

MEMORANDUM

DATE: April 29, 2016

TO: City of Lincoln Parks and Recreation Department, Lower Platte South Natural Resources District Board of Directors, and Nebraska Game and Parks Commission

FROM: Tom Malmstrom
Natural Resources Coordinator
Parks and Recreation Department
Saline Wetlands Conservation Partnership

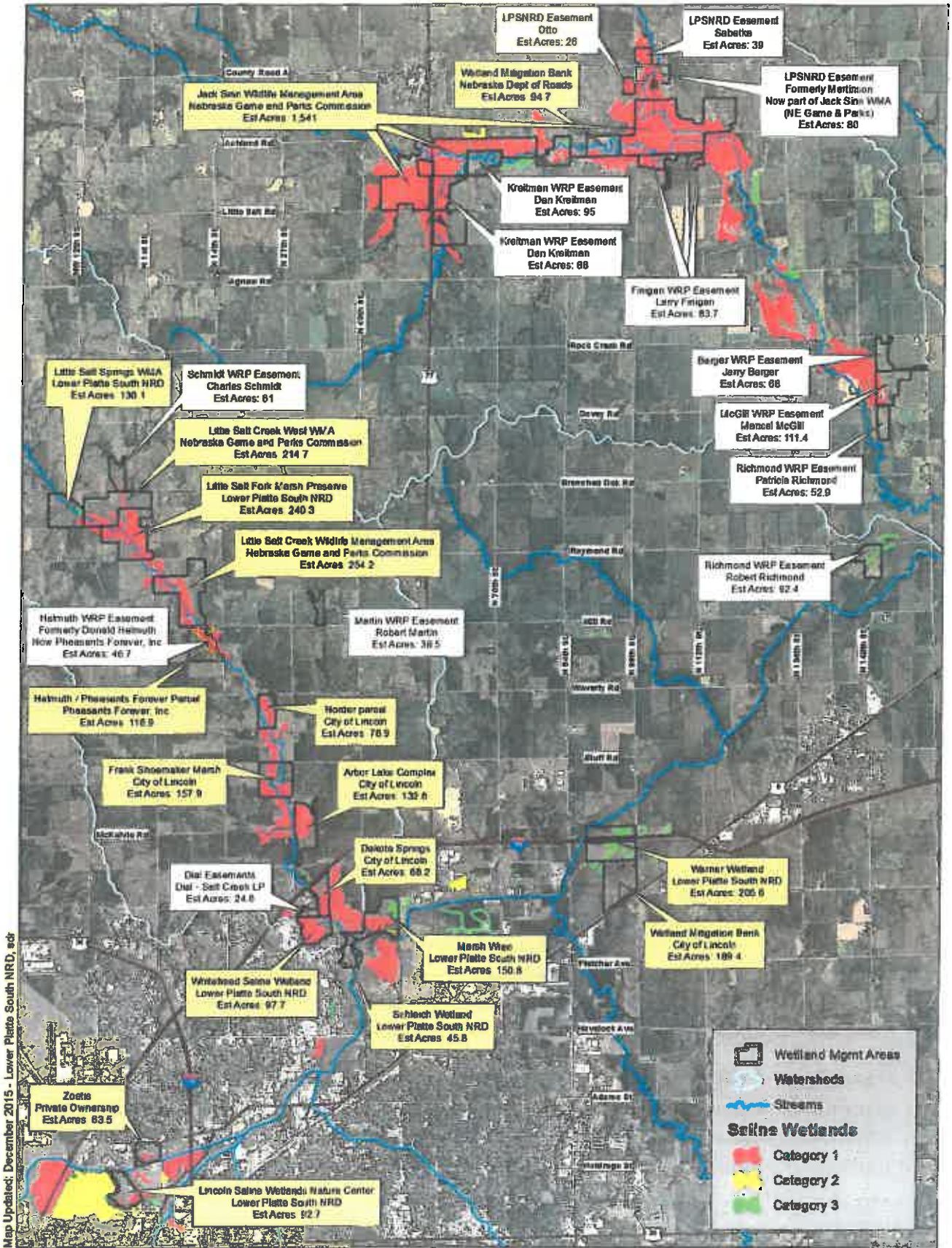
RE: Saline Wetlands Conservation Partnership – 2015 Progress Report

On behalf of the Saline Wetlands Conservation Partnership (SWCP) I want to make you aware of the activities, which occurred in 2015. The SWCP was initiated in 2003 and continues to progress. The City of Lincoln has been awarded five Nebraska Environmental Trust Fund (NET) grants since 2002 for the eastern saline wetlands. Recently, the City of Lincoln received a \$795,000 grant over a three year period from 2016 to 2019. The 2012 NET grant has received a one year extension to June 30, 2017. These grants have been used for land acquisition, wetland restoration, education, and land management purposes and provide matching funds for other grant opportunities.

Efforts of the SWCP are to protect, restore, and manage the rare and unique saline wetland habitat. The Partnership continues to utilize the "Implementation Plan for the Conservation of Nebraska's Eastern Saline Wetlands (2003)," for guidance in efforts to conserve the saline wetlands. Since its inception, partners have purchased nearly 1,530 acres of habitat from willing sellers containing saline wetlands, freshwater wetlands, native prairie, and other associated upland habitat, initiated educational activities, participated in saline wetland restoration and conservation projects, and provided for operation and maintenance of these areas.

Illustration 1 identifies saline wetland properties, which have been acquired through fee-title acquisitions or conservation easements since the 1980's. Illustration 2 identifies other saline wetland locations including Pioneers Park and saline wetland conservation easements.

