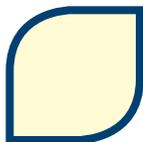


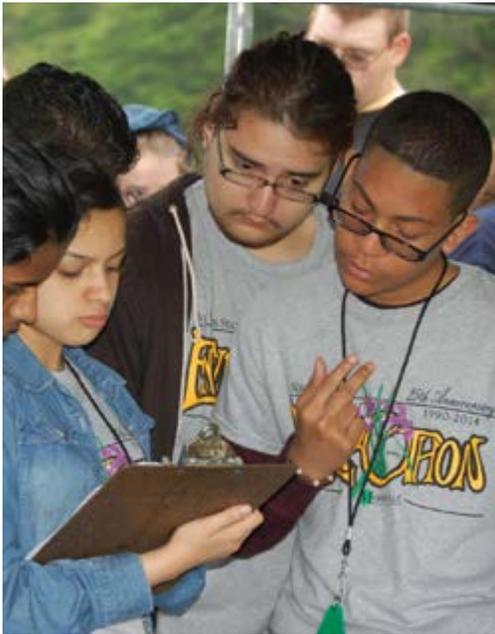
2014 Annual Report

NYS Soil & Water Conservation Districts



Soil and Water Conservation Committee

SO MANY OPPORTUNITIES FOR ENVIRONMENTAL STEWARDSHIP...



150,000 people participated in more than **1,000** District Environmental Education programs



NYS SOIL & WATER CONSERVATION COMMITTEE

The NYS Soil & Water Conservation Committee (State Committee) works to advance comprehensive natural resource management through the support of local Soil & Water Conservation Districts.

The State Committee operates within the NYS Department of Agriculture and Markets to establish policy, foster partnerships, and support diverse District programming.

Districts experienced growth in many areas in 2014, whether it is in restoring resources from natural disasters, providing expert assistance in stormwater management, or being the “go-to” agency for agricultural environmental management.

The State Committee is pleased to have assisted Conservation Districts in their efforts to enhance leadership and continually improve the way they provide services so that New York’s natural resources are protected for generations to come.

NYS SOIL & WATER
CONSERVATION COMMITTEE:

George Proios, Dale Stein, John Dickinson, David Brass, and Chuck Colby

ADVISORY MEMBERS:

NYS Dept. of Agriculture & Markets,
NYS Dept. of Environmental Conservation,
NYS Dept. of Health,
NYS Dept. of State,
USDA NRCS,
Cornell Cooperative Extension,
Cornell University,
SUNY ESF, and
NYS Conservation District Employees’ Association

98%
of Conservation Districts conducted environmental education programs



PUBLIC SAFETY
214
flood mitigation projects
conducted in 41 counties



SO MANY OPPORTUNITIES FOR CONSERVATION...

PROTECTING NY'S WATERS

24 miles of streambank protected and stabilized to prevent erosion

13 miles of riparian buffer installed

1,256 acres of wetlands protected and restored



AGRICULTURAL ENVIRONMENTAL MANAGEMENT

Agricultural Best Management Practice Systems implemented on **more than 5,500 farms**



Based on survey results

96%

of Conservation Districts are seen as the lead local conservation and environmental management organization in their county





AGRICULTURE

CONSERVATION & INNOVATION

AEM

The Soil and Water Conservation Committee engaged a wide scope of partners to design the Agricultural Environmental Management (AEM) framework, which provide a process and tools to assist farmers in evaluating and rectifying potential environmental risks and threats on their land. Local Soil and Water Conservation Districts partner with individual farmers in assessing concerns and identifying practical and cost effective long-term solutions. Participation in the AEM framework is voluntary and free for farmers, and Districts are reimbursed by the state for the services they provide. **In AEM Year 9 (2013 - 2014), Districts were reimbursed \$1.89 million for the time spent advising farmers and evaluating their farms through AEM, the highest level of services provided to date.**

The AEM program grew--over **420 new farms were introduced to AEM in Year 9.** The AEM framework also saw a steady increase in accom-

plishments for Tier 3 planning, Tier 4 implementation of BMP systems, and Tier 5 BMP evaluation and plan updates, indicating a steady progression from the introductory stages to the more involved stages on farms statewide. Forty-eight Districts across the state cumulatively dedicated nearly 50,000 hours throughout the year to provide watershed-focused, farm-specific technical assistance with farmers working to further advance their environmental stewardship and farm viability.

