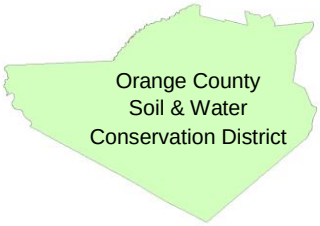
ANNUAL REPORT 2019

May, 2020

Orange County Soil & Water Conservation District



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INSIDE THIS ISSUE:

In these un-precedented times, maintaining normal operations of the Conservation District has been challenging – as it has been for most everyone else. We have been continuing to work, but with many of the restrictions facing all of business and government. Many of our funding sources are on indefinite hold, and this is already impacting our ability to move projects and programs forward. Despite these challenges, some good things are happening. This newsletter/annual report highlights recent projects and accomplishments. We hope that in the coming months a 'new normal' will develop that will allow us to ramp up operations.

Monhagen Brook Stream Clean-Up

Living in the city, sometimes good things can be hidden. Take Monhagen Brook for example - most of the City of Middletown is contained within the Monhagen Brook Watershed. You may not even know it's there, but almost every drop of water that falls on the City eventually flows down Monhagen Brook. Because our actions within the City are so closely tied to the Brook, it is our job to clean it up and protect it.

Over the years, the District has organized several stream clean-up events along the Monhagen Brook. One of the more recent events took place on the banks and in the stream where it runs behind ShopRite on Dolson Avenue in Middletown. The Orange County Soil & Water Conservation District, Shop Rite parent company Wakefern Foods, landowner Campbell Plaza, Cornell Cooperative Extension of Orange County, SUNY Orange, the City of Middletown, Orange and Rockland Utilities, and the Orange County Water Authority partnered to begin cleaning up and restoring Monhagen Brook.

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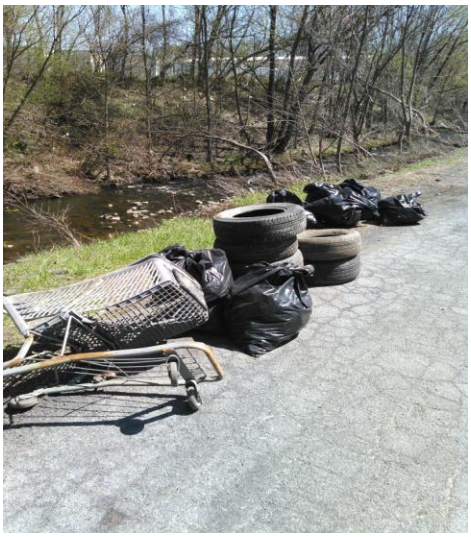
Volunteers clearing garbage from the Monhagen Brook, at Campbell Plaza in Middletown.



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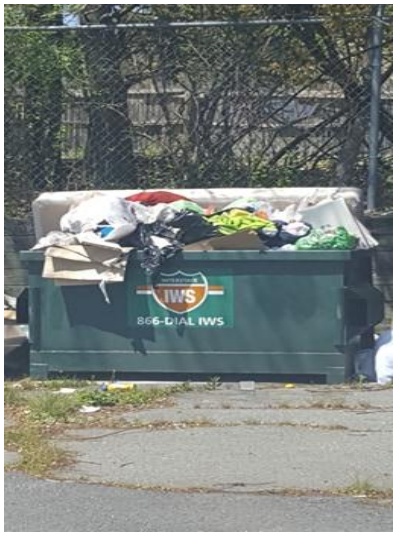
Another clean-up was at the Middletown Commons in May 2019. The District partnered with Senator Metzger's office to remove a large quantity of accumulated trash near the Monhagen Brook that runs behind Dolson Avenue in Middletown. Debris from overflowing and unmanaged dumpsters was a significant part of the trash we collected. After this clean-up, letters were sent to business owners close to the area of clean-up requesting their cooperation in dumpster management which included providing dumpster enclosures, keeping the lids closed whenever possible, to not overfill the dumpsters, package, bundle and secure loose, light material and to consider relocation of dumpsters away from the Brook.

2019 clean-up at the Middletown Commons, property borders the Monhagen Brook, behind Route 17M.

