

2022-23

Annual Report

UPPER BIG BLUE NATURAL
RESOURCES DISTRICT

UPPER BIG BLUE NRD





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The Upper Big Blue Natural Resources District provides a vital service in Adams, Butler, Clay, Fillmore, Hamilton, Polk, Saline, Seward, and York Counties, serving more than 56,000 people.

THE DISTRICT



- *More than 56,000 citizens rely on the Upper Big Blue Natural Resources District (NRD) to provide direction and assistance in the wise use, conservation and development of our soil, water and related natural resources.*

The NRD is dedicated to the conservation and careful development of natural resources to serve everyone’s needs. The NRD system was created in 1972, following Nebraska legislation which consolidated 154 statewide special-purpose districts into 24 NRDs (later further consolidated into 23 NRDs). The NRDs correspond to major river basins in Nebraska. NRDs carry the names of these rivers, hence the Upper Big Blue NRD is named after the uppermost portion of the Big Blue River.

NRDs are organized as governmental sub-divisions of the state. Local control is provided by a board of directors. At the Upper Big Blue NRD, a 17 member board of directors establishes policy. These directors are placed in office through the general election process and represent the community’s interests in conservation.

Across the state, NRDs offer a major source of assistance to landowners in conservation and natural resources management. Not only do the board members make decisions about conservation programs at the district level, they also bring a wealth of local judgment and experience when adapting state and national programs to local situations.

The NRD staff at York and the field clerks at the Natural Resources Conservation Service (NRCS) offices in each county are responsible for implementing NRD policy and regulations.

A major source of funding for projects, programs, and administration comes from a levy on taxable property within the district. Other sources include federal and state funding, as well as program fees. Certain projects may also be funded with a portion of other local, state, private and/or federal revenues. The NRD is empowered to coordinate land and water management programs with local, state and federal conservation organizations and other governmental units.

Mission Statement

The Upper Big Blue Natural Resources District shall be a leader in conserving, protecting, developing, and managing the natural resources of the district for the health and welfare of the people of the district.

THE DISTRICT

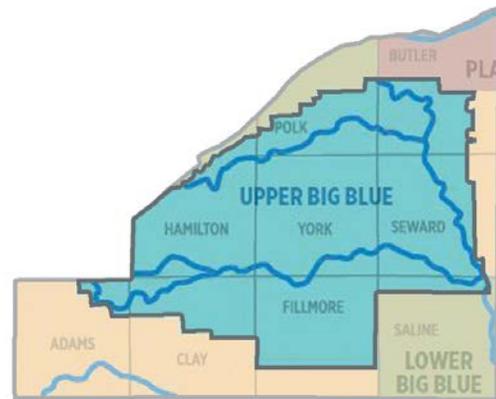


12 District Responsibilities

■ The Upper Big Blue Natural Resources District is a sub-division of local county government charged with the management, development, and protection of soil and water resources within district boundaries. District responsibilities are authorized by state statutes and are listed below but are **not** ranked in order of priority.

- Development, management, use and conservation of groundwater and surface water
- Soil conservation
- Erosion prevention and control
- Flood prevention and control
- Pollution control
- Water supply for any beneficial uses
- Prevention of damages from flood water and sediment
- Development and management of recreational and park facilities
- Forestry and range management
- Development and management of fish and wildlife habitat
- Drainage improvement
- Solid waste disposal

Within this general framework, the Upper Big Blue NRD carries out a variety of projects and programs in forestry, groundwater management, land treatment, flood control, water storage, and information and education. ■





Board of Directors

■ The Upper Big Blue Natural Resources District is governed by a 17 member Board of Directors. Two directors are elected from each of the eight sub-districts, plus one at-large member from any sub-district. The board sets policy for the district and works closely with the staff through a committee system to carry out the district’s goals. Board meetings are conducted on the third Thursday of each month at the district office. Committees meet throughout the month. Special meetings are called as needed to consider important concerns and issues. The district board of directors sets the direction, policies and budget for the natural resources district. ■

Roger Houdersheldt Shelby Sub-district 1	
Kevin Peterson Osceola Sub-district 1	
Jeff Bohaty Seward Sub-district 2	
Douglas Dickinson Seward Sub-district 2	
Richard Bohaty Seward Sub-district 3	
Bill Stahly Milford Sub-district 3	
Paul Weiss McCool Jct. Sub-district 4	
Lynn Yates Geneva Sub-district 4	

Micheal Nuss Sutton Sub-district 5	
Kendall Siebert Henderson Sub-district 5	
Bill Kuehner, Jr. Aurora Sub-district 6	
John Miller Aurora Sub-district 6	
Rodney Grotz York Sub-district 7	
Anthony Bohaty York Sub-district 7	
Paul Bethune York Sub-district 8	
Matthew Perry York Sub-district 8	
Teresa Otte David City At-Large	

THE DISTRICT



On the Road Again Lake Hastings Improvements and Other Projects Toured by NRD Directors

- From water quality and quantity projects to educational partnerships, to flood control measures, members of the board of directors from the Upper Big Blue Natural Resources District toured multiple sites in the Hastings area on Friday, August 19, 2022.

Board members travel to view district projects annually, each year visiting a different quadrant of the district, which stretches from Hastings to Milford and from Rising City to Milligan, including all or part of nine counties.

The tour began at Hastings Utilities, where the board members met with Marty Stange, environmental director. Stange gave a tour of the city's state-of-the-art Aquifer Storage and Recovery facility. The innovative operation reduces the amount of nitrate in the drinking water supplied to Hastings residents and neighboring communities so that it meets EPA regulations for health and safety. The \$46 million facility was completed in 2018 and has been performing better than originally projected. While the project was a significant investment, Stange stressed that the cost of a traditional water treatment facility would have been close to \$30 million more. The Upper Big Blue and Little Blue NRDs, as well as the Nebraska Department of Environment and Energy, and the Nebraska Department





of Health were all partners on the planning and development of this facility. City of Hastings employees operate and maintain the facility.

Directors and staff from the Little Blue NRD joined the group from the Upper Big Blue NRD for the next tour stop, which was a presentation on Lake Hastings watershed management. Tara Ogren, a civil and water resources engineer with the City of Hastings, spoke to the group about a long-range plan for the lake’s restoration. The lake straddles the boundary between the two NRDs and presents a unique opportunity for the entities to join forces with the City of Hastings to improve both urban and agricultural land that drains into the lake. The dam and artificial lake were constructed in 1957 for recreation and to hold non-contact cooling water from the Hastings North Denver power plant. Today, the lake may receive non-contact cooling water from North Denver operations only once or twice a year. A critical 4-square mile sub-watershed has been identified between Hastings NW Dam and Lake Hastings as having potentially the most impact on lake water quality in terms of best management practices. The lake is a favorite local spot for fishing and water activities. City of Hastings staff collect water quality samples both in-lake and during wet-weather events which will aid in watershed management planning.

The group also visited the campus of Central Community College to meet with faculty and to learn more about the agricultural programs offered locally, including agribusiness and precision agriculture. The Upper Big Blue NRD provides two scholarships annually for district residents pursuing degrees at Nebraska colleges and universities in natural resources or a related field, including agriculture. The visit with faculty members allowed directors to ask questions about curriculum and how the NRD can be a better partner in preparing students for careers in agriculture and natural

resources management.



The tour continued with a stop at an irrigation well in a field near Hastings. There the group met with NRD Water Resources Technician Erinn Wilkins, who demonstrated how water levels are measured each spring across the district. During March and April, Wilkins and other NRD staff measure roughly 500 observation wells throughout the district to determine an average water level change, based on a weighted change from each well. For spring 2022 water level measurements, NRD staff determined that the average groundwater level change showed a decline of 0.24 feet from the previous spring. The measurement is impacted by precipitation and irrigation use. The NRD keeps watch over the district water levels to ensure a continued abundant supply for all beneficial uses long into the future. Water level readings are used to determine whether the NRD will implement allocation rules.

The final stop on the tour was in Sutton, where the directors viewed the pedestrian bridge over School Creek, which was completed in fall 2021. This community infrastructure improvement was paid for in part by the NRD and provides safe access for pedestrians crossing Saunders Avenue, the town’s main thoroughfare.

NRD General Manager David Eigenberg says that it’s important for directors to get out of the board room and explore the district from time to time. “These annual tours are a great opportunity for them to learn about the issues people face across the district, not just in their own communities. They also get to see the variety of projects that the NRD does and gain a better understanding of what they are responsible for as leaders in this district,” he said. ■

THE DISTRICT



NRD Board Members and Staff Recognized for Years of Service

Board Member Recognition

Roger Houdersheldt
(30 years)

Michael Nuss
(20 years)

Doug Dickinson
(40 years)



Employee Recognition

DeeDee Novotney
(15 years)
Water Department Secretary

Janet Yates (5 years)
Seward Field
Office Secretary

Dan Leininger (19 years)
Water Conservationist
(retiring)





Upper Big Blue NRD Staff

■ As of June 2023, the district has 30 employee positions: 28 full-time and two occasional workers. Full-time and part-time employees are permanent employees with paid benefits. Full-time employees work 40-hour work weeks all year, whereas part-time employees work a regular schedule of at least 20 hours per week. Occasional workers are temporary employees who do not earn benefits. Their hours vary depending on available work.

- David Eigenberg, General Manager
- Marie Krausnick, Assistant General Manager
- Jack Wergin, Projects Department Manager
- Nancy Brisk, Office Manager
- Chrystal Houston, Public Relations Manager
- Terry Julesgard, Water Department Manager
- Jeffrey Ball, Lead Engineering Technician
- Kyle Yrkoski, District Forester
- Mick Northrop, Lead Maintenance Worker
- Jay Geiger, Maintenance Worker
- Andy Larkin, Maintenance Worker
- Sylvia Jividen, Geneva Field Office Secretary
- Janet Yates, Seward Field Office Secretary
- Mandy Miller, York Field Office Secretary
- Gloria Broekemeier, Aurora Field Office Secretary
- Debora Runquist, Osceola Field Office Secretary
- Rita Hoblyn, Projects Department Secretary
- Carleen Light, Water Department Secretary
- DeeDee Novotny, Water Department Secretary
- Patty Connors, Secretary
- Angie Johnson, Secretary
- Erin Lee, Water Resources Technician
- Dawson Tietmeyer, Water Resources Technician
- Jacob Mitchell, Water Resources Technician
- Jaden Groff, Water Resources Technician
- Erinn Wilkins, Water Resources Technician
- Miranda Coffey, Water Data Specialist
- Amanda McLeod, Water Data Assistant
- Jerry Gangstad, Seasonal Maintenance Worker
- Jerry Petersen, Seasonal Maintenance Worker

Open Positions

- Water Conservationist

THE DISTRICT



New Employees Join Water Department

■ **Terry Julesgard** was hired in February 2023 to fill the role of water department manager. Julesgard takes over the position held for seven years by Marie Krausnick, who was promoted to assistant general manager in 2022. Julesgard is not new to Nebraska’s Natural Resources Districts. He previously served as the general manager of the Lower Niobrara NRD, a resources technician at the Lewis and Clark NRD, and a conservation technician at the Upper Republican NRD. Other related career experiences include 11 years in production agriculture and four years as superintendent of Lincoln County Noxious Weed Control.

Jaden Groff and **Jake Mitchell** joined the NRD in November 2022 as water resources technicians. Both are recent graduates of South Dakota State University. Jaden is from Malcom, Nebraska, and majored in ecology and Spanish at SDSU. She loves to be outside and is excited about environmental stewardship and the care of the land. In her spare time, she enjoys camping, hiking, ice skating, and crocheting.

Jake Mitchell is from Fairmont, Minnesota. His studies at SDSU included a major in Geographic Information System Mapping (GIS), with a minor in infomatics/computer science. At the NRD, he will utilize his GIS skills to create maps that show data about the district, such as median nitrate values. In his spare time, Jake enjoys camping, hiking, running, and woodworking.



Terry Julesgard



Jaden Groff



Jake Mitchell



Amanda McLeod joined the NRD in October 2022 as a water data assistant. She is a recent graduate of the University of Nebraska Lincoln, where she completed a bachelor’s degree in natural resources, with emphasis in conservation biology, and fisheries and wildlife management. Her work with the NRD involves working with producer-reported water use data and tracking changes to land ownership. Amanda is passionate about the environment, water conservation, and aquatic wildlife, especially turtles. In addition to her conservation pursuits, Amanda also enjoys archery and was one of the top archers in Nebraska in high school.



Amanda McLeod

Erin Lee joined the NRD in July 2022 as a water resources technician. Erin grew up in York and is pleased to be back in the community where she has so many connections. She attended Kansas State University and earned a degree in biology and natural resources, then went to work for the Upper Niobrara White NRD in Chadron for several years. At the Upper Big Blue NRD, she oversees the chemigation program, including inspections and permitting. She is also involved with flowmeter inspections and battery replacements, as well as sampling for water quality and taking quantity measurements at certain times of the year.



Erin Lee

What she enjoys most about her work with the NRD is being out in the field and working with producers. In addition to her NRD activities, Erin is an athlete and a photographer. She has combined these passions by freelancing for the local newspaper as a sports photographer, covering high school athletics in the area. ■

THE DISTRICT



Ball Reflects on 45 Year Career with the NRD

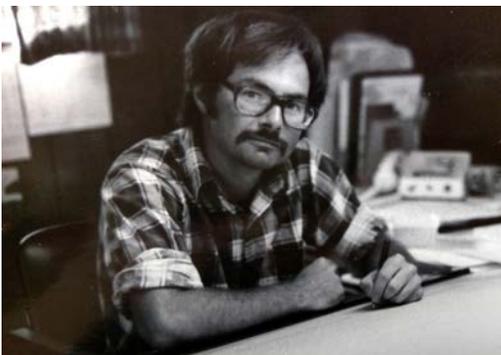
- When Jeff Ball retires this summer, he will have reached a career milestone: 45 years of service as a lead engineering technician with the Upper Big Blue Natural Resources District. This achievement is somewhat unexpected, considering it's a job he never applied for.

In 1978, Ball pursued a position as a technician with the Soil Conservation Service (which is now the Natural Resources Conservation Service, or NRCS, but at that time was also associated with the NRD). When he got to the interview, he met with NRD General Manager John Turnbull and Engineer Jay Bitner, who convinced Ball to take a similar position with the NRD instead. Ball would go on to work with Turnbull and Bitner for 35 years until their retirements. He appreciated Turnbull's management style and support, as well as the many lessons he learned from Bitner. "He taught me a lot

over the years to improve my skills. He taught me most how to look at things with a critical eye no matter what it was you were doing," Ball said.

While many aspects of Ball's job have changed through his four and a half decades of service, Ball's dedication to effective stewardship of soil and water resources, as well as sound local governance, has never altered.

Nebraska's NRDs were established in 1972, so Ball has been a part of the NRD system from its infancy. In those early days, the Upper Big Blue NRD staff was comprised of just six people and the efforts of the organization were mainly focused on addressing the groundwater level declines that had been documented since the 1950s. "Jay Bitner and I were mainly hired to build dams," said Ball, "as many as we could, to store water to help replenish the groundwater and keep as much water in our district as possible." The district currently maintains 47 dam structures and provides cost-share funding to landowners for private dam construction or renovation. Much of Ball's time has been dedicated to dam inspection and maintenance, to protect the investment made in these multipurpose structures that have flood control, groundwater recharge, and wildlife habitat benefits.





Eventually though, “it became evident that the only thing that really replenished and filled the groundwater was rain,” said Ball. Thus, dam building became less of a priority, while monitoring and regulating the quality and quantity of water became a bigger concern.

Many things have changed through the years Ball reflected, most strikingly, the technological advances that have transformed his job. “When I was in the field and needed a question answered immediately, I would have to go find a phone at the nearest town,” he said. Then came truck radios and later cell phones, bringing speed and efficiency. “Survey tools have gone from transit and level to electronics and GPS,” he said, meaning painstaking work that was once done by a team can now be done by one person in a fraction of the time.

Similarly, when Ball first began working for the NRD, there was only one computer console in the office, which was used for modeling and was connected to a mainframe at the University of Nebraska. Once modeling runs were completed, someone would have to drive to Lincoln to pick up printouts. If they discovered an error in the data, they would have to start the process over. Today, this kind of task is done with much greater accuracy and convenience from the computer in Ball’s office—no driving to Lincoln required.

Ball has worked on a variety of projects through the years, from community trails in flood-prone areas, to storm sewers and drainage plans, to dam restoration. One of his favorite projects has been Bruce L. Anderson Recreation Area near York. The dam structure was originally built for a groundwater recharge study (hence the name Recharge Lake). Since its construction in 1990, it has been studied extensively to explore questions regarding groundwater quality and quantity. NRD staff have measured the inflow and outflow of water from the lake and the basins and their impact

on groundwater. They also used the lake to study agrochemical runoff impacts on groundwater quality, and whether water collected in the lake could be remediated for chemicals (such as atrazine) and reinjected into the groundwater supply. This research lake would eventually be developed into the highest-use recreation area in the district. Ball was involved in the expansion of the park, including restrooms, a playground, RV camping pads, an amphitheater, and picnic structures.

