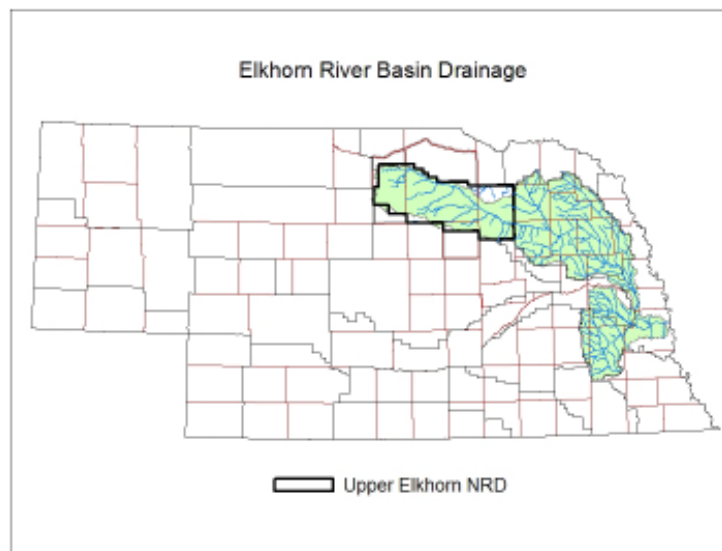


UPPER ELKHORN The Oracle

"Making Wise Decisions Concerning Our Natural Resources"
<http://www.uenrd.org>

Streambed Tests to be Conducted in the Elkhorn River Basin

The Upper Elkhorn NRD has elected to become a partner in the Streambed Conductivity Study of the Elkhorn River Basin. This research is being conducted by the Conservation Survey Division (CSD) and will be take place during late summer of 2007 at various sites across the entire Elkhorn River basin. Other partners in this project include the Lower Elkhorn NRD out of Norfolk, and the Department of Natural Resources (DNR) out of Lincoln. This project will include up to 15 specific sample sites across the Elkhorn River Basin. Basin map included. Sites will be chosen based on amount of streambed data available from stream gauging stations, proximity to CSD test hole bore logs, and density of irrigation wells. There are three objectives for this project: 1) to determine the architecture of the channel sediments in the Elkhorn River and its tributaries from which the streambed thickness will be determined; 2) to determine the vertical hydraulic conductivity of the Elkhorn River streambed down to a depth of 50 ft below the



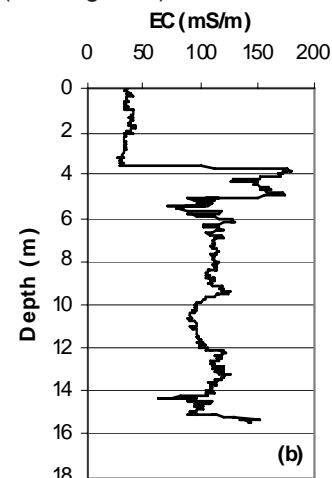
surface; 3) to quantify the hydrologic relations between the Elkhorn River and the adjacent aquifers.

Hydraulic conductivity is the property of soil or rock that describes the ease with which water can move through pore spaces or fractures. Permeability and saturation are the two factors that most affect the level of hydraulic conductivity. The more porous or coarse a soil is, such as sands or gravels, the higher the hydraulic conductivity. Because of this, clays or silt loams often are referred to as a confining layer which inhibits

the ease at which water passes through. This study, once analysis is completed, will determine the level of connection between the area aquifers and the Elkhorn River as well as impact that irrigation wells have on stream flows.

Conductivity will be determined by soil analysis of streambed core samples collected during the low water periods of stream flow, mainly during late August and early September. The CSD has a Geoprobe capable of negotiating access difficulties on a variety of stream bank conditions and collecting

sediment cores in a channel to a depth of 50 feet. Similar studies have already been completed on the Platte River between Kearney and Duncan and in the blue River Basin. Below is a figure from a previous study from the Platte River near Silver Creek. The low conductivity indicates a confining layer constituting the top portions of the streambed, the high conductivity near 4 meters indicates more coarse (sand, gravel) soils:



Cooperation from the area landowners is being sought by both the Lower and Upper Elkhorn NRD for access of the Geoprobe to the Elkhorn River. Disturbance is minimal

Natural
Resources
District

Fall & Winter 06-07

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and the time spent at the field should last no more than a week per site. The involved NRDs and the CSD feel that this project will give clarification to the connectivity of ground and surface water which will aide in the accuracy of all research projects taking place. In time data from this study will be incorporated with the Elkhorn-Loup Modeling efforts as well as give the DNR a more reliable, scientifically based approach for determining whether the Elkhorn River Basin is or is not fully appropriated.