Earlier in the spring before cleanup.

Pile of garbage ready to be picked up by the City of Middletown from the 2019 clean-up at the Middletown Commons.



We have observed that debris from dumpsters is a significant part of the problem. Some of these dumpsters are located very close to the Brook and thus present an especially concerning threat.

Correctly installed Dumpster enclosures which are located away from watercourses and storm drain inlets.

No-Till Equipment Rental Program

The Orange County Soil and Water Conservation District (SWCD) rents out no-till seeding and planting and other equipment as part of its soil and water conservation program. Over 480 acres were planted with the equipment in 2019 which allows farmers to employ erosion reduction/water quality benefits.

Riparian Restoration Project along the Monhagen Brook

OCSWCD has planned and installed numerous riparian restoration projects. These projects typically involve planting a variety of native trees and shrubs along stream corridors that lack woody vegetation. The trees and shrubs are normally protected with weed control mats, and the trees are protected with tubes that promote growth and decrease browse damage. This Monhagen Brook streamside tree planting site along West Main Street in the City of Middletown, was infested with Japanese Knotweed but we were able to beat it back enough to get our trees started with assistance from the local girl scouts and neighborhood residents. We planted 80 trees and shrubs here in June 2019. We hope that in a few years, this planting will create an attractive gateway to focus attention on the Monhagen Brook.

These projects benefit greatly from periodic maintenance after the initial planting and tube/mat installation. Maintenance activities include survival inventory, re-installation of tree tubes where needed, removal of tree tubes when trees have reached a pre-determined size, re-planting where mortalities have occurred, and other general site maintenance as needed.

This small site at the bridge over Monhagen Brook on West Main Street in the City of Middletown is highly visible to motorists entering the City by this route. The planting was focused on flowering trees and shrubs to both enhance the Brook and beautify the site. The site was dominated by Japanese Knotweed before the planting project. Several control efforts have been made, but Knotweed continues to threaten effective establishment of the target species.

Trees for Tribs planting along the Monhagen Brook along West Main Street in the City of Middletown.

Tube/mat installations.

Continuous Japansese Knotweed removal (hand pulling) at the West Main Street site.

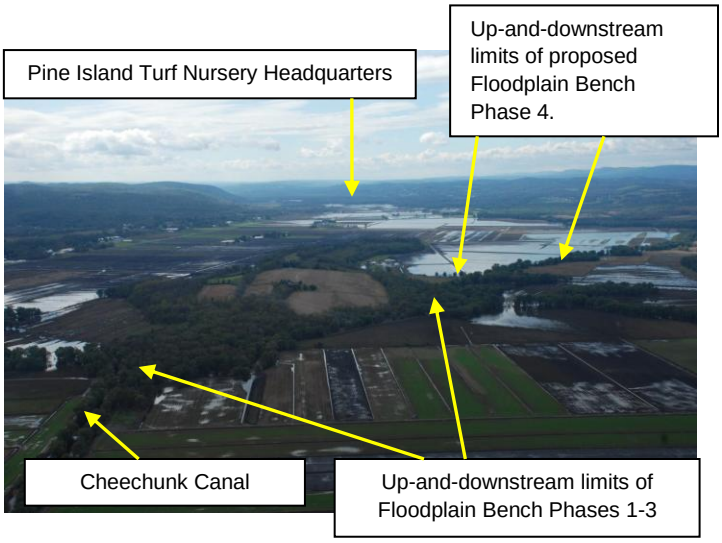
Climate Resilient Farming Round 5 "Wallkill River Floodplain Bench – Phase 4"

In March, 2020, we submitted a proposal to NY's Climate Resilient Farming grant program. If funded, this project will progress a phased flood mitigation program, referred to as the Wallkill River Floodplain Bench, further upstream from its current point of completion. Rather than deepening and/or channelizing the existing river channel, which has been shown in many cases to have limited long-term flood mitigation benefit and unintended environmental consequences, the floodplain bench approach mimics a natural river-floodplain system. Flood flows are not contained in an over-sized channel where velocity and instability increases, instead they are released to a broad constructed floodway where the flows can be contained and safely conveyed through the agricultural region. Adjacent valuable and unique organic soil croplands are afforded ten-year flood protection. In conjunction with the flood conveyance design, a riparian forest buffer is established. The addition of this practice to the design results in a river corridor that not only functions for agricultural flood mitigation but also as an agricultural buffer/water quality improvement system and an enhanced wildlife corridor.

