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INVESTING IN THE FUTURE THROUGH EDUCATION

NRD GRANTS SUPPORT LOCAL ENVIRONMENTAL EDUCATION

Training the next generation of environmental scientists is important work. That’s why the Upper Big Blue Natural Resources District is partnering with area schools by providing grant funding through its Educational Capital Projects Fund. The grant funding will assist York High School in creating an outdoor classroom and Shelby-Rising City Schools in the construction of a greenhouse and environmental studies lab.

The total cost for the greenhouse at Shelby-Rising City is $75,000, of which the Upper Big Blue NRD will provide $4,750. Other funding will be provided by the school district building fund, the school’s FFA chapter fund raisers, private donations, and additional grants. The facility will be located on school property and be used for precision agricultural and environmental science, biology, and general agricultural instruction for all grade levels.

The project at York High School will include transforming a small retention pond into a biology lab where students will study wildlife and collect water samples for analysis. NRD grant funds will be used to line the pond with rock, add a concrete pad and benches, and construct an all-abilities accessible path. York High School and the York Public Schools Foundation will provide the remainder of the funding to create the classroom, which is expected to cost $1,500 and be completed by fall 2020.

BURKE SCHOLARS HARD AT WORK

For sophomore agribusiness majors Madi Baker and Caden Theis, college thus far has been fun and challenging. Both Baker at Concordia University and Theis at Doane University are being helped along in their studies by scholarships from the Upper Big Blue NRD.

Baker and Theis are recipients of 2019 Raymond A. Burke scholarships, which support district residents pursuing two- or four-year degrees in a natural resources related field as a full time student at a Nebraska college or university.

Madi is the daughter of Owen and Kari Baker of Stromsburg. She graduated in 2018 from Cross County High School. Baker worked as a farm hand and a landscaper during her high school years. She is enthusiastic about a career in agribusiness, as it will give her the opportunity to combine her love of working with people and with her hands, as well as engage her passion for growing things.

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The public has spoken and NRD leaders are listening. The Board of Directors of the Upper Big Blue NRD has sent a proposal for changes to Rule 5—Groundwater Management Rules and Regulations back to the committee level for additional research and revision. The proposed changes would have impacted fertilizers practices for agriculture producers across the district with the aim of reducing the level of nitrates in the groundwater supply. The proposed changes involved the timing and amount of fertilizer application, the addition of a nitrification inhibitor when fertilizing in a certain window of time, and additional reporting on fertilizer use. Some changes would have impacted all producers, while others would have only affected those in areas with high median nitrate levels in the groundwater.

Several communities in the Upper Big Blue NRD are currently dealing with water quality problems due to high nitrate levels in the drinking water. They are faced with having to find alternate sites for municipal wells or put in expensive water treatment facilities, as has been done in Hastings and Seward.

The public was encouraged to provide feedback via written or oral testimony on this issue in August. This was followed up in September with a public dialog with the Board of Directors. Many ag producers indicated that they have already implemented changes to their farming practices to address the residual nitrogen in the soil, but that it could still take decades to see improvements in the groundwater supply. Some were concerned about the additional cost these regulations would impose on the industry, which is already economically depressed. Others asked questions about the effectiveness of the proposed changes. A common theme in the comments was a desire to increase the partnership between producers and the NRD. Many producers expressed a willingness to participate in on-farm trials to provide data to show what impact, if any, their current farming practices might be having on the groundwater.

The Water and Regulations committee will continue to revise the proposal with feedback and participation from ag producers, members of the general public, agronomists, and researchers from the University of Nebraska—Lincoln over the next several months.

Your help is needed! We are looking for volunteers to serve on a committee to make recommendations on the water quality issue in our district. We also need more producers who are willing to provide land for on-farm research. If you are interested in either of these opportunities for collaboration, please call us at (402) 362-6601.
NRD BOARD OF DIRECTORS HITS THE ROAD

NRD BOARD OF DIRECTORS HITS THE ROAD

From a proposed recreation area near Milligan to a dam renovation in Friend, nine members of the Upper Big Blue NRD board of directors traveled the southeast portion of the district to explore NRD projects in September during their annual tour.

