



BRADFORD COUNTY CONSERVATION DISTRICT

Stoll Natural Resource Center - 200 Lake Rd., Suite E - Towanda, PA 18848, Telephone (570) 265-5539 ext. 6

ANNUAL REPORT FOR 2021

Manager's Message

Another year has flown by here at the Conservation District. The pandemic gave us some challenges but did not stop us from having another successful year managing the natural resources of Bradford County. Although we were limited with our public events, we were able to think outside the box and find new ways to educate and interact. This year was the first year for our underwater drone! It's an exciting tool to learn about our natural and man-made water features from a different view. Videos have been created and can be found on our Facebook page and website.

In 2021 we were able to have our seedling sale, which looked a little bit different than past years, with a drive-up, 3-day sale. We liked it so much, that we decided to do it again this year!

This year one of our employees, Rob Sweppenheiser, retired after 34 years with the Conservation District. Rob was the District Engineer and created many valuable plans for our farmers. Even though Rob has retired from the district, he is still helping farmers through Team Ag. We wish Rob many years of happiness in his retirement and thank him for his dedication! The conservation district also said goodbye to another very valuable team member, Nate Dewing. Nate was the Ag Team Leader and was employed at the district for 24 years, assisting farmers with agricultural management and planning. We wish Nate all the best in his new endeavors!

Although we had to say goodbye to some of our work family, we are excited to welcome our new employees too. This year we hired our first-ever Forest Specialist, Adam Chorba. Adam has been assisting landowners with buffer installations, property management, and many other forestry-related issues. Adam is a graduate of Penn State University, with a B.S. in Wildlife & Fisheries Management program and an A.S. in Wildlife Technology.

Also, a graduate of Penn State, we hired our new District Engineer, Patrick Cullen. Patrick has a B.S. In Biological and Agricultural Engineering. Patrick came to us from the Union County Conservation District where he was also employed as the District Engineer.

We also welcomed Megan Rought as part of our Agricultural Team. Megan is a recent graduate of Mansfield University with a B.S. Degree in Environmental Biology and a Minor in Watershed Management. In addition, we welcomed a new Administrative Assistant, Cheri Holecek. Cheri recently relocated back to Bradford County and is the first person you will talk to when you call the conservation district. We are so happy to have Adam, Patrick, Megan, and Cheri on our staff!

I hope you enjoy reading our accomplishments outlined in this annual report and we look forward to serving our community again in 2022!

As always, our mission is to lead, educate, and empower people to manage resources wisely. The Board and Staff of the Conservation District are what keeps the strength of this organization going and without them, we would not be able to provide such professionalism and expertise in the programs we promote.

Yours in Conservation,

THE MISSION of the Bradford County Conservation District is *to lead, educate, and empower people to manage resources wisely.*

WHO WE ARE:

Conservation Districts in Pennsylvania have their roots firmly planted in a rich past, and their eyes focused on a productive future. Created under the Conservation District Law, Districts are the local unit of State government that provides the link between you, the citizens, and the multitude of local State and federal natural resource management programs.

A Board of Directors, appointed by the County Commissioners from nominations received from County-wide organizations serve as your voice. A staff of professionals provides information, technical assistance, financial assistance and educational programs and support at the direction of that Board.



DISTRICT DIRECTORS

Keith Heimbach

Chairperson

Daryl Miller

County Commissioner/ Vice Chair

Alvin Herman

Secretary/ Treasurer

Brian Zeidner

Anthony Ventello

Nicole Harris

Robert Miller

DISTRICT MANAGER / EDITOR

Cathy S. Yeakel

EDUCATION COORDINATOR

Daniel Rhodes

DISTRICT ENGINEER

Patrick Cullen

AG TEAM LEADER

Kevin Brown

AG RESOURCE SPECIALIST

Miranda Neville

AG RESOURCE SPECIALIST

Megan Rought

AG LAND PRESERVATION

Amy Kneller

TECH TEAM LEADER

Joseph Quatrini

CH. 102/105 MANAGER/CONS TECH.