AgNPS GRANTS

The Agricultural Non-point Source Abatement and Control Grant Program (AgNPS) announced Round 20 awards in June 2013; over **\$13 million in state funds will assist 185 farms.** Soil and Water Conservation Committee staff are managing 190 active contracts, repre-

senting over \$51 million currently being invested in agricultural conservation efforts. All of the funding is for BMP systems rather than single elements. This ensures that environmental stewardship goals will be met.

AgNPS PROJECTS

The AgNPS Program continues to emphasize soil health conservation. Over 6,620 acres of cover crops have been funded. Other soil health practice systems include erosion control, prescribed rotational grazing, compost facilities, and conservation tillage.

Below are images of a sample runoff management system installed on a dairy farm. The Albany County Soil and Water Conservation District worked with a dairy farmer to achieve an AgNPS cost share grant on the construction of a runoff management system. The completed system keeps manure runoff (and livestock!) out of the stream through fencing, berms, and a concrete wall.



Albany SWCD implements a barnyard runoff management system on a dairy farm with AgNPS grant funds to protect water quality.



Before (far left) and after (left) fuel tank replacement. (Source: Suffolk County SWCD)

FUEL TANK REPLACEMENT

Suffolk Soil and Water Conservation District was honored by the Department of Environmental Conservation with a **2014 Environmental Excellence Award** for their Fuel Tank Replacement Program. The program demonstrates a sustainable and economically viable solution for replacing aging agricultural fuel tanks on Long Island farms. Over the past ten years, the Suffolk Conservation District has helped 127 farms replace 204 fuel tanks, thereby **securing 210,000 gallons of fuel atop Long Island's sole source aquifer**. Through a unique partnership with the County's Health Department, the District is able to help farmers purchase new, compliant fuel tanks at a reduced cost. The District has received nearly a million dollars in state and federal grant funds, including through the AgNPS program, to aid farmers.

ALTERNATIVE ENERGY IN AGRICULTURE

Soil and Water Conservation Districts implemented 15 Alternative/Renewable Energy Projects, with a total estimated cost of \$9.9 million. The largest of these projects is the regional methane digester owned by Cayuga SWCD. The **digester generated 1.1 million kilowatt hours of electricity** in 2014, fueling two county owned facilities.

ENERGY CONSERVATION

St. Lawrence SWCD worked with the USDA Natural Resources Conservation Service and a local maple sugaring operation to obtain an Agricultural Energy Management Plan (Ag EMP) to help the producer increase their operation's efficiency and decrease the amount of wood used to boil their sap. The 2,500 tap maple sugaring operation produces approximately 400 gallons of maple syrup a year using a wood-fired evaporator. To make maple syrup, sap from sugar maple trees is boiled to concentrate the sugars into syrup using an evaporator. On average, 40 gallons of sap boil down into into one

gallon of syrup, using lots of energy in the boiling/evaporation process. A Reverse Osmosis system forces the sap through a series of membranes increasing the concentration of raw sap from 1-3% to 6-10% before the sap is boiled to produce syrup, significantly reducing energy requirements. **The reverse osmosis system will help the producer realize a 45% reduction in energy costs and save 16.4 cords of firewood.**

Other Conservation Districts across the state are involved in projects including grass/hay pelletizing for biofuel heating, livestock watering systems powered by solar energy, assisting with energy audits, and promoting conservation tillage as an energy saving tool.



Reverse osmosis system (pictured upper left) will conserve energy at a maple syrup operation in St Lawrence County by reducing energy requirements during the evaporation process (pictured lower right). (Source: St. Lawrence SWCD)

Tre-G Farms in Onondaga County was awarded the 2014 New York State Agricultural Environmental Management (AEM) Award along with the Onondaga Soil and Water Conservation District (SWCD) who supported their environmental achievements through the AEM framework. The State Department of Agriculture and Markets, Empire State Potato Growers, and American Agriculturalist Magazine honored Tre-G Farms during an event at Empire Farm Days in Seneca Falls.

“Sound soil and water conservation practices are important facets of any farm operation, including my own,” said Commissioner Ball. “My sincere congratulations go to the Smith Family and the Onondaga SWCD for being honored in 2014. Every year, more and more farmers are tapping into the knowledge and expertise of their local district, with winning results from both an economic and environmental standpoint.”