The Black Dirt farm land adjacent to the proposed project has high potential productivity and with its suitability for growing vegetables is a source of healthy food in a densely populated area. However, with increasingly frequent and intense storm events, flooding threatens to make agriculture unfeasible.

While it will not be practical to prevent flooding from extremely large events such as the '100 year storm', the planned 10-year level of protection will ensure that farming continues to be economically feasible. In addition, damages from events larger than the 10 year storm can be expected to be lessened by more rapid removal of floodwaters.

Although removal of cropland from production in this highly populated and hungry region is not a goal of the project, there is a recognition amongst stakeholders that some land will need to be 'given back to the river' in order to allow for sustainable production on the adjacent farmlands. Therefore the project will result in conversion of some active cropland to forest cover which will provide greenhouse gas reductions.



This project will be sponsored by one farm operation, but it is noted that multiple individual farms upstream from the sponsoring farm will also benefit. This is part of a phased long term plan to extend the floodplain bench to the upstream end of the Black Dirt agricultural area – another 2 to 3 miles beyond the limits of this Phase 4 Project. The upstream farms will benefit from the work proposed, and their level of benefit will continue to increase as the floodplain bench project continues upstream beyond the 'Phase 4' (CRF 5) limits.

AEM Year 16

Agricultural Environmental Management, or AEM, provides the framework through which we are able to deliver technical and financial assistance to agricultural landowners and landusers. Up until 2020, NYS funding provided to us for AEM was restricted primarily to staff time expenses. This is the first year the District was given money to implement projects through the AEM program. We focused on three farms in the Moodna Watershed. The first farm is a goat dairy with 71 goats. Currently their barnyard and composting area are located near steep slopes and there is a concentrated flow that drains directly to the Moodna Creek. Nutrients from both the barnyard and composting area have the potential to reach surface water flows. To mitigate these water quality impacts a Livestock Heavy Use Area Runoff Management System and a Manure and Agricultural Waste Treatment System will be implemented. The barnyard, an adjacent holding area, and a laneway will be paved and roofed.

The second farm is a vegetable operation. In order to reach part of the farm, you have to drive directly through a stream. To mitigate the impacts of this a Stream Corridor and Shoreline Management System will be implemented. The farm also composts on an unimproved area. A Manure and Agricultural Waste Treatment System will be implemented.

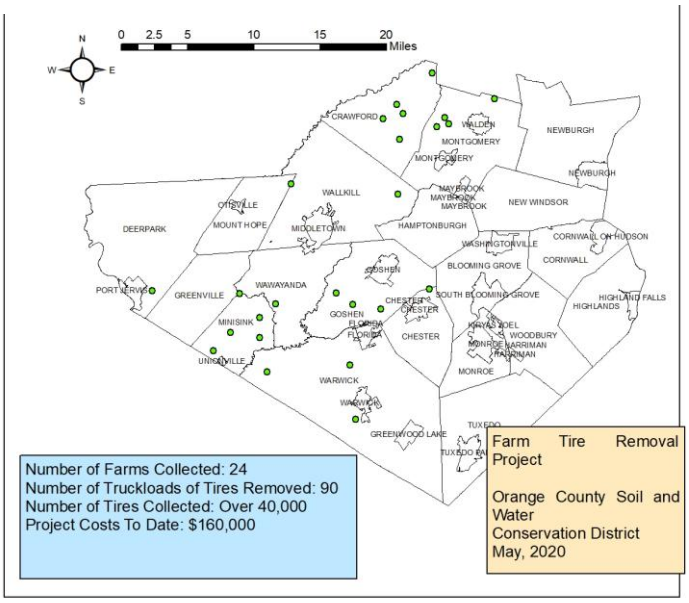
The third farm is a beef operation. Currently the livestock have unlimited access to the barnyard, pasture, and a small stream and adjacent pond. The pond and stream show damage from uncontrolled animal traffic. One of many practices that will be implemented on this farm is to add an Access Control System to completely exclude animals from the stream.