Brad Cummings

NATURAL RESOURCE SPECIALIST

Jonathan VanNoy

NATURAL RESOURCE SPECIALIST

Theresa Flynn-Belles

DIRT & GRAVEL ROAD SPECIALIST

Kristin Pepper

DIRT & GRAVEL ROAD SPECIALIST

Timothy Robson

ADMINISTRATIVE ASSISTANT

Cheri Holecek

ACCOUNTS SUPERVISOR

Jenny Marino

SECRETARY

Kyleen Dinelli

ASSOCIATE DIRECTORS

Warren Singer

James Lacek

John Chapman

Neal Halstead

John Sullivan

Bruce Chase

				2021 Committees
	Jan - Dec 21	Budget	2022 Budget	
Income				
CDFAP	194,746.62	225,490.00	321,355.00	Ag. –Keith Heimbach (Ch), Daryl Miller, Josh Ford, Rob Miller, Mike Hanawalt, Mark Madden, Ron Harris, Al Herman, Staff Advisors: Nate Dewing, Kevin Brown, Amy Kneller Building & Grounds – Bruce Chase (Ch), Daryl Miller, Brian Zeidner, Anthony Ventello, Mike Hanawalt, Staff Advisor:Cathy Yeakel, Joe Quatrini, Kevin Brown, Jon VanNoy Dirt & Gravel Roads Program – Daryl Miller (Ch), Mike Hanawalt, Jeremy Yohe, Matt Williams, Rob Miller, Staff Advisors: Joe Quatrini, Kristin Pepper, Tim Robson, Tess Flynn-Belles, Tori Welliver District Operations/Employees – Keith Heimbach (Ch), Al Herman, Bruce Chase, Staff Advisor: Cathy Yeakel Donations/Memberships – Cathy Yeakel (Ch), Daryl Miller, Rob Miller Education & Youth – Nicole Harris (Ch), Bruce Case, Dan Rhodes, Tess Flynn-Belles, Joe Quatrini, Kristin Pepper, Amy Kneller, Cathy Yeakel Energy Conservation & Air Quality – Brian Zeidner (Ch), Bruce Chase, Keith Heimbach, Tony Ventello, Mike Hanawalt, Staff Advisors: Cathy Yeakel, Kevin Brown Equipment – Keith Heimbach (Ch), Bruce Chase, Staff Advisor: Cathy Yeakel Erosion & Sedimentation Pollution Control – Anthony Ventello (Ch), Bruce Case, Mike Hanawalt, Staff Advisors: Cathy Yeakel, Joe Quatrini, Brad Cummings, Tess Flynn-Belles Manchester Scholarship Award - Bruce Chase, Keith Heimbach, Nicole Harris, Cathy Yeakel PACD Executive Council – Daryl Miller (Delegate), Cathy Yeakel (Alternate), Al Herman (2 nd Alternate) Public Relations and Outreach – Al Herman (Ch), Brian Zeidner, Cathy Yeakel, Tess Flynn-Belles, Dan Rhodes, Miranda Neville, Kristin Pepper, Chad Gadsby, Amy Gilbert Strategic Planning – Cathy Yeakel (Ch), Daryl Miller, Anthony Ventello, Rob Miller, Joe Quatrini, Kevin Brown, Dan Rhodes Watersheds, Waterways & Wetlands – Al Herman (Ch), Rob Miller, Anthony Ventello, Warren Singer, Mike Hanawalt, Staff Advisors: Cathy Yeakel, Joe Quatrini, Tess Flynn-Belles, Brad Cummings
Contracts	2,909,955.46	2,183,790.00	2,460,300.00	
Delegated	54,707.19	30,000.00	60,000.00	
Donations	15,684.42	5,000.00	5,000.00	
Events Income	0.00	2,000.00	2,000.00	
Fees	46,305.95	50,000.00	50,000.00	
Interest	10,154.00	15,000.00	10,000.00	
Miscellaneous Income	115.01			
Reimburseable Expenses	1,565.97			
Rent	54,630.00	54,630.00	54,630.00	
Sales	31,535.89	18,000.00	18,000	
Total Income	3,303,716.09	2,583,910.00	2,981,285.00	
Cost of Goods Sold				
Sale Purchases	18,089.86	17,000.00	17,000.00	
Total COGS	18,089.86	17,000.00	17,000.00	
Gross Profit	3,285,626.23	2,566,910.00	2,964,285.00	
Expense				
Administrative Costs	30,711.18	18,000.00	18,000.00	
Advertising and Promotions	3,241.33	6,000.00	6,000.00	
Auto Fuel & Maintenance	2,597.17	5,000.00	5,000.00	
Bank Service Charges	-50.15			
Building	29,591.63	43,017.00	75,000.00	
Contract Agreements	1,482,558.60	1,585,893.00	1,891,576.00	
Contributions	6,100.00	1,500.00	1,500.00	
Directors Expenses	0.00	2,500.00	2,500.00	
District Projects	24.99		36,209.00	
Dues & Subscriptions	3,150.00	4,000.00	4,000.00	
Education	7,468.67	4,000.00	5,000.00	
Equipment	50,236.20	20,000.00	30,000.00	
Events/Workshops	9,150.72	15,000.00	10,000.00	
Insurance	10,806.00	12,000.00	12,000.00	
Operating Expenses	3,493.28	8,000.00	8,000.00	
Project Materials	24.98			
Salaries & Benefits	788,346.00	810,000.00	830,000.00	
Staff Development	1,123.42	5,000.00	2,500.00	
Telephone/Internet	1,084.12	2,000.00	2,000.00	
Travel	16,885.88	25,000.00	25,000.00	
Total Expense	2,446,544.02	2,566,910.00	2,964,285.00	
Net Income	839,082.21	0.00	0.00	

2021 AFFILIATE MEMBERS

Glenn O. Hawbaker
Manchester
DeCristo Incorporated
MAC Builders
CA Thrush
Cross Excavating
Histand's Farm Service
Wysox Sand & Gravel
Joe's Marine
Mountain Lake Electric/Construction, Inc.
Shaffer's Feed
Johnson's Quarries
Tom Rood
Strong Excavating
Burgess
Hardenstine Excavating Inc.
Casandra Carter
Bradco Supply Co.
Valley Energy
Henry Dunn
Solid Ground Services
Canton Building Supply
TMT Gravel & Contracting Inc.
First Citizens
PS Bank
Bradford Sullivan Forest Landowners
Judson's, Inc.
Arey Building Supply, Inc.
ZMK Construction
Lopke Contracting
MR Dirt
Claverack Rural Electric Cooperative, Inc.
Century 21
Gannon Insurance

2021 OBJECTIVES

CRITICAL NATURAL RESOURCE ISSUES

- 1) *Handle at least 90% of all farmer requests for assistance with Agricultural Best Management Practices within 6 months of their request and provide advanced nutrient management services to farm operators through agronomic crop management services.*
- 2) *Have a comprehensive plan to preserve Agricultural Communities in coalition with organizations of similar intent.*
- 3) *Provide evaluation, design and funding support to watershed groups for stream rehabilitation as requested.*
- 4) *Providing technical and organizational development assistance to Bradford County Watershed groups.*
- 5) *Develop an informational and educational strategic plan to increase public awareness by 50%.*
- 6) *Develop a comprehensive plan, with organizations of similar interest, to educate loggers and landowners on proper timber management.*
- 7) *Provide technical, informational, and educational assistance to protect the County's natural resources from impacts of natural gas resource development by developing cooperative relationships with gas industry representatives.*
- 8) *Reach 50 new farm/ag clients per year through outreach and education efforts.*
- 9) *Be a current source of agricultural odor issue information and assistance.*

CRITICAL OPERATIONAL ISSUES

- 1) *Develop a maintenance plan for Stoll Natural Resource Center with annual inspection.*
- 2) *Develop and maintain a stable, professional and adequate staff to address County needs.*
- 3) *Evaluate and review public assessment system for all District services.*
- 4) *Find the financial resources to meet the identified critical needs, continue improving accounting system, and develop long term fiscal management objectives.*

EROSION AND SEDIMENT CONTROL

- 1) *Close cooperation with the public, local officials, units of government and businesses.*
- 2) *Continue active involvement in, and inspection authority for, State Erosion and Sedimentation Program (Chap. 102); encourage adequate DEP Regional Office technical, compliance, and enforcement support.*
- 3) *Public Education of the importance of erosion control.*
- 4) *Encourage conservation on the land through Cooperator program and Cooperating Agencies.*
- 5) *Continue participation in Dirt and Gravel Roads Program.*