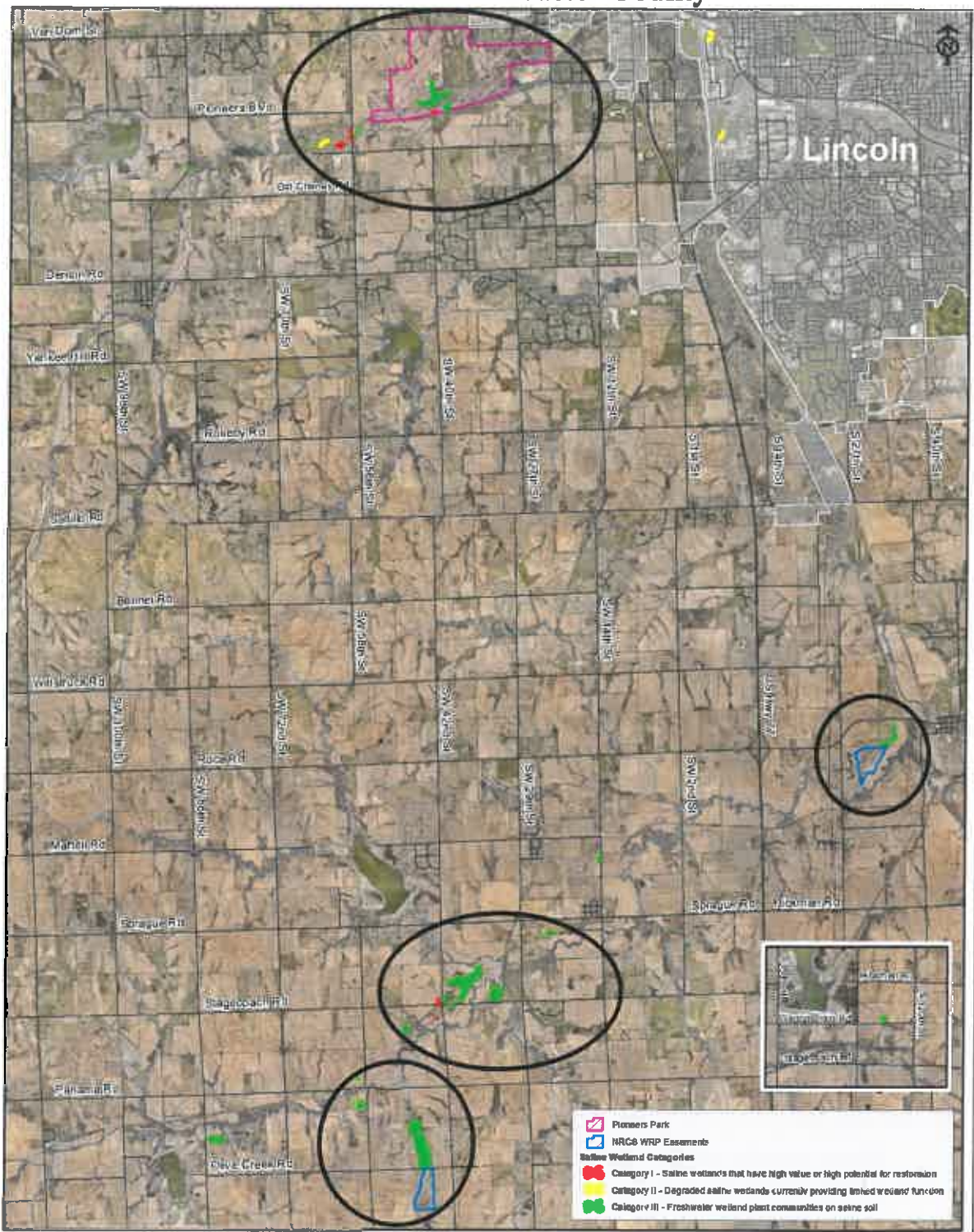
Illustration 1



Map Updated: December 2015 - Lower Platte South NRD, sdc

Illustration 2

Southwestern Lancaster County



Q:\ArcGIS_projects\Wetlands\ManagementAreas_Grouped\SW_Lancaster\SW_LancasterCo_8x11.mxd - Map Created: April 2014, LPSNRD

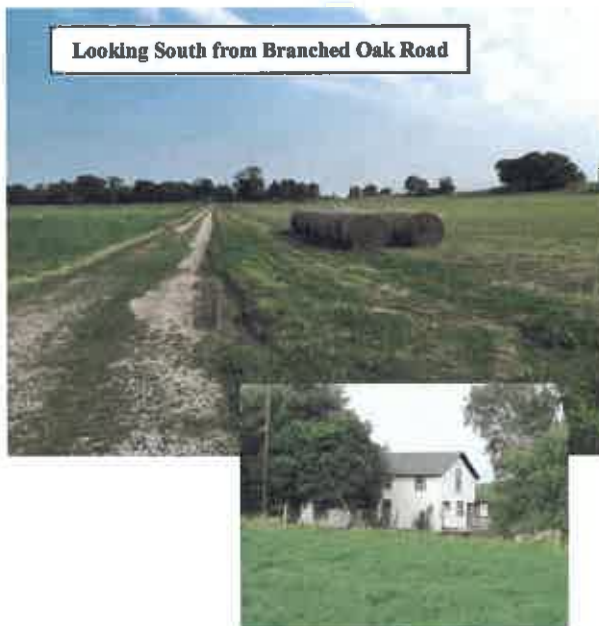
SUMMARY OF 2015 ACTIVITIES

LAND ACQUISITION

- **Little Salt Springs Addition (Downs Property) – On West Branched Oak Road between NW 12th and NW 27th streets**

Size: 13.3 acres
Purchase price and date: \$175,000 on October 15, 2015
Funding sources: Lower Platte South NRD (\$43,201.17)
2012 NET Grant (\$131,798.83)
Owner: Lower Platte South NRD

Notes – The Downs addition is a 13.3 acre agricultural residential property, which is adjacent the west boundary of Little Salt Springs, which was purchased by the LPSNRD in 2007. The property includes an old farmstead and several outbuildings. It is grassland, which has been historically hayed and also provides an area where horses were grazed. There are no saline wetlands on the property. The property will remove hunter and residence conflicts, provide better public access to Little Salt Springs, and once structures are removed and debris on the property is cleaned up provide enhanced land management opportunities for the whole property.