FARM TIRE REMOVAL PROJECT

Orange County Soil and Water Conservation District has been engaged in a project to assist farmers in removing tires from their operations to comply with NYSDEC regulations and for other public health and environmental protection reasons.

After meetings with the Orange County Legislature, the Agricultural and Farmland Protection Board and the Orange County Funding Corporation early last year, a Funding/Financial plan for completing the Orange County Farm Tire Removal Project was finalized and approved by the OCSWCD Board of Directors.

Tire removal from farms began in May 2019. Tires were removed from 24 Orange County farms. Approx. 90 truckloads exceeding 40,000 tires were removed. The number of tires at individual farms ranged from a low of 40 to a high of 8,000. The tires ranged in size from car/small truck tires to larger tractor tires. Approximately 600 car/small truck tires could fit on one truck, with many less on a truckload that included larger truck and tractor tires.



Tire collections at the Nop Dairy Farm in Montgomery on May 21st, 2019.

Trench Silo Covers

Many of the participating farms are now using Secure Covers, a product that eliminates the need for tires, to manage the covers on their feed storage trenches. The Secure Covers were provided to interested farms in 2018 through a program developed and funded by OCSWCD. These new covers have presented some management challenges but the over-riding sentiment is that they are preferable to tires and have eliminated a dreaded job on the farm. A few farms discontinued use of their trench silos and a few are using alternate measures to secure their trench covers that do not include the use of the Secure Cover project.

Secure Covers, anchored with gravel bags instead of tires, were provided to all interested Orange County farmers.

Trench Silo Cover Gravel Bag Filler

The Orange County Soil & Water Conservation District made a gravel bag filler that can fill 10 bags at a time. These bags are used to hold down the trench silo covers.

2019 DISTRICT HIGHLIGHTS

- Orange County Soil and Water assembled twelve Orange County dairy farmers to meet with Senator Jen Metzger, our new representative for the 42nd district and Chairperson of the New York State Senate Agriculture Committee. Senator Metzger requested this meeting to hear the concerns of local dairy farmers, and we were pleased to be able to facilitate it. We also assembled a group of young dairy farmers to brainstorm ideas that might allow them to continue dairy farming in Orange County. Some good ideas came out of the meeting, but unfortunately little progress has been made in implementing locally driven measures to better ensure continued operation of our few remaining dairy farms.

- We partnered with the County to implement flood mitigation in the County's economically important Black Dirt farming area. The County added funding to our County appropriation specifically to assist in leveraging additional funding from other sources to implement designed and permitted projects. We have also partnered with State Senator's office to secure State funding for this work via a SAM grant.

- Additional work was done in 2019 on the Monhagen Brook Watershed Plan. OCSWCD was a primary writer of the Plan. A lead recommendation in the Plan was to continue working with the City of Middletown to implement Green Infrastructure in the downtown area. We are pleased to report that a contractor has been selected by the City to retrofit several downtown parking lots according to GI designs prepared by Lehman and Getz Engineering. OCSWCD was instrumental in initiating planning activities for these measures.

- Orange County SWCD met with Senator Metzger and the Black Dirt Region Flood Mitigation Steering Committee in Pine Island regarding the Committee's detailed plans for flood mitigation in the black dirt region, and local farmers who are members of the committee shared with Senator Metzger the value of the improvements to date, and the importance of continuing flood mitigation efforts for the four-mile stretch of the Wallkill beyond the Cheechunk Canal.

- Organized and completed a second stream side planting project on the Monhagen Brook with the assistance of the NYS DEC Trees for Tribs program.

- Initiated a procedure for visiting and evaluating GI projects installed with SWCD assistance, including performance evaluation and maintenance needs.

- Present 4-hour contractor's erosion and sediment control training to approximately 61 members of the Local 17 Laborer's Union.

- Acted on Orange County's behalf to oversee required annual maintenance of the Wallkill River Federal Flood Control Project.

- Completed Phase 2 South of the Wallkill Floodplain Bench.