EDUCATION AND YOUTH

- 1) *Education of youth in forestry conservation.*
- 2) *Conservation education in County schools through competitions, outdoor labs, field days, newsletter, committee guidance, etc.*
- 3) *Public education of conservation practices accomplished in Bradford County*
- 4) *Support youth groups dedicated to conserving natural resources.*
- 5) *Continue Manchester Memorial Scholarship.*
- 6) *Work to educate target groups as to availability of District resources in identification of environmentally sensitive areas and pertaining regulations.*
- 7) *Develop a reliable funding base for environmental education activities.*
- 8) *Continue plan and develop Beers Family Wetland Education Area.*
- 9) *Develop strategy to Tell the Story of Agriculture.*
- 10) *Increase energy conservation awareness and develop Volunteer Energy Corps.*
- 11) *Seek partnership to develop an educational summer camp series.*

DISTRICT IMAGE AND PUBLIC RELATIONS

- 1) *Keep the public informed of the District's accomplishments.*
- 2) *Involve agencies, their families, and individuals interested in conservation in the District's activities.*
- 3) *Enter state and national contests for recognition of accomplishments.*
- 4) *Review District Awards/Recognition Program.*

- 5) *Maintain and expand District road sign coverage.*
- 6) *Seek methods to improve District staff visibility.*
- 7) *Organize and plan a yearly Earth Day Celebration*

LAND USE

- 1) *Actively encourage sound land use management.*
- 2) *Conserve/Protect agricultural land.*
- 3) *Public awareness of the importance of forests to Bradford County.*
- 4) *Greater use of Soil Survey.*
- 5) *Support conservation measures and activities of Cooperating Agencies.*
- 6) *Work for solid waste management.*
- 7) *Assist and educate the public in the value and proper management of wetlands and provide input to State on local conditions.*
- 8) *Continue Chap. 105 delegation program.*
- 9) *Promote enhancement of wetland resources.*
- 10) *Participate in river conservation planning for watersheds.*
- 11) *Promote proper floodplain management through education of municipal officials and participation in DCED Floodplain Outreach Program.*
- 12) *Explore opportunities for agriculture's role in energy and energy conservation.*

WATER RESOURCE MANAGEMENT

- 1) *Better water quality through proper management.*
- 2) *Promote proper utilization of soil amendments.*
- 3) *Promote proper stormwater management.*
- 4) *Actively participate in Chesapeake Bay Project.*
- 5) *Promote proper management and development of water impoundments.*
- 6) *Work with homeowners on proper use and management of pesticides, herbicides, fertilizers and other household wastes.*
- 7) *Continue working with interested landowner to establish Bio-Solids site.*
- 8) *Seek solutions to water quality influences for Stephen Foster Lake.*
- 9) *Participate in Nutrient Management Delegation Program.*

DISTRICT OPERATIONS AND PERSONNEL

- 1) *Secure equipment necessary for the proper operation of the District.*
- 2) *Continue personnel training & evaluation for better management of District Program & cooperating agency offices.*
- 3) *Involve individuals and local businesses in the District's conservation program.*
- 4) *Enhance the professionalism and leadership skills of District Directors and staff.*
- 5) *Organize tours of local industries utilizing natural resources.*
- 6) *Evaluate potential for increased efficiency of District record keeping/data storage through GIS, e-mail, webpage, digitized electronic data management, etc.*
- 7) *Evaluate ongoing maintenance needs of Stoll Natural Resource Center.*
- 8) *Each District committee meet at least once a year.*
- 9) *Establish expectations and review job description for each staff position.*
- 10) *Develop funding contingency plan, including fees.*
- 11) *Implement conservation measures to make District "Greener".*
- 12) *Increase District's ability to assist with Energy Issues.*
- 13) *Formalize the structure for a Volunteer Corps.*
- 14) *Secure professional personnel as needed.*
- 15) *Develop and Employee Recognition Program*

LOCAL, REGIONAL, STATE, AND NATIONAL ACTION

- 1) *Keep abreast of legislation, projects in conservation, and support the National and State Associations of Conservation Districts by regularly attending conservation meetings and voicing the District's opinions on legislation, etc. that affect our natural resources.*

Agriculture – Annual Report – 2021

As we all know, the last couple years have turned anything and everything on its head. The Ag Team saw that, and more. COVID has changed the way we do things, and it has taken the last few years to figure out how to continue with great service and try to get back to some sort of normalcy. The Ag Team prided itself on customer service and one-on-one personal relationships. That has been virtually impossible the last two years. Speaking of virtual, it is worth noting that this is the way a lot of the work gets done these days- meetings, farm “visits”, etc. This happened everywhere, and we were not immune. To compound this, our team in January consisted of 5 full-time, seasoned employees. By the end of the year, we were at 2 full-time as we experienced some turnover; however, we still had a pretty successful year, but it was not without a lot of challenges.

A summary of accomplishments would be: 12 REAP applications, 6 NMP reviews (one of which is a brand new farm to the program), 12 annual status reviews, 6 complaints investigated this year, more than 50 MMPs, 12 Ag E&S plans, change in Ag Team leadership, change in Farmland Preservation Administration, change in engineering, major equipment upgrade to highboy inter-seeder, sent the inter-seeder to Lancaster for some trials down there, talked with many very influential people about the results we have been having with our cover crops program, help conduct the semi-annual Roadside Tillage Survey, and maybe most importantly, we have been able to keep up with our weekly newspaper article column where we continue to educate the general public about numerous different environmental topics. We have talked about everything from no till to pollinator mixes to “rain taxes” to bats and bees. One big thing that we miss is being able to go to the local schools and educate our next generation. We are hoping that will return in the near future.

Conservation Planning, Education, and Outreach

Conservation planning is the foundation of our work with farmers in Bradford County.

It is our goal each year to connect with as many people as we can to educate them on the importance of managing their land so that it benefits their crops, animals, and the environment. One role we play in nutrient management is to help our local animal owners understand what is required of them by law. Through nutrient management planning, many realize benefits for themselves, the environment, and their livestock. These plans are also good protection for the owner when there is a complaint. Some of these plans lead to funding assistance for implementation. Most of the year was very slow on doing this as no one could make farm calls. DEP employees were doing their farm inspections by phone early in the year, and toward the end of the year they got back on the farm. This gave us a direct line with the producers. If they do not have a plan, they are given 90 days to produce one. Most people find it easier to come to us to write one. This gives us a chance to have those one-on-one conversations about how to best utilize nutrients for themselves, their crops, and the environment. Within the next couple years, we will hope to get to every animal owner in the County and help them understand what is required of them, and maybe make their animals a little more comfortable in the end too.