Photos courtesy of Great Plains Appraisals, Inc., 2015

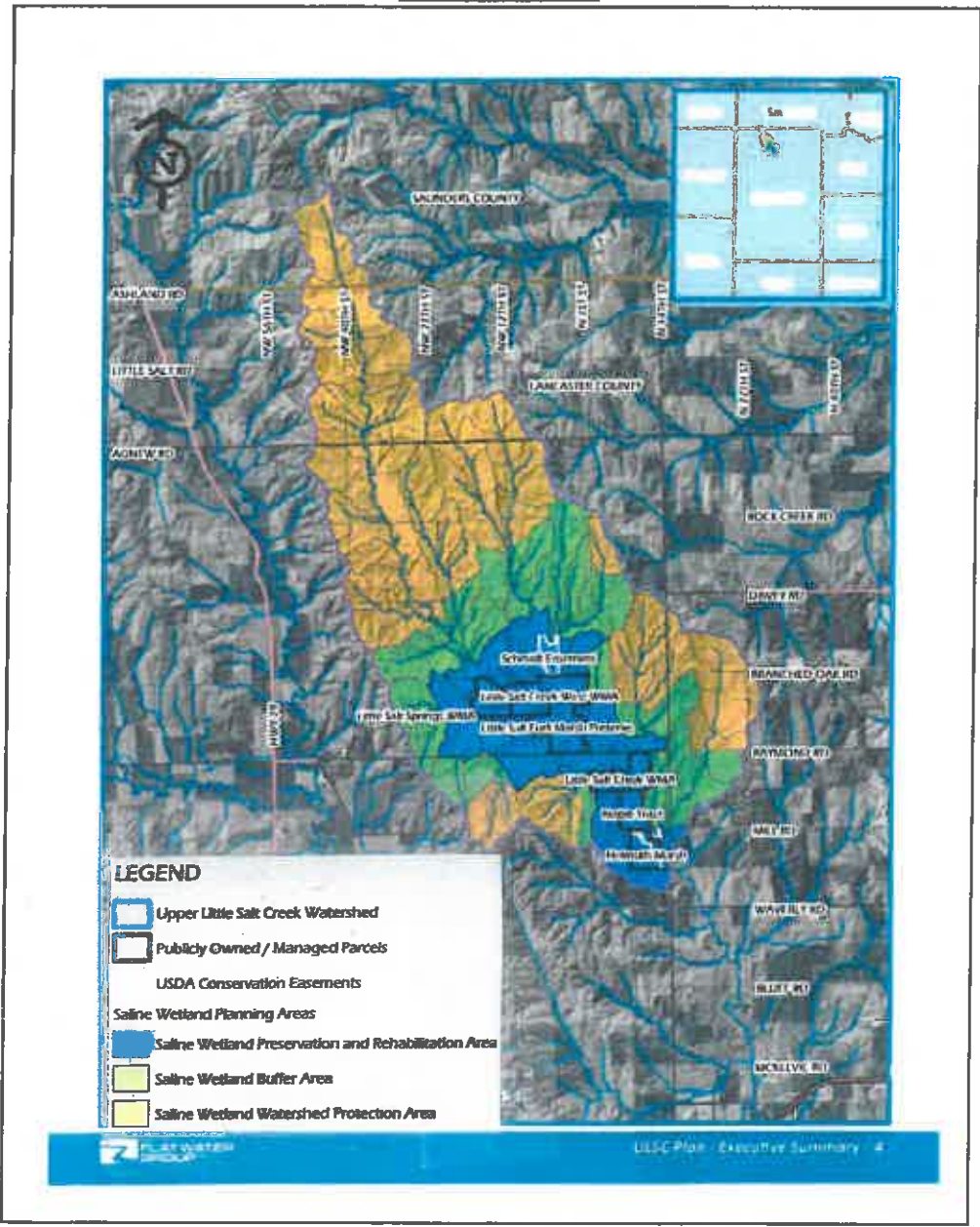
Management activities will be consistent with those completed on Little Salt Springs, which may include noxious weed control, prescribed grazing and fire, haying, woody vegetation removal, and mowing. The area will be open to the public in accordance to the LPSNRD Wildlife Management Area Regulations. A comprehensive management plan for this property will be completed by the Saline Wetlands Conservation Partnership in accordance with Nebraska Environmental Trust guidelines within one year from the date of purchase.

WETLAND RESTORATION

Upper Little Salt Creek Saline Wetlands Plan Project

In 2013, The Flatwater Group, Inc. was hired to perform the preliminary design study and survey properties managed by the Saline Wetlands Conservation Partnership. The project, completed in December 2015, developed a plan for the Upper Little Salt Creek saline wetlands, which evaluated the unique environmental resources and provided recommendations for future projects such as vegetation enhancement, water/grade control structures, and other property enhancements. Illustration 3 identifies the Upper Little Salt Creek project area. The Executive Summary can be found in Appendix 1.

Illustration 3



Whitehead Saline Wetlands

The Whitehead Saline Wetland Water Level Control Structure upgrade project was initiated in 2013 and construction began in Late 2014 and completed in early 2015. Funding was provided by the City of Lincoln 2012 NET grant and the LPSNRD. The Project modified site hydrology with a lower elevation outlet control to improve seasonal wetting and drying of a saline wetland area. Prior to the project there was standing water and a monoculture of cattails along the edges.



Since the completion of the construction salt flats have formed in areas, which previously were standing water. An area that was previously cattail monoculture along fringe of open water now contains saltgrass, switchgrass, sedge species and some bare ground likely due to soil salinity limitations on plant growth.