- Provided technical assistance to landowners and solar companies and municipalities regarding soil considerations, agricultural assessment issues, and related site planning issues.

- Planned and coordinated the removal of approximately 40,000 tires from 24 current or former farms at a cost of $160,000.00.

- Over 480 acres were planted with the District's no-till equipment in 2019 which allows farmers to realize erosion reduction/water quality benefits.

QUAKER CREEK MAINTENANCE PROJECT COMPLETED

Thanks to funding made available to us from Orange County, we were able to coordinate a flood control/drainage project on the Quaker Creek - a major Black Dirt region drainageway. The work was limited to removal of down and 'at-risk' trees to maintain flow. Unfortunately, there is no regular maintenance program for Quaker like there is for much of the Wallkill River. We undertook a similar project back in 2006.

Some 50 sites were addressed over 3 plus miles of channel from the Wallkill to Pulaski Highway. We had hoped for freezing weather to provide for firmer working conditions, but had to deal with challenging wet conditions. Our contractor did a great job of minimizing impacts.We were pleased to be able to hire local contractors for this work.

We also want to thank the landowners along the Project area that cooperated with us to help get the job done.

A long term goal of ours would be to establish a formal maintenance program for Quaker Creek and other drainageways in the Black Dirt.

Keeton to Retire From Soil and Water Board

After fifteen years of service, Gary Keeton is retiring from the Orange County Soil and Water Conservation District Board of Directors, effective May 31st, 2020.

Gary's varied and often fascinating careers and life experiences served not only to provide endless entertainment to staff and other directors, but contributed greatly to sound decision-making of the Board.

His careers and interests have included crop farming in the mid-west, managing thoroughbred horse farms, conducting biological research and becoming a respected local expert in archeology. Perhaps the greatest positive impact Gary has had on the world has been as a result of his immeasurable contribution to conservation education efforts. These efforts have taken place on behalf of various groups and agencies, and simply as a result of Gary's individual commitment to the cause. The number of children (not to mention adults) who have been enthralled by his encyclopedic knowledge of wildlife and natural history is probably impossible to calculate. In his role as a presentor at the Conservation District's annual Conservation Field Days for 6th graders alone, we estimate that over 5,000 students were the beneficiaries of his humble yet sophisticated presentation style that imparted a uniquely engaging understanding of our natural world. Who knows how many of these students' lives and career choices were influenced in part by the joy and passion he exhibited in these presentations.

His stories ranged from all-night boating expeditions on the Hudson studying creatures of all shapes and sizes, to forays into local secluded mountain locations to capture rattlers in burlap sacks for research purposes, to spotting Mastodon tusks while floating down the Wallkill. He and his wife once rode horses from Maryland to New York. His telling of how his son's slim girlfriend and science partner was lowered into a cave upside down through an opening that practically required

her to grease her shoulders was enough to make your knees weak. Want to know the history of the Basha Kill wetlands, including its former use as a rich agricultural area? Set aside a good amount of time for Gary to fill you in.

In addition to fulfilling his basic role of attending monthly Board meetings, Gary was always willing to pitch in when called upon. He commonly accompanied staff on Wallkill River inspections to maintain the functioning of the 1980's Army Corps flood control project. When an archeological study was needed in advance of 2016 Black Dirt flood mitigation work, Gary met our consultant in the field to help facilitate completion of the study so as to not delay the project. He often showed up at riparian restoration projects, rain garden plantings, and stream clean-ups, sometimes to set up an educational station but more often just to pitch in and be part of the solution.

Gary and his wife Sue will be retiring to an old farmhouse in Maine. It will without a doubt be Maine's gain and New York's loss. We wish him all the best and thank him for his years of service to science, conservation and the mission of the Conservation District. Some of us will think of him often and with great envy – far from tail-gaters, big box stores and McMansions.

Construction of Phase 2 South of the Wallkill Floodplain Bench approaches the County Route 1 bridge (summer, 2019). Establishment of riparian floodplain seed mix was done in sections as excavation work was completed. Also, note earth berm left along river edge. Both of these practices help to address erosion and sediment control requirements and protect the river.

Keeton teaching at Otisville Field Days.

Keeton teaching at the District's Conservation Field Days.