Nebraska's NRD's Celebrate 35th Anniversary

The concept of NRD's came after many years of creating special purpose districts which would only deal with one facet of natural resources. By continuing to create special purpose districts that attack only one resource problem it allowed the number of resource related districts to grow out of control. It was evident that a multi-purpose entity needed to be formed which would have the authority to manage all resource related issues for a

given area. An entity that would be a form of local government to help individuals develop, conserve and protect Nebraska's natural resources.

In 1969, LB 1357 was introduced to the Nebraska Legislature in a bold move to consolidate 154 special purpose districts into 24 Natural Resources Districts. The NRD's were formed using Nebraska's twelve major river basins and watersheds and are governed by a locally elected board of

directors. This allows the NRD's to provide local solutions to local problems throughout a basin as opposed to being confined to a county boundary.

The Upper Elkhorn NRD continues to preserve, protect and enhance our natural resources for future generations with the help and guidance of the residents of the Upper Elkhorn Natural Resources District.

NeRAIN Volunteers Needed!!!

If you are a weather enthusiast and would like to volunteer for the NeRAIN Program contact the Upper Elkhorn NRD at 402-336-3867! Volunteers will receive a new quality rain gauge, installation and brief training (on internet) to record data. All you need is a computer with internet access and a few minutes each day to report readings from your gauge!



Department
of Natural
Resources



Upper Elkhorn Natural Resources District Receives Grant from the Nebraska Environmental Trust

On April 8, 2007, in Lincoln, Nebraska the Upper Elkhorn Natural Resources District received an Environmental Trust Grant in the amount of \$14,430 for the "East Branch Verdigris Creek Watershed Management Project". The Trust Board announced funding for the project at its last meeting on April 5 in Lincoln. This is the second year of a three year grant totaling \$72,150. The project is one of 67 projects receiving \$11,818,742 in lottery proceeds this year from the Nebraska Environmental Trust.

The East Branch Verdigris Creek (EBVC) above Grove Lake near Royal is a "Class A" Coldwater stream in Northeast Nebraska. As such, it has been identified as a high priority watershed under the Nebraska Non-point

Source Management Program. Current and past management has been harmful to the groundwater, wildlife, and other natural resources. Financial incentives are needed to encourage land users to change their current practices and adopt the best management practices recommended by the watershed advisory council and their technical advisory committee. Those practices are: Non-Point Source Pollutants – Integrated Nutrient and Irrigation Management; Point Source Pollutants – Proper sealing of abandoned/illegal wells; Inspection of septic systems and proper redesign of these systems. Nebraska Environmental Trust Funds would be used to cover 30% of the cost of the Integrated Nutrient & Irrigation Water Manage-

ment and 40% of the well sealing, which amounts to virtually no cost to the landowner.

The Nebraska Legislature created the Nebraska Environmental Trust in 1992. Using the revenue from the Nebraska Lottery, the Trust has provided grants to more than 952 projects across the state. Anyone – citizens, organizations, communities, farmers and businesses – can apply for funding to protect habitat, improve water quality and establish recycling programs in Nebraska. The Nebraska Environmental Trust works to preserve, protect and restore our natural resources for future generations. For more information on the Nebraska Environmental Trust, visit their website at www.environmentaltrust.org.

UENRD Awards Senior Scholarships

Each year the Upper Elkhorn Natural Resources District awards three scholarships to graduating high school seniors in the district. These are students who have chosen to pursue a career in a field related to agriculture or natural resources. This year's

recipients are Andrew Engle of Elgin Pope John Central Catholic High School; Cody Dvorak of Stuart High School; Brandon Anderson of Elgin Public High School; and, alternate Travis Sprout of Elgin Public High School. Scholarship winners will

receive a scholarship in the amount of \$500 to help defer costs during their first year of College. The Upper Elkhorn NRD would like to congratulate the 2007 Senior Scholarship Winners and wish them good luck in achieving their future goals.