Conservation Engineering

Some of our key services are engineering, survey, and design of conservation practices that farmers and land managers are wanting to install. Bradford County continues to provide top-notch engineering design for these practices. This year was a big year for changes to our engineering department also. Our long-time rock of an engineer (Rob Sweppenheiser) decided to retire. We do have a new engineer at this time, Patrick Cullen. We will still be able to do a great job with the engineering but anyone, new to a job, takes a while to get acclimated to their job and surroundings. I am sure Patrick will do a great job for many years to come.

Due to the issues with the last couple years discussed earlier, engineering was pretty slow this year. We did do 7 surveys, 6 Heavy Use Area Protections, 1 Waste Transfer System, 5 I&E's, 5 site showings, and 2 design reviews this year. Patrick's work is usually heavily dependent on what projects NRCS has to implement that year, and they had very few this year. For the first part of the year, Rob's time was spent on a lot of culvert designs with our Dirt and Gravel Roads team.

Conservation Practices on the Ground

Providing construction quality assurance during the installation of conservation practices allows us to certify their installation. This can be important to help the landowner be sure planned work is installed correctly, and also for insurance purposes, real estate value, assurance to lending institutions, assuring the proper use of public funds, and to comply with state and local regulations. Conservation practices installed in 2021 were few and far between. NRCS is usually the one installing the practices, with our help for quality assurance and survey work. NRCS had no projects this year to do.

Agricultural Land Preservation

2021 saw continued interest in the Agriculture Land Preservation Program. The program received 17 applications, including 3 new ones. Since the program started in 2001, we have preserved 19 farms in the county, protecting 4,661 acres and investing over \$4.1 million. We also have one farm in contract to be preserving. That will add another 139 acres. Some interesting numbers statewide- they have eclipsed 6,000 farms and spent over \$1.6 billion to preserve this important resource. Also, we are in communication with the people running the federal program and we hope to be able to bring that into the fold and stretch our dollars even further. There are some other restrictions in that program so we will need to work through that.

The mission of the Bradford County Agricultural Land Preservation Program is to protect viable agricultural land, preserve farming heritage and opportunity for the future through the purchase of agricultural conservation easements. The funding for this program comes from a mix of state and county funds. The state funds are derived from a 2-cent tax per pack of cigarettes sold in PA, while the county contributes funds from Clean and Green rollback taxes collected each year. There are four minimum requirements for the program: Land must be located in a duly recorded Agricultural Security Area (ASA); At least 50% of the property's soils are available for agricultural production and are of Land Capability Classes I through IV; 50% of the property's total acreage must be in current use as harvest cropland, pasture or grazing land; Farms must be contiguous acreage of at least 50 acres in size or contiguous to a property which already has a perpetual conservation easement in place.

Cover Crop Inter-seeder



Keeping the soil covered year-round is one major key to healthy soil. For farms working to improve soil organic matter, planting a “cover-crop” to cover the ground during the non-producing months can really help soil health and erosion issues. Length of growing season can be a challenge for cover crop establishment because once the primary crop is harvested, there may be little time left to re-establish cover. In 2021 we abandon most of our “normal” efforts to establish cover crops and tried something else. Typically, we look at going in over fully mature corn in the September timeframe. This gives the cover crop time to start establishment before the cash crop comes off. We have been told that this is the best way to do it. It has not been successful here. At least not as consistently successful as we would like to see it. Several things were identified as being issues in our region. First off, there just isn’t enough growing season left to get things growing well enough to go into winter. Second, cover crops do not like “wet feet”. Our soils are typically not well-drained, and 3 of the last 4 years have been exceptionally wet- some over 20” more rainfall than normal. This did not bode well for getting things growing. And lastly, these crops need to have nutrients to grow on. We have done such a phenomenal job of

getting growers to put on only the nutrients that they need for the cash crop, that there is nothing left for the cover crop. If you don’t fertilize specifically for it, have a drier field, and get it on early enough, you will not get a good, consistent crop. For this reason, we chose another approach this year. We had tried it in 2019 on one farm and had tremendous results. We did the same farm in 2020 and had disastrous results. Of course, that might have been due to the exceptional drought

that we had that year. His corn was only 6' tall so, of course, there wasn't much cover crop there. However, we decided to give it another go (now that we were back with better-than-average rainfall). Our trial now was to put the cover crop on when the corn was knee-high. This would allow it to establish over the course of a majority of the growing season. If you think about it, the other way, we are trying to grow a crop when things aren't supposed to grow (October thru March) anyway. If they aren't supposed to grow then anyway, throwing another curve ball at them (moisture, fertility) only makes it that much worse. The results this year were fantastic. We had cover crops that were well over knee-high by late fall. That will cover a lot of ground and will give them a chance to survive winter. Our best field was on a field that was probably 20%+ slope. What better field to have a great cover crop on than something that steep? We will be trying to do a lot of acres this coming year in this timeframe.

The inter-seeder was used on 223 acres in Tioga County, and 70 acres in Bradford County. The low numbers are due to poor and unreliable results from previous years. This year we should continue to grow those numbers as things seem to be coming together with a new approach. Also, because of the high amounts of rainfall, one customer wanted to topdress his cornfields with nitrogen and the inter-seeder was one of the only machines around tall enough to do that. We topdress 132 acres of corn with urea this year. And shortly after that we made arrangements for the unit to go to Lancaster County. They were having less-than-desirable results planting cover crops into corn at the knee-high stage and wanted to try the late-season approach (the opposite of our results). So, after we were done with it, the unit was hauled to Lancaster where it did another 423 Acres. As of late fall, there was enough growth of the crop down there that interest in that program was pretty high. We will know more this spring. That also sparked another very innovative grower to call me and ask if he could use the unit. We will be exploring that idea next year.

The conservation district has a number of ways to help fund the planting of cover crops in the following years. We should be able to cover most, if not all expenses for anyone wishing to experiment with cover crops on their farms.



Rye grain cover crop planted into standing corn with the inter-seeder

No-Till Demonstration Garden

2021 marks the third year for the no-till demonstration garden at the Stoll Natural Resource Center! Conservation District staff again planted a mulched garden directly into our undisturbed soil. We enjoyed watching this garden produce through the season. It produced excellently with very little effort.

The Stoll Center garden aims to demonstrate soil health principles applied in a garden setting. Production farmers are rapidly learning to implement soil health improvement on a large scale. Any of us can use the same principles in a small garden. The keys to healthy soil are maximizing the number of days with living plants, keeping soil covered, minimizing disturbance (maintaining structure), and increasing plant diversity.

