

*Hard and*

*Hoopweed*

*2016 Year in Review*

*Middle Niobrara NRD  
526 E 1<sup>st</sup> St.  
Valentine, Ne 69201*

*Wishing all Happy Holidays,  
and safe travels this season.*







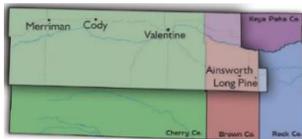
# Sand and Soapweed 2016 Year in Review

PROTECTING LIVES \* PROTECTING PROPERTY \* PROTECTING THE FUTURE

IN THIS ISSUE

## Know the Middle Niobrara Natural Resources District

The Natural Resources District, NRD, is a unique system built to conserve, sustain, and improve natural resources and the environment. In 1972, NRD's were developed per watershed basins, instead of by political boundaries. This system provided a more efficient management strategy, solving the issues of overlapping authorities and lack of funds. Each District is governed by a locally elected Board of Directors, which ensures that local issues and concerns are addressed. The Middle Niobrara NRD (MNNRD) is one of five NRDs responsible for protecting the groundwater in the Niobrara River basin. One of the largest NRD's in the state, the MNNRD has an area of 2.9 million acres which includes land in Cherry, Keya Paha, Brown and Rock County.



### Board of Directors

The Board of Directors are dictated from 6 subdistricts plus one member at large. Every two years different

subdistricts hold an election, leading to a director carrying a term for four years. This year Wade Andrews did not file, the new elected [Director of District No. 1 is Mark Johnson](#). Congratulations to Mark! Subdistricts are divided based on population for proper representation; to be considered a person must be a registered voter, submit a letter of desire, and reside in the subdistrict needing appointment. Monthly meetings are held to sufficiently discuss and manage resources. Current Board of Directors:

- Sub District No.1 - Wade Andrews, Chairman
- Sub District No.2 - Justin Hammond
- Sub District No.3 - Leonard Danielski
- Sub District No.4 - Cheryl Lovejoy, Secretary/Treasurer
- Sub District No.5 - Greg Wilke
- Sub District No.6 - Marty Graff
- At Large- Dean Jochem, Vice-Chairman

*Thank you Wade for your 12 years of service!*

### Woody Biomass Update

The project is being implemented in trails, research plots and half field applications. Page 2



### Water Quality & Quantity Monitoring

The Middle Niobrara NRD actively monitors nitrates and static water levels. Note: Water Quality Cost Share Sign Up is going on now. Page 3



### Landowner Appreciation!

You don't want to miss out on an opportunity to be recognized for your outstanding ambition towards conservation! Page 4



### Long Pine Creek Watershed Update

Improving degradation in the Long Pine Creek Watershed. BMP's are currently being implemented. Page 5



### Nebraska Rainfall Assessment

This is an opportunity to become a volunteer in your district by helping record precipitation, all volunteers receive a free rain gauge! Page 6

Additional Articles not listed.

# Woody Biomass; Utilizing Eastern Red Cedar Waste

The project began in early 2015 to recycle cedar trees by turning them into a renewable resource as woodchip form. To date 1,315 tons of cedar trees have been recycled. Woody biomass is being integrated with manure to improve soil health in agricultural production fields. This current proposal builds upon utilizing woody biomass protection to extend moisture retention and provide defense against degradation. Demonstration sites will be utilized with a single study design replicated at all four sites. Six randomized treatments, replicated four times will be applied to a 12-m x 10-m research plot within cooperators' fields annually following harvest from Fall 2016 through Fall 2019. Half field applications are also taking place. Currently there are two

demonstration sites, one woody biomass is mixed with swine manure, the other woody biomass is mixed with cattle manure. The hope is to see continuing results in increased soil health and water quality. Also woody biomass is being used as a cover on reseeded grassland fields. A no till drill available to the community through the MNNRD, this amenity was utilized. This project is ongoing and results are yet to come. Lastly a recreational trail project has stabilized soil and prevented erosion on 1.5 miles; grass has also begun to reestablish. The MNNRD gives great thanks to cooperating willing landowners, as well as the University of Nebraska Lincoln for assisting in design, and the NE Forest Service for helping fund the study.