Neligh-Oakdale Envirothon Team Competes at State Competition



Nebraska Association of Resources Districts Chairman & UENRD Board Member Ted Hughes poses with Nebraska State Envirothon Policy Station Winners from Neligh-Oakdale High School.

The 2007 State Envirothon Competition was held Saturday May 5th at Fort Robinson State Park near Crawford, Nebraska.

The Envirothon is a program for 9th-12th grade students designed to promote awareness about our natural environment. Students compete in a contest that tests their knowledge on a wide array of subjects relating to natural resources and the environment. Seven Regional Envirothon competitions are held across Nebraska in the early spring. The winning five-member team from each regional competition is then invited to represent their region at the Nebraska State Envirothon Competition. Following the Regional Envirothon competitions, thirteen teams were invited to attend based on their team scores. The top thirteen teams receiving an invitation to this year's State Envirothon include; Wauneta-Palisade High School, Norris High School, Bellevue East High School, Hayes Center High School, Neligh-Oakdale High School, Superior High School Teams 1 & 2, Sidney High School Teams 1 & 2, C r e e k

Valley High School, Concordia High School, David City High School and St. Paul High School.

During the State Envirothon, each team was tested in seven environmental areas which included: Aquatics, Forestry; Policy; Range; Soils; Wildlife; and, an Oral presentation involving Alternative/Renewable Energy. The teams competed for top honors at each of the seven stations with the team with the overall high score winning the right to represent Nebraska at the Cannon National Envirothon which will be held at Hobart & Williams Colleges in Geneva, New York. This year the team from Neligh-Oakdale High School took top honors at the Policy station outscoring all other teams and finished in the overall 5th position at the State Envirothon. Team members include Vicky Overman, Heather Schrader, Alex Hughes, Tyler Legate and Brandon Timm. The Upper Elkhorn NRD would like to congratulate the Neligh-Oakdale High School Envirothon Team for their outstanding efforts at the state competition.

Attention Chemigators!!!

Chemigation Renewal Deadline Is June 1

The deadline for renewal chemigation applications is June 1! Anyone wishing to run fertilizer/chemicals through their center pivot irrigation system within the Upper Elkhorn NRD will need to submit an application for chemigation to the Natural Resources District. New applications are available at a cost of \$30.00 per site and must be approved by NRD personnel before any chemigation activity. Chemigation sites, which were permitted and approved in 2005, are eligible for renewal and are available at a cost of \$10.00 each. All renewals must be submitted by June 1 to the Natural Resources District. Applications may be picked up at the Upper Elkhorn NRD office, Neligh NRCS office and RC&D office in Bassett. Chemigation forms are also available on line at www.uenrd.org. These forms may be filled out on line, printed and returned to the NRD office with the appropriate fee. Due to the tremendous number of application sites, which change from year to year the Upper Elkhorn NRD, does not mail out applications. Remember, it is the responsibility of each chemigator to maintain and permit each chemigation site on an annual basis. For further information or questions, please contact the Upper Elkhorn NRD, 301 N. Harrison, O'Neill, NE 68763, (402) 336-3867.

Cost Share Eligibility Requirements

Any person who fails to comply with any of the Upper Elkhorn Natural Resources District's Rules and Regulations shall not be eligible to participate in any programs or receive payments that are administered by the District. Programs requiring compliance include but are not limited to the following: UENRD Groundwater Management Plan - Phase I and Phase II Rules & Regulations; Chemigation Act;

Irrigation Runoff and Erosion and Sediment Control. Cost share programs that may be affected due to lack of compliance include but are not limited to the following: Nebraska Soil and Water Conservation Program; Upper Elkhorn NRD Conservation Program - Land Treatment Fund; WILD Nebraska/Wildlife Habitat Improvement Program; Nebraska Buffer Strip Program; Corners

for Wildlife; Liquid/NH₃ Application Program; Livestock Manure Analysis Program; Domestic Water Quality Program; Nitrogen Management Program; and, the Water Well Decommissioning Program. Anyone who is already a participant in any of these programs or may be a participant will not receive any payments as long as they fail to comply with any District rules and regulations.