“Every project has a story that brings its own unique challenges and benefits,” he said. As for the future? Ball has high hopes for the NRD, as well as his own ambitions. “Each NRD needs to be courageous and bold in the truth, steadfast in unified purpose, future thinkers, innovative, proactive, front runners who lead by example to protect ... our natural resources. That is what it is all about,” he said.

Ball is looking forward to camping, gardening, travel, woodworking, church service, and plenty of time with grandkids in retirement, while reflecting on a job well done at the NRD. ■



WATER



Groundwater Level Declines Significantly

Level remains above allocation trigger

■ During March and April 2023, staff of the Upper Big Blue Natural Resources District measured roughly 500 observation wells throughout the district to determine an average water level change, based on a weighted change from each well. For spring 2023 water level measurements, the NRD has determined that the average groundwater level change shows a decline of 2.21 feet from last spring.

The spring 2023 average groundwater level is now 6.68 feet above the “Allocation Trigger.” Thus, there will be no allocation restrictions for the 2024 irrigation season.

Observation wells are measured in the spring of each year, allowing the water table to rebound from the previous irrigation season. The wells that are measured are uniformly distributed throughout the district to provide an accurate profile of the average groundwater level change. Each well measured is assigned an area of the district based on distances from other wells. This method gives the average groundwater level change a weighted average.

In spring 2022, the NRD reported an average decrease of 0.24 feet. Spring 2021 showed an increase of 0.35 feet on average. Fluctuations from year to year are common throughout the district. The Upper Big Blue NRD sits above the High Plains Aquifer, which stretches from South Dakota to Texas. This portion of the aquifer is dynamic and different factors like rainfall and pumping affect how the aquifer reacts.

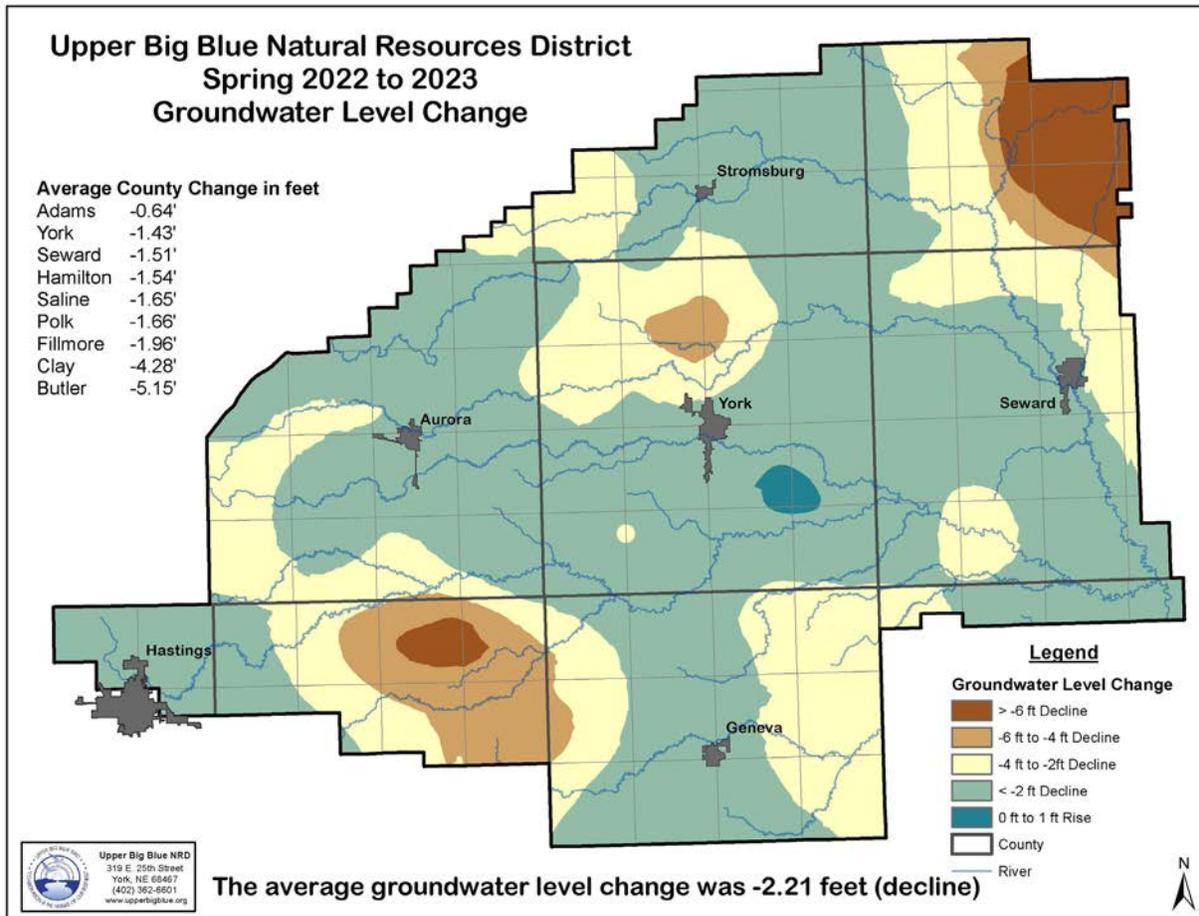
In addition to the average change across the

district, the NRD has also provided a more detailed look at water levels across the district. Water levels declined most significantly in Butler County and Clay County, each with a drop of more than 4 feet. Adams County saw the smallest decline, only dropping 0.64 feet. The rest of the district including York, Seward, Hamilton, Polk, and Fillmore Counties all saw a decrease between 1 and 2 feet.

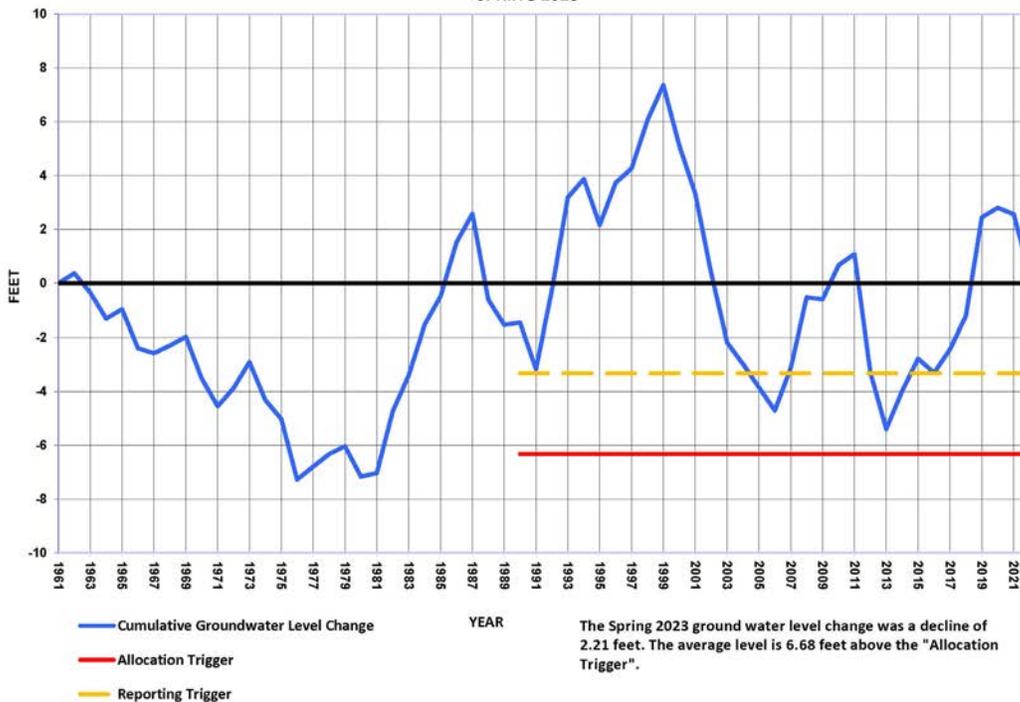
Water use records enable informed management decisions and practices

In recent years, producers have done an exceptional job of managing use of district water resources and cooperating with the NRD on conservation activities and monitoring. Along with NRD staff measuring observation wells, all groundwater users are required to annually report their water use. This is how the NRD maintains records on historic groundwater usage. Groundwater use records are very important to the district for making informed management decisions. The 2022 district average groundwater usage was 7.53 inches/acre. The district average groundwater usage is 5.97 inches/year since 2007.

The district’s goal is to hold the average groundwater level at or above the 1978 level. In 2005, the district average groundwater level reached the “Reporting Trigger”, initiating mandatory reporting of annual groundwater use to the district and certification of irrigated acres. If the district average water level falls below the 1978 level (“Allocation Trigger”), groundwater allocation will begin. ■



UPPER BIG BLUE NRD - AVERAGE GROUNDWATER LEVELS
TRIGGERS COMPARED TO HISTORIC LEVELS
SPRING 2023



WATER



Irrigation Withdrawals and Groundwater Levels

Irrigation plays a vital role in Nebraska’s agriculture. This is especially apparent in the Upper Big Blue Natural Resources District, which is the most heavily groundwater irrigated district in the state. In this district, 1.2 million acres are irrigated farmland, representing more than 12,000 active irrigation wells. However, irrigation can also put a strain on the area’s water resources when rainfall amounts aren’t enough to support a growing crop and irrigators turn to groundwater to fill the gap.

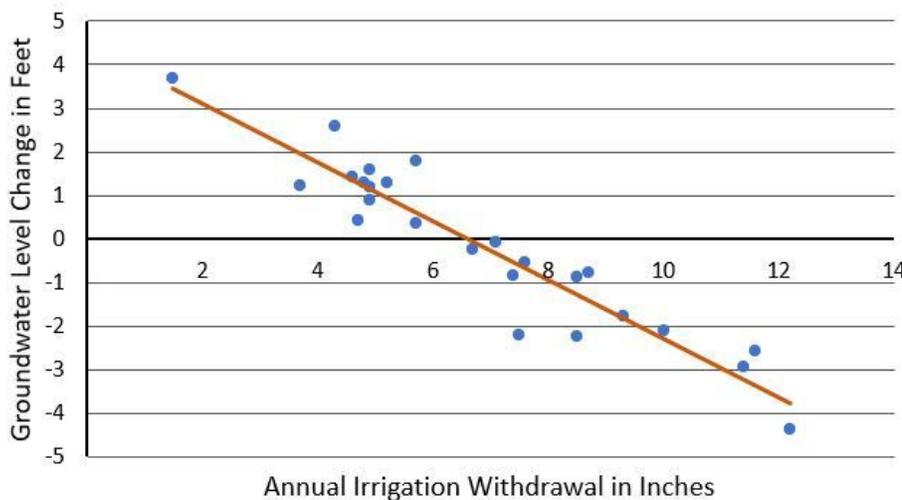
The district measures the groundwater levels each spring to determine the change from season to season. This spring the static water levels are below last spring by 2.21 feet, which is 6.68 feet above the allocation trigger. This trigger point was set by the board and is three feet above the lowest levels recorded in 1978. If the trigger point is reached, the Board of Directors will vote to implement allocation.

NRD staff also monitor annual water withdrawals and groundwater level changes. When historic data is graphed, it’s observable that if groundwater pumping is held at an average of just below 7 acre inches, there is little fluctuation in groundwater level (see Graph 1). During the 2012 pumping season, where in-season rainfall totaled 7.6”*, the average groundwater pumping was 12.2 acre inches, resulting in a groundwater level change of -4.38 feet. Comparatively, in 2022 using the same in-season rainfall data of 17.70”* inches along with the average pumping of 7.5 acre inches, a groundwater level change of -2.21 feet was recorded.

The NRD Board of Directors has safety measures in place to ensure groundwater levels are sustainable for future generations of producers. Part of those safety measures would be the triggering of allocation in the event of prolonged drought conditions resulting in groundwater level declines. Currently, the NRD’s rules and regulations allow for 30 acre inches of irrigation water use over three years for every certified acre in the event that allocation triggers are met. Looking at more than 10 years of data (Graph 2), it is evident that most producers in the district would be unaffected by an allocation event at current levels. ■

*Calculated using the York 2W weather station hosted at Recharge Lake from April 1 – Sept. 30.

Graph 1 Groundwater Level Change vs. Annual Irrigation Withdrawal





Graph 1: Annual irrigation withdrawal in the Upper Big Blue NRD plotted against groundwater level change. Based on measured data, the graph shows that if pumping is held to just below 7" annually we see little fluctuation in groundwater level change.

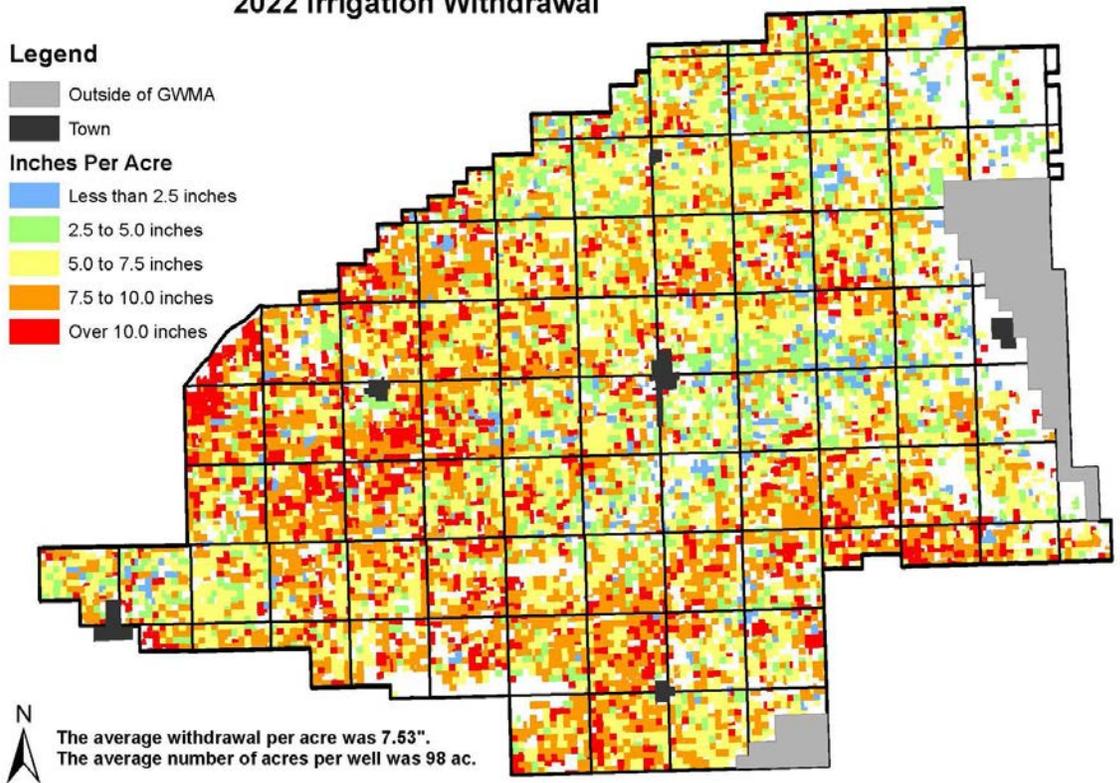
Map: The average reported irrigation use across the district was 7.53" per acre, up from 6.7" per acre in the previous year. Much of the district had below average in-season rainfall again during the spring and summer months.

Graph 2: Average irrigation withdrawal in the Upper Big Blue NRD from 2007 to 2022, showing that most producers would be unaffected by allocation limits most years.

Upper Big Blue NRD 2022 Irrigation Withdrawal

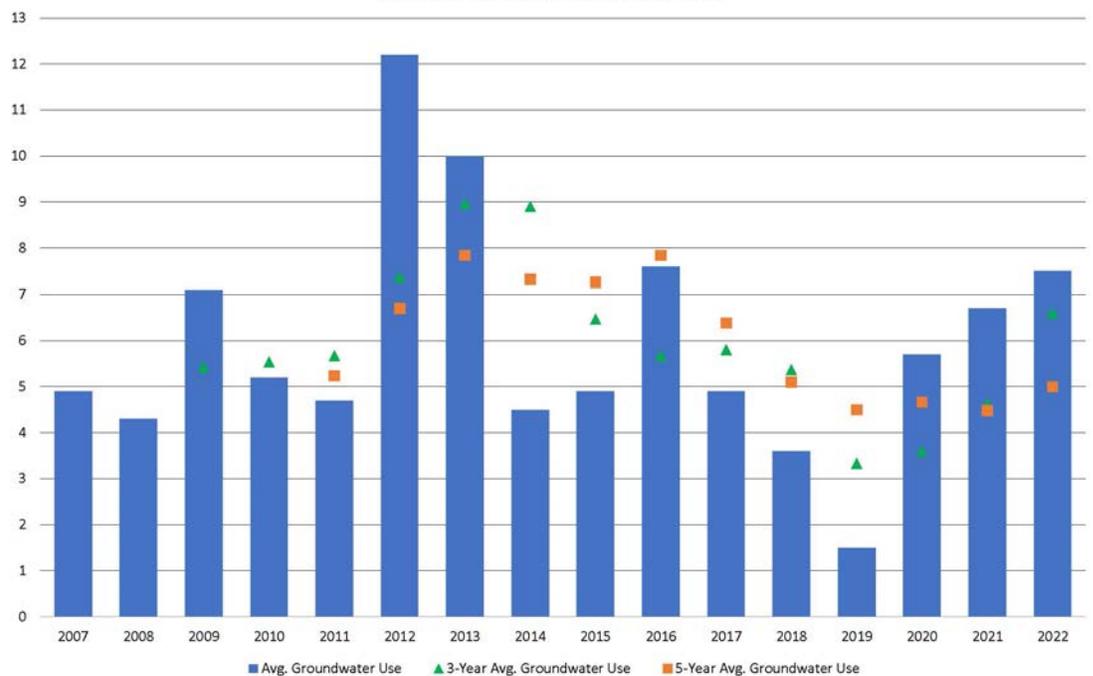
Legend

- Outside of GWMA
- Town
- Inches Per Acre**
- Less than 2.5 inches
- 2.5 to 5.0 inches
- 5.0 to 7.5 inches
- 7.5 to 10.0 inches
- Over 10.0 inches



Graph 2

Upper Big Blue NRD
Average Irrigation Withdrawal (In./Ac.)