Inland saltgrass growing on a salt flat in a location, which was previously covered with about 1-2 feet of impounded freshwater prior to project

Photos courtesy of The Flatwater Group, Inc.

WETLAND MANAGEMENT

Two seasonal employees hired by the City of Lincoln performed management on the saline wetland areas. Members of the Partnership established management activities to be addressed within the saline wetlands complex. These employees primarily worked on noxious weed and woody vegetation removal, structure maintenance, and access. Funding for these positions is provided with stewardship funds through an agreement between the LPSNRD and The Nature Conservancy to support saline wetland management areas. A total of 413 hours were worked by the seasonal employees in 2015 on saline wetland management activities from May through November. The Coordinator and LPSNRD provided supervision of the employees.

In addition, the Lower Platte South Natural Resources District has one fulltime Maintenance Technician who assists the seasonal employees with work performed on the saline wetlands. This work is also compensated through the stewardship fund.

SALINE WETLAND RESEARCH

The SWCP has worked with partners on a variety of projects within the saline wetlands. Funding for some of these projects has come from the Nebraska Environmental Trust, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and the Nebraska Game and Parks Commission. Following is a summary of research conducted in 2015.

Biogeochemical controls on saline wetland plant establishment in Nebraska's Eastern Saline Wetlands

Dr. Amy Burgin, Assistant Professor
School of Natural Resources
University of Nebraska – Lincoln

Keunyea Song PhD., Postdoctoral Researcher
School of Natural Resources
University of Nebraska – Lincoln

In December 2013, the City of Lincoln executed and approved a Memorandum of Understanding with the Nebraska Game and Parks Commission to cooperate on the research project “Biogeochemical controls on saline wetland plant establishment in Nebraska’s Eastern Saline Wetlands.” The University of Nebraska – Lincoln will complete and provide a final report in 2016. Funding for the research is provided by a Nebraska Natural Legacy Project grant received from the Nebraska Environmental Trust and funds contributed by the Saline Wetlands Conservation Partnership.

The goal of the study was to determine whether continuous saline groundwater addition to the soil surface would create a more favorable saline condition for saline plant species and other wetland ecosystem services. In order to address the goal there has to be an understanding of how soil and water biogeochemistry respond to saline groundwater addition (a proposed saline wetland restoration practice), as well as whether this practice would shift plant communities to a saline-obligate dominant community. The project research was implemented at the Arbor Lake Complex in Lancaster County, Nebraska.

The groundwater addition practice was implemented in the experimental restoration site and measured:

- soil physicochemical changes
- biogeochemical process rate changes
- plant community and diversity changes in relation to salinity and water addition methods (slow vs. fast water addition)

The research site contained 32 plots divided into four replicates of the following water additions: fresh water; low salinity; mid-level salinity; and high salinity. Two plots were unchanged and were used as the control plots.

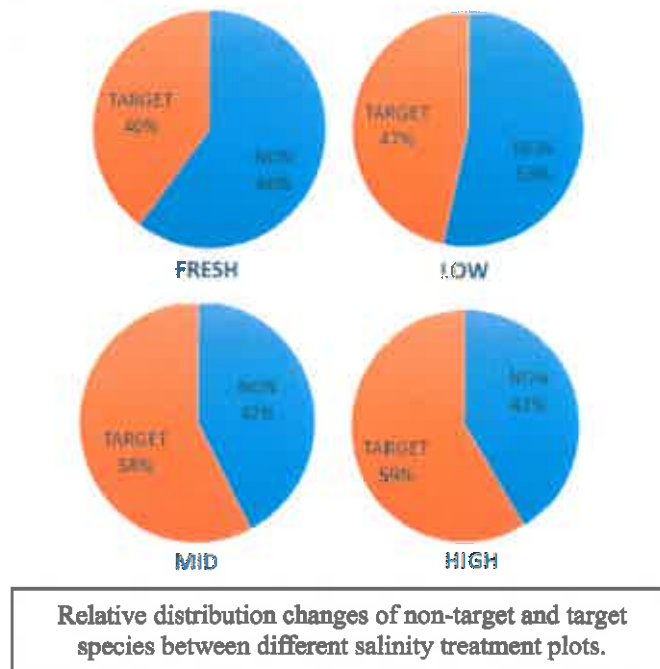
The treatment gradient was drawn from naturally occurring variation in groundwater at the site. Using water, soil and gas samples collected from the experiment site, changes were measured in pore water chemistry and the rates of biogeochemical processes such as greenhouse gas flux.

The Biotic response was determined in 2015 with two separate surveys: a germination experiment; and by measuring plant growth rate and diversity at the research site. The germination experiment was conducted in a temperature and light-controlled incubation lab-setting. Six saline wetland species were used as indicators of a healthy saline wetland plant community: Saltwort (*Salicornia rubra*), Saltgrass (*Distichlis spicata*), Spearscale (*Atriplex patula*), Seablite (*Suaeda depressa*), Marshelder (*Iva annua*), and Saltmarsh Aster (*Aster subulatus*). Plants were examined in the experimental plots using a quadrat (1 ×1m). The relative abundance of each species was calculated.