Conservation Districts utilize the state’s AEM framework to help farmers meet environmental challenges head on. AEM helps farms make common sense, cost-

AEM Award

Tre-G Farms



effective, and science-based decisions to help meet business objectives while protecting and conserving the State’s natural resources.

The 160 cow dairy farm produces milk, hay, and corn on more than 650 acres of land. The farm has diversified to also grow asparagus as well as pick-your-own strawberries, raspberries, and peas utilizing a direct marketing approach that invites the public to the farm.

The farm has been working to reduce and prevent soil erosion and runoff to protect a nearby tributary for Oneida Lake since the 1970s. These practices

also require less fuel and capture organic carbon in the soil, helping mitigate climate change. After developing the AEM plan, the farm installed a milkhouse wastewater treatment system, a barnyard runoff management system, and a rotational grazing system that fully excludes livestock from watercourses protecting NY’s valuable water resources. Always striving to do more, the Smiths are planning to install solar panels to reduce the farms energy needs.

In his nomination of the Smith family, Onondaga SWCD Executive Director

Mark Burger said, “When we started the AEM plan for this farm, we could not have predicted the level of involvement that Jim and Sue would have with implementing all the conservation Best Management Practices or the support they have given back to the District. Jim has made himself available to promote the District and AEM, which is a testament to the value he sees in the District’s services, and in the appreciation and investment he shows for the District’s recommendations.”

FARMLAND PROTECTION

Despite the importance of farming, and the need for quality soils and other natural resources, farmland is often lost to development due to a lack of planning. Conservation Districts work with their local counties and farmers to support planning efforts that keep the needs of the agricultural community in the forefront of the development process.

Counties have formed Agricultural Protection Boards to promote farmland conservation efforts. The Boards

assist in rural development planning, developing farmland protection plans and implementing farmland protection projects. **86% of Soil and Water Conservation Districts are involved with their county’s Agricultural Protection Board** in an advisory or participatory role. **Districts were involved in the development of 36 farmland protection plans and the implementation of 25 farmland protection projects.**

In addition, Districts are now eligible applicants for New York State’s farmland protection implementation

grant program, which allows them to work with farmers to acquire conservation easements or incentive payments to preserve cropland.

Districts’ roles vary across the state, ranging from providing technical assistance to managing and completing the whole process. Allegany SWCD is under contract with the county to manage and update their farmland protection plan. In Franklin County, there is no formal planning department, so the District partners with Cooperative Extension to provide planning services for the county.



Soil Health

Important to Farmers, the Environment, and Society

To help farmers achieve better soil health, Conservation Districts advocate practices such as reduced tillage, cover crops, managing crop residue, and diverse crop rotation. Techniques such as these bring benefits to farmers like increased fertility and reduced need for chemical fertilizers and pesticides. As part of this effort, Soil Health workshops were held across the state providing an overview of soil health principles and the value soil health practices provide to the farmers' bottom line. Information was provided on keeping the soil resilient in a

changing climate, the value of minimum tillage, and the significance of soil microorganisms and earthworm population. Soils moderate or high in organic matter and biological activity have 50% more water holding capacity in time of drought and heavy rainfall than soils with very low levels of organic matter.



Over 1,200 farmers, District, and conservation partners were in attendance at workshops led by Cayuga, Dutchess, Franklin, Genesee, Orleans, Rensselaer, Schuyler, and Suffolk County Soil and Water Conservation Districts. The workshops were well received confirming the need to con-

tinue efforts to promote soil health management as a core, all-inclusive conservation system. The NY Soil Health Working Group; consisting of Conservation Districts, USDA Natural Resource Conservation Service, the NYS Soil & Water Conservation Committee, and Cornell provided soil health demonstrations at Empire Farm Days reaching over 400 people who visited the exhibit at the event. The exhibit had a large rainfall simulator, photos and soil samples demonstrating the effects of proper and improper soil management.



Soil Health demonstration.

Soil Health grants were awarded to 13 conservation districts in the great Lakes and Mohawk River Watersheds for \$295,000 to develop soil health programs. Districts worked with producers to lower their carbon footprint utilizing reduced or no-till conservation decreasing the number of passes in fields. Planting cover crops provides living roots for soil organisms and insulates the soil surface preventing erosion while building soil carbon.