The day began by viewing a potential dam site for future consideration near McCool, followed by a water sampling demonstration in Fairmont. The monitoring wells they visited are part of a network of 20 spread across eight sites in the district that are routinely sampled to track water quality. The Upper Big Blue NRD has been tracking this data consistently since 1997 to study non-point source contamination in the groundwater supply.

The morning continued with a stop near Milligan where the NRD is exploring the possibility of purchasing some land and improving it for use as a public recreation area. Called Cedar View (photo above), the recreation area would feature boating and fishing in the 25-acre pond as well as other amenities. The board of directors is still in the preliminary stages of evaluating the property. The dam is currently scheduled to be repaired under the NRDs Private Dams Program. This program provides landowners with an opportunity to correct or re-build privately owned dams. The NRD will provide 75 percent of the project costs up to a maximum cost-share of $50,000. Eligible dams include those that protect a life line, drinking water or other NRD dam sites in the future (photo page 8). The site also featured a domestic well that is regularly sampled by NRD staff. It is one of a network of 250 domestic wells across the district that is sampled every one-to-three years to track water quality.

The tour concluded with a stop at Smith Creek Recreation Area near Utica. Constructed in 1983, the Smith Creek dam and reservoir were designed to provide aquifer recharge and recreational opportunities. The NRD currently manages five public recreation areas that offer a wide variety of activities from camping to fishing to archery. More information about amenities and activities available at each rec area is available at www.upperbigblue.org/recreation.

If it's a warm fall day at Recharge Lake in York, high winds make the trees and tall grasses dance on the banks as the crickets and cicadas sing their last songs of the season. A young man in camel-camo waders and a ball cap stands on the water's edge, a large remote control in his hands. His gaze is locked on a small yellow catamaran 30 feet away that skims the water's surface, buffeted by choppy waves. The craft is loaded with scientific equipment and the operator, Will Walker, is using caution so as not to swamp the craft in the gusty conditions.

Walker is a field engineer and part of a team from the Nebraska Natural Resources Conservation Service (NRCS) that is using the boat, a SeaFloor HyDrone, to conduct a bathymetric survey of Recharge Lake. The craft uses GPS and echo-sounder technology to record the various depths of the lake. This process is useful in studying the habitat health of waterbodies.

“What do you think? Is it good enough back in there?” Walker asks his colleague, Nate Garrett, gesturing to an area close to the bank on the Northwest side of the tail end of the lake. Garrett consults the laptop showing real-time data transmitted from the HyDrone. Based on the readings on the screen, Garrett determines another pass of the area is needed for accuracy and Walker turns the boat back in that direction. The high winds and waves are making it hard to steer the lightweight craft with precision. The slow process of measuring the depth of the entire 44-square-acre lake would take two days, estimates Garrett. However, they measured the main part of the lake in 2016, and so will probably spend little time on that section for this survey.

Recharge Lake (so named because of its original function: aquifer recharge) is part of Bruce L. Anderson Recreation Area, which includes RV pads, shelter house, archery range, amphitheater and other amenities. The area is managed by the Upper Big Blue NRD. Jack Wergin, projects department manager with the NRD, requested the bathymetric survey, suggesting that it should be done every 10 years or so for proper lake maintenance.

Recharge Lake used to be one of the premier fishing spots in the region. Over the years, however, the lake has filled with additional sediment from Beaver Creek during heavy rains, making it shallower and murkier—qualities that negatively impact the lake's habitability for fish. Now, the lake is populated mostly with less desirable species, such as carp and catfish, when once it delighted anglers with its abundance of bass and crappie. The HyDrone continues to glide silently along the surface of the water, back and forth from one bank to another. The $30,000 craft is the only one of its kind in Nebraska and is frequently used by NRCS when evaluating dam improvement projects. The mapping software on the laptop expresses a colorful array of data, indicating where the lake is shallow, where its deeper, and where there are other debris are submerged.

“The lake is very full,” notes Garrett, pinpointing to areas on the computer screen map that were dry land when they surveyed in 2016 that are now several feet underwater. “It’s been a crazy year for weather in Nebraska.” Garret points to a channel near the bank where the water is six feet deep. “There are several spots like this where you should have some pretty good fishing,” he said.

Wergin and his staff will use the data collected to produce an updated topographic map and to estimate the amount of sediment that has accumulated since the last survey. The map showing lake depths will soon be available as a resource to anglers. The information gathered will help the NRD determine if work needs to be done to trap sediment where the water runs into the lake to prevent further build-up.