The Key Findings from the research are as follows:

- Continuous saline groundwater addition increased the interaction and connections between soil and saline groundwater, which created more saline pore-water conditions in the experimental restoration site. Slow groundwater addition was more effective in creating a saline conditions and generating salt crusts in the surface soil
- Saline groundwater addition increased CO₂ fluxes likely due to physical and chemical dissolution and desorption of inorganic carbon from the soil particles. Thus, alteration of soils by increasing salinity will affect carbon cycling (and storage) in addition to altering the saline characteristics (finding 1)
- Salinity and temperature affected the germination rates. Salinity inhibited germination rates of all six targeted species. High salinity (26-30ppt) suppressed the germination rates significantly and highest germination rate reached only 8%. They found that the April thermo-period (5°C night-20°C day) stimulated germination rates for most saline species in this study. It was particularly favorable to Sea blite germination
- Plant species richness decreased as salinity increased at the experiment site, mainly due to suppressed growth of terrestrial and freshwater wetland species. At Mid and High salinity treatments, target saline species became dominant in the plant communities. Spearscale and Sea blite were the most abundant saline species in all salinity treatment plots, which is consistent with the results of germination experiment. Saltwort emerged only in the Mid-salinity level plots



Source: Biogeochemical controls on saline wetland plant establishment in Nebraska's Eastern Saline Wetlands, Draft Final Report (March 2016)

Based on their research findings, they concluded that continuous addition of middle range salinity (i.e. 26-30ppt) in the soil surface would create favorable habitat to saline species. For best results, they also recommend slow application of middle salinity range groundwater and saline species seeding by April in Lancaster County, Nebraska (i.e. temperature range: min. 5°C, max. 20°C).

ENDANGERED SPECIES

Efforts of the SWCP are to protect, restore, and manage the rare and unique saline wetland habitat and not just endangered species. The Salt Creek tiger beetle and Saltwort plant are indicator or bio species where their presence in Nebraska's eastern saline wetlands can indicate certain environmental conditions, such as soil type, pollution levels, etc. Therefore it is imperative the SWCP helps to monitor the endangered species of these wetlands for conservation efforts, as well as monitoring other indicator species.



The Salt Creek tiger beetle (*Cicindela nevadica lincolniana* Casey) was listed a state endangered species in 2000 and Federal endangered species on October 2005. It is endemic to the saline wetlands in Lancaster and southern Saunders counties. Saltwort (*Salicornia rubra*) is a state listed endangered species. In Nebraska, the Saltwort is only found in these saline wetlands.

The final revision to designate 1,110 acres of critical habitat for the Salt Creek tiger beetle was approved on May 5, 2014. Critical habitat is identified along four streams that still contain sufficient potential habitat to support viable populations of Salt Creek tiger beetle; Little Salt Creek, Rock Creek, Oak Creek, and Haines Branch Creek. The Little Salt Creek unit includes the three remaining populations, while the Rock, Oak, and Haines Branch Creek units are currently unoccupied. The designation consists of stream corridors with exposed salt seeps and salt flats that provide habitat for the species, and surrounding vegetative areas that provide food resources and shade. It is estimated the critical habitat can support at least six viable populations of Salt Creek tiger beetles and will ensure recovery of the species.

The critical habitat units include land under private ownership, lands owned by the Nebraska Game and Parks Commission, the City of Lincoln, the Lower Platte South Natural Resources District, and Pheasants Forever. Approximately 29 percent of the critical habitat is protected from future disturbance by conservation easements or fee title land acquisitions as a result of a conservation plan developed in 2003 by Nebraska Game and Parks Commission, City of Lincoln, Lancaster County, Lower Platte South Natural Resources District, and The Nature Conservancy.

Salt Creek Tiger Beetle Research

The following research information provided by:

Stephen M. Spomer
Entomology Department, University of Nebraska-Lincoln

Robert R. Harms
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service

2015 Salt Creek tiger beetle Surveys & Research

Field Collection and Rearing- 2015:

Recovery permits authorize pairing of male and female Salt Creek tiger beetles. Pairs originated from wild Salt Creek tiger beetle larvae that were produced and overwintered in 2014-2015; no pairs were collected from the wild in 2015. Male and female pairs were placed in rearing chambers at Omaha's Henry Doorly Zoo and Aquarium where they bred and later laid eggs. The adults were returned to the collection sites after mating and egg-laying had occurred in ten days. Progeny from these adults are being reared by Omaha's Henry Doorly Zoo and Aquarium, Lincoln Children's Zoo, and UNL.

Population Estimates for 2015:

The first sighting of a Salt Creek tiger beetle adult was on June 18, 2015. Preliminary surveys began on June 20, 2015. Population estimates were conducted between June 26, 2015 and July 8, 2015. All adults had disappeared by August 11, 2015. A total of 174 Salt Creek tiger beetles were counted, which was a slight increase in adult numbers from 2014.

Re-introduction Efforts

To assist with the re-introduction of Salt Creek tiger beetles reared in the zoos, seven data loggers, commonly referred to as HOBO units, were purchased in 2014 and placed at locations where the beetles were released or locations which have future potential for release. The HOBO units monitor soil temperature at various depths and soil moisture just below the soil surface throughout the year.

In order to monitor the beetle release locations and gather data from the HOBO units the U.S. Fish and Wildlife Service and Nebraska Game and Parks Commission worked with the Nebraska Master Naturalist program. Volunteers worked in pairs throughout the summer at each location; visiting the sites where releases occurred on a weekly basis and those sites with HOBO units monitoring saline wetland habitat for potential release on a monthly basis. The U.S. Fish and Wildlife Service and Nebraska game and Parks Commission conducted training for the Nebraska Master Naturalist volunteers on May 23, 2014.



In 2015, approximately 416 larvae of the Salt Creek tiger beetle reared in 2014 were released in the spring and another 275 in the fall. Twenty-three adults were released to test adult reintroduction methods. This was accomplished through a cooperative captive rearing program among the USFWS, NGPC, UNL, Omaha Henry Doorly Zoo and Aquarium, and the Lincoln Children Zoo. Researchers monitor the released larvae.

SUMMARY OF SALINE WETLANDS AND SOILS PROTECTED (2001-2015)

In order to preserve and restore these wetlands, an Implementation Plan for the Conservation of Nebraska's Eastern Saline Wetlands was completed in 2003. This plan identifies four Landscape Objectives, which establish projection and restoration targets for the conservation of the Eastern Saline Wetlands. A summary of acres acquired through fee-title acquisition since 2001 by the SWCP is provided below. Acres of saline wetlands that have been acquired but have not yet been restored and conservation easements are not provided in the table summary.