Tree Care Hints for Your New Shelterbelt

Care after planting is equally as important. Whether hand or machine planted this is a critical time for the young seedling. We at the Upper Elkhorn NRD take pride in the trees we plant for our cooperators. When we see you out walking behind the Tree Planter we know that you are as dedicated to a successful planting as we are.

Machine planted trees should be walked and heeled in as soon as possible to eliminate any air pockets around the roots. This is also a good time to straighten your seedlings and inspect them for proper planting depth.

Where water is available, a nice soaking after planting is recommended. Most plantings are remote enough that water is not available, so this is where weed and grass control must be maintained.

Cool season grasses, Brome and Bluegrass, are the biggest competitors for soil

moisture. Their growing season is the same as most trees. Hoeing, tilling, and herbicide application are the most common practices for controlling weeds and grasses.

If using chemical control, caution must be taken during application. A two to three foot diameter area around each seedling is sufficient. This practice usually has to be done twice a year.

Mowing between the rows is also recommended

at least twice a year.

Warm season grasses are much less competitive but still require some control. Mowing is still recommended twice a year, with the Fall mowing being very critical. Tall weeds and grasses lay down in Winter and cover young seedlings, and this provides habitat for rodents which can cause much damage. These practices should be continued until trees are big enough to shade the ground and weed themselves.



Conservation Weed Mulch Care & Maintenance

Conservation Weed Mulch has become a big part of the Upper Elkhorn NRD Tree Program. Conservation Mulch is a cost effective, long-term (guaranteed 5 years) way to control weed and grass competition while retaining soil moisture in the seedling root zone. Weed-barrier has been installed by the Upper Elkhorn NRD since 1992 and has done wonders for conserving moisture through the reduction of competitive grasses/weeds while enhancing tree growth.

Conservation Mulch is applied after your trees are planted. This is done by a separate crew. There is usually a one to three week time lapse between your tree planting and installation of the conservation mulch

Once the conservation weed mulch is installed mowing is recommended between the rows, periodic checks for loose or uncovered edges, and tree slit inspection for rubbing. However weeds can grow up through the tree slit, so caution should be taken when pulling these weeds as you may pull the seedling also. These weeds pull easier shortly after a rain.

Maintenance of weed mulch after Installation is very important and some points that you should know regarding



weed-barrier include: weed mulch does not guarantee tree survival; if weather patterns are dry and windy, watering the trees is still essential (if you plant a tree in your yard you probably water that tree to guarantee survival, these tree seedlings are no different.).

Weed mulch does require annual maintenance. When the weed mulch is installed it becomes the responsibility of the landowner to check the fabric throughout the year to make sure fabric edges are still covered with dirt. Periods of dry weather and wind has caused soil on fabric edges to be blown off the fabric. This allows wind to get underneath the fabric and lift. The district also encourages you to inspect the edge covering of the fabric after high rainfall

Sign Up Underway for NRD Cost Share Programs

Anyone wishing to participate in an Upper Elkhorn NRD cost share program should contact the Upper Elkhorn NRD office or their local NRCS office. Cost share is available for the installation of the practice itself and will not include any sales tax on the materials or labor. Cost share programs available include:

NSWCP/NRD: The UENRD in conjunction with the Department of Natural Resources offers cost share practices to landowners wishing to install conservation practices. Some practices included in the program are: windbreaks; planned grazing systems; irrigation water management; pasture planting and range seeding; grade stabilization; and, windbreak renovation. Cost share is available at a rate of 50%.

Water Well Decommissioning: The UENRD in conjunction with the Department of Natural Resources offers cost share funds at a rate of 75% to landowners who wish to properly decommission an abandoned well.

Domestic Water Quality: The UENRD offers cost share to cooperators whose drinking water is contaminated with nitrates over the federal health standard of 10 parts per million. Cost share is available at a rate of 50% or a maximum of \$800.