WATER



Monitoring Uranium in the Drinking Water in the District

- The Upper Big Blue NRD recently finished a five-year study that used our monitoring wells to look at arsenic, selenium, and uranium concentrations within the district. From this study, it was observed that these concentrations are increasing over time, as well as fluctuating seasonally. While none of the wells sampled hit the maximum contaminant level (MCL), it is still important to monitor and chart trends.

Other studies have examined the relationship between nitrate levels and uranium concentrations. These studies have shown that high levels of nitrates have been correlated to elevated uranium concentrations. Shallow groundwater was the most likely cause of co-contamination with nitrates and uranium. In fact, primary nitrate contamination can be a factor leading to secondary uranium contamination, as high levels of nitrate can help transport uranium from soil particles to the groundwater.

When uranium undergoes an oxidation reaction (a reaction where uranium loses electrons), nitrate gains the electrons through a reduction reaction, which will bond the two elements. This type of reaction is better known as a redox reaction. Nitrate can then easily move uranium from the soil into the groundwater.

As of late, uranium has been getting attention as an emerging contaminant to be on the lookout for. However, uranium has been in our groundwater for a long time. Uranium is a naturally occurring radioactive mineral present in certain types of rocks and soils. Uranium can also be introduced to groundwater through human activities, such as mining, nuclear power production, and the combustion from coal and other fuels.

Drinking water may naturally contain small amounts of uranium, but water that is high in uranium can present health effects over time. Some studies have suggested that long-term ingestion of water with high levels of uranium can lead to kidney damage and an increased risk of some cancers. Uranium in water cannot be detected by taste or smell. The only way to know if your water has uranium is to test it. Public wells are already monitoring for a



variety of contaminants, including nitrate and uranium. However, private wells do not have regulations in place for testing or monitoring; it is up to the well owner to periodically test their well. Currently, the only lab in Nebraska that is certified to test for uranium is the DHHS Public Health Environmental Laboratory in Lincoln.

For treatment, a reverse osmosis system is the best option. Other options include distillation, special adsorbent media, and anion exchange. These can remove uranium and a variety of other contaminants found in groundwater. It should be noted that boiling water is not an effective way to remove uranium. Activated carbon filters, like Brita filters, cannot remove uranium and other contaminants, like nitrates. ■

NDEE Offers Private Well Reverse Osmosis Rebate Program

The Nebraska Department of Environment and Energy (NDEE) has launched the Private Well Reverse Osmosis Rebate Program in 2023. The initial application period opened January 1 and closed March 31.

Upon reaching the initial close date of March 31, 2023, NDEE had received 92 applications requesting \$211,071 of the \$1.2 million allocated to the program, so funding remained available. Applications then were accepted and reviewed for consideration on a month-to-month basis. Submitted applications were given equal consideration as long as funding for the program remained available in the month in which the application was submitted. Participation in the rebate program still requires pre-approval from NDEE. The installation of any reverse osmosis small water treatment system cannot begin until a rebate agreement is signed between the private well owner and NDEE.

Private well reverse osmosis system rebates are available to property owners of private wells with drinking water test levels above 10 parts per million (ppm) of nitrate. Applicants will be eligible for up to \$4,000 in rebates per small treatment installation that is effective in the removal of nitrate to a level below 10 ppm. Testing costs, purchase price of the system, and installation costs are eligible expenses that can be included in a rebate application. ■



WATER



Water Quality Explored at Wellhead Protection Event Held at NRD

- What is the impact of impaired water quality on human health and what can be done about water challenges in the Cornhusker State? These topics and others were addressed at a Wellhead Protection Network Meeting held at the Upper Big Blue NRD in March 2023.

Hosted by Nebraska Department of Environment and Energy, University of Nebraska Medical Center, and Nebraska Extension, the meeting drew close to 60 participants from across the state.

The audience was mostly comprised of staff from municipality water departments and other natural resource districts, but the event also drew folks from a variety of agencies and the local agricultural and business communities.

The purpose of the event was to inform those with a stake in water quality issues about strategies and resources available to protect and improve water quality in Nebraska. It was a valuable opportunity for those who manage water resources across the state to network and discuss what challenges they experience in their communities and possible solutions.

"It was great to see a diverse audience that was eager to learn about and discuss water quality

issues in our state," said event organizer Laura Nagengast. "As Nebraskans, we are blessed to have the great water that we do, and it is our responsibility to protect it. Being the first Wellhead Protection Network Event in years, we were thrilled by the attendance."

The meeting included a series of presentations followed by a tour of the Project GROW demonstration site in York, Nebraska. Since 2017, the City of York and the Upper Big Blue Natural Resources District have worked together to protect water quality in the city's wellfield through Project GROW (Growing Rotational Crops On Wellfield).

Project GROW highlights how NDEE Source Water Protection grant funding can be used to safeguard a community's water supply, which in turn provides many additional benefits to the community. The innovative partnership has prioritized restoring the soil in the wellfield as a means of protecting the water consumed by the residents of York.



Healthy soil acts as a filtering system that decreases nitrogen leaching and contamination of the drinking water. Project GROW focuses on 160 acres of the total 400-acre wellfield and includes demonstration fields, community garden plots, a fruit orchard, and an extensive pollinator habitat. Using no-till, cover crops, livestock integration, and diverse crop rotations, the project seeks to improve soil health, decrease soil erosion, and improve water holding capacity, all while maintaining profitability.

Wellhead Protection Areas in Nebraska

The Wellhead Protection Network meeting began with a presentation from Erinn Wilkins, water technician at the Upper Big Blue NRD. Erinn discussed the history of the Wellhead Protection Area (WHPA) status in York. The path to the WHPA distinction began in the late 90s in response to high nitrate levels in York’s municipal wells, but a Wellhead Protection Area status and plan were not officially in place in York until 2016.

According to the Environmental Protection Agency, a wellhead protection area is defined as “the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield.” Nebraska’s Wellhead Protection Program (WHP) is a voluntary program which assists communities and other public water suppliers in preventing contamination of their water supplies. The Nebraska Legislature passed LB 1161 in 1998 authorizing the Wellhead Protection Area Act. This Act sets up a process for public water supply systems to use if they choose to implement a local Wellhead Protection plan. The Nebraska Department of Environment and Energy is the lead agency for Wellhead Protection Plan approval.

The goal of Nebraska’s Wellhead Protection Program is to protect the land and groundwater surrounding public drinking water supply wells

from contamination. Since approximately 85 percent of Nebraskans receive their drinking water from groundwater, preventing groundwater contamination is vital.

Wilkins’ presentation on the York WHPA was followed by an overview of Project GROW and the partnership between the Upper Big Blue NRD and the City of York. Dan Leininger, NRD water conservationist, and Brandon Osentowski, water superintendent for the City of York, presented on the unique partnership. The two also discussed the challenges both organizations have addressed in the first five years of the project, from angry calls from area residents after manure application, to paperwork and budget process headaches. Leininger, along with cooperating producer Scott Gonnerman, led the tour of Project GROW later in the day.

Water Quality and Human Health

Extension Educator Laura Nagengast provided an insightful overview of common water quality concerns in Nebraska and their documented links to negative health impacts. A main source of contamination to drinking water in Nebraska is nitrogen fertilizers, commonly used in row crop agriculture practices. The current regulatory limit for nitrate allowed in public water systems is 10 ppm, however private wells are not regulated by any agency. Therefore, it is up to the private well owner to test and treat their own drinking water to ensure what they are consuming is safe. Of special concern in Nebraska is the correlation researchers are seeing between nitrate in drinking water and



WATER



adverse health impacts on the young, including birth defects and pediatric cancers.

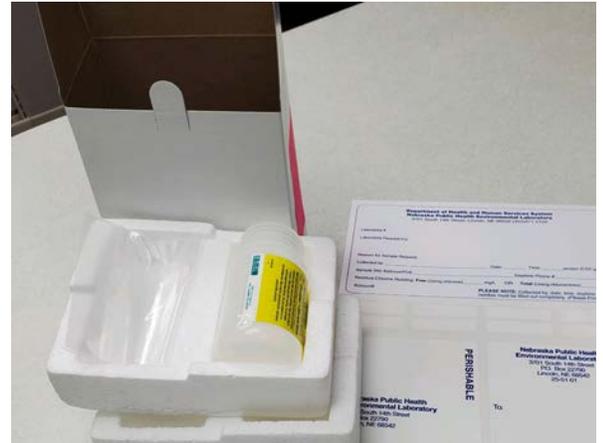
The Upper Big Blue NRD offers free water testing to district residents, either in the NRD lab or via an at-home test. The at-home kits are not as sensitive or comprehensive as having a sample tested in the lab, but they do provide a simple way to determine if additional, more serious, action should be taken, such as installing a reverse osmosis system.

For communities in the Upper Big Blue NRD struggling with water quality, funding is available through the district’s Municipal Water Assistance Program. This program is intended to help communities improve their water system to mitigate the impacts of non-point source groundwater contamination. The end goal of the program is to protect the health of residents in the community.

Funding for qualifying community water system improvements may also be available through the Nebraska Department of Environment and Energy’s Source Water Protection grant program.

Soil Health and the Future of Agriculture

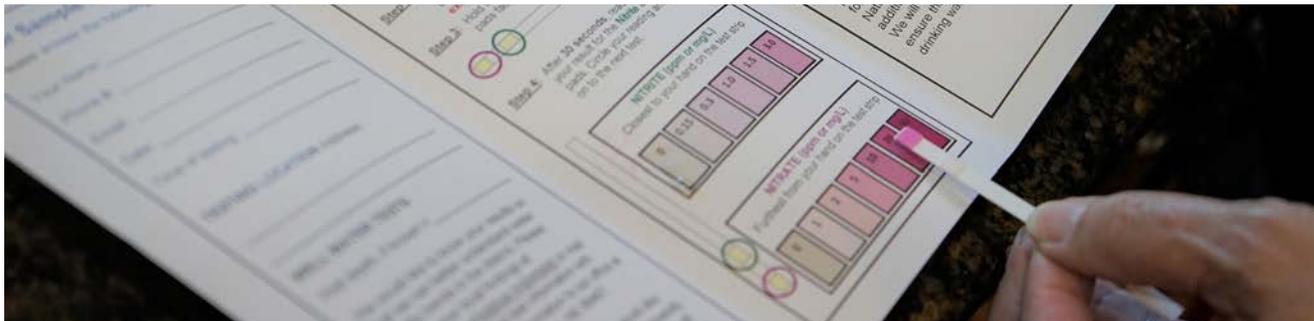
Carolina Cordova, assistant professor and soil health specialist at UNL, also presented at the Wellhead Network Meeting, discussing soil health—what it is, why it is important, how to assess it, and ways to improve it. Cordova touched on how to measure and increase soil organic matter/carbon, which is useful



for soil fertility and carbon sequestration that reduces greenhouse gas in the atmosphere. She also presented simple strategies to build and maintain healthy soils including: conservation tillage, organic amendments, and cover cropping. Cordova also pointed to the future of agriculture with greater emphasis on precision agriculture (remote sensing, precision planting and nutrient management, irrigation management technologies) and the economic incentives provided by the burgeoning carbon market.

Producers in the Upper Big Blue NRD as well as the Central Platte NRD have access to additional funding for the soil health practices Cordova touted, as well as access to carbon market incentives, through the Nebraska Soil Carbon Project. ■





Water Quality Test Options Available from NRD

- If your home’s water comes from a private well in Nebraska, you may have elevated levels of common nutrients found in agricultural fertilizers in your drinking water. Consuming water with elevated levels of nitrate-nitrogen can have significant health risks. Annual testing of your water is an important way to protect the health of everyone in your home.

Thanks to a partnership with UNL, the Upper Big Blue NRD began mailing simplified at-home test kits to district residents for free in 2022. These kits will indicate if there is an elevated level of common contaminants in the water. The at-home kits are not as sensitive as having a sample tested in the lab, but they do provide a simple way to determine if additional testing is required and to identify what further steps need to be taken to improve drinking water quality, such as installing a reverse osmosis filter.

Funding is available through the Nebraska Department of Environment and Energy for homeowners and communities with elevated nitrates to install reverse osmosis systems.

Numerous scientific studies have looked at the relationship of nitrate in drinking water on human health and linked high concentrations of nitrate in drinking water to adverse health outcomes. Nebraska has one of the highest rates of some pediatric cancers, which may be linked to

agrochemicals in drinking water. When it comes to health concerns and drinking water quality in Nebraska, the most vulnerable populations are young infants (less than six months old), pregnant women and children in-utero, and people with oxygen transport or delivery conditions like anemia, cardiovascular disease, lung disease, and sepsis.

The EPA guideline for safe drinking water is less than 10 parts per million of nitrate. Municipalities are required by law to provide water that meets the EPA criteria, but for the many Nebraskans whose water comes from a private source, the quality of the water is the consumer’s responsibility. For private well owners, it’s important to test drinking water annually, as results can change from year to year. If the results of the at-home water quality test reveal greater than 5 parts per million of nitrate, the NRD staff recommends following up with a lab test for verification and to determine next steps to ensure safe drinking water. NRD lab testing for nitrate and bacteria is always free for district residents. ■

WATER



Incentive Programs Introduced and Expanded

■ In 2021, the Upper Big Blue Natural Resources District began to offer an incentive program for producers in portions of the Recharge Lake Watershed, the Beaver Creek Watershed, and some municipal Wellhead Protection Areas. Practices included in this program are cover crops, buffer/filter strips, and land treatment practices. The area covered by these programs was expanded in 2022. The new boundaries for the program encompass the entirety of the Beaver Creek watershed.

The purpose of the program is to increase incentives for producers who are interested in installing these important conservation practices. Cover crops and buffer strips are simple ways to improve water quality, as they keep sediments and agrochemicals on the fields instead of washing into waterways.

Starting in January 2023, the NRD began to offer an incentive program to help producers get started with chemigation. For approved Chemigation Equipment Cost-Share Incentive Program applications, the maximum cost-share rate is 50% of the actual cost, up to \$1,000 per site, for the purchase of new chemigation equipment and chemigation permit.

This program is intended for new chemigation sites and those that have not had an active chemigation permit in the last ten (10) years. The minimum cost-share payment is \$100. Full program details and application are available on the NRD website at <https://www.upperbigblue.org/chemigation>.

Chemigation is a useful way to apply chemicals and fertilizer onto fields using a center pivot to control application uniformity. All that is necessary to chemigate is an applicators license, the appropriate safety equipment, and a permit from the NRD. The goal of this incentive program is to increase the number of producers using this fertilizer application method by giving cost-share to producers to help offset the startup cost. ■





Water Department Programs Provide Funding

■ Each year, the NRD provides funding to individuals and communities to protect and enhance water quality in the district.

In 2021, the village of McCool Junction applied for the NRD's Municipal Water Quality Assistance Program as they sought to drill a new well to address the nitrate contamination issue in their community and to provide potable water to residents. The interlocal agreement between the village and NRD was extended into 2023.

Since the village had previously received funds through this program within the last five years, the maximum funding they were eligible to receive was \$41,650.00.

In February 2023, the Village of McCool Junction submitted their receipts for cost-share assistance on the newly completed municipal well. The total project cost was \$722,850.92 and the District's share was \$41,650.00.

This program is intended to provide assistance to communities for improvements in their water system to mitigate the impacts of non-point source groundwater contamination for the protection and public health of the community's residents. The reasons for system improvements must be related to the impacts of contamination from pollution sources which are non-point in nature, not from point source contamination. General modification, improvement, or expansion of a water well or distribution system are ineligible activities.

Eligible communities include incorporated cities and villages whose wellhead protection area lies, all or in part, in the district and who have a Nebraska

Department of Environment and Energy approved wellhead protection or drinking water protection plan. A community must be facing present or imminent threat of the water supply from non-point pollution and making plans for infrastructural modifications to continue to provide their residents clean, potable water.

The district will provide financial assistance to the city or village in the amount not to exceed 25% of the local share of project cost.

