



The Nebraska Environmental Trust

preserving NATURAL NEBRASKA™ for future generations

2017 PRELIMINARY SUMMARY OF APPLICATIONS

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September 20, 2016

The Nebraska Environmental Trust entered the 2017 grant cycle receiving 130 applications. Applications were either e-mailed or postmarked on September 6th to meet the deadline. Requests in this twenty-fourth year of grants totaled \$68,314,358. The Trust will announce recommendations for funding these applications in February, 2017 and will award grants in April, 2017.

A summary overview of each proposal, as composed by the applicant, is provided for you. Very few editorial changes were made in this information, which was submitted in the application form in response to the question, "Provide an overview of the project for which you seek funding." Project names were assigned by the applicants. Project numbers are assigned by the Trust to facilitate record keeping.

The summaries are presented in alphabetical order by project sponsor name. The nearest town is also shown to indicate the approximate location of each project in the state.

The amount requested and the proposed term of each project is also noted in each summary. The Trust is authorized to fund a project for up to three years under one application review. The review group to which the application has been assigned is also noted in each summary.

In 2016 the Trust issued statements of intent to 52 projects, indicating continued funding for these projects on the basis of the 2015 and 2016 applications. Those projects are included in these descriptions. The project numbers of these applications begin "15" or "16" and end with a dash 2 (16-101-2) or dash 3 (15-101-3) to indicate the second or third year request.

An index of applications by project number is also included with the materials presented in this booklet.

Sponsor Name: AirLift Environmental LLC **Nearest Town:** Statewide
Project Name: Innovative and Cost-Effective Approach to Remediating Contaminated Groundwater in Nebraska **Project No:** 17-110
Amount Requested: \$74,612 **Term of Project Request:** 1 **Review Group:** Water

Clean water is one of the most basic societal needs in Nebraska. Few situations incite more public outcry than when a community learns that their drinking water has been contaminated. Some of the biggest threats to groundwater contamination in Nebraska are from inadvertent releases of industrial chemicals. When contaminant spills are ignored, the size and scope of the problems only become exacerbated with time. In the past decade, significant efforts have been devoted to developing innovative remedial technologies to treat contaminated groundwater. One technology that is relatively mature is the injection of liquid oxidants into contaminated aquifers or in situ chemical oxidation (ISCO). In theory, ISCO works by injecting a chemical oxidant that reacts with contaminants and renders them harmless by turning them into carbon dioxide. Two roadblocks to successfully implementing ISCO treatments are when contaminants are located in low permeable layers and these finer textured zones do not readily accept liquid oxidants or when the aquifer is porous enough for liquid injections but chemical oxidant sinks due to density. To address problems, AirLift Environmental and the University of Nebraska developed slow-release oxidant-wax cylinders (i.e., oxidant candles) that, when inserted into groundwater, slowly dissolve and degrade the contaminants. To prevent the oxidant from sinking from the candles, a system was developed that bubbles air at the base of the candle and "Lifts" the oxidant up while greatly facilitating its horizontal distribution. Results from this technology have been very promising and AirLift is currently collaborating with the University of Nebraska by setting up multiple demonstration sites. To complement these demonstrations, AirLift Environmental is seeking funding to acquire a gas chromatograph-mass spectrophotometer (GC-MS) for its laboratory. This equipment will allow AirLift to quickly detect and develop remedial treatments for multiple clients throughout the state and further develop its innovative technologies.