TABLE: SIX TREATMENT APPLICATIONS

1. Woody Biomass @ 6ton/ac
2. Woody Biomass @ 12ton/ac
3. Woody Biomass & Liquid N @ 6 ton/ac
4. Woody Biomass & Swine Manure @ 6ton/ac
5. Woody Biomass & Cattle Manure @ 6ton/ac
6. Control, no amendments

## Tree Season



Conservation grade trees are transported from the nursery, before being stored in the tree cooler prior to planting.

Trees have been blessed with plenty of moisture in the 2016 tree season. The MNNRD has sold 2,522,816 trees since 1979. Last year alone the MNNRD sold over 60,000 conservation grade conifers, hardwoods and shrubs. They personally planted 14,000 of these trees by machine and 2,868 by hand. Ambitious landowners are applauded for their continuing efforts in land conservation within our sandy soils. The tree belts planted help improve wildlife habitat, manage snow, provide livestock protection, improve water quality, conserve energy and increase crop production. If you are interested in being recognized for commitment, please consider the Tree Planter Award, information is available on page 4. Cost Share Sign up deadline for Spring of 2017 has passed. However, plans for tree services are still being accepted for spring planting; including machine and hand planting, and dripline instillation. Tree orders are due back by February 15<sup>th</sup>, the order form is included. The MNNRD provides a variety of products to help trees survive the first crucial years and grow to their full potential. This includes dibble

bars (tree spades), weed barrier rolls and squares, drip line, tree protectors, custom mowing, poison grain, gas cartridges, hand gopher getters, and gopher machines. Please note; any poison grain sales over 4 lbs requires a valid private applicator certification/license.

### Big Rock Fire Replanting

2016 marked the 10<sup>th</sup> year the MNNRD, Valentine Middle School, and Valentine FFA replanted trees in the Big Rock Fire area. Over 20,000 trees have been planted since 2006. This year, there was also a community tree planting at the Valentine City Park. Thank you to everyone for conservation efforts throughout the years.



## STATIC LEVELS

County (ft)	2015	2016	Change
Brown	61.2	60.2	↑1.00
Cherry	101.11	101.87	↓0.76
Keya Paha	30.53	28.52	↑2.03
Rock	60.92	62.19	↓1.27

## Spring Static Levels

Spring Static Levels for the district read at an average combined gain of 0.90 feet. The larger the read level, the deeper it is to groundwater. A smaller number means it is less depth to groundwater.

## NITRATE LEVELS

County (mg/L)	2015	2016	Change
Brown	5.68	5.76	↑0.08
Cherry	2.79	2.56	↓0.23
Keya Paha	6.11	6.29	↑0.18
Rock	6.04	7.08	↑1.04

## SAFE LIMITS

0 10

4.31mg/L

Nitrate levels in the 2016 sampling averaged at 4.31 mg/L for the district.

3.24mg/L ↓

Nitrates have decreased by 3.24 mg/l overall throughout the district since 1974.

## NITRATE SAMPLING

The Middle Niobrara NRD has the ability to test in house for nitrates; free of charge.

FOR MORE INFORMATION CALL:  
402-376-3241

## WATER QUALITY COST SHARE

The MNNRD is accepting applications for its Water Quality Cost-Share Program. Items available for cost-share include soil moisture sensors, surge valves, low pressure nozzles, and converting siphon tubes to gated pipes. Cost-share is limited to 50% up to \$2,500 per application or \$1000 for soil moisture sensors.



## Water Quality & Quantity Monitoring

Since water is a finite precious resource, it is important to understand how we are impacting its condition and availability.

### Static Water Level Monitoring

Measuring water levels indicate the critical status of the water resources. A neat fact is that water in streams, lakes, and wetlands is sustained by groundwater discharge. By monitoring the groundwater levels, the MNNRD hopes to better understand hydrologic stressors affecting groundwater recharge, storage, and discharge; so that we can better manage it. Each Spring and Fall, static water levels are read at monitoring and irrigation wells. Levels are compared per location to each prior year, and years overall. To date there are 197 monitoring sites; 52 sites have permanent data loggers which track daily changes. In 2016 two new wells were drilled and dedicated solely for water monitoring. The MNNRD continues this effort for data expansion and is planning to augment two more additional monitoring wells in 2017.

