

## Meso-What?

If you are like most Nebraskans, you are keeping your eye on the forecast! But where does the forecast come from? With today's technology it is so easy to take for granted the ease of getting up to the minute current conditions and forecasts. The State of Nebraska has about 40 official weather stations and 55 active Mesonet stations. Mesonet stations provide the same information as weather stations, in addition soil moisture and temperatures and solar radiation observations. The name Mesonet comes from a combination of two words: mesoscale and network. A mesoscale is the spatial scale at which we observe weather and refers to localized weather. In comparison, a synoptic scale is used to view a weather map for the US.

Mesonet stations were introduced in Nebraska in 1981 and have been a valuable tool to fill gaps where there aren't any other types of weather stations available to pull forecast data from. If you are a row-crop producer there is a good chance you are keeping an eye on soil temperatures in the spring through the University of Nebraska, Lincoln. Tracking daily soil temperatures, soil temperature trends, and the forecast help producers increase their confidence when making planting decisions. This soil temperature data is coming directly from Mesonet stations. University of Nebraska State Climatologist, Martha Durr, favors the Mesonet system over other networks because it is designed specifically for Nebraska's landscape, geography, and user needs. The Mesonet system allows climatologists to better track drought conditions, determine flood risks, understand fire danger, track crop growth, and make

water management decisions.

With any data collection and publication there is a cost. The average cost of maintaining a Mesonet station is \$7,900 annually (\$29,000 to install and \$5,000 annually to maintain with a ten year life-span). Finding funding sources has been challenging and as a result a number of Mesonet stations have closed over the past few years. Durr said Mesonet stations would ideally be spaced no more than 20 miles from each other, with the goal of roughly 130 total stations. This would result in an estimated \$1,027,000 annual price tag. A portion of the Mesonet funding comes from data consumers at the local, state, and federal levels. However, it is not enough to cover all the costs. Entities like NRDs provide additional support to keep the system running. Oklahoma has invested heavily in its Mesonet system and receives about half of its budget from state tax dollars. A similar proposal, LB401, was in Nebraska's legislature this year, but would have only provided a million dollars in total funding over the next two years.

The Nemaha NRD currently has three Mesonet stations (Johnson, Otoe, & Richardson Counties). In FY23, the Nemaha NRD funded a portion of the Cook station with an annual maintenance sponsorship payment of \$2,600. The Richardson County station is sponsored by UNL Extension and the Otoe County station is sponsored by Kimmel Orchard.

If you are interested in viewing Mesonet data visit the Nemaha NRD's website and click the Mesonet button on the top right side of the home page or visit [www.mesonet.unl.edu](http://www.mesonet.unl.edu).



Tomas Chalè Akè, Ken Hatten, & Jane Kuhl

## NNRD Staff Updates

There have been a number of staffing changes here at the Nemaha NRD since our last newsletter. Tomas Chalè Akè was promoted to Field Representative following the retirement of Junior Speers. Tomas is now responsible for watershed management and coordination in addition to overseeing management at recreation areas. Ken Hatten transferred from Water Resources Technician to Field Technician. Ken is responsible for assisting the Field Representatives. Jane Kuhl was promoted from Administrative Manager to Assistant Manager. Jane will continue to manage the administrative staff and will be taking on some additional management roles.

Congratulations Tomas, Ken, & Jane!



Brooke Gerdes

Brooke Gerdes was hired as the Administrative Bookkeeper and started in June. Brooke recently graduated from Northwest Missouri State with a degree in management. She came to the NNRD from Auburn Chiropractic and Scarlet & Green. She and her family reside south of Auburn. Welcome Brooke!



Emaly Gerdes

Emaly Gerdes was hired as the new clerk in the Auburn NRCS office. Emaly graduated from Auburn High School in 2022. She has a registered black angus herd at home that keeps her busy. Emaly enjoys being outside, fishing, and spending time with her puppy. Welcome Emaly!



