructs its sock-like, hanging nest of woven fibers, often incorporating grass, grapevine, horsehair and even spider silk into the nest. Unfortunately, they will also incorporate cellophane, plastic ribbon and nylon fishing line if it is present in their environment. On a recent trip to New



Fishing line laden Oriole nest in a sycamore tree at a fishing pond in Artesia, New Mexico, spring 2016

A simple but effective PVC recycling bin installed at a fishing location.



Mexico, while enjoying a walk around a popular fishing pond, we observed many oriole nests built in the sycamore trees surrounding the pond, many composed almost entirely of pale blue fishing line. (See photograph.) This puts oriole hatchlings in peril, as they get ensnared in the durable line as they move around within the nest. Indeed, we observed a yellow warbler, struggling to free itself as it was caught in the line dangling below just one such fishing line laden nest.

Many anglers do the right thing, properly retaining, cutting into short lengths, and then disposing of line in responsible ways. There are several products on the market to easily retain fishing line for later disposal with little fuss. However, the volume of discarded line means that not all those that fish do so responsibly. Often while casting near trees, the response to a snagged section of line is frustration at losing the lure, rather than concern for how to retrieve the line caught.

In response to the problem of discarded line, longtime Great Swamp Watershed Association volunteer Fred Nealon is helping out with a cheap, effective solution. He has constructed fishing line disposal bins and installed them at several popular area fishing locations; including the Fisherman's parking lot on the edge of the Passaic in Basking Ridge, and at the entrance to Bayne pond in the center of Harding Township.

These disposal bins ensure that fishermen have a way to ensure line is easily and safely retained, in a way that wildlife cannot access, until the line can be collected and disposed

of safely. After obtaining permission, Fred installs the PVC pipe bins, then regularly visits them to monitor their use, and empty them as needed.

If you know of a popular fishing location anywhere from source to sea along the Passaic in need of a fishing line recycling bin, please let us know. All we need is a cross street location, or river entry point, and the municipality the fishing spot is located within. We will then reach out to the landowner to obtain permission to install the line recycling bins, install them, and Fred will add them to his roster of bins to be checked! It's a simple solution for a problem that is entirely solvable. This spring's mallard chicks, and countless other wildlife will thank you! And a big thank you to Fred!

Please contact Hazel England, Director of Outreach and Education, at hazele@greatswamp.org with locations in need of a bin. 🌿

Great Swamp Watershed Association's Sixth Annual Great Swamp Scavenger Hunt

What: 6th Annual Great Swamp Scavenger Hunt

When: Saturday, May 20, 10 a.m.–4 p.m.

Where: Check-in and picnic at Helen C. Fenske Visitor Center, Great Swamp National Wildlife Refuge, 32 Pleasant Plains Road, Harding Township, NJ

Calling all would-be explorers, adventurers, and buccaneers! **The Great Swamp Scavenger Hunt is back for another year of outdoor fun! If you've attended the Great Swamp Scavenger Hunt in the past, do not fear — this year's hunt will be full of new locations, clues, and prizes!**

Think you know a thing or two about New Jersey's Great Swamp? Then it's time to test

your powers of navigation and observation to find out.

Set Sail!

Begin the Hunt just after **10 a.m.** by checking in at the Great Swamp Watershed Association's (GSWA) *Home Base* under the pavilion at the Great Swamp National Wildlife Refuge Helen C. Fenske Visitor Center. (The Visitor Center is located just inside the Lee's Hill Road park entrance at 32 Pleasant Plains Road in Harding Township, NJ.)

We will provide you with a route to travel, questions to answer, and a list of treasures to find throughout the Great Swamp Watershed and Upper Passaic River region. It's your job to navigate to each treasure site, answer the questions and riddles leading to your booty, and return to *Home Base* with all your spoils.

All are encouraged to participate, especially family groups and larger teams.

Challenge the Pirate King!