ECOSYSTEM BASED MANAGEMENT

Jefferson Conservation District planted 400 acres of cover crop in 2014 as part of a **Sandy Creek Ecosystem Based Management (EBM) Project**. The District worked with farms to plant winter rye on corn fields during winter months to cover the soil. Fields close to water bodies and prone to erosion were chosen due to their resource concern. Cover crops will improve soil health, filter surface runoff, and prevent erosion.



Cayuga SWCD hosts a Soil Health Workshop.

PROTECTING NY WATER QUALITY

STREAM STABILIZATION, RIPARIAN BUFFERS, AND WETLANDS

In 2014, 49 Districts completed 409 stream stabilization, riparian buffer, and constructed wetlands projects in 2015, totaling more than \$16.4 million in project costs.

The Chautauqua County SWCD celebrated Arbor Day with BOCES students planting trees on four acres of farmland to help improve water quality in the Chadakoin River which flows into Chautauqua Lake. Trees will provide shade and reduce the amount of phosphorus and nitrogen going into the waterway from agriculture and other sources. The District has previously worked with the farm utilizing state AgNPS grant funds to exclude cattle from entering the stream.

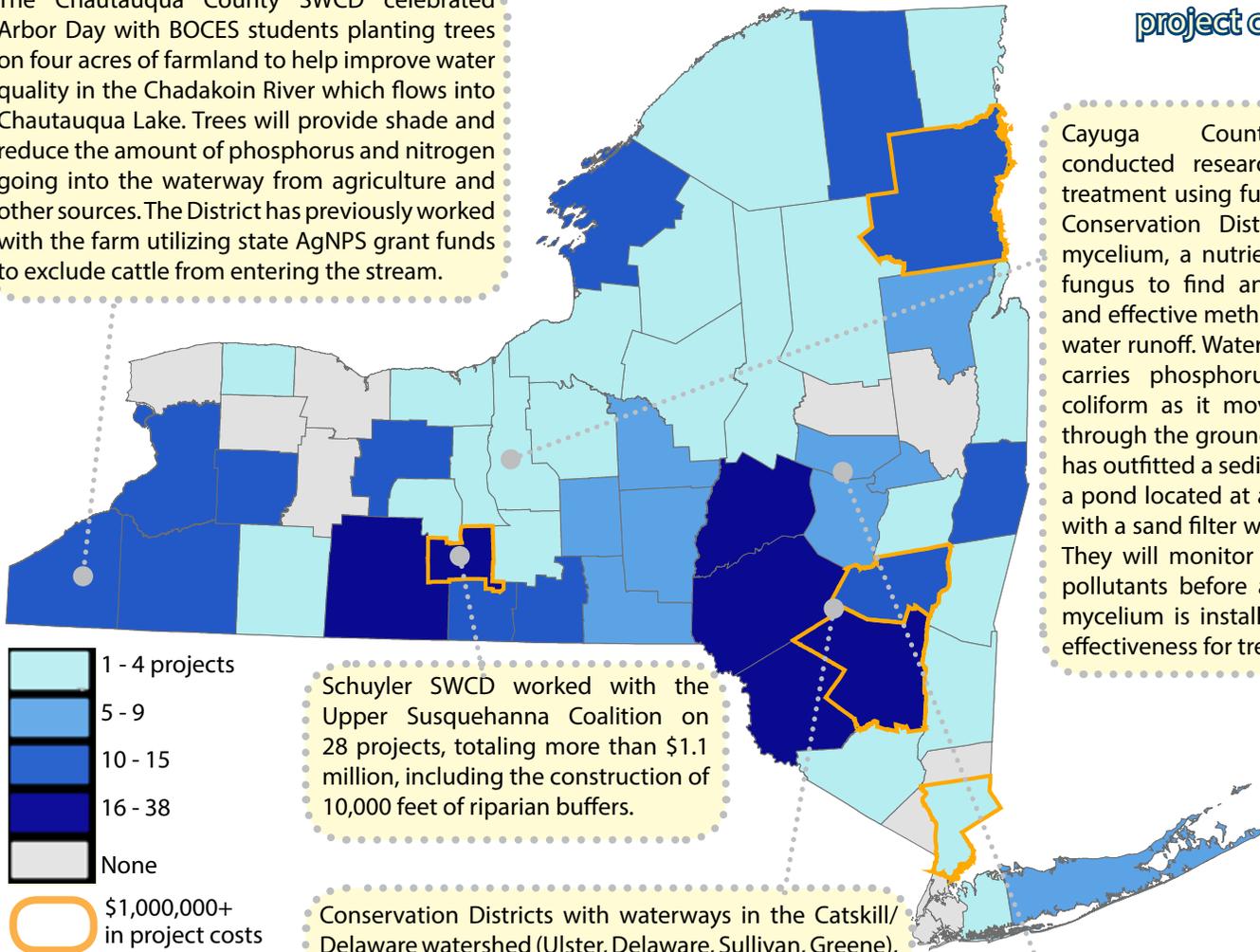
Cayuga County SWCD conducted research on water treatment using fungus. Cayuga Conservation District is using mycelium, a nutrient absorbing fungus to find an inexpensive and effective method of treating water runoff. Water picks up and carries phosphorus and fecal coliform as it moves over and through the ground. The District has outfitted a sediment basin in a pond located at a county park with a sand filter with mycelium. They will monitor the pond for pollutants before and after the mycelium is installed to test its effectiveness for treating water.