Aquifer Quality Well Abandonment Cost-Share Assistance Program (AQWACAP)

The AQWACAP program provides cost-share for the proper decommissioning of abandoned wells. Wells must be decommissioned according to Nebraska Department of Health and Human Services System regulations governing water well abandonment standards. All water wells are regulated by the NDEE through NAC 178 (Nebraska Administrative Code). All decommissioning activities must be conducted by a licensed pump installation contractor or well contractor.

Properly decommissioning wells is essential to protecting the water quality of the groundwater supply, as old wells can be a potential contamination hazard.

The cost-share rate offered to district residents through this program is 60% of the actual labor and materials. The maximum cost-share rate for the proper plugging of wells of various casing diameters is \$750. In the 2022-2023 budget year, \$42,756.34 was distributed through this program to assist with the cost of decommissioning 58 wells. ■

WATER



Nitrates in Groundwater Management Zones Continue Upward Trend; No Zones Move to New Management Phase

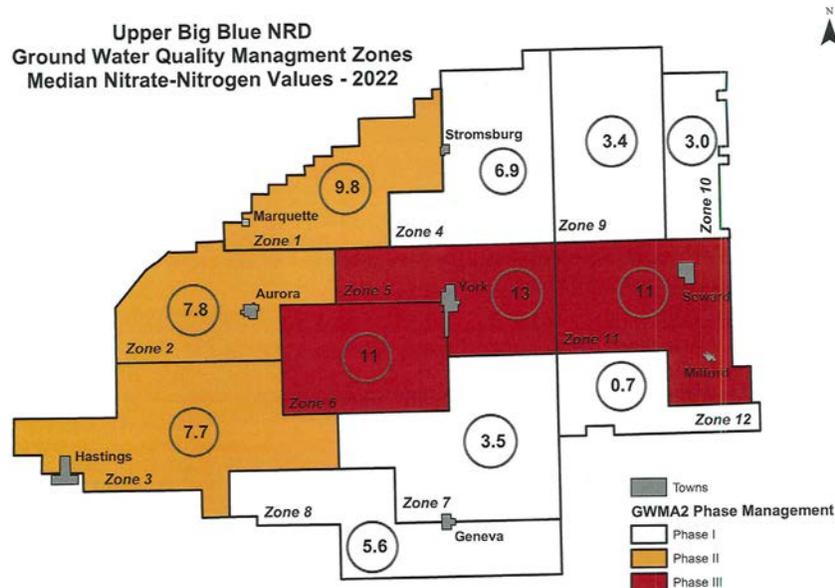
- 2022 Summer sampling of monitoring wells across the district show that groundwater nitrate levels continued to increase in some parts of the district over the previous year.

While no zone has moved into a new phase of management this year, Zone 4 is close to moving into Phase II management and Zone 1 is approaching the threshold to move to Phase III management.

Each of the three zones currently in the Phase III management area saw an increase in median nitrate values in the past year. Other zones of the district saw no change or some decline.

The Upper Big Blue NRD has been monitoring groundwater quality since 1997 through a network of irrigation, municipal, dedicated monitoring, and

domestic wells the district refers to as GWMA#2 (Groundwater Management Area #2). The GWMA#2 is comprised of 12 management zones delineated based on aquifer properties, land use, and geologic formation. The median nitrate value for each zone determines the phase of management and therefore, rules and regulations. According to the NRD’s Rule 5, a zone will move into Phase II management at 7 milligrams of nitrogen per liter (mg/L) in median samples and into Phase III at 10 milligrams per liter. Fertilizer management practices requirements increase with each Phase. ■



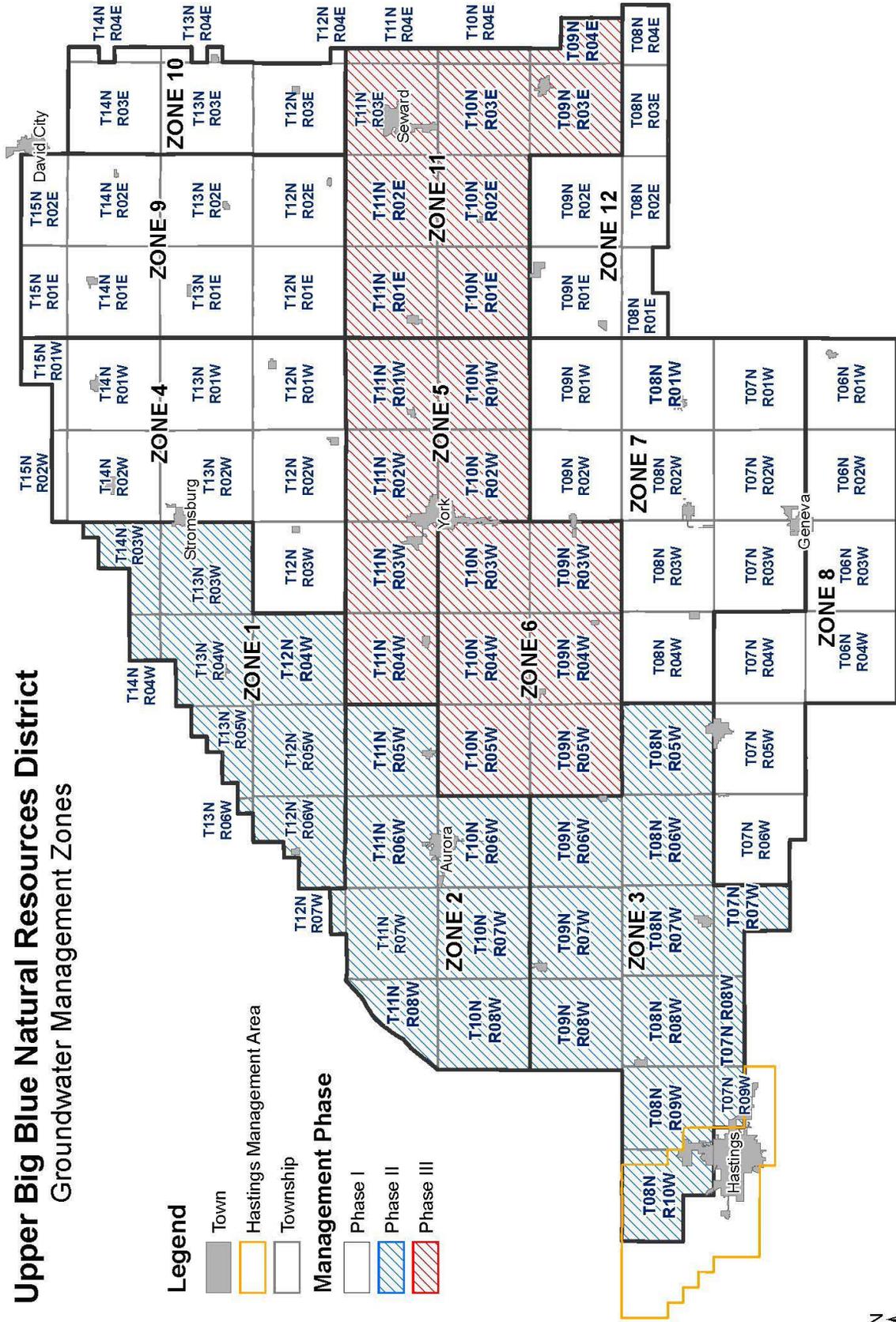
Upper Big Blue Natural Resources District Groundwater Management Zones

Legend

- Town
- Hastings Management Area
- Township

Management Phase

- Phase I
- Phase II
- Phase III



PROJECTS



Brothers Invest in Soil Protection

■ For Butler County farmers Dave and Dan Rech, utilizing cost-share dollars to improve their farming operation over the past few decades has been a simple action with big impact. The Rechs have worked with the Upper Big Blue NRD and the Natural Resources Conservation Service (NRCS) to add terraces and outlets to their row crop acres. Erosion control was their primary objective, as they were seeing significant soil loss on their hillier acres.

“With terraces, tiled outlets, and no-till farming, we can pretty much eliminate erosion,” said Dave. In addition to keeping the topsoil, adding these measures has also made farming easier in places. “If you get these terraces in and you control that erosion, you’re eliminating a lot of ditches to cross,” he said.

It’s been a long-term project to install these upgrades. The Rechs were committed to making the land improvements happen a little at a time, each year making use of the maximum cost-share dollars. Previously the maximum amount available for cost-share for land treatment practices with the NRD was \$5,000 per year per landowner. The amount has since been increased to \$7,500.

“Over the last 40-some years, most every part of our land that needed some treatment, got it,” Dave said. “It’s been a lifelong battle. You do a little bit every year, and that’s how you get things done.” Dave has been farming with his brother for many years and today both men’s sons have also joined the operation. Dave is pleased that when it is time to turn over the farm to the next generation someday in the future, that he will have done his part to make the land as profitable and sustainable as possible.



The Rechs have been experimenting with cover crops to further reduce erosion and to improve soil health. They currently have rye as a cover crop on about 25 percent of their row crop acres and plan to plant more in the next five years. They have a cow-calf operation of about 400 head and the rye provides early spring grazing for the cattle. In the winter, the cattle graze crop residue, which Dave says is the most cost-effective way to fatten the cows and build the soil. Twenty years ago, when he went no-till then started planting cover crops, Dave says he caught some flak from other producers in his area who thought his fields were full of “trash.” As his strategy has proven successful, his nay-sayers have started following his lead. Now the practices are becoming much more common in his area, he said.

“There are still some people that do full tillage. They’re not happy unless they are stirring dirt somewhere. They call it recreational tillage,” Dave said. However, the labor and cost savings involved with no-till makes the practice a bedrock of the Rechs’ operation. “We used to work up the soil once or twice, but now we just go out there and plant and we’re getting good stands and raising good crops,” he said.



These practices have provided a measure of protection for the Rechs’ farm when it comes to weather extremes like the wind, hailstorms, and drought Nebraska experienced in the 2022 growing season. “It’s hard to prepare yourself for something like that,” Dave said, referencing the storms. “I’ve never seen so much damage and destruction. Up and down Interstate 80... it was just terrible.”

After all that wild weather, Dave said he could see the impact of conservation activities at harvest: on ground that had been more recently tilled, he saw a 40 bushel per acre yield hit. “The difference really showed up,” he said. Better soil structure and keeping the ground covered provided a buffer against the drought.

“It’s hard to fight Mother Nature,” Dave conceded. “You think you’ve got it figured out and Mother Nature throws a whammy at you and then you’ve got to rethink. Hailstorms, drought, you never know what you’re going to be up against from one year to the next.” With the help of the NRD and NRCS, the Rechs’ operation is better prepared for whatever Mother Nature might throw at them next. ■

Today the 70-acre lake is impaired due to excess sediment, nutrients, and due to the presence of unsafe chemical compounds. “These pollutants and contaminants and the excess sedimentation issue have led to our lake being classified as impaired for aquatic life since 2006 and it has been impaired for the aesthetics due to the sedimentation for about 12 years,” said Tara Ogren, a civil and water resources engineer with the City of Hastings.

A water quality management plan for the Lake Hastings watershed will help evaluate a variety of best management practices, from cover crops and riparian buffers on agricultural land, to streambank and shoreline stabilization, to stormwater best management practices to treat and temporarily store urban runoff as development continues around the lake. The two NRDs are partnering with the City of Hastings, Nebraska Department of Environment and Energy, and JEO Consulting to create a plan for how to restore the lake. Once the plan is complete, the city will apply for grants to implement the necessary changes. Preliminary estimates for the total renovation cost are around \$9.375 million. The federal share will be about 60 percent. ■

Lake Hastings Restoration Planned

■ Lake Hastings straddles the boundary between the Upper Big Blue and Little Blue NRDs and presents a unique opportunity for the entities to join forces with the City of Hastings to improve both urban and agricultural land that drains into the lake. A critical four-square mile sub-watershed has been identified between Hastings NW Dam and Lake Hastings as having potentially the most impact on lake water quality in terms of best management practices.



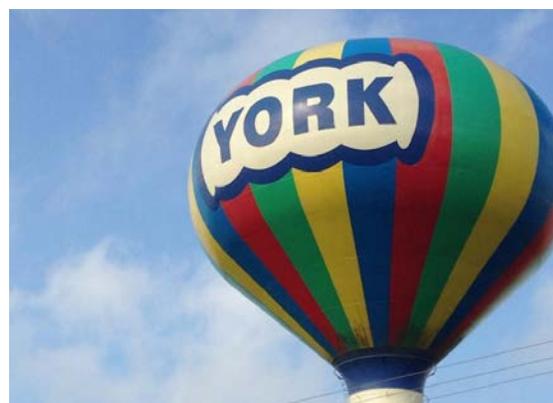
PROJECTS



City of York Letter of Map Revision

- Due to the recently updated Flood Insurance Rate Maps (FIRM), the City of York conducted a Flood Mitigation Feasibility Study in 2022.

This project performed a reconnaissance level feasibility study to identify potential flood risk reduction and mitigation measures that may include structural, non-structural, or programmatic measures to reduce flood risks in and around York. The NRD provided \$20,000 of financial assistance for the first phase of this project and approved an additional \$21,000 for the second phase. The District is providing 50% cost share assistance to the city for York to apply for a Letter of Map Revision (LOMR) that will reduce the 100 year flood plain within the city of York.



In 2023, the NRD provided \$12,544.38 to the City of York for this process.

The proper sizing and location of drainage works throughout a village should be considered, not just a local fix for a neighborhood problem. The district is also in a position to consider the impacts and solutions for drainage from or to rural areas. After the master planning is complete for a community, some construction cost share assistance from the district may be necessary to encourage construction of the highest priority components. It is expected that requests will be made over the next several years. ■



Dorchester Dam 2A Improvement

- In September 2022, it was reported to the board that the Dorchester 2A dam was experiencing erosion on the west end of the dam. The shoreline had eroded back to the dam embankment and had extended beyond the upstream fence. At that time, staff requested authorization to obtain quotes from contractors to add rock and rebuild the fence.

Staff sent specifications to six contractors for the Dorchester Dam 2A rock and fencing project with a completion date of December 23. Gana Trucking and Excavating of Martell submitted the lone quote, which was 25% over the engineer’s estimate. The line item for fencing was significantly higher than the estimate. Staff was instructed to work with Gana to renegotiate the fencing bid.

Gana Trucking and Excavating did submit a revised bid for fencing, but staff felt it was still too high. Staff recommended awarding bid items 1 and 3, mobilization and supplying and placing 296 tons of rock at the Dorchester 2A Dam shoreline maintenance project.

The work of hauling and placing rock on the upstream face of Dorchester Dam 2A was completed by December. The project required less rock than was estimated. NRD staff will rebuild the fence along the face of the dam. In January, \$22,822.96 was paid to Gana Trucking for supplying and placing 240.42 tons of rock on the face of Dorchester 2A dam. ■



PROJECTS



Geneva Continues Community Enhancement With the help of NRD programs

Trees offer numerous benefits to a community, from increasing property values, to decreasing summer temps, to controlling wind and snow in the colder months, to reducing noise and air pollution. That’s why the City of Geneva added more than 200 trees along its new walking trail in spring 2023. In the future these trees will add beauty and shade to the community amenity, as well as habitat for wildlife.

Species planted include red cedar, Norway spruce, hackberry, silver maple, bur oak, and chokecherry. Some of the trees were machine planted by Upper Big Blue Natural Resources District staff, while others were planted by city employees. The 18-24” bare root seedlings don’t look like much yet; however, they will grow quickly if tended properly, assured Kyle Yrkoski, NRD district forester.

The city made use of the Community Tree Resources Program from the Upper Big Blue NRD to fund part of this improvement. This program offers financial assistance to communities for the development or improvement of city or village tree resources. Two levels of participation are offered. The first level

encourages cities and villages to develop a new tree improvement program, which qualifies them for the Tree City USA designation. A higher level of district assistance is available to communities that make such a commitment. The second level of assistance is available to cities, villages and other public entities that have developed a specific plan for tree replacement or new plantings.

The Fillmore County Ag Society also made use of the Community Tree Resources Program in July 2022. They had lost a row of pine trees at the fairgrounds in Geneva due to disease. The total cost of replacing the trees was \$2,142.27. The NRD reimbursed the Ag Society for \$1,000 of this cost.

Related to the Community Tree Resources Program but with a slightly different emphasis, the NRD also offers a Community Native Grass Resource Program. This program offers financial assistance to communities to develop or improve city or village properties where the establishment of native grass would be beneficial. Such areas may include, but are not limited to, lands surrounding wastewater



treatment lagoons, lands within a Wellhead Protection Area and areas suitable for wildlife habitat improvement.

The tree planting projects in Geneva are just the latest in a series of public land improvements that have been made in partnership with the NRD. In 2021, the NRD was involved with the expansion and improvement of Geneva Boys Pond, providing \$10,000 as well as technical expertise. In 2022, The NRD provided \$25,000 toward Phase I of the community walking trail project. Organized by the community group Geneva In Motion, this ¾-mile trail connects to a loop around the Fillmore County Hospital grounds, runs parallel to highway 81 along the edge of town, then turns west to end near Fillmore Central High School. The paved walking trail will eventually extend further west toward the city park as funds continue to be raised.