A note to some that may try this way of gardening. There is nothing simpler than gardening this way. Mulch the year before, plant, and harvest. That's it. It is worth noting that because the ground is kept cool and moist, it has seemed beneficial to us to plant the garden a little later than normal. In 2020 we did it mid-May when things were looking good. Some of the plants struggled, as I heard many people had trouble with last year. After evaluation, I went back to a mid-June planting and everything grew extremely well again. Keeping the soils cool and moist in the hot summer is a major benefit, but it may slow things in the beginning.



End of the year picture of the produce that was grown with basically zero work, except mulching and planting.

Pennsylvania's Agricultural Compliance Efforts

Pennsylvania's Department of Environmental Protection has continued inspecting agriculture operations at an increased rate. Many farms have contacted BCCD for planning and technical assistance related to compliance with Pennsylvania regulations. The BCCD remains committed to resourcing farms with sound conservation planning, BMP implementation, and real time natural resource improvement.

Nutrient Management Act Oversight

The conservation district accepts a delegation of duties from the State Conservation Commission to oversee farms that are regulated by Pennsylvania's Nutrient Management Act (Act 38). Responsibilities include technical review of nutrient management plans developed for farms regulated by the law. We provide oversight of 11 farms in Bradford County and one farm in Sullivan County, which are required by law to maintain these Act 38 nutrient management plans.

This delegation includes outreach to the farming community to help people understand and comply with Pennsylvania manure and nutrient management regulations.

Manure Management Manual (MMM)

Along with the Nutrient Management delegation, we also tasked with education and outreach to all operations that have livestock to have MMM. This is the heart and soul of what we do here at the district. We are here for our producers, to inform them of their responsibility to have these plans, and more importantly, to help write them. We have written 55 MMM and 12 Ag E&S plans. E&S plans are for anyone who tills the ground in any way (even no till) or has an animal concentration area (those areas devoid of vegetation) over 5,000 square feet. These are very important plans to have, and they will help in our efforts to clean up water in our own communities.

Funding Sources

Another critical role that we try to help producers with is funding. Funding can come from a number of sources. It is also a role that we would like to expand on. There is a tangled web of resources out there that can potentially be used to help our residents out, but without knowing how to work through the web, there is little chance that they will ever get the help they need. A lot of the avenues to funding we already understand or can help figure out. This year we have been quite busy with REAP, Small Business Advantage Grant, EQIP (thru NRCs), USC, CREP, 319, and even some more that we have not traditionally used that I am hoping we can get into possibly (PennVest, NFWF, DCNR, etc.)

One future funding source will be the County Action Plans (CAP). We developed this over the last year and funding is going to become available for the year 2022. Much of the end of the year was devoted to figuring out this plan and what areas of interest we could spend money on. If all goes through, we will have money to help with BMP's, a no till drill, cover crops and the interseeder, and fencing projects.

Miscellaneous Responsibilities

Some of the miscellaneous things that took time this year were: the CAP agreement, the district budget and the NM Delegation agreement all came together just as we were losing two employees (with the roles of the employees changing also). The CAP took a fair amount of time, as did the delegation agreement (which normally would be a quick once-over and rubber stamp it).

For education- we serve on the Advisory Committee for Canton, Troy, Athens, and NEB schools. Without this committee, the schools would jeopardize being able to teach ag classes in school. It is a very important function for our youth. They need volunteers for this, always.

We were also invited to a “first of its kind” educational event at the Canton High School. It was called SOLE Slam and it had to do with teaching our youth differently and making them aware of the potential job opportunities in the area and different pathways that were available to them after school. It was an extremely exciting event that I think really opened the eyes of our youth.

The Ag Team also gets contacted on new and exciting things like solar farms and new things coming down the pike. That has meant that we have to learn about these opportunities and talk intelligently to our residents about them. They are concerned with erosion and water issues, what crops to plant underneath, can they utilize the land in other ways at the same time, etc.

Watersheds – 2021 Accomplishments

Another year has come and gone, and the Bradford County Conservation District continues to work towards helping clean up our local watersheds. In 2021, BCCD completed survey, design, and construction on 8 stream rehabilitation projects. With the cooperation of our partners, those 8 projects resulted in nearly 0.5 miles of stabilized streams that prevented approximately 1,100 tons of sediment, 2,750 lbs. of N (nitrogen), and 1,100 lbs. of P (phosphorus) from entering Bradford County waterways, and subsequently, the Chesapeake Bay. These projects would not have been successful without the strong partnerships that have been formed between BCCD, Local, Federal, and State agencies, as well as the cooperation of Bradford County landowners.

Funding for the completed stream work in 2021 was provided by EPA's 319 Program, DEP's Growing Greener Program, the DEP Stream Improvement Program, the Bradford County Watershed Program, as well as a technical grant from the National Fish and Wildlife Foundation (NFWF). Work was implemented in the following watersheds: Wysox Creek, Sugar Creek, Towanda Creek, and South Creek. Best management practices included riprap streambank protection, stacked rock walls, and weirs.

Below are before and after photos of some of the 2021 stream projects accompanied by a table of accomplishments.

Fall Brook



Jerome Creek



Bullard Creek



BCCD Project Accomplishments						
<i>Watershed</i>	<i>Stream</i>	<i>Length (ft)</i>	<i>Sediment Savings (Tons/yr)</i>	<i>Lbs Nitrogen Saved</i>	<i>Lbs Phosphorus Saved</i>	<i>Funding Source</i>
Wysox Creek	Bullard Creek	460	335	837.5	335	Growing Greener
Sugar Creek	Fall Brook	210	205	513	205	DEP Stream Improvement
Sugar Creek	Fall Brook	160	116	290	116	DEP Stream Improvement
Towanda Creek	South Branch Towanda Creek	110	64	160	64	DEP Stream Improvement
Wysox Creek	Jerome Creek	141	11	28	11	EPA 319 Program
Wysox Creek	Jerome Creek	500	175	438	175	EPA 319 Program
South Creek	South Branch Sugar Creek	300	140	350	140	Countywide Watershed Program
Sugar Creek	South Branch Sugar Creek	500	51	128	51	Countywide Watershed Program
Totals		2381	1097	2743	1097	

Bradford County Watershed Program

The Bradford County Commissioners made a huge commitment to watershed rehabilitation in 2021. Using money from the Act 13 Unconventional Gas Well Fund, the Commissioners dedicated \$200,000 per year toward the restoration of streams to reduce erosion, prevent property loss, protect infrastructure, and improve flood resilience. Building off past successes of the County Stream Initiative program, the commissioners entrusted BCCD with the administration of these new funds.