Schuyler SWCD worked with the Upper Susquehanna Coalition on 28 projects, totaling more than \$1.1 million, including the construction of 10,000 feet of riparian buffers.

Conservation Districts with waterways in the Catskill/Delaware watershed (Ulster, Delaware, Sullivan, Greene), worked with the NYC Department of Environmental Protection to protect the city's drinking water supply.

14 County Soil and Water Conservation Districts located in the Mohawk River watershed have formed the Mohawk River Watershed Coalition, and are recently completed a watershed management plan. Damage from flooding, pollution, and erosion have impacted water quality. The plan will document current conditions and create action items for restoration and protection. Development of the plan is being funded through the New York Department of State's Local Waterfront Revitalization Program grant funding.

Districts across the state are involved in creating, monitoring, and implementing watershed management plans. In 2014, 43 Districts were involved in developing, revising, implementing, and/or monitoring watershed management plans.



WHAT ARE THE SOURCES OF SEDIMENT POLLUTION IN NEW YORK STATE STREAMS?

At the joint Cornell Soil and Water Conservation Committee meeting in September 2014, scientist Peter Woodbury described his research on sediment in 15 streams in Central New York and the Southern Tier. While agriculture is frequently cited as a significant source of sediment, Woodbury found that more than half the sediment in the streams had eroded from the streambanks, potentially a greater concern than erosion from cropland.

Conservation Districts statewide conducted projects to stabilize more than 24 miles of streambank at a total cost of nearly \$14 million. Activities include hydroseeding for soil stabilization, floodplain maintenance, and channel restoration.

GREEN INFRASTRUCTURE

Green Infrastructure is a number of practices, techniques, and tools to use or mimic natural processes to maximize ecosystem services, such as water quality, stormwater infiltration, air quality, and mitigation of the urban heat island effect.

Fourteen Districts have been involved with 77 green infrastructure projects statewide, resulting in a total capacity of 3.34 million gallons of stormwater, at a value of more than \$1.2 million. Projects include rain gardens, porous pavement, bioswales, green roofs, wetlands, and others.

NYC SWCD: GREEN ROOF

The New York City Soil and Water Conservation District worked with a low income senior housing development to establish a green roof while the building was being repaired. As a retrofit, the project had more limitations than a new design would, but the **resulting installation captures a maximum of 750 gallons of stormwater**, which is 94% of the volume of a one inch storm on that area. The system was installed using a sedum planted interlocking tray system.



Completed green roof by NYC SWCD (Source: NYC SWCD)



Rain Garden established by the Ontario County SWCD at Outhouse Park in the Town of Canandaigua (Credit: Ontario SWCD)

ONTARIO SWCD: RAIN GARDENS

The Ontario Soil and Water Conservation District is involved in a number of green infrastructure projects, including porous pavement, bioswales, seeding and mulching, and rain gardens. There were three rain gardens installed in Outhouse Park in the Town of Canandaigua. They survived the winter and the plants have begun to grow and thrive.