Remember, hurry back to *Home Base* at 32 Pleasant Plains Road by **3 p.m.** because your day of pilfering booty has earned you a chance to win some special prizes at the *Pirate King's Tricky Tray!*





Grub & Grog

Before the prize drawing, join GSWA for a free cookout under the pavilion at 2 p.m., while supplies last. Don't forget to bring your barbecue enthusiasm, because the more who participate, the more fun you will have! We love it when our guests help out with the meal, so please feel free to bring along a covered side dish and serving utensils. (You can share your dish or keep it for yourself.) We will supply the burgers, dogs, and basic soft drinks.

The Particulars

Cost: Please consider making a contribution in support of this event when you register. Suggested amounts: \$10/adult, \$5/child (6 to 17), no suggested donation amount for children 5 or under.

What to Bring: Weather conditions may be hot, cold, muddy, or wet, so please dress for the weather. Sturdy outdoor footwear is strongly recommended. Consider bringing some snacks along for the road, or visiting a local business if you want lunch. Water (in a reusable container) is recommended. **Picnic side dishes, serving utensils, lawn chairs, and picnic cloths are most welcome.** (This is a leave-no-trace event.)

Ability Level: The Scavenger Hunt is suitable for almost all ages and ability levels. (Strollers are not recommended at some sites.) Great distances (sometimes miles) separate scavenging sites, but most are easily reached by car (or bicycle if you are inclined). You are not required to visit all sites, and may

proceed at your own pace along your own route. This is an outdoor event, so you may need to traverse boardwalks, uneven ground, pools of water, and mud.

Rescheduling & Cancellations: All events are subject to change or cancellation without notice; however, we will try to contact pre-registered participants via e-mail or telephone when problems arise.

For more details, please speak with a GSWA staff member at (973) 538-3500 or send an email message to events@GreatSwamp.org.

This event is sponsored by Investors Bank, Madison Branch. 🌲



GSWA is blogging at <http://GreatSwamp.org/blog>

Did You Know? Trees Are Always On The Job Filtering Earth's Water – But Where Are Their Cheerleaders?!

by Jim Northrop, GSWA Volunteer

Treating water pollution may be one of the most critical services that trees offer to the world. In *The Man Who Planted Trees*, a 2012 book written by Jim Robbins, the author looks at the relationship between New York City and the forests just to the north of the city in the Catskill Mountains. These rolling woodlands form a catchment and filter area for the water that New Yorkers drink.

In 1989, the U.S. Environmental Protection Agency ordered the city to build a new water treatment plant at a cost of \$8 billion. Their concern was that microscopic intestinal parasites, and some other water-

borne pathogens, would find their way into the New York City water supply.

However, city officials decided that the cheaper and better option was to protect the existing two-thousand-square-mile forested watershed that naturally filters drinking water flowing into the city. That plan would only cost about \$1.5 billion, and the money was spent on such things as buying buffers of natural landscape around reservoirs to act as filters, and negotiating agreements with upstate cities and towns to limit development in watershed areas. While using woodlands to clean the water made economic sense on its own, maintaining tracts of native forest



provided many additional ecosystem services, including wildlife habitat, recreation, and carbon dioxide absorption.


Deforestation anywhere can cause many problems for our water supply. Where freshwater once fell as rain on forests (and was filtered by the forest and slowly released), there are now farm fields, lawns, and parking lots that pour polluted sediment into our streams and rivers. In fact, research shows that river basins with the greatest amount of farmland produce the most pollution-laden sediment, while river valleys with the most forest coverage produce the least.

Deforestation along rivers and streams means that there are no woodlands to hold back and absorb the water, and so a faster flow is given to more water. Faster-flowing streams reduce the number and array of ecosystem services a waterway can provide. Broad streams with wooded banks flow more slowly than those without stream-side forests, allowing more time for contaminants to settle out and be taken up by nearby trees and neutralized by microbes.

Re-forestation can help reverse these kinds of problems. In fact, trees could be used to remedy a lot of modern-day water pollution problems, including some of the worst kinds of human-created chemical waste, such as dioxin, ammonia, dry cleaning solvent, oil and gas spills, PCBs and other industrial waste. The trees take up water-borne toxic waste and then neutralize, metabolize, and/or vaporize it.