### Nitrate Monitoring

The MNNRD is focused in ensuring water safety among residents. The effects of nitrate exposure is an important health concern. Nitrate rich water can create methemoglobinemia, which is when blood lacks the ability to carry sufficient amounts of oxygen to cells. The risk is much higher in infants. A nitrate forms when nitrogen combines with oxygen

then mixes with water; it carries through the soil and percolates into the underlying aquifer. Nitrates can enter the groundwater naturally at non-health concerning levels. However higher concentrations enter from additional inputs like; nitrogen rich fertilizers, manure from barnyards or feedlots, and septic and sewage treatment practices. Wells may be rich in nitrogen due to:

- ◆ Location near farm fields, barnyards, gardens, lawns, feedlots, septic tanks, water treatment systems, or sludge spreading sites
- ◆ Shallow well casings, since nitrogen enters the aquifer from the ground.
- ◆ Being in an area with highly porous sandy soils, and shallow depths to groundwater.

If nitrates exceed 10mg/L in your household well it is recommended to:

- ◆ avoid long term consumption, and any consumption by pregnant women or infants
- ◆ not attempt to remove nitrates by boiling, this only raises the levels
- ◆ protect the water supply from contamination by reducing fertilizer use, and improving manure handling, maintaining septic tank pumping to prevent overflow
- ◆ a licensed well driller may help determine if a new well with more casing could provide safer water
- ◆ certain treatment devices are approved by the Department of Safety and Professional Services to filter and reduce nitrate levels.

The MNNRD sampled nitrates at 380 wells in 2016.

### Chemigation Inspections

The MNNRD monitors for accidental groundwater contamination in irrigation wells. Chemigation is when agricultural chemicals are added to water flowing through an irrigation system. This common practice is used by many irrigators to apply fertilizers and pesticides to their cropland or rangeland irrigated fields. The rate of application is regulated; they may apply the exact amount of chemicals at the proper time. It reduces human contact and handling so exposure and chance for chemical spillage is minimized. When applying nitrogen through a chemigation system leaching losses are reduced leading to less possible nitrate contamination. However, there is potential for contamination through water flowing back into the well when irrigation

is interrupted. To monitor chemigations the MNNRD requires chemigation permits. The permits address use of appropriate chemigation equipment, set up, and maintenance. Application training is also needed by the operator, and is offered each spring. Without proper training, equipment, or setup a chemigation permit will be denied. Permits are valid for 1 year, and inspections are required every other year. Inspections are offered free of charge through the MNNRD. In 2016, 517 permits were received and 270 chemigation systems were inspected. Landowner time and cooperation is appreciated.

#### FOR MORE CHEMIGATION INFORMATION

Contact the MNNRD office  
402-376-3241

### Fertilizer Reports

Fertilizer reports are due to the MNNRD office by April 15<sup>th</sup>, 2017. Forms help report fertilizer amounts used in the 2016 growing season. The forms will be mailed out in early Spring, they can also be downloaded from the website at: [www.mnnrd.org/forms.html](http://www.mnnrd.org/forms.html)

### Water Quantity Facts

**574 registered domestic wells**  
**197 static water level monitoring sites**  
**151,383 certified irrigated acres**  
**-112,046 groundwater**  
**-31,933 surface water**  
**- 7,403 combination**

## Know the Middle Niobrara Natural Resources District - Continued

### Manager & Staff

**General Manager, Mike Murphy** – has been with the MNNRD 14 years. He is good with directions and is actively involved in 4H shooting sports.

**Water Programs Coordinator, Tim Storm** – has been with the MNNRD 9 years. He is a very skilled agronomist and avid fisherman.

**Administrative Assistant, Cortney Werner** -- has been with the MNNRD 3 years. She is detail orientated and keeps the office running smoothly.

**Lead Natural Resources Technician, Travis Connot** – has been with the MNNRD 5 years. He works efficiently and enjoys being an outdoorsman.

**Natural Resources Coordinator – Zac Peterson** – has been with the MNNRD 2.5 years. He is the knowing tree man and spends outside time helping the family farm.

**Natural Resources Intern, Cassie Cichorz** – has been with the MNNRD 1 year. She is learning quickly, and is receiving education through UNL.