Sponsor Name: American Lung Association in Nebraska **Nearest Town:** Omaha
Project Name: Nebraska Green Schools Challenge **Project No:** 17-170
Amount Requested: \$87,865 **Term of Project Request:** 2 **Review Group:** Education

The American Lung Association of the Upper Midwest dba American Lung Association in Nebraska (ALANE) is a nonprofit organization dedicated to improving air quality and lung health. Through indoor and outdoor air quality initiatives, ALANE has achieved quantifiable pollution reductions to save lives through lung health improvement and lung disease prevention. In the Nebraska Green Schools Challenge, ALANE will encourage students, faculty, staff and other groups to coordinate efforts in reducing the impact of climate change on their community. This is imperative as climate change will make it harder to reduce ozone and particulate, posing serious risks to those suffering from lung health issues. The purpose of the Nebraska Green Schools Challenge is to educate and promote environmental stewardship within school districts in the Lincoln and Omaha areas. Students, faculty and staff will be eligible to submit paper and video applications for a locally-focused air quality project that will increase public awareness and knowledge of climate change. Among other categories, such as creativity and cost effectiveness, the applications will be scored on their ability to promote and implement greenhouse gas and air pollution reductions; research, design or foster best management strategies; and actions to inform and educate their local community, per the air quality funding category. The top five projects will each receive \$10,000 to implement their proposed project. The goal of the Challenge is to provide the catalyst for students to create an environmentally-responsible project, engage multiple groups within the community, and provide participants with the skills to make informed environmental decisions in the future. ALANE is asking The Nebraska Environmental Trust to fund the administrative, travel, supply and school awards. The total requested funding from The Nebraska Environmental Trust is \$87,865 over a 2-year period. ALANE will match \$36,379.30 including the negotiated 22% indirect cost rate and personnel.

Sponsor Name: Arthur Betterment Authority**Nearest Town:** Arthur**Project Name:** Arthur Community Center**Project No:** 17-219**Amount Requested:** \$10,000**Term of Project Request:** 1**Review Group:** Urban Habitat

The Arthur Betterment Authority (ABA) is developing a new Arthur Community Center. With funds from the Nebraska Environmental Trust, the ABA will develop the landscape surrounding the new community center using native plants, trees, rocks and other natural groundcover materials and implement water saving techniques. It is the goal of the ABA to not only beautify the surroundings of the new community center, but to also protect the delicate ecosystem of the Sandhills using native vegetation.

Sponsor Name: Bird Conservancy of the Rockies formerly RMBO**Nearest Town:** Multiple**Project Name:** Playas and Plovers: Watershed Conservation in Western Nebraska**Project No:** 17-205**Amount Requested:** \$469,032**Term of Project Request:** 2**Review Group:** Rural Habitat

In 2001, Bird Conservancy of the Rockies and Nebraska Game and Parks Commission established a collaborative effort focusing on bird and habitat conservation on private lands in cooperation with landowners in western Nebraska. Our collaborative efforts targeted species and landscapes within the agriculture dominated landscape that are influenced by row-crop practices including Mountain Plover nesting habitat and playas. Specifically, we confirmed Mountain Plovers nesting on farmlands, a declining species in western Nebraska, subsequently, worked with landowners to develop an innovative nest-marking effort to save nests, and help preclude listing under the Endangered Species Act. Our efforts also identified conservation needs for playa wetlands, critical habitats supplying water for irrigation, habitat for wildlife, and recharge water for the Ogallala Aquifer. Across 15 years our conservation efforts for Mountain Plovers have identified the Nebraska population to be 10% of the U.S. continental population, and helped protect over 800 nests on 200,000 acres. We also have conducted research on playas and upland habitat, learning that longterm impacts of traditional farming through playas and inadequate buffers results in less water for farmers and drinking water for communities, impacting food production and community sustainability for future generations, and diminishing the quality of wildlife habitat. To complement work started in 2001, we propose to use Trust funds to continue our Mountain Plover and playa conservation programs. Outcomes expected from these actions include: -Quantifying the investment with landowners for Mountain Plover conservation on farms by assessing the current population and continuing conservation strategies. -Enrolling new landowners annually into nest-marking as a conservation strategy for private lands conservation, mark 80-100 nests to save an estimated 200-400 chicks per year. - Identifying playas most in need of conservation and targeting outreach strategies for landowners. - Targeting of 400 playa acres (~10 playas) for sediment removal and native grass planting.