Poplar and willow trees seem to be the most effective choices for scrubbing the runoff that washes into rivers and streams when rain falls across urban and rural landscapes. We have a problem in our cities and suburbs where pavement, driveways, and other impervious surfaces collect oil, lawn chemicals, pet waste, and industrial waste that subsequently washes into waterways during every rainfall event. Stormwater and sewage leaking from aged and broken sewer lines also carry viruses, bacteria, and protozoa capable of contaminating and killing shellfish, fish, and other aquatic life.

Because this runoff water comes from wide-ranging sources, it is difficult to capture and treat in a sewage plant. We cannot catch all of that stormwater and treat it conventionally — it would be too expensive. Perhaps the best way to get our streams and rivers cleaned up is to “tree-farm” our way out of the problem. Strategically placed in drainage areas where tainted water collects, willow and poplar trees could work their root zone magic and make very effective water filters.

There are many advocates in favor of “clear cutting” trees to make way for new houses and sports fields, but where are the advocates cheering for our trees? Where are those who stand up in favor of keeping our trees, especially in situations where they really are needed? In the future, perhaps we should better understand and support the important role that trees play along our streams and rivers. 

Great Swamp Watershed Association's Fourth Annual Home & Garden Tour Fundraiser

Wednesday, June 21. Check-in between 10 a.m. and noon

All tour homes close promptly at 3 p.m.

Check-in required. Location to be announced. Tour homes are located across the Great Swamp and Upper Passaic Watershed region. (Driving is required).

The Great Swamp Watershed Association's (GSWA) **Home & Garden Tour Fundraiser** returns for a fourth year on **June 21, 2017**.

Take a day to support GSWA as you find inspiration for your spring planting and decorating, and enjoy the warmth and renewal of this vibrant and colorful season!

This year's tour will be a celebration of the charming historic homes, enchanting gardens, and elegant estates settled in the midst of the quiet and natural beauty of our beloved region.



Peachcroft, from last year's house tour. This year's tour promises to be even more spectacular. Credit: Kelly Martin

Purchase your tour admission—

In advance for the discounted rate of \$50 per person

(Visit GreatSwamp.org to reserve online, or call 973-538-3500 to reserve by phone.)

-OR-

At the door for the full rate of \$60 per person

The tour homes will open at 10 a.m. and will close promptly at 3 p.m. The tour map you receive contains a suggested (rather than mandatory) route for your travels. Participants are welcome to visit as many or as few tour homes as they like, and in any order or combination they choose.

To register in advance, or for more information, please visit GreatSwamp.org or call GSWA at (973) 538-3500.

GSWA will Honor Christie Todd Whitman at 2017 Annual Gala

“Clean water is priceless, and we must protect our watersheds”

— Governor Whitman in her state of the state address January, 2000

GSWA is thrilled to announce that we will honor Governor Christie Todd Whitman at our 2017 Gala and Silent Auction, taking place on October 12, 2017 at Brooklake Country Club in Florham Park.

Christine Todd Whitman, former Governor of the State of New Jersey, is currently the President of The Whitman Strategy Group (WSG), a consulting firm that specializes in energy and environmental issues and which has been at the forefront of helping leading companies find innovative solutions to environmental challenges.

She was the 50th Governor of the State of New Jersey, serving as its first woman governor from 1994 until 2001. As Governor, Christie Whitman made a commitment to preserve a record amount of New Jersey land as permanent green space. She was also recognized by the Natural Resources Defense Council as having instituted the most comprehensive beach monitoring system in the nation. Whitman supported legislation providing ten million dollars for the preservation of Sterling Forest. She helped increase state funding for shore protection and pushed other Republican governors to support efforts to reduce soot and smog

air pollution. In 1998, Governor Whitman signed major clean water legislation to grant up to \$100 million in loans to local governments and water authorities for clean water and drinking water projects.