Tyler Bartels

Tyler Bartels was hired for the summer to conduct chemigation inspections and assist the field staff with maintenance duties. Tyler worked previously for Upper Big Blue NRD in a similar role. At the end of the summer he is headed off to seminary school in Indiana. Good luck Tyler!

## Nebraska RAIN - Your Local Rainfall Reporting Tool

Since 2006, the Nemaha NRD (NNRD) has recruited individuals from all areas of the district to form a network of volunteers that can produce accurate and timely precipitation reports. The collection of individuals from within the NNRD are part of a statewide network of volunteers that make up the Nebraska Rainfall Assessment and Information Network (NeRAIN) team.

Here at the Nemaha NRD we utilize NeRAIN to check rainfall amounts across the district to monitor high runoff precipitation events. With over 460 watershed structures in the NNRD's jurisdiction, knowing where water levels could be high is extremely valuable. Citizens are able to use the same data to track precipitation events on farm fields that may not be in their immediate vicinity. Crop insurance adjustors also use data reported to identify hail events in the area.

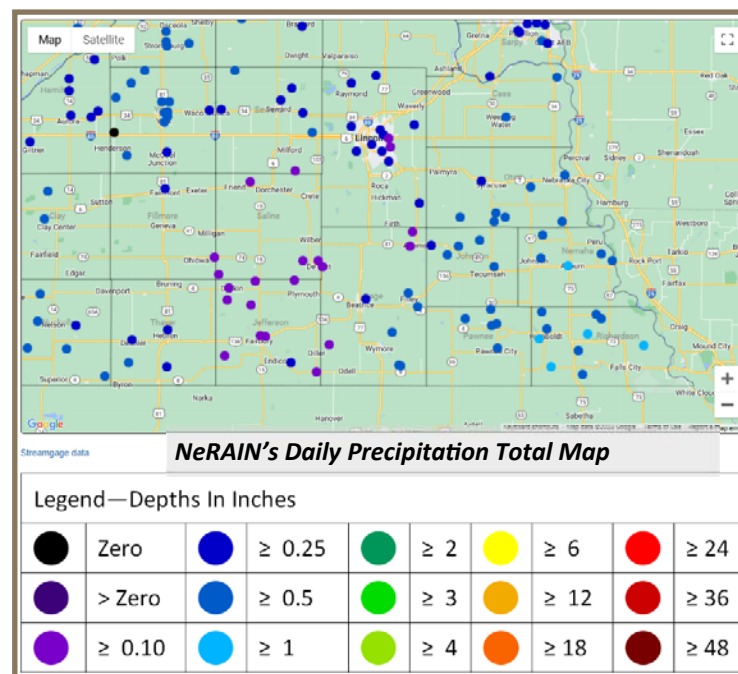
NeRAIN is a website hosted by the Nebraska Department of Natural Resources (DNR). Data collected assists the National Weather Service in precipitation radar calibration, flood forecasting, and monitoring of long term trends.

Data collected through NeRAIN is also included in an international volunteer network called the CoCoRaHS (Community Collaborative Rain, Hail and Snow) Network. Nebraska has been contributing data to the CoCoRaHS Network since 2013. This network is managed by Colorado State University's Climate Center. Data collected is used by a number of organizations and individuals including the National Weather Service, meteorologists, hydrologists, emergency managers, insurance adjustors, the US Department of Agriculture, engineers, farmers, ranchers, outdoor enthusiasts, teachers, and communities!

Additionally, select data is used by The PRISM (Parameter-elevation Regressions on Independent Slopes Model) Project out

of Oregon State University. NeRAIN data helps to generate a nationwide grid of daily precipitation.

If you love keeping track of the weather and have the time to report daily precipitation totals to the system, give the Nemaha NRD a call to discuss the volunteer opportunity. If you are already an actively reporting volunteer and your equipment is showing signs of age or broken, please call the office to talk with Mark on options for getting replacement parts or a replacement gauge.