UPPER SUSQUEHANNA COALITION: WETLANDS ON A WATERSHED SCALE

The **Upper Susquehanna Coalition** of Soil and Water Conservation Districts (as submitted by Tioga SWCD) **received an Environmental Excellence Award from the Department of Environmental Conservation for their wetlands program.** They have constructed and/or restored **more than 700 acres of wetlands** and wetland complexes in the past five years. Their broad and collaborative approach provides flood attenuation and water quality benefits to the entire Susquehanna River watershed, and subsequently to the Chesapeake Bay.

MONROE SWCD: RAIN BARRELS

The Monroe Soil and Water Conservation District provides rain barrel kits directly to homeowners in the City of Rochester and surrounding communities. The rain barrels connect to the house's gutters and prevent rainwater from joining the storm drain system. Rain barrel kits are available from the district for only \$45.

WILDLIFE HABITAT

Conservation Districts help residents all over New York State enhance wildlife habitat in their own backyards. In 2014, 627,631 trees and shrub seedlings were provided by Districts for residents to plant on their properties.

Wildlife houses sold by Districts to provide additional habitat options

Monroe SWCD fish fingerlings for animals. Districts provided 31 residents with detailed assistance for their ponds and provided over 103,000 fish fingerlings and grass carp for stocking of private ponds and to help control aquatic vegetation.



The Rensselaer SWCD helps coordinate the USDA Agricultural Conservation Easement Program securing farmland and converting it into habitat to attract wildlife. Pothole ponds, pictured below, are created to replicate wetlands. As of 2014, there are approximately 30 properties that the Rensselaer SWCD have worked with laying out the engineering and working with the landowner and contractor. The new wetlands attract all types of wildlife and are aiding in the protection of wood ducks which is a threatened species.



Wetland pothole created for wildlife

EDUCATION, OUTREACH, RESEARCH, AND ADVOCACY

LI GREEN INFRASTRUCTURE CONFERENCE

Nassau and Suffolk County Soil and Water Conservation Districts worked together with other organizations to plan and host the third annual Long Island Green Infrastructure Conference.

The conference focused on green infrastructure strategies for resiliency on the coast and inland in times of extreme weather events such as Hurricanes Irene and Sandy. Lecture and workshop topics included green infrastructure for coastal protection, climate change and adaptation planning, municipal codes and green infrastructure, retrofitting versus building new, and the economic value of green infrastructure.

The conference was attended by municipal officials, planners, property owners, developers, and other concerned citizens.

WATER QUALITY MONITORING PARTNERSHIP AT HONEOYE LAKE

The Ontario County Soil and Water Conservation District worked with the Honeoye Lake Task Force and the New York State Department of Environmental Conservation to monitor toxic Green-Blue algae levels in Honeoye Lake. The NYS DEC paid for the sample bottles, lab fees and shipping costs and the Honeoye Lake Watershed Task Force supplied the boat, operator, and paid for the District staff time. The sampling results were recorded in the DEC's weekly newsletter, and the program will continue in 2015.

NYS ENVIROTHON TURNS 25

A school year of preparation paid off for high school students who were rewarded for their knowledge of the environment at the 25th Annual New York State Envirothon. Over 200 high school students from 41 different communities across New York State competed at Morrisville State College in 2014.

The annual event is an outdoor academic competition testing students' knowledge of forestry, soils and land use, aquatic ecology, wildlife, and a current environmental topic. Students were required to compose and present a ten-minute oral presentation on the current issue, sustainable local agriculture/locally grown, and answer questions from a panel of judges. Teams then answered written questions and completed hands-on activities

such as soil analysis, tree identification, water quality, and wildlife assessment. Test questions for the five resource categories were prepared by natural resource professionals from Soil and Water Conservation Districts, USDA Natural Resource Conservation Service, NY Department of Agriculture and Markets, and NY Department of Environmental Conservation.



Allegany HS Envirothon Team compete at the 2014 NYS Envirothon.

The two-day event at the NYS Envirothon allows teams an opportunity to meet like-minded peers, refine

teamwork skills, experience an overnight stay at a college, and let their knowledge of natural resources shine. This year, first place went to Mount Academy from Ulster County earning each of the students a college scholarship. This is the 4th year in a row that Mount Academy has won the state competition.