LANDSCAPE OBJECTIVE	ACRES OF WETLAND PROTECTED OR RESTORED
1 – Permanently protect 100% (148 acres) of intact Category 1 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained	43.3
2 – Restore and Protect 80% (1,412 acres) of unprotected degraded Category 1 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained	288.5
3 – Restore (to intact Category 1 wetlands) and protect 50% (167 acres) of unprotected Category 3 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained as intact Category 1 wetlands	62.0
4 – Restore (to intact Category 1 wetlands) and protect 50% (2,360 acres) of unprotected current non-wetland areas on saline hydric soils so that they become intact and sustained Category 1 saline wetlands	287.4
TOTAL	681.3

Source: Ted LaGrange and Rachel Simpson of the NGPC, 2014

EDUCATION



The Lower Platte South NRD provides opportunities for local schools to visit the saline wetlands to learn about saline wetland soils, vegetation, and hydrology. Students also examine invertebrate health within the wetlands and in streams to indicate stream health. In 2015, nearly 300 students from the local area had field visits to the Whitehead Saline Wetland, which is owned and managed by the NRD. Students enjoyed netting for insects and dipping in Little Salt Creek!

The Coordinator continues to present “saline wetland jeopardy” to fifth grade students attending the Earth Wellness Festival. Other presentations were given to local groups, UNL classes and conservation agencies.

Groundwater Foundation National Conference tour of Saline Wetlands

On October 22, 2015 several participants of the Conference participated in the tour “Salt Brings New Life – Nebraska’s Eastern Saline Wetlands.” This was sponsored and led by the Lower Platte South Natural Resources District. The tour visited Marsh Wren Community Wetland Area and learned about the preservation and restoration of the saline wetlands and the biota, research being conducted to better understand the ground water system sustaining the saline wetlands, Federal and State endangered species, and the conservation challenges of the Saline Wetland Conservation Partnership in a growing urban landscape. In cooperation with the NGPC and the USFWS and assistance from Lincoln’s Children Zoo they also were able to release 25 larvae of the federal endangered Salt Creek tiger beetle at Arbor Lake.



RECENT FUNDING RESOURCES

- Federal Section 6 – In 2012, the NGPC through the U.S. Fish and Wildlife Service was awarded \$270,000 for the acquisition of a property containing saline wetlands. This funding was used for the acquisition of the Norder Tract in 2014.

In 2013, the NGPC through the U.S. Fish and Wildlife Service was awarded \$190,300 for the acquisition of a property containing saline wetlands. The funding remains available for land acquisition of saline wetlands.

- A grant was submitted to the Nebraska Environmental Trust in 2011 for the “Eastern Saline Wetlands Project – 2012.” The grant was approved in the amount \$1.4 million for land acquisition, restoration, and planning activities for a three year grant period. To date, \$895,000 has been expended. The grant has received two one year extensions to accommodate permit approval for the Marsh Wren wetland restoration project. The permit has been received and construction will commence in 2016. The grant period terminates on June 30, 2017.
- In 2012, The Nature Conservancy and the Lower Platte South Natural Resources District amended a previous grant agreement to specifically build, enhance and/or maintain effective ecological stewardship of the saline wetlands. Beginning June 30, 2012 and through July 1, 2019 The Nature Conservancy will disburse \$7,500 annually contingent upon corresponding disbursement of matching funds from the Lower Platte South Natural Resources District for the Project.
- In 2002, the Nebraska Game and Parks Commission obtained a *2001 State Wildlife Grant* from the U.S. Fish and Wildlife Service entitled “Eastern Nebraska Saline Wetland Conservation Partnership”. The grant award was for \$620,000. The grant has been used to fund a variety of planning and implementation activities for the Partnership, including land acquisition, wetland restoration, wetland management, equipment purchases, and support for the Coordinator position. The grant funds have been spent and the grant was closed in 2015.
- A grant was submitted to the Nebraska Environmental Trust in 2015 for the “Eastern Saline Wetlands Project – 2016.” The grant was recently approved in the amount \$795,000 primarily for wetland restoration/engineering/management and planning activities for a three year grant period.

SUMMARY OF OTHER COORDINATOR ACTIVITIES

- Participant of the U.S. Corps of Engineers Nebraska inter-agency wetland group.
- Attended meetings regarding City and County projects regarding construction activities scheduled near or on saline wetland areas
- Presentations on saline wetlands and the partnership to Nebraska Department of Natural Resources staff, participants of the Nebraska Natural Legacy Conference, and the LPSNRD Recreation, Forestry, and Wildlife sub-committee
- Land management – Supervision of seasonal employees, annual saline wetland discussions with agency land managers, and noxious weed and woody vegetation control and GPS location identification at saline wetland sites.
- Toured saline wetland areas with USFWS regional representatives, NGPC staff, Platte Basin timelapse team, and National Groundwater Conference attendees
- Youth education – presented and participated in the Earth Wellness Festival, UNL Career Day, and assisted with regional High School Land Judging competition
- Participated in several meetings and discussions regarding 27th Street Right-of-Way acquisition on Frank Shoemaker Marsh with County Roads and the NGPC
- Attended NET roundtable discussion and Nebraska Natural Legacy Conference
- Provided site management for UNL Biogeochemical research project at Arbor Lake
- Worked with USFWS and NGPC on endangered species monitoring regarding equipment needs, re-introduction site locations, accessibility issues for Master Naturalist teams to gather monitoring information, and participated in release of endangered species
- Toured saline wetland areas with several agencies and local zoos regarding endangered species recovery habitat for re-introduction and participated in monitoring discussions with the Master Naturalist and USFWS
- Provided comments to USFWS on draft Salt Creek tiger beetle Recovery Plan
- Marsh Wren restoration project - Provided assistance to LPSNRD, review engineering proposals, site visits, and attended open house
- Completed CPR/first-aid certification and City Federal procurement training
- Participant of Prairie Corridor technical advisory committee; completed one management plan, provided oversight for native seed planting, and correspondence with adjacent landowners meeting.