The funds will be utilized in three critical stream areas: stream stabilization, emergency stream response, and to further the Bradford County stream pilot program. Currently, the Commissioners have designated \$110,000 to stream stabilization, \$75,000 to emergency stream response, and \$15,000 to the stream pilot program. Hopefully, this funding will last for years to come and significant natural resource restoration can be accomplished.

National Fish and Wildlife Foundation – Chesapeake Bay Small Watershed Grants

BCCD completed a total of 20 stream rehabilitation designs and 10 culvert replacement designs in the Schrader Creek and Tomjack Creek watersheds in 2021. With these completed designs, BCCD will work towards securing funding to implement these shovel ready projects.



Lake and Pond Monitoring

As in previous years, BCCD staff continued to aid Bradford County landowners with their general pond and lake management concerns. Landowners have frequent questions concerning the identification of aquatic vegetation and how to treat it, best practices for new pond construction, and how to improve or establish quality aquatic and wildlife habitat. Additionally, BCCD staff conducted a Bathymetric survey of Lake Ondawa



Dirt, Gravel, and Low Volume Roads Program - 2021 Accomplishments

The Dirt, Gravel, and Low Volume Roads Program continues to provide significant funding to municipalities and other eligible road owning entities within Bradford County in order to achieve county and statewide environmental milestones. Bradford County's annual allocation for the Dirt and Gravel Roads Program is \$1,375,000 (\$1,100,000 for project implementation) and the Low Volume Roads Program allocation is \$98,304 (\$78,643 for project implementation).

Bradford County Conservation District (BCCD) received 35 Dirt and Gravel Road applications from 17 municipalities/agencies for projects to be constructed in 2022. These funding requests tallied approximately \$3,803,000 (345% over our allotted implementation funds) and applicants pledged approximately \$891,000 in in-kind equipment, materials, and labor – that's roughly 23% of the funds requested.

BCCD received 11 Low Volume Road applications during the April application period in 2021. The funding request was almost \$628,000 which is almost eight times our allotted implementation funds. The applicants pledged over \$218,000 in in-kind contributions which is nearly 35% of the funds requested. Two low volume road projects were completed in Smithfield and Towanda Townships in 2021. Below are photos of Peas Hill in Smithfield Township.



Above: Peas Hill was a unique Low Volume Road project with a lot of off-ROW work. The township and landowners did a great job working together to install underdrain in cemetery accesses and built an appealing stone wall to help the sliding road bank. Cross pipes, drop boxes, road fill, stream crossing replacement, and infiltration basins were also incorporated.

With the Dirt and Gravel Road FY2020 funding allocation, one site was completed in 2021 addressing approximately 0.4 miles of road, which in turn, provided environmental improvements to local water resources. Additionally, one site that was extended from 2019 was also completed in 2021 which addressed an additional 0.5 miles of road. Three other Dirt and Gravel Road Projects were ongoing during the construction season of 2021 but are waiting for stream crossing installation completion by June of 2022.

Through completion of municipal contracts, the following is a list of primary techniques or Best Management Practices (BMPs) that were installed to achieve program goals: raising the existing road profile to promote sheet flow and prevent water from concentrating on the road surface; establishing vegetative ditch linings to reduce scour and filter sediment and nutrients; addition of cross pipes to reduce volume of water treated in ditches; addition of headwalls and end walls to prevent excessive erosion at culvert inlets and outlets; select pruning and thinning; sloping banks; and other off site drainage improvements. The following table is a breakdown of Bradford County's Dirt, Gravel, and Low Volume Road Program accomplishments for 2021:

Dirt and Gravel Road Activity	2021	Total to Date
Number of Completed Projects	2	170
Total Grant \$\$ in Completed Contracts	\$256,831.60	\$ 11,131,780.73
Total \$\$ Provided by Townships	\$ 31,003.31	\$ 3,427,552.93

Completed Dirt and Gravel Road Project Statistics for 2021:

Turn Outs Installed	1
New Cross Pipes Installed	13
Cross Pipes Replaced	3
Road Fill Added (Tons)	5,715
Underdrain Installed (Feet)	700
# of Stream Culverts Replaced	2
# In-stream Stabilization Structures	2
Sq. Yd. Vegetative Management	4,328

Low Volume Road Activity	2021	Total to Date
Number of Completed Projects	2	10
Total Grant \$\$ in Completed Contracts	\$87,849.08	\$ 626,925.76
Total \$\$ Provided by Townships	\$87,331.88	\$ 301,530.02

Completed Low Volume Road Project Statistics for 2021:

Turn Outs Installed	2
New Cross Pipes Installed	5
Replaced Cross Pipes	3
Road Fill Added (Tons)	3,021
Underdrain Installed (Feet)	1,400
Sq. Yd. Vegetative Management	1,257
# of Stream Culverts Replaced	1

The following photos are from two Dirt and Gravel Road projects located in Ulster (top) and Warren (bottom) Townships where drainage was improved by: adding cross-pipes with appropriate headwalls, end walls, and inlet and outlet protection; shaping and vegetating ditches; installing Flexamat for added ditch stability; stream crossing replacements; opening tree canopy; sloping back banks to gain road width; addressing offsite drainage issues; raising the road profile to promote sheet flow; and crowning the road surface to prevent water from remaining on the driving surface.



Tree and bank removal were key in this successful project as well as adding road fill, cross pipes, stabilizing ditches, and installing inlet and outlet protection. By doing so, a wider and safer driving surface is created, and road maintenance is

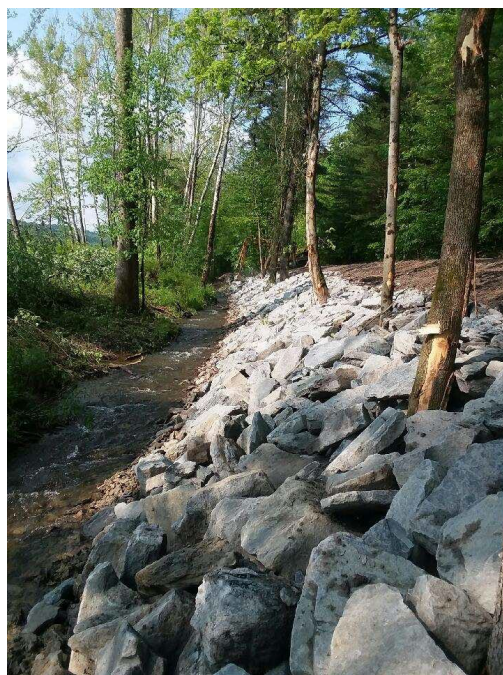


Before - The lack of a ditch and the yard elevated above the road trap water on the road and creates a muddy road surface and sends water directly to the stream at the bottom of the hill where an undersized stream culvert exists.