Anhydrous Ammonia Application: The UENRD offers 50% cost share to landowners for the purchase of a flow control monitor not to exceed \$900; and, \$200 for the purchase of a vertical dam manifold.

Livestock Manure Analysis: The UENRD offers 50% cost share not to exceed \$200 for manure analysis to credit useful materials into the soil.

Nitrogen Management: The UENRD offers 50% cost share not to exceed \$200 to cooperators to encourage producers to manage fertilizer application better by accounting for residual nitrate-nitrogen which already exists in the soil root zone and irrigation water.

Cost share applications are approved by the Upper Elkhorn NRD Board of Directors and available on a first come first serve basis and does not include sales tax.



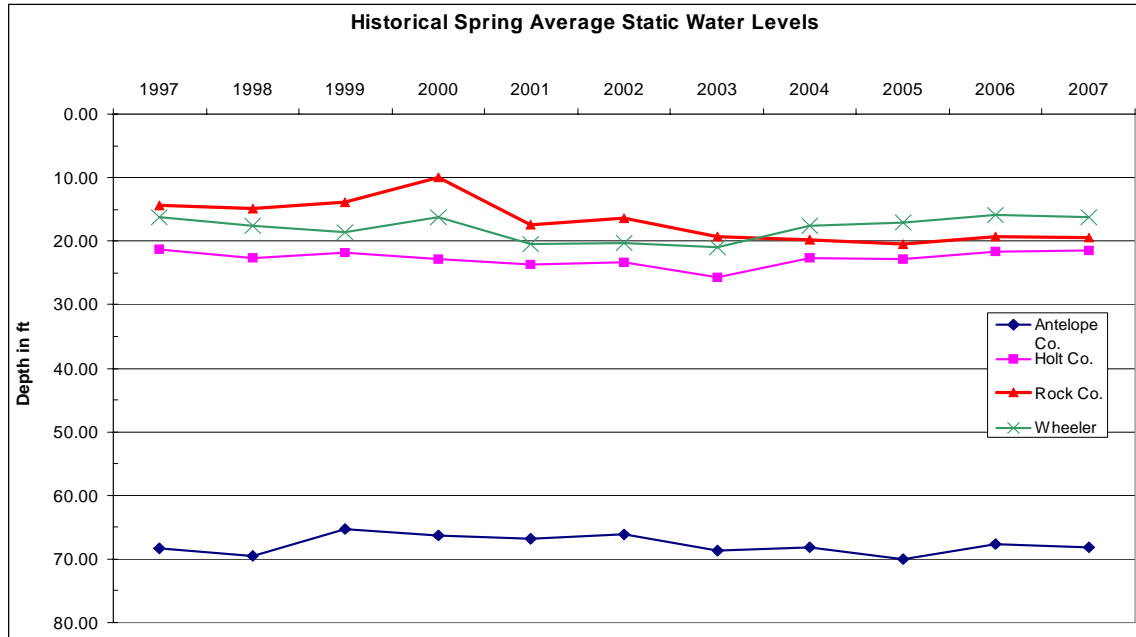
Nebraska's NRDs
Helping You Conserve
Natural Resources
for 35 Years
1972-2007



**Remember,
It's Never Too
Early to Order
Trees for the
2008 Spring
Planting!**

Upper Elkhorn NRD Static Water Level Summary

The Upper Elkhorn NRD has administered a static water level monitoring program since 1975. This spring, the District's sampling network has been increased to 147 observation sites including both irrigations wells and dedicated monitoring wells. The static water level is measured by the District on a biannual basis during the spring and fall seasons. The results of these measurements are used locally by the NRD to assess the change in groundwater levels over time. The charts below show the average depth to water over the past 10 years by county.