The goal is that the path will make the community a more walkable, healthy, and enjoyable place to live. The plan is to create greater access to safe walking routes to schools as well as to improve sidewalk connectivity for pedestrians and cyclists.

“We are so grateful for the support and funding that the NRD provided,” said Jenni Hoarty, wellness coordinator for Fillmore County Hospital and one of the lead organizers with Geneva In Motion. “After spending years in the planning stage, the funding from the NRD helped propel our project into motion. With the connection of our new trail, we are able to provide approximately 1.25 miles of safe trail for pedestrians from the high school to the city park.”

For both the Boys Pond and walking path projects, Geneva utilized funding through the NRD’s Parks Program. This program allows district cities and villages to access planning and financial assistance for the development or improvement of natural resources in nature areas, campgrounds, and park facilities that encourage tree planting, creation of wildlife habitat, and open spaces. ■



PROJECTS



Table LT-1: Land Treatment Projects per County 2023

County	NRD	NSWCP	Total	% of Total
Adams	0	0	0	0%
Butler	1	3	4	9.3%
Clay	4	3	7	16.3%
Fillmore	0	4	4	9.3%
Hamilton	3	3	6	14%
Polk	1	1	2	4.7%
Saline	0	1	1	2.3%
Seward	0	4	4	9.3%
*York	1	14	15	34.9%
TOTAL	10	33	43	100%

Table LT-2: Expended Land Treatment Funds per County 2023

County	NRD	NSWCP	Total	% of Total
Adams	\$0	\$0	\$0	0%
Butler	\$8,118.61	\$15,117.43	\$23,236.04	21.2%
Clay	\$4,807.00	\$4,092.55	\$8,899.55	8.1%
Fillmore	\$0	\$7,164.83	\$7,164.83	6.5%
Hamilton	\$14,143.22	\$4,033.40	\$18,176.62	16.6%
Polk	\$3,867.43	\$1,077.43	\$4,944.86	4.5%
Saline	\$0	\$1,035.50	\$1,035.50	0.9%
Seward	\$0	\$13,094.15	\$13,094.15	12%
*York	\$392.56	\$32,444.90	\$32,837.46	30.0%
TOTAL	\$31,328.82	\$78,060.19	\$109,389.01	100%

* Denotes that 100% of county land area is located within the Upper Big Blue NRD.



Table LT-3: NUMBER of Practices By Type of Land Treatment 2023

Practice Type	NRD	NSWCP	Total #	% of Total
Terrace System	0	2	2	4.7%
Mechanical Outlet	0	0	0	0%
Dam	0	0	0	0%
Grade Stabilization	0	0	0	0%
Diversion	0	0	0	0%
Waterway -- grassed	0	1	1	2.3%
Basin --Sediment Control	1	1	2	4.7%
Pasture Planting	0	0	0	0%
Windbreak Planting	4	22	26	60.5%
Planned Grazing	0	0	0	0%
Windbreak Renovation	2	3	5	11.6%
Subsurface Drip Irrigation	0	0	0	0%
Variable Rate Irrigation	4	0	4	9.3%
Streambank Stabilization	0	0	0	0%
Brush Management	0	2	2	4.7%
Cover Crop	1	0	1	2.3%
TOTAL	12	31	43	100%

**Much of the district suffered under drought conditions throughout fiscal year 2023, including extreme drought conditions through the spring and early summer of 2023. The dry conditions across the district prevented installation of approved land treatment projects, such as terraces and sediment control basins. This resulted in lower completed land treatment improvement projects and less utilization of available funding for FY2023. Most of these approved land treatment projects will begin construction in the fall of 2023 and will be included in FY2024 Land Treatment Program.*

PUBLIC RELATIONS



Media Reach

- In the past year, the Upper Big Blue Natural Resources District had more than \$15,000 worth of earned media and more than 41K views, with placements in district, regional, and national publications and channels, including:

TV and Radio

- News Channel Nebraska
- KTMX/KAWL York Radio
- KRVN Rural Radio

Newspapers and Magazines

- Aurora News Register
- Hastings Tribune
- Seward Independent
- York News-Times
- No-Till Farmer
- Nebraska Farmer
- Grand Island Independent
- Midwest Messenger
- Columbus Telegram
- Irrigation Today

Other

- National Association of Conservation Districts
- News Clips
- Nebraska Farmer Update
- Morning Ag Clips
- kqeducationgroup.com
- Striptillfarmer.com

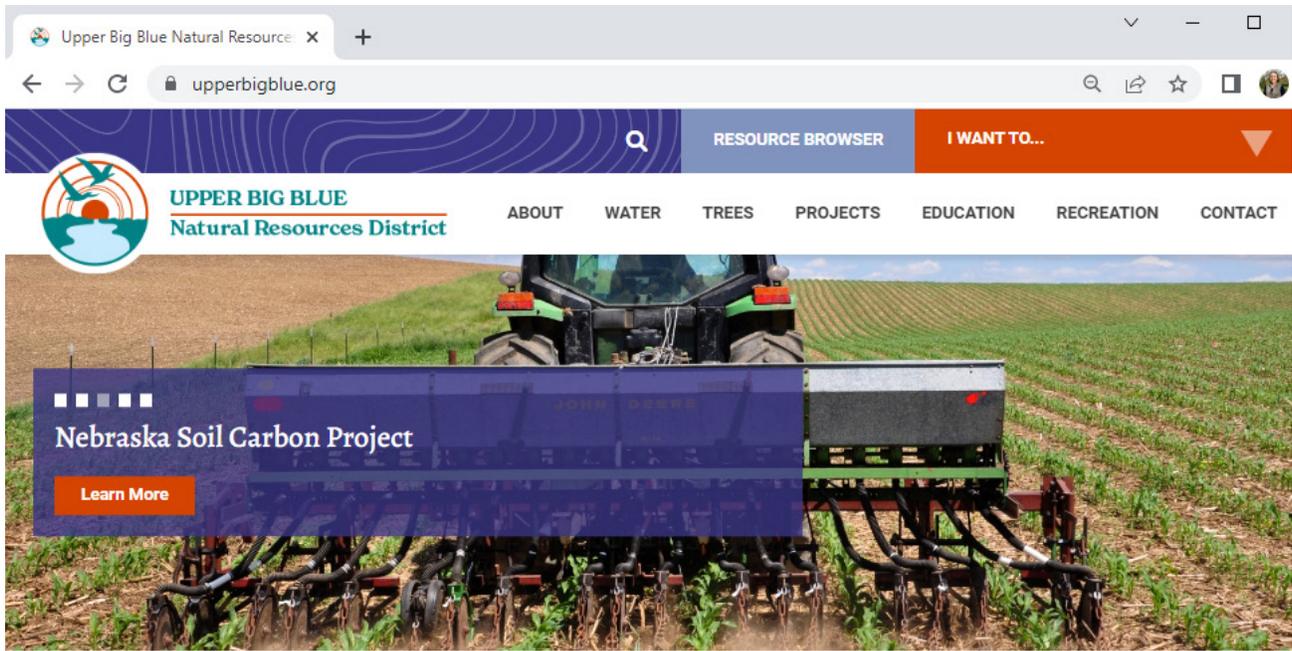


PUBLIC RELATIONS



New Website Launched

- In the summer and fall of 2022, NRD staff worked with Unanimous, a marketing firm in Lincoln, on a new website for the district. The new site was necessary due to security features that were being phased out on the previous version of the content management system the site was built on. Staff took the opportunity to update the look and feel of the site, as well as refresh information and increase the ease of use for information seekers. The new site launched on January 4, 2023. The total investment on the project was about \$10,000. The new website is easier to navigate and has additional security features.

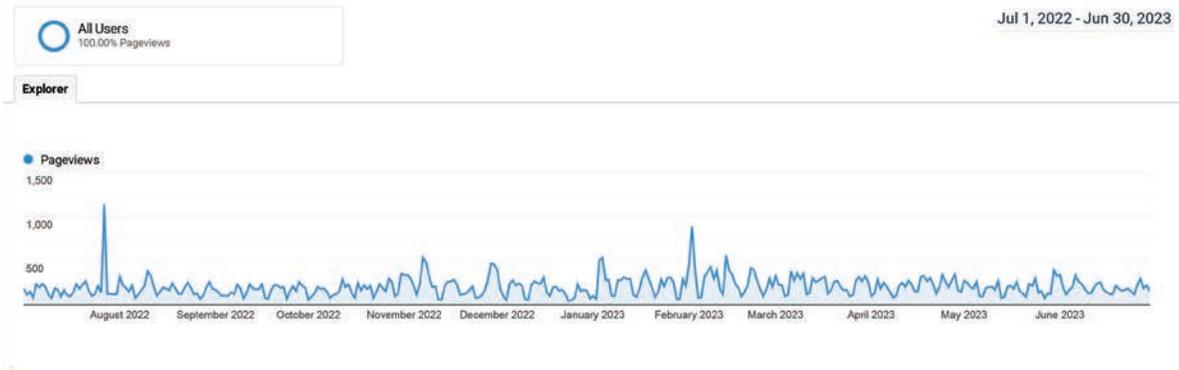


Your Local Partners in Conservation Since 1972

With expert knowledge, intimate understanding of the needs of the region, and commitment to fair, local governance, we serve people and communities through a range of conservation activities. From partnering with ag producers to improving life for all residents by assuring access to healthy drinking water and recreation areas, the Upper Big Blue Natural Resources



Website Metrics, July 1, 2022- June 30, 2023



Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
	75,149 <small>% of Total: 100.00% (75,149)</small>	60,692 <small>% of Total: 100.00% (60,692)</small>	00:01:42 <small>Avg for View: 00:01:42 (0.00%)</small>	31,750 <small>% of Total: 100.00% (31,750)</small>	51.50% <small>Avg for View: 51.50% (0.00%)</small>	42.25% <small>Avg for View: 42.25% (0.00%)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. /	16,736 <small>(22.27%)</small>	12,849 <small>(21.17%)</small>	00:01:26	12,192 <small>(38.40%)</small>	38.24%	38.65%	\$0.00 <small>(0.00%)</small>
2. /recreation-areas	3,107 <small>(4.13%)</small>	2,221 <small>(3.66%)</small>	00:00:38	1,282 <small>(4.04%)</small>	43.83%	27.74%	\$0.00 <small>(0.00%)</small>
3. /board	2,417 <small>(3.22%)</small>	1,834 <small>(3.02%)</small>	00:02:13	911 <small>(2.87%)</small>	42.32%	43.07%	\$0.00 <small>(0.00%)</small>
4. /nrd-trees	1,508 <small>(2.01%)</small>	1,157 <small>(1.91%)</small>	00:00:25	885 <small>(2.79%)</small>	61.20%	41.71%	\$0.00 <small>(0.00%)</small>
5. /recreation/bruce-l-anderson-recharge-lake	1,257 <small>(1.67%)</small>	1,001 <small>(1.65%)</small>	00:02:09	649 <small>(2.04%)</small>	61.69%	56.48%	\$0.00 <small>(0.00%)</small>
6. /about/staff	1,121 <small>(1.49%)</small>	891 <small>(1.47%)</small>	00:01:31	249 <small>(0.78%)</small>	52.21%	35.41%	\$0.00 <small>(0.00%)</small>
7. /employment	1,104 <small>(1.47%)</small>	968 <small>(1.59%)</small>	00:02:37	635 <small>(2.00%)</small>	86.01%	72.64%	\$0.00 <small>(0.00%)</small>
8. /programs/online-reporting	1,101 <small>(1.47%)</small>	823 <small>(1.36%)</small>	00:06:16	388 <small>(1.22%)</small>	23.63%	67.21%	\$0.00 <small>(0.00%)</small>
9. /general-information-history	1,024 <small>(1.36%)</small>	792 <small>(1.30%)</small>	00:00:56	108 <small>(0.34%)</small>	59.26%	24.71%	\$0.00 <small>(0.00%)</small>
10. /contact	1,008 <small>(1.34%)</small>	859 <small>(1.42%)</small>	00:01:28	147 <small>(0.46%)</small>	61.07%	36.21%	\$0.00 <small>(0.00%)</small>
11. /trees	995 <small>(1.32%)</small>	795 <small>(1.31%)</small>	00:02:42	624 <small>(1.97%)</small>	66.51%	65.63%	\$0.00 <small>(0.00%)</small>
12. /reporting	947 <small>(1.26%)</small>	778 <small>(1.28%)</small>	00:07:00	249 <small>(0.78%)</small>	25.60%	68.74%	\$0.00 <small>(0.00%)</small>
13. /events	900 <small>(1.20%)</small>	683 <small>(1.13%)</small>	00:00:38	236 <small>(0.74%)</small>	36.44%	22.56%	\$0.00 <small>(0.00%)</small>
14. /recreation/pioneer-trails-recreation-area	887 <small>(1.18%)</small>	739 <small>(1.22%)</small>	00:04:04	531 <small>(1.67%)</small>	39.66%	64.94%	\$0.00 <small>(0.00%)</small>
15. /staff	875 <small>(1.16%)</small>	751 <small>(1.24%)</small>	00:02:18	230 <small>(0.72%)</small>	64.07%	55.43%	\$0.00 <small>(0.00%)</small>
16. /bruce-l-anderson-recharge-lake	763 <small>(1.02%)</small>	612 <small>(1.01%)</small>	00:02:31	315 <small>(0.96%)</small>	36.48%	52.95%	\$0.00 <small>(0.00%)</small>
17. /search/node	749 <small>(1.00%)</small>	555 <small>(0.91%)</small>	00:00:17	55 <small>(0.17%)</small>	29.63%	3.87%	\$0.00 <small>(0.00%)</small>
18. /groundwater-levels	706 <small>(0.94%)</small>	541 <small>(0.89%)</small>	00:01:02	80 <small>(0.25%)</small>	44.30%	24.22%	\$0.00 <small>(0.00%)</small>
19. /pioneer-trails-recreation-area	704 <small>(0.94%)</small>	561 <small>(0.92%)</small>	00:03:54	391 <small>(1.23%)</small>	41.31%	58.10%	\$0.00 <small>(0.00%)</small>
20. /programs	682 <small>(0.91%)</small>	517 <small>(0.85%)</small>	00:00:39	124 <small>(0.39%)</small>	47.15%	15.40%	\$0.00 <small>(0.00%)</small>
21. /trees/2023-tree-order-form	680 <small>(0.90%)</small>	518 <small>(0.85%)</small>	00:02:41	50 <small>(0.16%)</small>	65.38%	53.53%	\$0.00 <small>(0.00%)</small>
22. /recreation/oxbow-trail	679 <small>(0.90%)</small>	580 <small>(0.96%)</small>	00:02:51	358 <small>(1.13%)</small>	48.20%	60.97%	\$0.00 <small>(0.00%)</small>
23. /forms	627 <small>(0.83%)</small>	496 <small>(0.80%)</small>	00:01:09	99 <small>(0.31%)</small>	50.50%	27.11%	\$0.00 <small>(0.00%)</small>
24. /about	579 <small>(0.77%)</small>	476 <small>(0.78%)</small>	00:00:39	47 <small>(0.15%)</small>	40.43%	15.89%	\$0.00 <small>(0.00%)</small>
25. /trees/conservation-tree-program	569 <small>(0.76%)</small>	428 <small>(0.71%)</small>	00:00:56	54 <small>(0.17%)</small>	48.15%	22.32%	\$0.00 <small>(0.00%)</small>

PUBLIC RELATIONS



Education: Burke Scholars

- In 2022, two students were chosen as Burke Scholars. These students received scholarships of \$2,000 each to pursue studies at a Nebraska college or university to study natural resources or a related field.

Keeley Conrad is the child of Josh and Jenny Conrad and a 2021 graduate of York High School. She is currently a student at the University of Nebraska—Lincoln where she is studying horticulture and entrepreneurship. In addition to being a Dean’s List student, she also owns and operates a small business named Seeds & Strings, which sells handmade plant items and succulent arrangements. Her future plans involve owning a greenhouse business. She has extensive experience with FFA. The greenhouse management experience and plant science knowledge gained through working with FFA annual plant sales have informed her future career plans. While in high school, she was also involved in National Honor Society, Fellowship of Christian Athletes, volleyball, and track.



Matt Mittman is the child of John and Lori Mittman and a 2020 graduate of York High School. He is currently a student at the University of Nebraska—Lincoln, where he is studying agronomy and maintaining a 4.0 GPA. In high school he was a member of National Honor Society, FFA, speech, mock trial, and was involved in athletics. After graduation, he plans to return to York to join the family business, Mittman Agronomics, where he will serve as a crop consultant. ■



Educational Capital Projects Fund

- A garden area, footbridge, water feature, sand pit, and lots of room to create and explore are part of the proposed outdoor classroom on the property of St. Joseph Catholic School in York. School administrators applied for and were granted \$2,500 for this project through the NRD’s Educational Capital Project Fund. The total cost of the project is estimated to be \$30,000. The expansion of their nature offerings will be completed in 2026. “Currently, our outdoor playground provides the usual experiences of running, jumping, and climbing. With the addition of the outdoor classroom, space will be available to students for creating music, performing, gardening, open-ended experimentation, and promoting creativity,” said Mary Jo Leininger, school principal. “Our ultimate goal is to expand learning beyond the walls of our classrooms, providing our students with opportunities to interact with and appreciate nature.” ■



Project GROW Gardening Event Success

■ There may have been a nip in the air, but many in the area were looking ahead to sunny days, soil under their nails, and the taste of fresh produce in the not-too-distant future. On Saturday, March 4, 2023 more than 40 eager gardeners met at the York Fairgrounds to attend the Project GROW Gardening Workshop hosted by Nebraska Extension, the Upper Big Blue Natural Resources District, and York State Bank.