### Open Positions!

#### Natural Resource Intern Technician

The MNNRD is looking for someone to intern in 2016-2017, based out of Valentine. The length of the paid internship is 6 – 12 months. This is a great opportunity for those interested in biology, agricultural sciences, or natural resources. Anyone interested should send a resume and completed application to the office. Applications are accepted until position is filled. For more information on duties and qualifications visit the [www.mnnrd.org](http://www.mnnrd.org) website or contact the office.

#### Temporary Resource Technician

The MNNRD currently has open temporary full time positions. Applications must be willing to work, have a valid driver's license, and must be able to pass a drug test. Interested persons should fill out a completed application.

Send your resume & completed application to:

MIDDLE NIOBRARA NRD  
526 E 1<sup>st</sup> St.  
Valentine, NE 69201

### Award Information

The MNNRD is very focused towards recognizing conservation efforts. The goal is to recognize conservation efforts through Community and Grassland Conservation and Educator Awards. They also applaud agricultural and youth conservation, and commend dedicated tree planters. These district wide awards may also be recognized throughout the entire state. If you are interested or would like to put in a nomination, please contact the office for more information.

### Scholarship Information

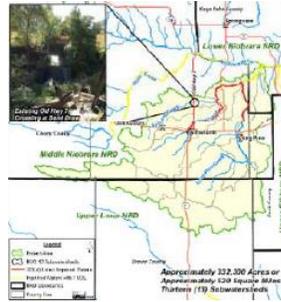
Education is an important aspect in understanding natural resources. Therefore, the MNNRD offers \$500 in scholarship to any graduating senior and continuing college student residing in the district pursuing a natural resource related degree. Applications can be obtained through the office or website, they are due March 31<sup>st</sup> 2017.

## NDEQ Ambient Water Sample Collection

The Middle Niobrara NRD continues to contract with NDEQ on the ambient water run, where water samples are collected from Snake River, the Niobrara River, Long Pine Creek and Plum Creek once a month by MNNRD staff. These water samples are sent to Health and Human Services in Lincoln and are monitored for concentrations of pesticides, metals and other elements. Samples from these four locations are collected monthly, additional samples from Merritt Reservoir and the Mill Pond collected during the summer months to monitor for *E. coli* and algae content. During the last basin rotation, the MNNRD collected samples for the following sites: Niobrara River south of Merriman, Bear Creek east of Merriman, Niobrara River south of Nenzel, Snake River at Doughboy, Boardman Creek south of Merritt Reservoir, Gordon Creek south of Merritt Reservoir, and Snake River south of Merritt Reservoir. These locations were monitored for bacteria, metals, pesticides and other elements. All this sampling was thanks to landowners allowing access to these areas. The next basin rotation will begin in the Spring of 2019.



## Long Pine Creek Watershed



The Middle Niobrara NRD & JEO Consulting are addressing threats to water quality and infrastructure within the Long Pine Creek Watershed. The watershed, approximately 328,000 acres primarily in Brown County is mostly irrigated farming and rangeland in the communities of Ainsworth and Long Pine. A NDEQ and NET Grant are helping to fund the project. A watershed advisory group consisting of local representatives is forming to facilitate the development of the watershed plan and engage the public. An important milestone is studying degradation in the Long Pine Creek Watershed. The project plans to reduce erosive forces, turbidity, and pollutants to improve water quality for habitat, and stabilize flow within the stream. To address these problems landowners have been suggested to follow Best Management Practices (BMP's). Some BMPs identified include riparian fencing, waste control, alternative livestock water sources, stream restoration, filter strips, detention ponds and wetlands, wet detention basins, onsite wastewater treatment systems inspections and upgrades, irrigation water and fertilizer and nutrient management, woody biomass utilization, cover crops, and wellhead protection area planning. Because of trying to improve conditions within the Long Pine Creek Watershed the NET, NDEQ, and USDA have provided funding to encourage landowners to implement Best Management Practices.

## COMMUNITY HIGHLIGHTS

MNNRD donated and planted 75 Ponderosa Pines for Valentine Dog Park & Shelter, Borders Without Boundaries.

### Dam Inspections & Recreational Area Upkeep

MNNRD staff conduct inspections every Spring on Fishberry Canyon,



Government Canyon, Johnson-Snyder, Appleman, Valentine NW # 2 and Cub Creek dams. Trees and brush that could compromise the structure of the dams are removed. Trees and grass are also managed at Cub Creek, the Mill Pond in Valentine, and at the Brewer Bridge Access area during the summer. These trees will be turned into chips for woody biomass projects.