County	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Antelope Co.	68.27	69.57	65.28	66.22	66.89	66.15	68.62	68.22	69.99	67.62	68.22
Holt Co.	21.37	22.71	21.82	22.81	23.65	23.28	25.71	22.68	22.75	21.65	21.45
Rock Co.	14.33	14.88	13.95	9.98	17.4	16.38	19.28	19.77	20.48	19.32	19.47
Wheeler Co.	16.16	17.64	18.62	16.30	20.4	20.25	20.96	17.51	17.05	15.96	16.20

Upper Elkhorn Natural Resources District Board of Directors

Jerry Heithoff - Chairman	Subdistrict 7 ~ Elgin	(402) 843-2467
Dale Wiles - Vice Chair	Subdistrict 3 ~ O'Neill	(402) 336-2338
Greg Felker - Treasurer	Subdistrict 3 ~ O'Neill	(402) 336-2864
Ted Hughes - NARD Rep	Subdistrict 6 ~ Neligh	(402) 887-4942
Jerry Childers	Subdistrict 4 ~ Chambers	(402) 482-5688
Chris Dierks	At Large ~ Ewing	(402) 485-2618
James Dvorak	Subdistrict 2 ~ Atkinson	(402) 925-5776
Janet Koinzan	Subdistrict 7 ~ Elgin	(402) 843-2410
Curtis Gotschall	Subdistrict 2 ~ Stuart	(402) 925-2504
Reg Green	Subdistrict 5 ~ Creighton	(402) 358-5479
Jim Keller	Subdistrict 1 ~ Newport	(402) 244-5448
Tim Knuth	Subdistrict 5 ~ Brunswick	(402) 358-5430
Jeff Krebs	Subdistrict 6 ~ Neligh	(402) 887-5215
Mike Russman	Subdistrict 4 ~ Ewing	(402) 485-2638
Roy Stewart	Subdistrict 1 ~ Newport	(402) 244-5360

UENRD Board Meetings are held the 4th Monday of every month. March through October at 8:00 P.M. and November through February at 2:30 P.M.

UENRD Staff

Dennis Schueth	General Manager e-mail: dschueth@uenrd.org
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Beth Walsh	Information & Education/Chemigation Coordinator e-mail: bwalsh@uenrd.org
Joy Knapp	NRCS Clerk, Neligh
Barbara Shannon	NRCS Clerk, Ainsworth
Mary Zakrzewski	NRCS Clerk, O'Neill

Upper Elkhorn NRD & Groundwater Nitrate Management

The Upper Elkhorn NRD has consistently monitored groundwater quality since its foundation in 1972. During the 2006 irrigation season the NRD staff collected nearly 500 nitrate-nitrogen water samples from active irrigation wells. This is an improvement over the 415 water samples that were collected during the 2005 irrigation season. The results from this analysis show that 44% of the wells sampled this year in the District had a nitrate-N concentration above 10 ppm. The Environmental Protection Agency has established 10 ppm nitrate-N as the maximum contaminant level (MCL) for drinking water. The MCL represents the level of contaminant beyond which the probability of serious health risks increases.

Studies show that the contamination of the groundwater from nitrate-nitrogen is directly proportionate to the amount of historical irrigated acres and total irrigation well development. As of January 1, 2007 the District has 3,897 irrigation wells. Geographically across the District a majority of the well development has taken place north of the Elkhorn River or north of Highway 275 east of O'Neill and Highway 20 west of O'Neill. This area has more flat ground and stable soils which is conducive to farming practices unlike the southern reaches of the District which generally consists of Sandhills. The drawback is the high infiltration rates on all of the soil properties in the Upper Elkhorn NRD have an increased risk of contamination if inefficient nitrogen application rates are applied.

To address the nitrate contamination problem, the District has enacted a Groundwater Management Plan currently consisting of two Phase Levels. Phase I encompasses the entire District and requires that all irrigators sample their wells and submit results to the NRD once every four years. In addition to this requirement, any landowner who applies more than 50 lbs per acre of actual Nitrogen is required to have a Nitrogen Certification course provided by the District.

Phase II areas are those which have an area average higher than 7.5 ppm and require a yearly annual report to the District

which includes results from a required yearly soil sample. Currently there are two Phase II areas, one in Northern Holt County the other in the Crawford Township in Antelope County.

Future increases in the irrigation well monitoring program will be sought by the NRD to keep up with the expansion in the number of irrigation wells. A potential for the extension of the Phase II areas has been discussed by the Board of Directors and could be a possibility in the near future. The District will remain diligent in the public awareness of the nitrogen contamination problem. Groundwater quality and quantity protection and the support of reasonable and beneficial uses of the resource is the primary goal of the Upper Elkhorn NRD.