Expert horticulturalist Sarah Browning covered a vast amount of information at the event including watering methods, soil health, pest management, and selection of the best vegetable varieties. Browning has worked as an educator with Nebraska Extension since 1998. Her areas of focus are environmental horticulture, fruit and vegetable production, and food safety. Working with the public and commercial green industry professionals, her major program goals include conserving water, protecting water quality, promoting local food production, and protecting human health. The workshop was attended by people of all ages and skill levels, including master gardeners and those who are just starting out. Attendees asked a variety

of gardening questions, from how to get the most out of raised beds made from stock tanks, to why you might add coffee grounds and eggshells to your soil, to how to get blueberries to grow in Nebraska. (Hint: blueberries require a much more acidic soil than is the norm in this part of the country and require a lot of specialized care to coax them to produce in Nebraska gardens. Browning recommends planting serviceberry instead, which grows great here and has a similar flavor profile.)

For those that missed the event, Browning's materials from the workshop are available on the NRD's website. Information about the Project GROW community garden in York is also available on the website. ■



PUBLIC RELATIONS



Buzzing with Potential

- The calls of meadowlarks and the excited voices of children fill the air on a warm spring day as youngsters in vibrant orange tee shirts swarm over the hillside on the outskirts of York.

The calls of meadowlarks and the excited voices of children fill the air on a warm spring day as youngsters in vibrant orange tee shirts swarm over the hillside on the outskirts of York. Pails of seeds swing precariously from small fists. “Don’t run!” the teachers and volunteers call to no avail, as the fourth graders fly across the field that has been prepared for the class Pollinator Day activity. Badger holes dot the landscape, presenting an injury hazard as well as a source of fascination for the students, who stop to peek in and see if anyone is home.

The promise of much needed rain in the forecast makes it the perfect conditions for the day’s objective: planting two additional acres of pollinator habitat.

Prior to planting, the students spent time learning about native Nebraska plants such as big and little bluestem grasses, several milkweed varieties, purple coneflower, and blanket flower. Their buckets carry a mixture of seeds of 40-50 plant varieties.

As the adults call out instructions, the children align single file on the edge of the field, buzzing with excitement. Then carefully, soberly, they begin to scatter their seeds low to the ground, walking slowly westward, the wind in their faces. For the first time all day, they are quiet, fully absorbed in their task of broadcasting seed, making sure that every inch of the parched soil is covered.

This activity is what they have been preparing for all morning. The main event. The moment they go from being kids to being conservationists. With a gentle flick of the wrist, they have been empowered in this momentous struggle to protect pollinators from further decline and thus improve the future. They’ve heard all about the role of pollinators, focusing on why they’re important and how they can benefit them by protecting their habitat. Now it’s their turn to help.

The students aren’t saving the world, but they approach this planting effort enthusiastically, with the knowledge that they are taking the first step toward a brighter tomorrow. Once their buckets are empty, the children dash back across the field to pick up more





mature plants that have been grown in advance to provide a jump-start to the pollinator patch. Many of the seeds the students are spreading are for plants that grow extensive roots prior to above ground proliferation. The handplants will allow for faster results in the pollinator habitat. The kids grab two plants apiece, plus a brightly colored trowel and receive instructions about how to place the roots into the pre-drilled holes spread at regular intervals across the field and marked with small orange flags. They dash off once again at top speed, eager for the new task.

A Pollinator Day event has been hosted annually by Nebraska Pheasants Forever Corn Country Chapter for the past eight consecutive years in York. Each year, a bit more pollinator habitat is planted, expanding the pollinator patch on the northeast side of the city wellfield. This year, more than 110 students from local public and private schools participated in the hands-on learning opportunity. Through presentations from Pheasants Forever, Upper Big Blue Natural Resources District, and University of Nebraska Lincoln College of Agricultural Sciences and Natural Resources, students learned about pollinator habitat requirements, what pollinators do, and why they are vital to a flourishing ecosystem. From the humble honeybee to the celebrated Monarch butterfly, students learned that pollinators are an essential component of agriculture in Nebraska. A favorite part of the event for many was seeing the activity inside a beehive and learning about the hierarchy and daily habits of these complex social creatures.

Students also spent time learning about native Nebraska plants that make great pollinator and pheasant habitat. Then they put their newly acquired knowledge to good use by planting a variety of these and other plants near York's wellfield. The plot is part of the Project GROW demonstration site that is operated in partnership with the City of York and the Upper Big Blue Natural

Resources District. The purpose of Project GROW

is to improve the soil above the city's wellfield as a means of protecting the water that residents consume.

In addition to their planting efforts, students also enjoyed exploring the great outdoors, from chasing garter snakes to jumping over a dry creek bed. At the end of the activity, students were given their own packets of pollinator mix to plant at home, along with a stick of honey to enjoy—a sweet reminder of the value of their labors.

To complete the educational experience, students will return this autumn to see how their plants have grown. Led by researchers from the University of Nebraska's Department of Entomology, students will have the opportunity to tag monarch butterflies as they migrate south for the winter. As monarchs and other pollinator populations continue to decline due to loss of habitat and food sources, pesticide overuse, and disease, activities that engage young people in conservation activities are ever more urgent.

Funding for this event through Pheasants Forever's Pollinator Habitat Outreach Program with funding support from Corteva, Bayer, USFWS, Bass Pro Shop's and Cabela's Outdoor Fund, Monarch Joint Venture, USFS and the organization's local volunteer chapters. Along with high diversity pollinator seed provided by Bee & Butterfly Habitat Fund's program NextGen. ■



PUBLIC RELATIONS



To Whom Honor is Due

- Several individuals and one community in the Upper Big Blue NRD were recognized with awards from the Nebraska Association of Resources Districts at their fall conference. More on each of these honorees can be found at www.upperbigblue.org.

Director of the Year: Larry Moore (Ulysses)

Since the founding of Nebraska’s Natural Resources Districts in 1972, Larry Moore has been a fixture of the board room at the Upper Big Blue NRD. Moore first started attending NRD board meetings 50 years ago, not as a director, but as a driver. One of his friends, Raymond Burke, was elected to the first board of directors for the local district, but he needed someone to drive him to the meetings because he didn’t like to drive at night. Moore volunteered to drive and became engaged with the work of the district as he sat in on meetings. By 1974, Moore’s interest rose to the level of running for a seat on the board himself. That was 47 years ago. In that time, Moore has served continuously as a director and has seldom missed a meeting.



Beyond near perfect attendance, Moore has provided essential institutional knowledge and a deep understanding of the issues faced in the district, both as a board member and as member of the local ag community. He has provided leadership and modeled mature debate, deliberation, and decision-making during almost five decades of board service.

Moore studied agriculture for several years at UNL, working on summer farm crews in Nebraska, Montana, and Canada, before returning to his family’s farm in 1960 to work full-time with his father. Today Moore farms with his brother Mike, son John, and grandson Max. Their operation involves hybrid seed grain crops and hay and pasture. The farm

is composed of both dryland and irrigated fields. Moore began experimenting with cover crops and no-till in 1989 and has built on the practices since then. For the last five years, the operation has been 100 percent no-till and has incorporated cover crops whenever weather conditions will allow, with the goal of 100 percent coverage.

Moore leads by example, as he talks to other area farmers as well as board members about the benefits of cover crops and no-till on his fields and is pleased to see the practices are being adopted at a greater rate in the area in recent years. Moore has continuously invested in water conservation on his farm since the 1970s, moving from gravity irrigation to center pivots. He has installed soil moisture sensors and irrigation scheduling technology to reduce the amount of water they use as well as reduce the likelihood of nitrogen leaching. “Larry is a pillar of this district. His leadership has been indispensable for decades,” said NRD General Manager David Eigenberg. “He brings so much enthusiasm and knowledge to the challenges the NRD is working to tackle.”

Outstanding Soil Conservation: Dave and Alex Daake (Waco)

The Daake family has been farming in Nebraska for generations. Today, Dave Daake and his son, Alex, continue that tradition by farming and practicing conservation on the family’s 1,100 acres, which lie between Goehner, Utica, and Beaver Crossing. Dave and Alex grow a rotation of crops including soybeans, corn, alfalfa, and grasses. They are considering adding wheat to the rotation as well, as

they are always looking for ways to improve the diversity of the operation. Dave used to raise sheep and hogs, but currently Alex is trying out a small cow-calf operation on the land to improve their soil health as well as profitability. The animals graze on the forage mix cover crops, which benefits the cattle and the soil, as the grazing practices break up compaction and recycle nutrients.



Soil health has been important to Dave for decades. Trained in horticulture at the Nebraska College of Technical Agriculture in Curtis, Nebraska, Dave started no-tilling 25 years ago on a portion of his fields and is now 100 percent no-till in their operation. About 15 years ago, he started adding turnips and then later rye grass as a cover crop to reduce erosion and compaction. He's been steadily adding cover crops to more and more acres each year. Alex enjoys researching cover crop mixes and experimenting with planting options including timing and row spacing, looking for ways to maximize on the investment. "We're planting more cover crops each year," said Dave. Alex plans to have cover crops on all of their row cropped acres eventually.

The team has increased the soil organic matter on many of their fields to be 4.5-5%, which has reduced their need for fertilizer inputs. The increased levels of soil organic matter provide essential nutrients for plants and microbes, as well as increasing water holding capacity. "It saves us a pass or two each year with the pivot," says Dave, "and in drought years like 2012, we aren't impacted as much. You don't see the dirt blowing in the spring." The cover crops suppress enough weeds that there is also a reduction in herbicide inputs needed. Dave sees the many active earthworms in his fields as evidence that the soil health continues to flourish.

Outstanding Community Conservation: City of York, Project GROW

Since 2017, the City of York and the Upper Big Blue Natural Resources District have worked together to protect water quality in the city's wellfield through

Project GROW (Growing Rotational crops On Wellfield). Five years into the program, the partnership continues to accomplish its goals. The innovative partnership between the city and the NRD has prioritized restoring the soil in the wellfield as a means of protecting the water consumed by the residents of York, as healthy soil acts as a filtering system to the aquifer and decreases nitrogen leaching and contamination. Project GROW focuses on 160 acres of the total 400-acre wellfield and includes demonstration fields, community garden plots, a fruit orchard, and an extensive pollinator habitat. Using no-till, cover crops, livestock integration, and diverse crop rotations, the project seeks to improve soil health, decrease soil erosion, and improve water holding capacity, all while maintaining profitability.



Thanks to these measures, inputs of conventional fertilizer, herbicides, and pesticides have been minimal. When conventional fertilizer has been added, it has been applied in season using precision technology to make sure that the least amount could be used to the greatest effect, decreasing the risk of leaching to the groundwater supply.

Annual soil testing and other measurements have shown continuous improvement in the nutrient availability, nitrogen efficiency, infiltration rate, and soil organic matter in the Project GROW fields. In addition to the benefits to the citizenry of better water quality, Project GROW remains profitable and provides a net financial gain for the City of York.



An additional benefit of Project GROW has been opportunities for education. Students from York and Concordia Universities have made regular visits to the GROW fields leading to academic research projects. Results from the growing practices at the demonstration fields are regularly communicated to agricultural producers in the area in the hopes that they will adopt similar practices to protect soil health and groundwater quality. ■

FORESTRY & PARKS



2023 Tree Planting Program Report

■ The tree planting crew for the spring of 2023 consisted of Jay Geiger, Andy Larkin, and Kyle Yrkoski, district forester. The district purchased 23,650 trees/shrubs. The trees and shrubs purchased were used for farmstead windbreaks, field windbreaks, habitat areas, and riparian plantings.

The trees purchased from Bessey Nursery were picked up on April 7, 2023. The district planted a total of 6,692 trees for 29 cooperators, an average of 230.8 trees per cooperator. There were 209 customers that bought 16,958 trees/shrubs for hand planting.

Twenty-nine percent of the trees sold were planted by the district and 71 percent went out as hand plants this year. Weed barrier was laid by a private contractor to enhance some of the the tree plantings.

The weather conditions during the weeks of April and May were hot and dry. Soil moisture was extremely dry on most sites. The soil was like dry powder and hard as concrete.

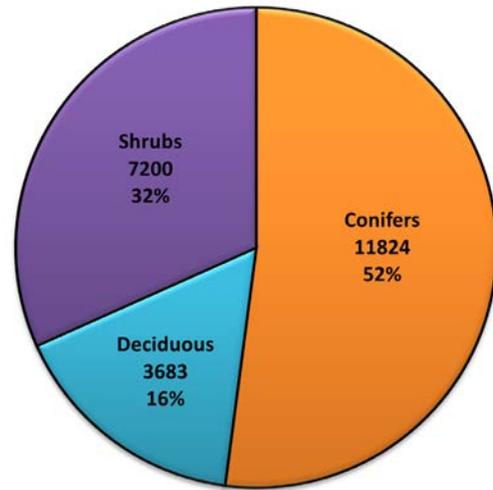
The district spent 16 days in the field planting trees. An average of 481.3 trees/shrubs were planted daily.

Scheduled plantings were completed on June 2, 2022.

The following is a synopsis of the expenditures and revenue for FY 2023.

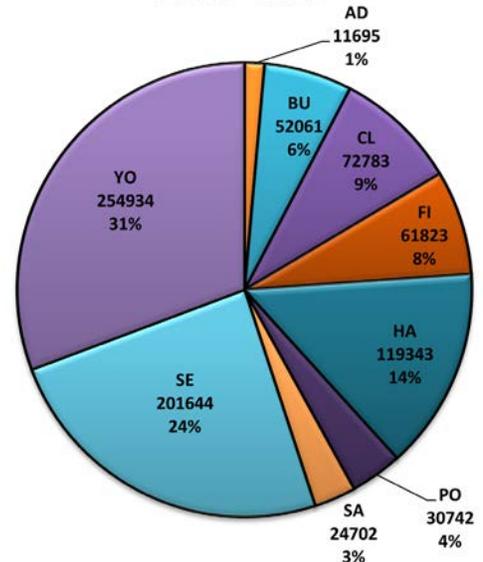
TOTAL TREES SOLD BY SPECIES

2023



TOTAL TREES DISTRIBUTED BY COUNTY

1995 - 2023





Tree Planting Expenditures 2023

Machine Planting Materials Purchased (includes shipping)

	Trees	Cost
NARD Bessey Nursery	23,525	\$19,270.75
Linoln Oaks	125	\$207.83
TOTAL	23,650	\$18,283.05

Operating Costs

Tree Planter Repair	\$0
Packing Material for Handplants	\$1,402.50
Distance Measuring Device-- District Planting	\$684.28
Vehicle Mileage/Fuel (\$0.65.5/mi)	\$1,590.34
Nursery Dealers License	\$83.00
Cooler Expenses (Freezer Curtain)	\$376.13
TOTAL	\$4,136.25

FORESTRY & PARKS



Tree Sales Report

Number of Trees Sold by County

	NRD Planted	Customer Planted
Adams	0	1,025
Butler	656	675
Clay	625	675
Fillmore	686	1,200
Hamilton	591	1,675
Polk	220	230
Saline	116	250
Seward	542	4,380
York	3,256	6,848
Total	6,692	16,958

Combined Total: 23,125 Trees

Tree Planting Revenue

Type	# of Trees	Cost	Total
NRD staff planted trees	6,692	\$1.18	\$7,896.56
Machine planting charge	6,692	\$1.18	\$7,896.56
Hand planted trees	\$16,958	\$1.18	\$20,010.44
		total	\$35,803.56