Whitman strongly supported a bond program approved by New Jersey voters in 1998 to purchase open space, as well as a 1999 bill to provide funding to preserve one million acres of land in the state by 2009.

Governor Whitman opposed unfettered development which puts basic needs such as clean water supply at risk. The Governor favored “smart growth” to prevent sprawl, relieve traffic jams and reinvigorate our cities by steering development to areas where the infrastructure of roads, schools, and sewers are already in place.

Governor Whitman served in the cabinet of President George W. Bush as Administrator of the Environmental Protection Agency from January of 2001 until June of 2003. Shortly after joining the Bush Administration, Governor Whitman said, “We have seen a significant transformation in the way we view our air, water, and land. Today, there is universal agreement that our natural resources are valuable, not just for the

(continued on next page)



Welcome to GSWA, Wade Kirby

Great Swamp Watershed Association is thrilled to announce that Wade H. O. Kirby has joined our staff as Director of Development, focusing on individual donor relationships.

Wade's background is in show business where he spent fourteen years in New York City working as an actor, stage manager and producer. Then along came triplet boys at the end of 1998 requiring him and his wife Linda to flee the city and move to Morristown! Wade has since worked in development positions for the



State Theatre of New Jersey, the Paper Mill Playhouse, Nederlander Presentations, the Morris Museum, and the Morris County Chamber of Commerce. He is a trustee of the Kirby Episcopal House and the Guilford Foundation, and is the current President of the Morristown Club. Before joining the GSWA staff in 2017, Wade served on the Advisory Council and subsequently the Board of Trustees for the organization. Wade enjoys seeing the wild fox, deer, and birds of prey so prevalent in this part of Morris County. 🌲

2017 Annual Gala *(continued from previous page)*

economic prosperity they help create, but for what they add to our quality of life. No longer do we debate about “whether” we need to act to protect our environment. Instead, we discuss “how” we can keep America green while keeping our economy growing.”

As EPA Administrator, she promoted common-sense environmental improvements such as watershed-based water protection policies. During her tenure, the Agency was successful in passing and implementing landmark brownfields legislation to promote the redevelopment and reuse of “brownfields”, previously contaminated industrial sites. (Information compiled from

Whitmanstrategygroup.com, Wikipedia, and ontheissues.org.)

We hope that you will join us for what promises to be our best Gala yet! Please contact us at events@greatswamp.org or (973) 538-3500 to ensure you receive an invitation to this special event or to make a donation in honor of Governor Whitman. 🌲

Like GSWA
and join the cause on

facebook

With Sincerest Thanks!

by Rick Porter, Director of Institutional Relations

The Great Swamp Watershed Association (GSWA) sincerely thanks all the corporate and private foundation grantors that generously support our mission.

For the period July 1, 2016, to February 1, 2017, we received almost \$150,000 in grant funding. These awards have a significant impact on our ability to enhance our current environmental programs and activities, and move towards fulfilling the goals of our new strategic objective to expand our mission downstream on the Passaic River.

Four unrestricted awards were received from repeat funders: the F.M. Kirby Foundation and the Ralph M. Cestone Foundation, the William E. Simon Foundation, and from BASF Corporation. GSWA is sincerely grateful for their continued support.

Restricted grants were received from twelve funders in total, ten of which were existing relationships. Renewing their generous support were Bayer Corporation, FirstEnergy Foundation, Horizon Foundation for New Jersey, Land Trust Alliance, Lowell Johnson Foundation, New Jersey Conservation Foundation, PSEG Foundation, Lillian Schenck Foundation, Tyler Foundation and Watershed Institute. We thank all of them for their dedication to our mission.

GSWA is also very pleased to announce that we were successful in securing funding from two new grantors in this period, both of which were very supportive of our

mission expansion initiative to bring our unique, environmental education programs to urban centers downstream on the Passaic. We received a grant from the Victoria Foundation to expand our in-school environmental education to select schools in Newark, and develop an awareness campaign related to our new role as the Passaic River Waterkeeper Alliance Affiliate. The Passaic County Children's Fund of the Community Foundation of New Jersey provided funding toward an educational initiative to complement green infrastructure projects being done at two schools in Paterson, NJ, by Rutgers Cooperative Extension Water Resources Program.