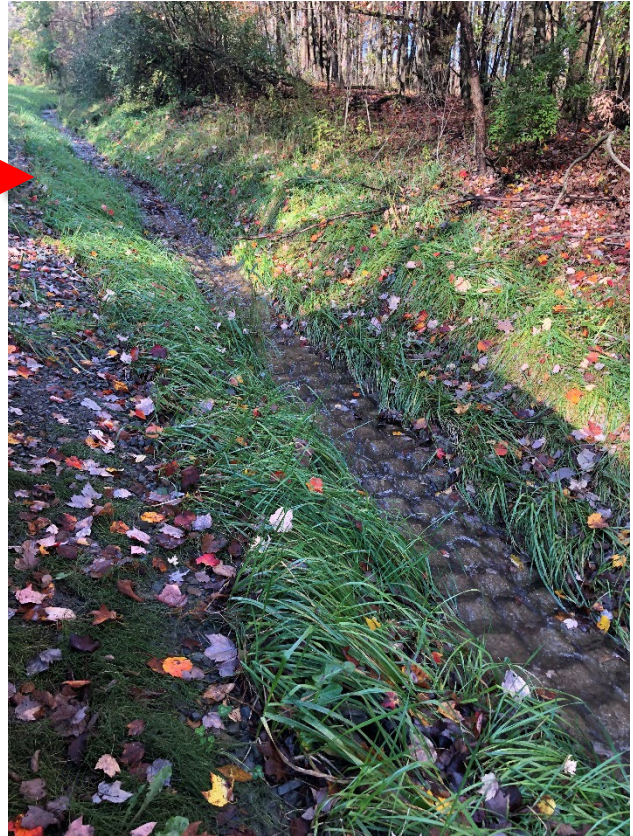
After - By raising the road profile we were able to widen the road and promote sheet flow. Where we could not get sheet flow, small vegetated ditches were established and cross pipes were added to help reduce the amount of erosion by splitting up the water. The left ditch was re-shaped, stabilized, and vegetated.

Offsite drainage is a problem facing many municipal roads in Bradford County. Anytime offsite drainage can be prevented from reaching the road, maintenance is reduced. The photos above are an example of how adding underdrain and fill to reshape a driveway can keep water from entering the road.





Eroded ditches were filled, shaped, stabilized, and vegetated.



Added road fill and proper crown help get water off the road.



CHAPTER 102/105 Programs – 2021 Accomplishments

2021 was another productive year for our delegated Chapter 102 and 105 programs. We are thankful for all who have partnered with us this past year.



Related to the Chapter 102, Erosion and Sediment Pollution Control and Stormwater Management Program, our staff conducted **46** plan reviews which helped prevent sediment runoff from **99** disturbed acres, processed **10** new National Pollutant Discharge Elimination System (NPDES) General Permits, performed **495** construction site inspections, terminated **30** NPDES projects, handled **17** complaints, led **5** educational outreach events involving **267** participants, published **1** news release and provided technical assistance to **1350** individuals.



Concerning the Chapter 105, Waterway and Wetland Protection Program, our staff processed **2** General Permit (GP) 1's, **51** GP-3's, **15** GP-5's, **6** GP-7's and **4** GP-8's, handled **29** complaints, performed **24** non-complaint site inspections, educated **25** people through **1** outreach event, published **2** news releases and offered technical assistance to **441** individuals.



The entire staff of the Bradford County Conservation District looks forward to continuing our good relationship with you during 2022 as we seek to meet your Chapter 102 and 105 permitting needs.



Education – 2021 Accomplishments

Much like in 2020, 2021 posed many of the same COVID related challenges that made environmental education program facilitation difficult the year before. Despite these continuing challenges, the BCCD education program was able to return to some in-person programming opportunities while continuing to expand virtual education program platforms. The following is a compilation of our major educational efforts and accomplishments for the year and how those efforts impacted the community.

Bradford County Envirothon

For the 2nd year in a row because of COVID 19 restrictions, students representing several different Bradford County high schools were given the opportunity to compete in the 2021 PA Envirothon as virtual competitors from the safety of one of the students' homes. In the end, a team from Canton high school ended up taking first prize at the County level. Thankfully, it appears that in-person Envirothon competitions for both elementary and high school students will finally be returning for the spring of 2022! We are looking forward to hosting this event outdoors and in person for the first time in 3 years!

FFA Soils and Land Use Contest

Every year for the past several years, the BCCD education program has partnered with the USDA Natural Resource Conservation Service (NRCS), and the PA State Department of Conservation and Natural Resources (DCNR), to plan, coordinate, and facilitate this annual contest for Bradford County's FFA students. Much like the Envirothon, this competition highlights four main natural resource conservation topics including soils, wildlife, aquatics, and forestry. Through a more detailed analysis of the properties and capabilities of local natural resources, students attain a much more complete understanding of how every citizen must use and manage resources wisely over time to maximize agricultural, urban, commercial, residential, and/or recreational land uses. This year we were finally able to host the event outdoors and in-person at Mt. Pisgah State Park. 97 students from three school districts competed.



Underwater Drone Aquatic Education Video Series

In 2021 our underwater drone education platform really took off, as education coordinator Dan Rhodes was able to film and produce seven different underwater videos in different locations. Each video seeks to highlight different underwater species, why they are unique and/or the current conservation issues/topics in their environment. Between Facebook and Youtube video releases, we received a total of 2,548 views on these underwater drone educational videos in 2021! Hopefully we'll find new and interesting underwater locations and species to feature in 2022!

Stay tuned to BCCD's facebook/youtube pages for updates and content along these lines.



Photo taken with the underwater drone while filming 'Exploring the Lilly Pad Jungles of a Private PA Lake'.