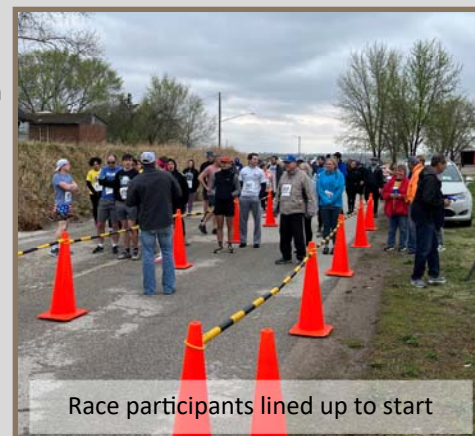
## Steamboat Trace Grand Re-Opening



Matt & Melissa Hopken with the donated repair stand

This spring the NNRD celebrated the Steamboat Trace hiking and biking trail being re-opened following the 2019 flood damages. The ceremony featured cyclist Matt Hopken and wife Melissa who donated a bicycle repair stand that was installed at the Peru trailhead. Hopken is passionate about cycling and saw a need along the trail for a repair stand and decided to take action. The NNRD would like to extend a heart filled thank you to the Hopkens for their generous donation!

In addition to the re-opening celebration the district hosted a 5K to benefit the Nebraska Association of Resources Districts Foundation. 50 people participated in the event.



Race participants lined up to start



## Mark McDonald Honored

Many of our residents have had the chance over the last 41 years to work with Mark McDonald developing tree plans and planting trees. Mark's passion for trees goes well beyond his employment at the NNRD. Those of you that are privileged enough to know him personally know that he just can't get enough when it comes to trees and shrubs! This year Mark was honored at Nebraska City's Arbor Day Celebration as the Tree Planter of the Year, a highly prestigious award.



McDonald & his granddaughters

As published by Nebraska City Tourism & Commerce, "In a career that spans more than four decades, McDonald has helped with designing tree plans, preparing sites, and managing crews that have collectively planted more than one million trees throughout southeast Nebraska.

"McDonald also takes it upon himself to search out and transplant saplings to more favorable locations, including hand-digging a row of Eastern Red Cedar trees from his own property to that of the current Nemaha NRD headquarters to form a needed windbreak."

Congratulations Mark!

## Thank You & Best Wishes in Retirement Junior and Alice!

If you see Junior Speers or Alice Alexander be sure to congratulate them on their retirements! Vernon (Jr) Speers began working for the NNRD in 1979 as a temporary employee. He was hired on full time in July of 1981 on the maintenance crew. His responsibilities include managing watershed structures in the southwest portion of the district along with Iron Horse Trail Lake and Wirth Brothers, managing the NNRD's grass drilling program, helping out with tree plantings over the years and even running his own crew for many years. Junior's knowledge of the NNRD, specifically its watershed structures, will be greatly missed.



Junior on his last day

Alice Alexander, the Clerk in the Nemaha County USDA Service Center, has been an NNRD employee since 2012. Alice played a critical role in the NNRD's partnership with the Natural Resource Conservation Service (NRCS), providing outstanding customer service and support to agricultural producers and landowners in Nemaha County. Resource Conservationist, Stephen Kennedy said the thing he will miss most about Alice is her kindness with everyone.

The NNRD and its Board of Directors would like to thank Junior and Alice for their many years of service and wish them both all the best in their retirement. Congratulations Junior and Alice!

## Subdistricts 4, 9, & 10 Board of Director Vacancies

The Nemaha NRD has three vacancies on its Board of Directors. Vacancies are in Subdistricts 4, 9, & 10.

- Subdistrict 4 is located in the eastern Otoe County/eastern Nebraska City and includes the villages of Talmage, Otoe, Lorton, Wyoming, & Paul.
- Subdistrict 9 includes Falls City, Rulo, & Preston and the surrounding areas in Richardson County.
- Subdistrict 10 includes all of Pawnee County within the Nemaha NRD's jurisdiction and western Richardson County. It includes Lewiston, Steinauer, Table Rock, Pawnee City, Dubois, Humboldt, Dawson, Verdon, & Salem.