- Participant and core team representative of Nebraska Wetland Assessment grant project
- Miscellaneous grant administration and participation in grant applications through conservation agencies regarding wetland projects
- Upper Little Salt Creek Saline Wetland Plan – Attended and assisted with Open House, contract modification
- Met with landowners and had several discussions with agency personnel regarding security at the Frank Shoemaker Marsh parking lot
- Worked with City legal counsel in the development of Waiver, Release, and Access Agreements for private grazing and cropping of City owned land; executed agreements with two cooperators
- Initiated and completed Inter-local Agreement for the SWCP from 2015 through 2019 between the City of Lincoln, LPSNRD, and the NGPC
- Met and discussed with NGPC the digitalization of saline wetland historical slides and photos
- Completed Management Plan for Jack Sinn WMA addition
- Submitted one year extension request for 2012 NET grant (approved) and wrote and submitted 2016 NET grant for the “Eastern Saline Wetlands Project – 2016”
- Work with landowners, fund administrators and agency representatives regarding land acquisitions

SALINE WETLAND PROPERTIES

- **Frank Shoemaker Marsh** – 27th Street and Bluff Road
Size: 160 acres
Purchase price and date: \$472,000 on June 12, 2003
Funding sources: 2001 State Wildlife Grant through the
USFWS (\$222,000)
2002 NET grant (\$250,000)
Owner: City of Lincoln

Activity summary – Noxious weed removal continued and included the documentation of several new plots of Phragmites. Bridge entry-points built up due to settling of soil. Assisted Master Naturalist on Bluebird box management; re-located four nesting boxes

Several monitoring wells installed by UNL are monitored. The total number of wells includes three shallow wells (15-30 feet), three intermediate wells (60-90 feet), and one with deep well (~180 feet).

Lancaster County Roads Department identified location of right-of-way, which is to be acquired along the east side of property along 27th Street in 2015. This would include tree removal and replacement, fence removal and re-installation, and parking lot modification. Work is expected to commence in 2016.

- **Dakota Springs** – South of Arbor Road and East of 27th Street
Size: 68.7 acres
Purchase price and date: \$204,700 in January 2004
Funding sources: Federal Section 6 (\$153,525)
2002 NET grant (\$51,175)
Owner: City of Lincoln

Dakota Springs Extension Purchase (Dial Realty, 7.45 acres)
Purchase price and date: \$48,500 on December 31, 2008
Funding source: Federal Section 6

Activity summary – Noxious weed and woody vegetation removal continued. Continue work on musk thistles in 2015. HOB0 Unit with soil temperature and surface water probes installed to provide information on saline wetland habitat.

Monitoring wells installed by UNL and are monitored. The total number of wells in place includes two shallow wells (15-30 feet) and two intermediate wells (60-90 feet).

- **Warner Saline Wetlands - 98th Street and Interstate 80**
 Size: 140 acres
 Purchase price and date: \$298,580 on December 7, 2004
 Funding sources: Federal Section 319 (\$179,148)
 LPSNRD (\$43,043.20)
 SWCP (\$76,388.80)
 Owner: LPSNRD

Activity summary – Noxious weed control and woody vegetation removal continues with honey locust and cedars. South property was grazed. North parcel is a youth mentor hunt site.

- **Little Salt Creek Wildlife Management Area – 1st Street and Raymond Road**
 Total Size: 256.5 acres
 Purchase price and date: \$476,000 in June 2004 (original 156 acres)
 Funding sources: Federal Section 6 (\$276,000)
 2004 NET grant through NGPC (\$200,000)
 Owner: NGPC

Noble Tract Extension - Along Little Salt Creek, between Mill Road and the southern boundary of the original Little Salt Creek Wildlife Management Area. (100.5 acres)

Activity summary – Prescribed grazing and haying of upland was conducted. Cedar removal and noxious weed control continues. HOBO Unit with soil temperature and surface water probes installed to provide information on saline wetland habitat (Noble tract). Platte Basin timelapse camera located.

Monitoring wells were installed by UNL and are monitored. The total number of wells includes three shallow wells (15-30 feet) and three intermediate wells (60-90 feet).

- **Little Salt Creek West Wildlife Management Area – South of Branched Oak Road between NW 12th and 1st Streets**
 Total Size: 220.0 acres
 Purchase price and date: \$979,000 on October 9, 2009
 Funding sources: Federal Section 6 (\$560,000)
 2005 NET Grant (\$42,838.58)
 2008 NET Grant (\$366,250.42)
 Ducks Unlimited (\$10,000)
 Owner: Nebraska Game and Parks Commission

Activity summary – Prescribed grazing was conducted. Cedar removal and noxious weed control continues. Food plots were established and ground previously farmed was planted with natives. HOBO Unit with soil temperature and surface water probes installed to provide information on saline wetland habitat.

- **Arbor Lake Complex** – North of Arbor Road and east of 27th Street.
 Total Size: 132.5 acres
 Owner: City of Lincoln

Arbor Lake Extension Purchase (Anderson Property, 69.2 acres)

Purchase price and date: \$361,710.67 on September 1, 2004
 Funding source: 2002 NET grant through City of Lincoln

Activity summary –Wetland restoration construction was completed in May 2012. Post-restoration monitoring is continual. Three HOBO units with soil temperature and surface water probes installed to provide information on saline wetland habitat. Research project completed.

Monitoring wells installed by UNL are continually monitored. The total number of wells includes three shallow wells (15-40 feet) and two intermediate wells (60-90 feet).