### Nature Fest

The MNNRD staff was also involved in Nature Fest, an event hosted by the Niobrara Valley Outdoor Education Partnership. Over 100 school children from 4 counties participated.



### School Programs

The MNNRD also works with the Niobrara Council to provide hands on education in summer and at afterschool programs.



## 2016 Fall Conference

This conference allows for collaboration between NRD's, partners, and guests to learn new information about protecting our Natural Resources. It was held September 26<sup>th</sup> & 27<sup>th</sup>, 2016. The NARD Delegates adopted two resolutions.

### 💧 NARD Resolution 2016-1 – Water Well Professionals Resolution.

The NARD pursue changes to statute that add a definition for water well professional that would include all categories of individuals licensed under the Water Well Standards and Contractors Act. It was adopted 115-0.

### 💧 NARD Resolution 2016-2 – Funding Eligibility for Public Water Systems.

The NARD proposes legislation changing the eligibility requirement, based on population, from ten thousand or fewer inhabitants of the political subdivision to ten thousand or fewer inhabitants of the public water system for federal funding loan forgiveness and/or federal grant dollars.

## Voluntary Integrated Management Plan

The MNNRD Board of Directors and Nebraska Department of Natural Resources (NDNR) have initiated a voluntary district-wide Integrated Management Plan (IMP). There has been a public meeting for review and comment in Valentine, NE.

## Upcoming Dates!

90 Day Legislative Session Begins .....	January 4 <sup>th</sup>
NARD Legislative Conference, Lincoln NE .....	January 23 <sup>th</sup> – 25 <sup>th</sup>
NACD Annual Meeting, Denver CO .....	January 28 <sup>th</sup> – February 2 <sup>nd</sup>
150 <sup>th</sup> Birthday Celebration for Nebraska .....	March 1 <sup>st</sup>
NARD Washington D.C. Meeting .....	March 18 <sup>th</sup> – 22 <sup>nd</sup>
Chemigation/Nitrogen Certification Training.....	TBD
NARD 5k Run, 1 Mile Walk, & Kids Dash, Lincoln NE ..	April 1 <sup>st</sup>
MNNRD Fertilizer Reports Due .....	April 15 <sup>th</sup>
NSWCP Applications for 2018 Plantings accepted .....	May 1 <sup>st</sup> -- May 31 <sup>st</sup>
MNNRD Chemigation Applications due .....	May 31 <sup>st</sup>
NRD Basin Tour .....	June 12 <sup>th</sup> – 13 <sup>th</sup>
Ace Camp .....	June 11 <sup>th</sup> – 14 <sup>th</sup>
Bassett Ranch Expo .....	June 14 <sup>th</sup> – 15 <sup>th</sup>
Cherry County Fair .....	August 9 <sup>th</sup> – 13 <sup>th</sup>
Keya Paha Fair .....	August TBD
Brown County Fair .....	September TBD
Nebraska State Fair .....	August 25 <sup>th</sup> – September 4 <sup>th</sup>
Husker Harvest Days .....	September 12 <sup>th</sup> – 14 <sup>th</sup>
NARD Annual Conference .....	September 25 <sup>th</sup> -26 <sup>th</sup>
MNNRD Water Quality Cost Share accepted .....	November 1 <sup>st</sup> – December 31 <sup>st</sup>

## Contact Us!

*Middle Niobrara NRD*  
**526 E 1<sup>st</sup> St**  
**Valentine NE 69201**

**Phone: 402-376-3241**

**Fax: 402-376-1040**

**Website: [www.mnnrd.org](http://www.mnnrd.org)**

**Email: [mnnrd@questoffice.net](mailto:mnnrd@questoffice.net)**

***We are moving! Keep an eye out for our open house in early 2017!***

***Our new location will be at 303 E Hwy 20 in Valentine!***



## NE RAIN

So far in 2016, precipitation has averaged 24.87 inches for the district!

Nebraska Rainfall Assessment & Information Network (NE RAIN) is compiled of volunteers who collect statewide precipitation data. Participants receive a free all weather rain gauge and are asked to record daily precipitation amounts when present. If you are interested in becoming a volunteer, please contact the MNNRD office.