2021 Stoney Point Camp Nature Education

2021 marks the fifth consecutive year that Stoney Point Camp and the BCCD environmental education program have partnered to provide nature education activities during Stoney Point's junior day camp summer program series, the teen adventure camps, and the homeschool science programming series. This year, like past years, BCCD education coordinator Dan Rhodes helped facilitate activities including fun nature games and challenges with titles like 'owl eyes,' 'weasel tree', 'stick drag tracking challenge', nature scavenger hunts, 'where's mama bear', 'Atlatl spear chuck challenge', group friction-fire challenge, the 'thicket game', primitive pottery craft challenge and others.

Throughout the months of September and October 2021, we were also able to collaborate on homeschool science program themes like 'Ferns, mushrooms & rotting logs', 'Building with Nature,' and 'Forest prepares for winter'. Despite difficult COVID-19 restrictions within PA that often required rapid program adjustments during that time, Stoney Point Camp worked within the state guidelines to ensure the safety of staff and campers again in 2021. BCCD will be looking forward to partnering with Stoney Point camp in the summer of 2022 to assist in offering new activities and challenges for all age groups. This camp does an excellent job at getting kids outside to learn about, have fun with, and appreciate nature. We are thrilled to continue to have the opportunity to work with Stoney Point, and hope that pre-pandemic protocols for camp can return in 2022!



(bottom right) Teen girl adventure campers successfully learn to use a giant friction-fire bow drill set built by Dan Rhodes to produce a glowing ember, and then a fire! Tree ID and teamwork are very important skills highlighted in this activity. Junior day campers go for a nature hike with Dan (upper left) and learn how to use an ancient hunting tool called an atl-atl (upper right)

21st Century Watershed Camp at Northeast Bradford High School



This weeklong watershed education camp was a fully immersive water education themed conservation experience for the high school students that participated. By the time the week had ended, students had the chance to construct their own functioning watershed models, explore special watershed land features in Bradford County such as a sphagnum bog on Barclay Mountain, and sample their local stream for macro-invertebrates. Insect samples were then used to calculate the relative health of the stream and determine if management actions would be needed to increase water quality. It was a lot of fun and a great way to provide interactive educational experiences for a whole group of future water managers. Many thanks to Northeast Bradford High School for inviting BCCD staff to assist daily with this awesome educational opportunity!

YMCA Nature Education Day



YMCA nature education day was a mix of different nature-based activities that provided participating youth with a combination of fun and conservation learning. At the first of three stations, students had the chance to try out the giant friction fire challenge to try to get a small ember to form as a team. At station two students played a game of 'fire in the forest' where they learned about how and why people need to use fire responsibly when it comes to the negative impacts of wildfires on the environment. Lastly, for the 3rd station, students had the chance to construct a bird house habitat to take home to their family.

2021 Scouts Programming

For the last several years, BSA & GSA (Boy Scouts of America/Girl Scouts of America) and BCCD have partnered to provide environmental education programming opportunities for scouts ranging from badge requirement education experience, Cub Scout summer day camps and others. In the summer of 2021, BCCD education coordinator Dan Rhodes helped facilitate a couple of days of summer day camp nature education for the Wyalusing girl scouts. BCCD is very appreciative of the huge effort the organizers of the camp made that week to provide a welcoming and safe experience for everyone involved!



Playing nature games like 'fire in the forest', 'Bob the weasel' and 'Everybody's 'it' rock balance challenge' help the girls understand why personal awareness is a crucial survival skill for all wildlife, and how humans can make choices with the environment that can impact habitat quality and quantity.

Bradford County Green Career Day

For the first time since the fall of 2019, BCCD was able to host an outdoor Green Career Day at Sunfish Pond County Park. Eight school districts from Bradford and Tioga Counties bussed 105 students to the park where they rotated through 25 stations set up to highlight different outdoor career themes including energy, agriculture, forests & wildlife, management of the land, and aquatics. Many thanks to the station leaders, teachers, and park personnel who volunteered their time to share with students what a 'day in the life of' their career is like, what skills are needed and how a student could go about pursuing a career in their field. We hope that as schools fully reopen in 2022, the event can serve even more students than in pre-pandemic times.

Other 2021 BCCD Education Programs of Note:

- Bradford County 4H STEM science education day at Mt. Pisgah State Park
- Blast IU-17 Summer wildlife education programming at Sayre & SRU elementary schools
- Pre-school children's bat and wildlife education programming at Wyalusing, Wysox, Sullivan County and Cherub's nest preschools.
- Both virtual and in-person elementary science education programming at Towanda, W.R. Croman, and Wyalusing elementary schools on birds of prey, bats, energy, and wildlife adaptations.
- Chestnut education programs for Christ Episcopal Church in Towanda, Troy Garden club and Canton Lions club.

Anyone interested to learn more or get involved with volunteering within a BCCD education program, please contact Education Coordinator Dan Rhodes at the Bradford County Conservation District office (570) 265-5539 X 3125 or Daniel.Rhodes@pa.nacdnet.net

A special thanks to our 2021 Education program partners and sponsors!

Chief Oil and Gas	Northern Tier Career Center
Repsol Oil and Gas USA, LLC	
PA Trappers Association	
Claverack Rural Electric Cooperative	
Towanda Rod and Gun Club	
Arrow United	
GTP Towanda	
Williams Field Services Group, LLC	
Stoney Point Camp	
Henderson Consulting	
National Energy Foundation	
First Citizens Community Bank	
RK&K	
Kellogg Mountain Gun Club	
Pennsylvania College of Technology	
Penelec Energy	
Green Arbor Designs	
New Fortress Energy	
Tioga County Conservation District	
Panda Liberty Power	
Mansfield University	
Bradford County Parks	
NTSWA	
PA DCNR	
Bradford County Community Planning and Mapping Dept.	
PA Game Commission	
Western Alliance Ambulance & EMT	
PA Fish and Boat Commission	
Greener Pastures Farm & Greenhouses	
NRCS	

Celebrating 65 Years

2021 marked 65 Years for the Bradford County Conservation District. To celebrate this, BCCD held a public, educational event with our friends at Mt. Pisgah State Park, to showcase the things our conservation district is doing. In addition, some of our partners and friends joined in on the fun with games, educational exhibits, live music, live animals and more! We hope to have more public events like this, to showcase what we are doing, and provide a fun outdoor experience for everyone.



Earth Day

Even though we had to cancel our earth day celebration for the last few years, we are happy to announce that we will be having an earth day event, Saturday, April 23, 2022. Mark your calendars and come out to enjoy a free educational event held behind the conservation district from 10AM to 2PM!