For more information or a detailed description of subdistrict boundaries contact the NRD at (402) 335-3325 or the county election commissioner for each area.

Board meetings are held on the second Thursday of each month, generally in the evening. Board members are eligible to receive \$65 per diem and reimbursement of mileage and other expenses incurred while conducting NRD business.

If you or someone you know is interested in serving on the Board of Directors please submit a letter of interest to Nemaha NRD 62161 US Highway 136 Tecumseh, NE 68450 or to [nrd@nemahanrd.org](mailto:nrd@nemahanrd.org) no later than September 14th.

Visit [www.nemahanrd.org/about/news](http://www.nemahanrd.org/about/news) for more information!

*Insight is a publication of the Nemaha NRD. Requests to be placed upon the Insight mailing list and/or comments regarding information in this publication should be directed to Ashley Rippe at 62161 Hwy 136 Tecumseh, NE 68450 or at [arippe@nemahanrd.org](mailto:arippe@nemahanrd.org). To view the newsletter in color please submit your email address as indicated above or visit our website [www.nemahanrd.org](http://www.nemahanrd.org)*



Nemaha NRD  
62161 Hwy 136  
Tecumseh, NE 68450



## Upcoming Events

- August 25—September 4: Visit Nebraska's NRDs at the Raising Nebraska Building at the Nebraska State Fair
- September 4: Labor Day Holiday—NRD office closed
- September 12—14: Visit the NRD booth at Husker Harvest Days
- September 14: Nemaha NRD Board of Directors Meeting 7:00PM
- September 20: Area 6 Range Judging Competition
- September 25-26: Nebraska Association of Resources Districts Annual Conference

## Slip Lining Projects Reduce Repair Costs

An innovative method of repairing watershed structure pipes called slip lining was piloted by the Nemaha NRD (NNRD) this spring. Slip lining slips a UV cured-in-place, custom made liner inside of an old pipe allowing it to be repaired or replaced without any trenching. The method is estimated by engineers to last up to 75 years! Eliminating trenching reduces the time (one day vs a month for construction), cost, and disturbance area of a project. For the Nemaha NRD it allowed an additional watershed structure to be repaired this fiscal year and still came in \$23,875 less than budgeted.

Slip lining is a new process for the NNRD. In fall of 2022, the State of Nebraska slip lined some local culverts and allowed the NNRD to observe the process. After observation and discussion it was deemed to be a good alternative for the NNRD to try in FY23. The process was presented to the Board of Directors in December of 2022 and approved to move forward on 5 structures (1 in Nemaha,



Liner in Place

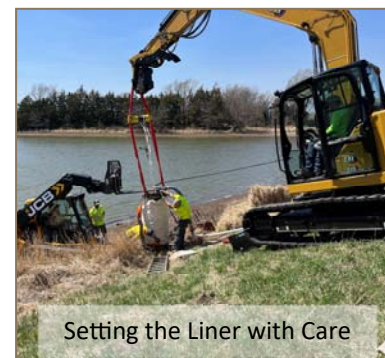
3 in Otoe, and 1 in Lancaster County) for a total of \$246,125. Four structures were originally budgeted for \$270,000.

Over the winter, individual liners were manufactured for each of the pipes to be lined. When crews arrive on site they set the liner in place and use air to pressurize it to fit perfectly within the pipe. A robotic UV light train is then moved through the pipe, curing the liner as it goes. Care must be taken to not expose the liner to UV light, or risk it hardening up prematurely. After curing, the liner becomes

so thick that the only thing able to cut it is a diamond grinder.



UV Light Train



Setting the Liner with Care

Protecting Lives, Protecting Property, Protecting the Future – Since 1972

For a listing of staff and directors please visit our website at [www.nemahanrd.org/about](http://www.nemahanrd.org/about)