Special Projects

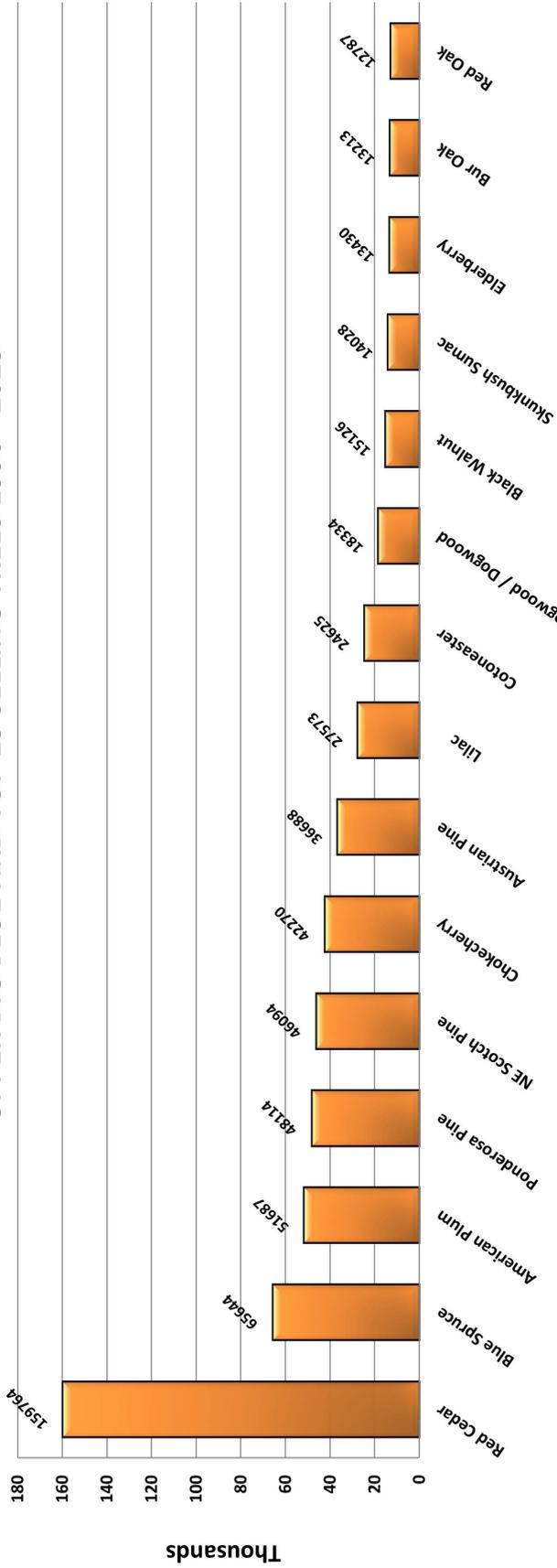
Entity	# of Trees	Cost	Total
Polk County Extension (Osceola)	80	\$1.18	\$94.40
Fillmore County 4-H	25	\$1.18	\$29.50
Exeter Cemetery	50	\$1.18	\$59.00
Seward County Arbor Day Event	130	\$1.18	\$153.40
TOTAL	285		\$336.30

Total Revenue:
\$35,803.56

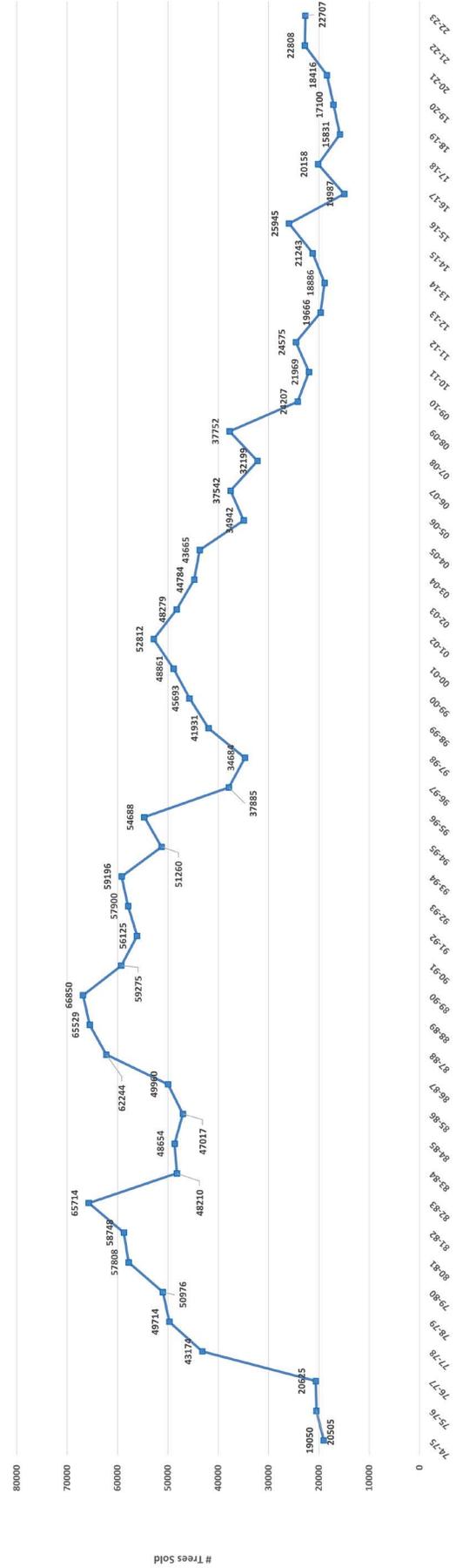
Total Expense:
\$23,951.13

Total Gain:
\$11,852.43

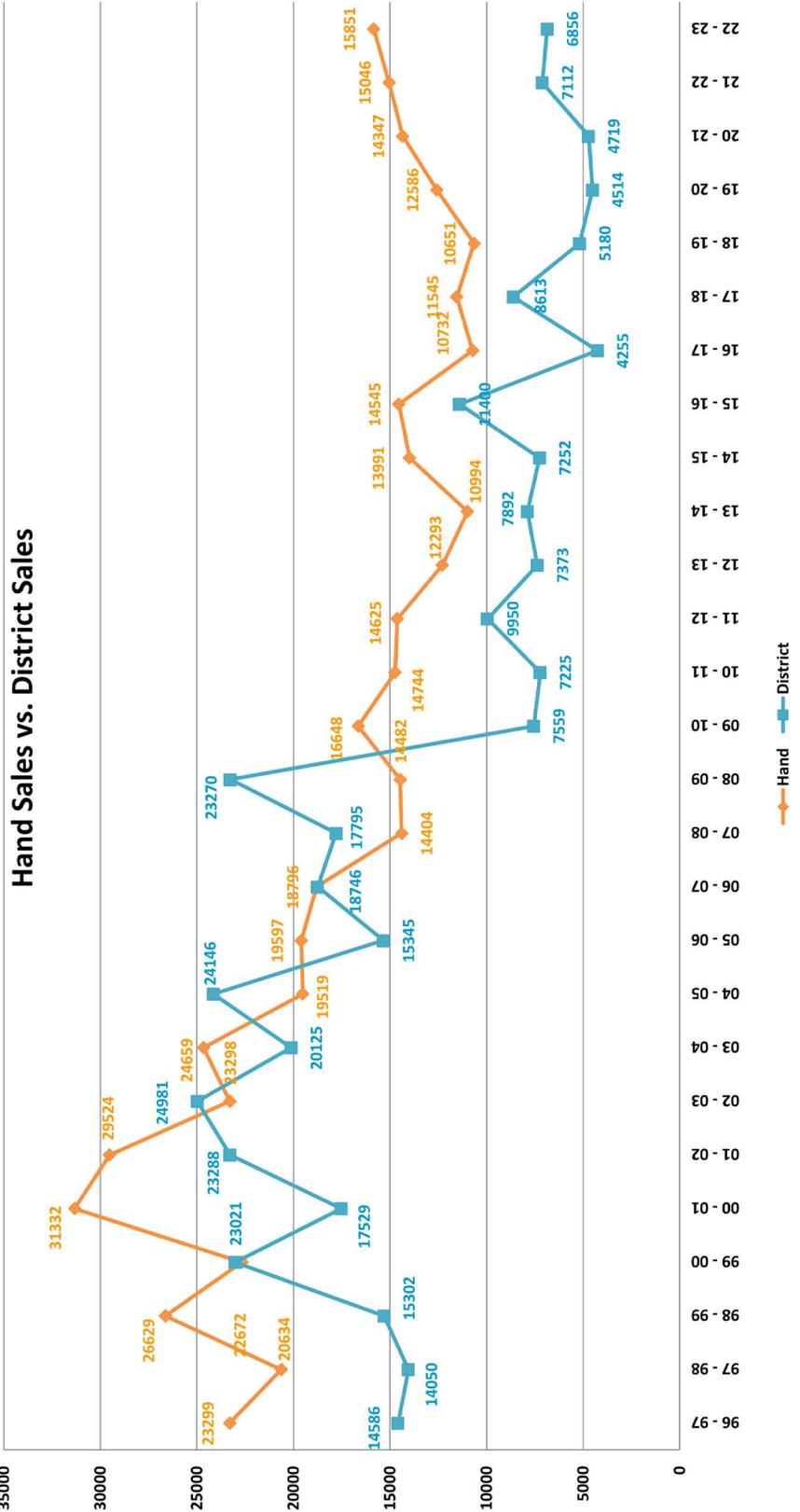
UPPER BIG BLUE NRD TOP 15 SELLING TREES 1996 - 2023



UPPER BIG BLUE NRD TREE SALES BY YEAR



FORESTRY & PARKS





The Gift of Trees

- The In celebration of 150 years of Arbor Day and 50 years of Nebraska Natural Resources Districts, Nebraska City Tourism & Commerce has partnered with various NRDs throughout the state to gift a tree to every county over the course of the next year.

“On the first Arbor Day in 1872, one million trees were planted across Nebraska,” said Tammy Partsch, Tourism & Promotions Coordinator for Nebraska City Tourism & Commerce. “Those early citizens saw the value of the new tree planting holiday and it’s time Nebraska City, as the home of Arbor Day Founder J. Sterling Morton, thanks them for that.”

The partnership, called The Gift of Trees, includes the Upper Big Blue Natural Resources District with tree plantings in Adams, Clay, Fillmore, Hamilton, Seward, and York Counties completed in October. Plantings took place at courthouses, fairgrounds, and other publicly owned properties.

“Tree planting has been an important part of the mission of Nebraska’s NRDs for 50 years,” said Chrystal Houston, public relations manager for the Upper Big Blue NRD. “We are happy to partner with Nebraska City Tourism & Commerce on this project to bring greater awareness to every county of Nebraska of the many benefits of planting trees and to celebrate our shared tree planting mission and heritage.” ■



FORESTRY & PARKS



Open House at Anderson Recreation Area Held

- With hot dogs and applause, the Upper Big Blue Natural Resources District staff and board members celebrated during an open house event Bruce L. Anderson Recreation Area on Thursday, April 13, 2023.

About 75 people gathered to enjoy a picnic supper and explore the newly installed playground equipment overlooking Recharge Lake.

The event was also an opportunity to honor three long-serving members of the board of directors: Micheal Nuss, Roger Houdersheldt, and Doug Dickinson (see page 10).

Nuss has served on the NRD board for 20 years and hails from Sutton. Houdersheldt has served for 30 years, including terms as chairman of the board, and is from Shelby. Dickinson has served for 40 years in a variety of leadership positions on the board. He is currently the board treasurer and is from Seward.

The NRD board of directors voted to replace the playground equipment at Anderson Recreation Area last February. The plan was to install the new equipment in summer 2022 and to celebrate it

along with the 50th anniversary of Nebraska's NRDs (established in 1972). However, due to construction delays, the equipment was not installed until November and it was decided to hold off on the community celebration until spring. Since then, benches and other finishing touches have been added to the area, creating a welcoming space for families. The playground is on the northeast side of the park, near the picnic shelter, camping area, amphitheater, and restrooms.

In addition to Anderson Recreation Area, the NRD operates five other recreation areas in the district with a variety of amenities from boating and camping to archery and hiking. There is no cost for day use of any of the recreation areas owned by the Upper Big Blue NRD. Depending on the location, camping may have a minimal cost. Every year, thousands of district residents as well as those from across the state and nation, visit these recreation areas. ■



Streambank Access Improved At Pioneer Trails Recreation Area

- Tent camping was temporarily suspended in the spring of 2023 at Pioneer Trails Recreation Area near Aurora, as improvements to the lake access was improved. Now the shoreline has been enhanced with a rock ledge to reduce erosion of the shoreline and sediment contamination in the lake, as well as provide a great spot for fishing. The total cost of the project was \$97,880.77. ■



FORESTRY & PARKS



Volunteer Projects Improve Recreation Areas

- Two young women used their time, talents, and resources to benefit district rec areas this fall. Their community service projects will be felt for years to come, as each has worked to make a lasting impact.

PLAYGROUND INSTALLATION

For Aurora area resident Kelsey Mersch, growing up near Pioneer Trails Recreation Area was a privilege that came with an added sense of responsibility. Mersch’s youth was spent kayaking and fishing on the lake and picnicking and walking the trails on the park grounds. Through her teen years, she gave back when she could, cleaning up trash and keeping an eye out for suspicious activity or vandalism. She had a sense of pride and ownership about the facility. She wanted the park to be a great place to relax and enjoy nature, not only for her family, but for all who visited the picturesque site.

A longtime member of the Aurora Eager Achievers 4-H club, Mersch understood the importance of community building and using one’s gifts as opportunities to serve. Mersch loved the outdoors, loved building things, and especially enjoyed spending time at Pioneer Trails. Why not combine her interests and create a park improvement that would benefit her community using the skills and resources she developed through 4-H?

Several years of planning and fund raising have come to fruition, as Mersch installed a new play structure for young children at Pioneer Trails in September. It was a long road to finish this project, she said. Getting all the requisite approvals from the Upper Big Blue Natural Resources District, which operates Pioneer Trails Recreation Area, to select the best site and equipment took more than a year. “We had to make sure everything met safety standards, but wasn’t too expensive,” she explained.

Fund raising came next. Mersch raised the \$1,400 necessary for the project through bake sales, as well as personal labor—she assisted in renovating a home with flood damage and the money she earned was put toward purchasing the playground.



She couldn’t have done it without the support of 4-H. “Thanks to my 4-H club for helping me fund raise most of the money to be able to buy the equipment,” she said. Her experiences with 4-H were very meaningful, as she met new people, learned new skills, and had many opportunities to grow over her decade in the club. The playground equipment was her farewell project for 4-H, as she recently aged-out of the program, which serves youth ages 8 to 18.

Mersch’s father, Bill, was an important part of the playground project as well, as he assisted with assembly and installation of the equipment. Today, Mersch is putting her 4-H skills to good use as an agribusiness major at Southeast Community College, where she is in her second year.

Building the playground was a learning experience, she said. Through the long process from idea to execution, Mersch learned about project management and perseverance. “You have to stay



committed and not lose motivation along the way if you want to make a difference,” she said.

BAT SANCTUARY

Bats get a bad rap in popular culture. With frequent appearances in vampire films and haunted house attractions, bats are usually viewed as sinister, creepy, or malevolent. The truth is, bats are highly beneficial, providing valuable insect control and pollination services. They are an important part of a healthy ecosystem in Nebraska, and Girl Scout Elizabeth Marsh is here to stand up for the misunderstood species.

For her final scouting project, Marsh constructed a bat sanctuary at two district rec areas. The capstone project was to earn the Gold Award, the most prestigious award in Girl Scouts. Gold Award projects utilize skills acquired through years of scouting to help fix a problem in the scout’s community or make a lasting change in their world.

Why did Marsh settle on bats to accomplish this goal? Living in a town with so many old buildings, Marsh, a York native, says she’s seen her share of bats in places where they shouldn’t be--in a classroom, in the church sanctuary, even in the post office. “It really upset me to know people were killing bats when they were in buildings, especially since they are a protected species in most states,” said Marsh. Her goal with the sanctuary project is to put bats in the right place, out of homes and urban structures, and into a habitat where they can thrive.

Reducing interactions between humans and bats is the key. In the future, wildlife professionals removing bats from homes and businesses will be able to introduce bats to the sanctuary.

Marsh began the research and fund raising portion of this project in 2018. Work was delayed by the pandemic, as building materials became too expensive or unavailable, and in-person fund raising

events had to be postponed. Eventually, Marsh was able to bring the project to completion. The bat houses were installed at Bruce L. Anderson Recreation Area and Overland Trail Recreation Areas in early September. The locations are ideal, said Marsh. “There’s lots of space where they’ll be far from people, water nearby, and fields full of bugs to eat.”

Marsh doesn’t expect to see bats moving into the houses right away. She thinks they likely won’t be inhabited until spring, when bats are emerging from hibernation and preparing for the next generation to be born.