“The Recharge Lake watershed has been designated as a target area in the NRD’s draft Water Quality Management Plan,” said Wergin. “The implementation of best management practices in this watershed will improve the water quality. Bathymetric surveys can be used to measure the success of these practices by tracking reservoir sedimentation rates over time.”
The sun is rising over a pasture just south of York on a late summer day. Prairie grasses sway in the breeze at the spot, called the Kirkpatrick Basin North. Black-Eyed Susans and Mexican Hats display their bright yellows and reds to attract the buzzing pollinators. Water is pooled in the low-lying areas and meadowlarks fill the air with song. Looking at this unassuming patch of prairie, you might not guess how important this stylic landscape is—or how fragile.

Wetlands like this one provide essential water filtration and aquifer recharge. They are also habitat areas for hundreds of species, including some that are at-risk, such as whistling cranes, peregrine falcons and bald eagles. Wetlands in Nebraska are a valuable natural resource that has been negatively impacted in the last 150 years through land development and cultivation. Restoring these areas is the goal of a new collaboration between the Rainwater Basin Joint Venture and the Upper Big Blue NRD.

Today at the Kirkpatrick Basin, the birds have competition in the noise-making department. On the edge of the pasture stands a herd of black Angus cattle who have just been rounded up. Hemmed in by a shiny new portable corral, they bellow their displeasure as they are led into a chute then up a ramp and onto an idling semi. This herd of 40 cow-calf pairs has spent the summer grazing the 355-acre wetland, turned the earth and fertilized it, and spread seeds of native plants (including switchgrass and prairie clover). The paths they’ve created through the dense brush provide habitat for the local pheasant population and other wildlife. Their presence in this ecosystem is mutually beneficial: the calves have

 enjoying an enriching and nutritious environment in which to grow. The cattle are owned by Kim and Lindy Siebert, who are using the new Rawhide Portable Corral for the first time today. The corral is one of three purchased by the Rainwater Basin Joint Venture through a grant from the Nebraska Environmental Trust for the use of cattle producers in the Upper Big Blue and neighboring NRDs. The equipment makes it easier for producers to load cattle into and out of wetlands and is provided for free use through the NRDs as an incentive for grazing wetlands. The Sieberts have raised cattle in York County for four decades. “Just before we got married in 1979, Kim bought his first cattle. So, we started our marriage $100,000 in debt,” Lindy said with a laugh. It appears to be an investment that has paid dividends, as the couple has continued to farm and serve as leaders in the local cattlemen’s association. Their cow-calf operation typically has about 150 pairs each year, which they graze locally—often in wetland areas. “Why wetlands? That’s the biggest pasture left in York County,” says Kim. “These are some of the only large blocks of grass still available. Yes, they come with rules and regulations that are not always convenient, but it is still the most economical way to raise cattle in this area.”

Shielded by a broad brimmed sun hat and tall rubber boots, Lindy works alongside Kim, their son and nephew. They “yip” and “hep” and “get-on!” the animals, leading them gently with a long stick used to tap backs or hindquarters. The portable corral is modular, allowing for set up as one large pen or smaller sections. It also features a head gate to make treating individual animals for illness much simpler. This is important as grazing wetlands comes with added risk of hoof rot and pink eye. The cattle will be weaned and fattened up. The cows will be moved to graze in another pasture. Rotational grazing protects the land from overuse and allows adequate recovery time for the wetlands. The cattle will return to the Kirkpatrick Basin areas next summer, as the Sieberts’ herds have done annually for the past 20 years.

The Rainwater Basin is a network of wetlands that stretches across much of Nebraska and includes all of the Upper Big Blue NRD managed area. The region provides one of the world’s greatest waterfowl migration spectacles as tens of millions of waterfowl descend on the Rainwater Basin each spring, not as a destination, but as a way station between southern wintering retreats and northern nesting grounds. “Heavy grazing at the right time means more diverse plant communities in these wetlands,” said Andy Bishop, program coordinator. “By using grazing, we don’t have to use chemical treatments and other mechanical methods to manage the area...We directly impact the population sustainability of millions of migratory waterfowl by maintaining these wetlands.”

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