We are sincerely thankful to each and every one of these organizations for their support and the exciting opportunities their generosity provides. 🌱

Interested in volunteering?

If you are interested in getting actively involved in efforts to protect and preserve the watershed, GSWA has a number of volunteer opportunities (see GreatSwamp.org/how-you-can-help/volunteer-opportunities/).

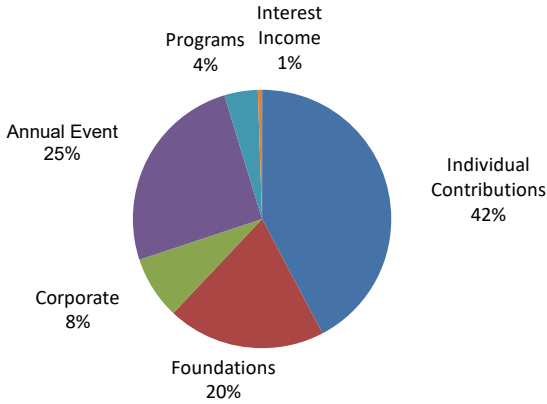
Please send an email to volunteer@GreatSwamp.org if you would like to volunteer!

Financial Report: Statement of Activities for the Fiscal Year Ended June 30, 2016

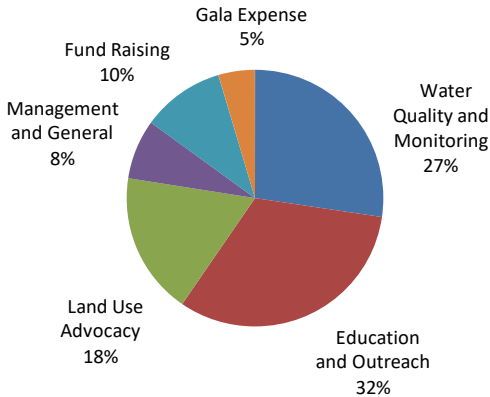
by Sue Levine, Director of Finance & Human Resources

	2016
INCOME	
Individual Contributions	\$ 271,003
Foundation Support	126,900
Corporate - see Note 1	50,415
Grants	-
Annual Event (Gross)	162,901
Endowment transfer in (4% draw)	-
Programs	26,825
Miscellaneous & Interest Income	3,383
Total from Primary Operations	641,427
Other Adjustments	-
	-
TOTAL INCOME	\$ 641,427
EXPENSES	
Programs:	
Water Quality and Monitoring	\$ 169,729
Education and Outreach	200,049
Land Use Advocacy	111,054
Total Program Expense	480,832
Management and General	46,570
Fund Raising	64,634
Gala Expense	28,554
Total from Primary Operations	620,590
Government Grants / Pass Through Grants	-
TOTAL EXPENSES	\$ 620,590
SURPLUS/(DEFICIT) - see Note 2,3 (a)	\$ 20,837
ENDOWMENT ACTIVITY	
Market Value 6/30/14	\$ 990,609
Contributions (b)	0
Transfer to Operating income (4%) (c)	0
Transfer from Operating income (c)	0
Investment Income & Interest Earned (d)	24,995
Gain/Loss on Investments (e)	(11,497)
Net change - see Note 3	13,498
Market Value 6/30/15	\$ 1,004,107

INCOME



EXPENSES



- Note 1:** Income from the Corporate category excludes matching gifts \$5,652. These funds are included in Individual Contributions.
- Note 2:** There was \$0 depreciation. In addition, the organization did not draw the 4% allotted to operations from the endowment. Instead the funds (\$40,000) were set aside in the Endowment as Board Designated.
- Note 3:** To tie to the audited financial statement's "change in net asset" line, you need to add (a), (b), (c), (d), (e) on opposite page. The audited financials reflect a gain of \$34,335.



Great Swamp Watershed Association

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