2014 Envirothon Winners from Mount Academy giving their oral presentation on sustainable agriculture.

INVASIVE SPECIES

LEGISLATION PASSES

The authority for Conservation Districts to pursue programs in conservation education and invasive species management was passed by the State Legislature in 2014. The new legislation will update Soil & Water Conservation District Law authorizing conservation districts to implement preventative and control measures for the spread of invasive species. The second piece of legislation passed empowers Districts to conduct public information and education programs relating to water and soil conservation. The newly codified authority legitimizes programs that Districts are already doing and will continue to open doors for Districts to expand conservation efforts throughout the state.

ECOSYSTEM INVADERS

Conservation Districts wasted no time in implementing preventative and



Boat washes help prevent the spread of invasive species.

control measures for the spread of invasive species newly codified into law in 2014. Districts conducted 120 projects for over \$2 million. Districts survey and monitor waterbodies, forests, and public lands across the state for ecosystem invaders. In 2014 **Districts harvested 6,545 tons of invasive plant material.** Lewis Conservation District provided aquatic invasive species disposal stations for 14 boat launches and developed trail signage for keeping ATV and other equipment clean of invasive species. Districts also employ biological

controls such as the release of beetles to control purple loosestrife in wetland restoration sites. Providing education through brochures, signage, and invasive species workshops for residents and industry professionals is key to controlling the spread. The Oswego Conservation District presented at the Terrestrial Invasive Plant Species conference in Toronto, Canada regarding the

control of water chestnut on the Oswego River and its tributaries.



Plankton nets are set (right) to monitor Sacandaga Lake for spiny water fleas (above). Source: CDEA



CONSERVATION RESEARCH ON HILLTOP HANOVER FARM

Westchester County Soil and Water Conservation District used Conservation Project Financial Assistance (State Aid to Districts Part B) funding to implement a Forest Regeneration Demonstration Project.

The District worked with the New York City Watershed Agricultural Program and the Westchester County Parks, Recreation and Conservation Department to encircle a half-acre parcel of forest with ten foot tall fence to prevent deer from accessing the site. Deer overbrowsing can cause a breakdown in the vertical structure of the forest as the deer will completely remove the saplings and brush, leaving only the canopy and sub-canopy layers. Deer can also aid the spread of invasive species by depositing seeds in their feces.

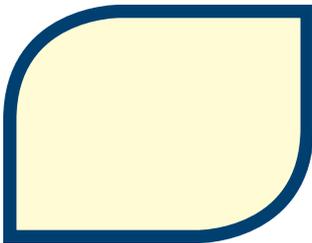
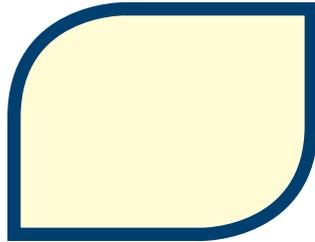
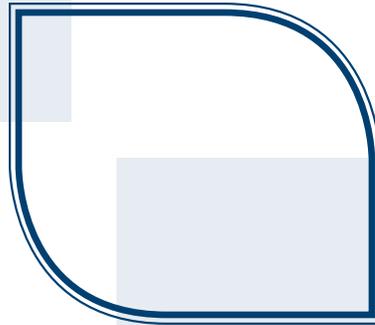
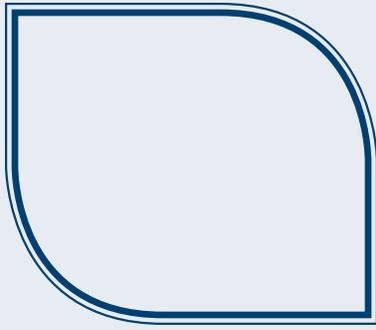
The project is on the grounds of Hilltop Hanover farm, a vegetable farm and environmental education center in Yorktown Heights. The project serves a dual purpose of research and education. The area will now be monitored to determine the ways deer browsing can negatively impact forest regeneration as well as the degree of resiliency forests ex-

hibit following extensive deer browsing. It will also be used to educate the thousands of visitors who visit the farm each year about the impacts of deer in the forest landscape.



Above: The deer enclosure fence at Hilltop Hanover Farm (Source: NYC WAC Annual report)

Left: A deer enclosure after a few seasons. Saplings and brush thrive without deer overbrowsing. (Source: USDA Forest Service)



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Division of Land & Water Resources
www.NYS-SoilandWater.org