Sponsor Name: Bird Conservancy of the Rockies formerly RMBO **Nearest Town:** Minatare
Project Name: Facilitating Local Habitat Stewardship through Place-based Outreach and Education in the Nebraska Panhandle **Project No:** 17-210
Amount Requested: \$384,843 **Term of Project Request:** 3 **Review Group:** Education

The Nebraska Natural Legacy Project (NNLP) states that environmental education, nature recreation and viewing are critical components of the shortgrass prairie ecoregion conservation strategy. Bird Conservancy of the Rockies and the Nebraska Game and Parks Commission (NGPC) have a long-standing partnership that advances that conservation strategy through environmental education in the Nebraska Panhandle. Our place-based programs connect Nebraskans with local environments and wildlife to foster a sense of awareness and appreciation while helping people understand and address threats to Nebraska's at-risk species and biologically unique landscapes (BULs), and empowering them to be knowledgeable stewards of Nebraska's lands, wildlife, and habitats. With support from the Nebraska Environmental Trust (the Trust), Bird Conservancy and NGPC will implement a comprehensive environmental education program that will reach all eleven counties within the Panhandle and serve a minimum 4,500 students and 2,500 adults each year. Your financial support will allow us to a) continue offering educational programs with a demonstrated track record of success; b) develop and implement new offerings that meet area educational needs; and, c) recruit and retain an additional full-time educator to support the growth of these programs. Current programs include educational bird banding stations, workshops, Panhandle Eco-Extravaganza about Prairies (PEEP), nature clubs, citizen science programs, camps, nature nights, International Migratory Bird Day (IMBD) events, and mountain plover programs. New programs will include a Nebraska "at-risk species" library series, habitat clean-up events, birding by canoe, and additional summer camps for a variety of ages. By offering a broad range of programs, we are providing various entry points for citizens to become engaged in conservation and multiple ways for them to sustain their involvement. We believe that facilitating opportunities for lifelong learning is an integral first step towards increased habitat stewardship of Nebraska's biologically unique landscapes.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Mead
Project Name: Improving air quality by reducing methane emissions from cattle **Project No:** 15-116-3
Amount Requested: \$69,800 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The ability of methane to capture heat in the atmosphere 21 times more efficiently than CO2 has made methane a more potent greenhouse gas (GHG). Among the major sources of methane production, ruminants account for a considerable fraction of the human related methane produced, where, enteric fermentation by ruminants is considered the single largest source of methane production worldwide. At the heart of methane production is a microbial food chain. The microscale processes of these microbes are greatly influenced by the diet. Therefore understanding the interactions between diet, methane released and the microbial community structure in different cattle production systems is critical towards the mitigation of methane production. In addition, the release of energy as methane from the ruminant animal is an energy loss to the animal. Therefore methane mitigation in ruminant can help retain more energy within the animal towards increasing animal performance while decreasing GHG emissions. Therefore, our goals are to develop and demonstrate science-based dietary intervention strategies to reduce greenhouse gas emission from cattle in ruminant production systems. The technical milestones of this proposal address the practical aspects involved in developing dietary intervention strategies to reduce GHG emissions while increasing animal performance. These include: identification and characterization of complex microbial populations in the rumen; evaluating animal performance; and measuring methane emission in beef and dairy cattle production systems under different dietary treatments to achieve maximally efficient production. As such, this project will discover ways a beef or dairy cow can convert or save some of the energy lost as methane and convert that into weight gain, milk production, etc. allowing the producer to improve the profitability of their operation. Additionally, outreach attempts will result in science-based producer friendly extension curricula, which will help translate the results of this project into the statewide production systems. THIS PROJECT WAS FUNDED \$168,424 IN 2015 WITH THE INTENT TO FUND UP TO \$101,074 IN YEAR TWO AND \$69,800 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Improving Access to Social & Environmental Sustainability Resources for Nebraska Farmers **Project No:** 15-157-3
Amount Requested: \$50,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