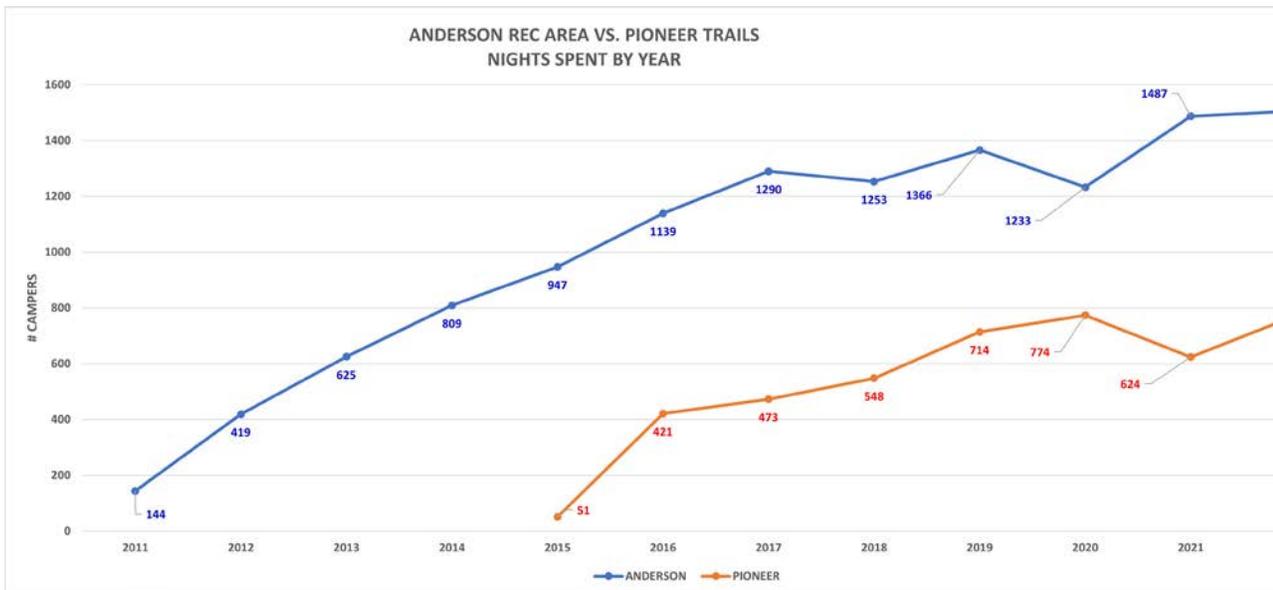
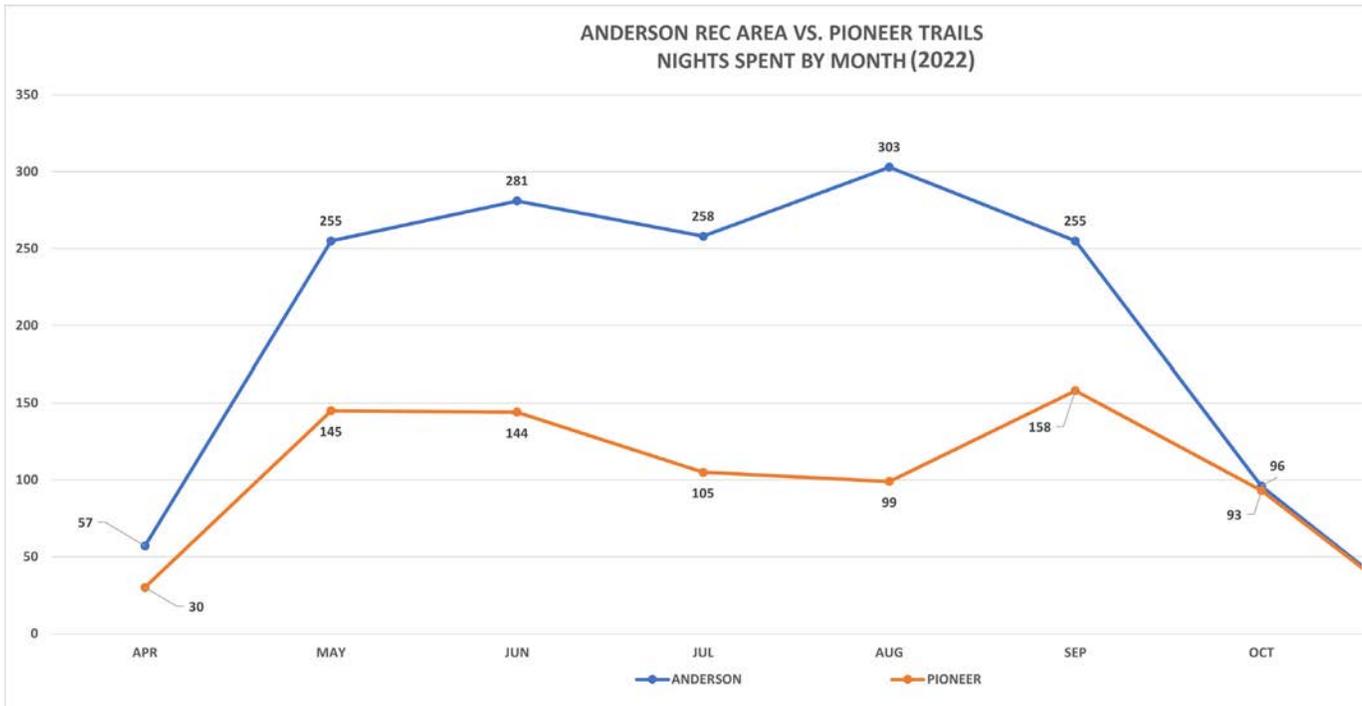
Marsh is a freshman at Concordia University, where she is studying environmental science. She is planning for a career as a conservation biologist and hopes to work in the non-profit sector. In addition to providing bats with a safe place to live and reducing the amount of mosquitos at local recreation areas, Marsh hopes that this project will remind people that bats have many good qualities. “I wish people weren’t so scared of them,” she said. “Most of the time, bats want nothing to do with you. They’re great pollinators. They keep insect populations down. They’re just all around wonderful for the environment.” ■



FORESTRY & PARKS



Recreation Area Usage & Upgrades





Improvements at Smith Creek Recreation Area near Utica in the past year included the addition of a waterline, new parking lot, and security lights. Future improvements will include the addition of a tornado siren.

In 2022, several improvements including a new parking lot, were added to Overland Trails Recreation Area in York County. Future improvements will include lighting and water, as well as signage.



In 2022, signage was added to Teal View Wetland Education Area. In 2023, water sensing equipment was added to the site for a groundwater recharge study.

ADMINISTRATIVE



Financial Highlights

- This discussion and analysis of the financial performance of the Upper Big Blue NRD provides an overview of the district's financial activities for the year ended June 30, 2022.

The assets of the Upper Big Blue Natural Resources District exceeded its liabilities at the close of the most recent fiscal year by \$10,543,197 (net position). Of this amount, \$5,219,791 (unrestricted net position) may be used to meet the government's ongoing obligations to citizens and creditors.

At the end of the current fiscal year, unassigned fund balance for the General Fund was \$2,265,547.

Financial Analysis of the District as a Whole

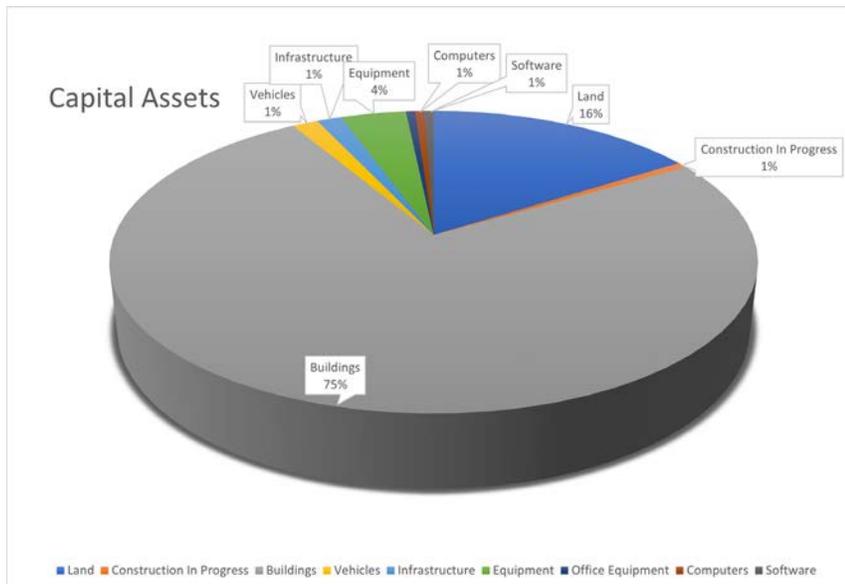
As noted earlier, net position may serve over time as a useful indicator of a government's Financial position. In the case of the Upper Big Blue Natural Resources District, assets exceeded liabilities by \$10,543,197 at the close of the most recent fiscal year.



Capital Assets

The district’s investment in capital assets as of June 30, 2022, amounts to \$5,323,406 (net after depreciation). This investment in capital assets included land, buildings, equipment, and improvements. The summary of capital assets net of depreciation follows:

Asset	June 30, 2022	June 30, 2021
Land	\$849,804	\$849,804
Construction In Progress	\$32,000	-
Buildings	\$3,988,783	\$4,111,999
Vehicles	\$81,089	\$64,261
Infrastructure	\$77,233	\$77,233
Equipment	\$207,316	\$105,924
Office Equipment	\$28,681	\$47,512
Computers	\$29,275	\$24,942
Software	\$29,225	\$44,473
TOTAL ASSETS	\$5,323,406	\$5,326,148



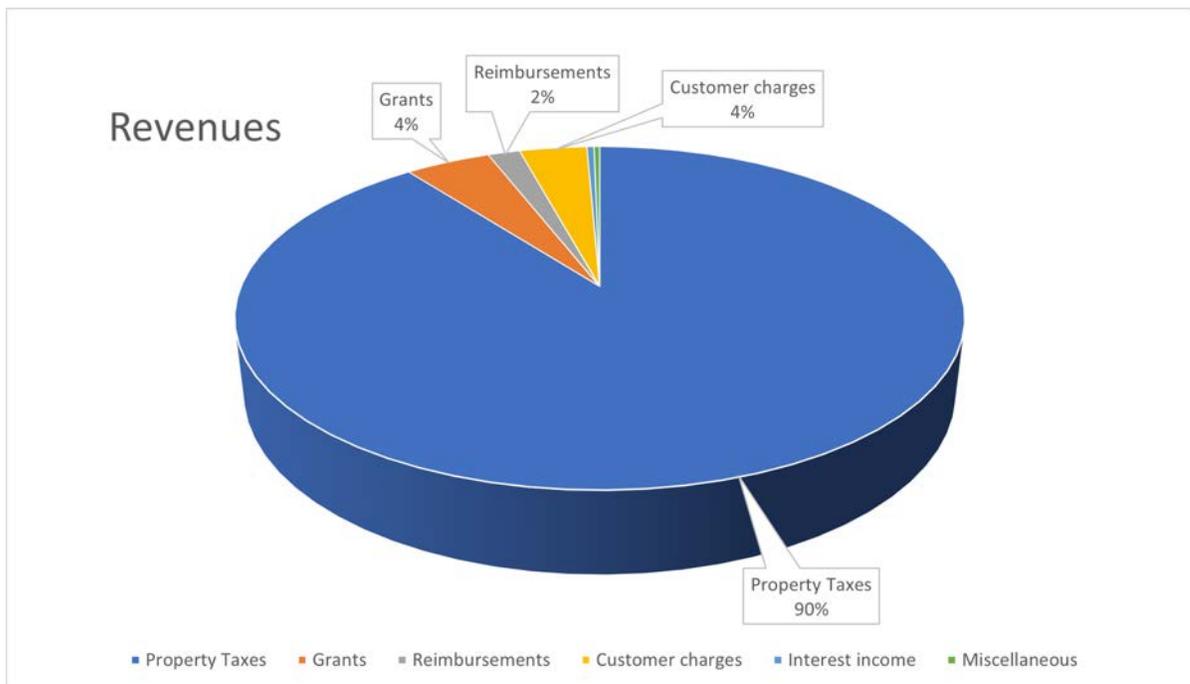
ADMINISTRATIVE



Revenues

General Funds Revenues for FY2022

Revenue Source	General Fund	Sinking Fund	Total Funds
Property Taxes	\$3,504,113		\$3,504,113
Grants	\$176,909		\$176,909
Reimbursements	\$66,243		\$66,243
Customer charges	\$139,634		\$139,634
Interest income	\$2,900	\$11,824	\$14,724
Miscellaneous	\$11,815		\$11,815
TOTAL REVENUES	\$3,901,614	\$11,824	\$3,913,438

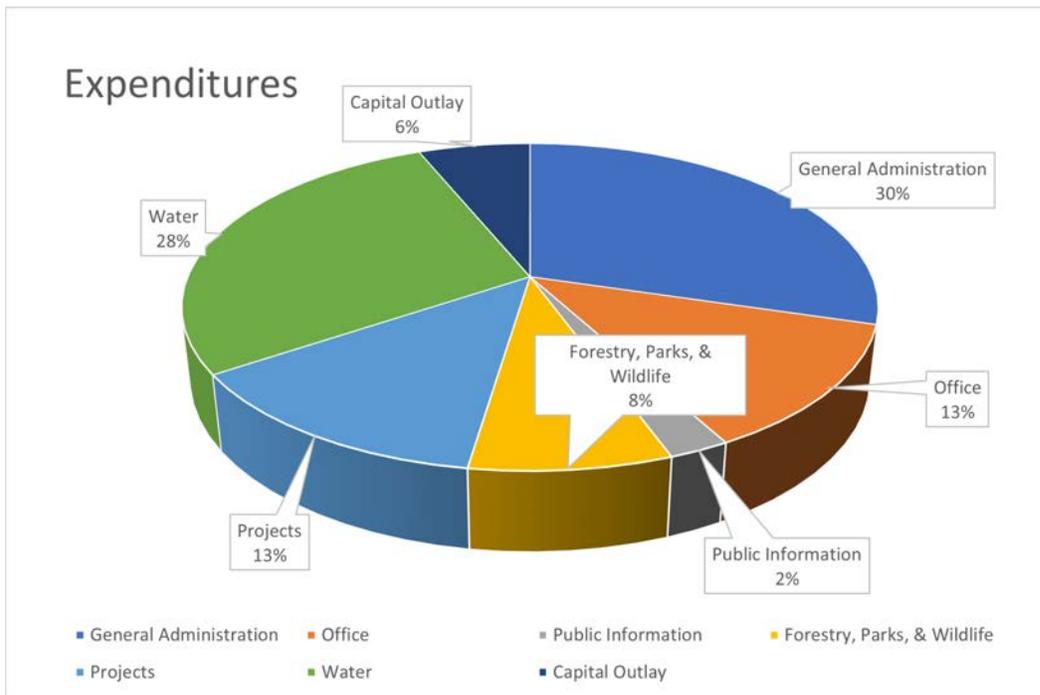




Expenditures

General Funds Expenses for FY2022

Expenditure	General Fund	Sinking Fund	Total Funds
General Administration	\$1,036,989	--	\$1,036,989
Office	\$434,952	--	\$434,952
Public Information	\$83,953	--	\$83,953
Forestry, Parks, & Wildlife	\$277,283	--	\$277,283
Projects	\$462,320	--	\$462,320
Water	\$987,385	--	\$987,385
Capital Outlay	\$216,827	--	\$216,827
Total Expenditures	\$3,499,618	--	\$3,499,618
Excess of Revenues Over Expenditures	\$401,996	--	\$413,820



ADMINISTRATIVE



General Operating Expenses

- Payroll: Salaries/Benefits/Taxes (Admin./ Clerical)
- Directors' expense & per diem
- Dues & Memberships/Fees & Licenses
- Insurance
- Legal notices
- Office supplies/Postage
- Special projects and Professional services
- Project operations & maintenance/Auto & Truck
- Supplies & maintenance/Building maintenance
- Purchases for resale
- Rent/Telephone/Utilities

Projects, Engineering Design, Cost-Share

- Sediment control basins/Stream bank stabilization
- Dams
- Diversions/Grade stabilization structures
- Pasture planting/Planned grazing systems
- Pitless irrigation water reuse systems
- Windbreak planting & renovation
- Grassed waterways/Terraces
- Water impoundment dams
- Subsurface drip irrigation
- Mechanical outlets
- Buffer Strips

Water Quantity & Quality, Cost-Share

- Rules & Regulations enforcement
- Groundwater level measuring - Observation well monitoring
- Well Permitting/Registration

- Certification of irrigated acres
- Crop water use reporting
- Nitrate monitoring
- Domestic well testing
- Deep soil sampling
- Wellhead protection
- Irrigation well pump testing
- Chemigation safety inspections
- AQWACAP and Abandoned well verification
- CROP-TIP
- Flowmeter inspection
- Phase II & III Management Area

Public Education

- Quarterly newsletters
- Seminars
- Publications
- Speaking engagements
- Advertisements

Forestry, Parks, and Wildlife, Cost-Share

- Tree/shrub or native grass planting programs
- Corners For Wildlife
- Wildlife habitat improvement
- WILD Nebraska
- Parks & Recreation management
- Parks Program
- Storm Damaged Trees Program

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**Balance Sheet--Governmental Funds 2022
with comparative figures for FY2021**

ASSETS	June 30, 2022	June 30, 2021
Cash and Cash Equivalents	\$1,860,758	\$1,809,257
County treasurer cash	\$25,193	\$44,148
Investments	\$3,651,982	\$3,337,884
Accounts Receivable	\$2,725	\$45,544
Interest Receivable	\$1,295	\$1,463
Inventory	\$21,365	\$28,943
Prepaid Insurance	\$84,553	\$77,589
TOTAL ASSETS	\$5,647,871	\$5,344,828

LIABILITIES	June 30, 2022	June 30, 2021
Accounts Payable	\$169,849	\$274,766
Payroll Liabilities	\$15,189	\$15,886
Accrued Wages	\$122,020	\$126,933
Sales Tax Payable	\$133	\$383
TOTAL LIABILITIES	\$307,191	\$ 417,968

The information contained in this financial section are based upon the independent and unbiased audit performed by AMGL CPAs & Advisors of Grand Island, Nebraska. The audit was presented to the Upper Big Blue NRD Board of Directors in September 2022.



Upper Big Blue NRD

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