- **Little Salt Springs** – NW 12th Street and Branched Oak Road
 Size: 123 acres
 Purchase price and date: \$472,188 on July 31, 2007
 Funding sources: Lower Platte South NRD (\$187,960.35)
 2005 NET grant (\$227,227.95)
 Partnership Funds (\$57,000)
 Owner: Lower Platte South NRD

Activity summary – Continue to control noxious weeds and woody vegetation with emphasis on phragmites along west side of Little Salt Creek. HOBO Unit with soil temperature and surface water probes installed to provide information on saline wetland habitat.

- **Marsh Wren** – Between 40th and 56th Streets and north of Salt Creek
 Total Size: 80.0 acres
 Purchase price and date: \$320,000 on May 27, 2009
 Funding sources: Lower Platte South NRD (\$25,000)
 SWCP (\$25,000)
 City of Lincoln floodplain acquisition funds (\$178,000 (\$89,250 each from the City of Lincoln and the LPSNRD)
 2005 NET Grant (\$91,500)
 Owner: Lower Platte South Natural Resources District

Marsh Wren addition – East of 40th Street and immediately north of Salt Creek

Size: 49.4 acres
 Purchase price and date: \$270,000 on June 19, 2012
 Funding sources: Federal Section 6 (\$135,000)
 2008 NET Grant (\$130,000)
 SWCP (\$5,000)
 Owner: Lower Platte South Natural Resources District

Activity summary – Noxious weed and woody vegetation removal continued. A consultant is progressing on engineering restoration design in 2015. Trees were removed along access easement. Two six-inch salt water wells were constructed (east 216 feet and west 155 feet) to assist with saline wetland enhancement.

- **Allen Parcel** – Between Branched Oak Road and Raymond Road and west of 1st Street
Size: 66.6 acres
Purchase price and date: \$304,000 on February 17, 2010
Funding sources: Lower Platte South NRD (\$76,000)
SWCP (\$75,000)
2008 NET Grant (\$153,000)
Owner: Lower Platte South Natural Resources District

Activity summary – Noxious weed and woody vegetation removal continued.

- **Helmuth Parcel** – South of Mill Road and west of 14th Street
Size: 119.0 acres
Purchase price and date: \$630,000 on November 23, 2010
Funding sources: Federal Section 6 (\$275,000)
2001 State Wildlife Grant through the
U.S. Fish and Wildlife Service (\$131,666.50)
NGPC (\$23,333.50)
Donation from Helmuth family (\$200,000)
Owner: Pheasants Forever, Inc.

Activity summary – Prescribed grazing and haying of upland was conducted. Cedar removal and noxious weed control continues.

- **Jack Sinn Wildlife Management Area (Kreitman addition)** – Between North 70th and North 84th streets and south of Ashland Road
Size: 183.5 acres
Purchase price and date: \$375,000 on June 4, 2014
Funding sources: Nebraska Game and Parks Commission (\$225,000)
2012 NET Grant (\$150,000)
Owner: Nebraska Game and Parks Commission

Activity summary – Noxious weed control and completion of two parking lots

- **Norder Tract** – Between North 14th and North 27th streets and south of Waverly Road
Size: 78.9 acres
Purchase price and date: \$457,000 on September 15, 2014
Funding sources: Federal Section 6 (\$270,000)
2012 NET Grant (\$187,000)
Owner: City of Lincoln

Activity summary – Plug was pulled on the water area in depression on east side. Agreements for grazing (68.5 acres) and row crop (9.8 acres) were completed. Cooperators are responsible for fencing, noxious weeds, and woody vegetation removal.

- **Seacrest Range** (43 acres) – Located west of Folsom Street along both the north and south sides of Rosa Parks Way. The area is owned by the City of Lincoln. Efforts continued to remove woody vegetation and to control noxious weeds (Leafy spurge).
- **Lincoln Saline Wetlands Nature Center** (92.7 acres) – It is located near Capitol Beach in Lincoln. The area is owned by the LPSNRD. Management activities in 2015 were noxious weed control and woody vegetation. Considerable efforts to control Phragmites. Well installed by UNL is monitored for groundwater levels and water quality.
- **Schleich Wetlands** (50.2 acres) – It is located southwest of Little Salt Creek near where it empties into Salt Creek and east of the Northridge subdivision in Lincoln. The area is owned by the LPSNRD. Management activities in 2015 were noxious weed and removal invasive trees. A maintenance bridge was installed on southern drainage area.
- **Whitehead Wetlands** (98.8 acres) – It is located east of 27th street and a short distance south of Interstate 80. The area is owned by the LPSNRD. Management activities in 2015 were noxious weed control and removal of woody vegetation.

Site hydrology modification engineering and construction completed in 2014-2015.

Monitoring wells installed by UNL are monitored. The total number of wells includes five shallow wells (15-30 feet), four intermediate wells (60-90 feet), and one deep well (~180 feet).

- **Little Salt Fork Marsh Preserve** (174.2 acres) – It is located northwest of 1st and Raymond Road and owned by the Lower Platte South NRD. Management activities in 2015 included control of noxious weeds. Discussion continues with Lancaster County regarding Raymond Road Bridge improvements.
- **Jack Sinn Wildlife Management Area** (1,352.3 acres) – Located south of Ceresco in Saunders and Lancaster counties. This area is owned by the NGPC. Management activities in 2015 were noxious weed control, woody vegetation removal, and prescribed fire and grazing. HOBO Unit with soil temperature and surface water probes installed to provide information on saline wetland habitat.

This program has been very successful and continues to accomplish many of the goals of the Implementation Plan for the Conservation of the Eastern Saline Wetlands. Your continued support for the conservation of these natural areas is appreciated. If you have any questions, please contact me at 402-476-2729 or tmalmstrom@lpsnrd.org. You can visit the saline wetland website at <http://lincoln.ne.gov/city/parks/ParksFacilities/wetlands/index.htm>