A recent report from the University of Nebraska-Lincoln outlined the potential for significant expansion of the livestock industry in Nebraska in the coming decade, a concept strongly supported by the Nebraska Department of Agriculture. With the exciting prospect of substantial economic and employment growth in our state that would accompany increased agricultural production comes a necessity to provide producers with knowledge and capabilities to expand and establish agricultural production operations in an environmentally and socially responsible manner. Three basic needs exist when considering establishment or expansion of crop and livestock production systems: environmentally and socially responsible site selection; knowledge and ability to assess and manage potential environmental risks; and ability to identify and satisfy applicable local and state regulatory requirements. This project is intended to develop and deliver products and educational programming to Nebraska producers that will enable them to assess potential environmental and social risks on their operations, identify relevant practices to address their potential risks, and successfully comply with regulatory requirements. The primary expected outcomes are a significant increase in the number of agricultural producers and associated stakeholders who understand and are equipped to manage environmental and social risks associated with agricultural production systems, a significant improvement in the ability of producers to navigate and comply with required state and local regulations for construction and operation of animal feeding operations in Nebraska, and more efficient delivery of the required land application training required by NDEQ for personnel working on permitted livestock production operations in the state. THIS PROJECT WAS FUNDED \$100,000 IN 2015 WITH THE INTENT TO FUND UP TO \$50,000 IN YEAR TWO AND \$50,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Alliance
Project Name: Working with rural students to document swift fox on Nebraska Ranches **Project No:** 15-202-3
Amount Requested: \$62,277 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The loss and alteration of native grasslands has resulted in significant reductions in habitat availability for grassland obligate species such as the swift fox (*Vulpes velox*). Identified as a Tier 1 at-risk species, swift fox are estimated to occupy 21% of their historic range, but the exact distribution and relative health of swift fox populations in Nebraska remains in question. The Nebraska Game and Parks Commission (NGPC), the Nebraska Department of Roads (NDOR), and the U.S. Forest Service (USFS), in collaboration with the University of Nebraska-Lincoln (UNL) and Chadron State College (CSC) have begun an effort to document the occurrence of swift fox and identify the anthropogenic and ecological factors that limit their distribution. However, in a state which is 97% privately owned, such an endeavor is extremely challenging because access to land ultimately limits inference about swift fox populations and thereby management efficacy. Using a unique approach which incorporates landowners in the conservation process we will send undergraduate students back to their family ranches to survey for swift fox. Many students in range management, wildlife biology, and similar conservation majors at CSC and UNL are from working ranches in Western Nebraska, which presents us with a unique opportunity to allow students to realize their conservation interests on their family lands and assist NGPC, NDOR, and USFS in facilitating the conservation of a Tier I species. Our project will train students and work with them to set camera 'traps' on their family lands each spring and fall. By surveying for swift fox on private lands we will add significantly to our understanding of what is limiting this rare species in Nebraska; moreover, because camera traps attract a multitude of species, we document and thereby aid in the management of other species of conservation concern here in Nebraska. THIS PROJECT WAS FUNDED \$87,810 IN 2015 WITH THE INTENT TO FUND UP TO \$60,670 IN YEAR TWO AND \$62,277 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Natural Legacy Exhibits and Virtual Field Trip Outreach for Morrill Hall, Trailside, and Ashfall **Project No:** 16-114-2
Amount Requested: \$591,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The University of Nebraska-Lincoln requests \$425,000 to complete the \$11.4 million “Cherish Nebraska” project to redevelop the fourth floor of the University of Nebraska State Museum (UNSM)’s historic Morrill Hall. Funding is requested for the “Nebraska Natural Legacy Project (NNLP): Ecoregions and Biodiversity” exhibits which – coupled with other new science education galleries featuring weather and climate, water and soils, parasitology, and paleontology – will use state-of-the-art interactive exhibit technology and visualizations to engage visitors in understanding Nebraska’s habitats, Biologically Unique Landscapes, and biodiversity through time. An additional \$574,000 is requested for related educational programming, including installation of new connectivity to link the UNSM’s branch museums at Ashfall and Trailside to Morrill Hall and to schools via the Network Nebraska-Education telecommunications network. The sites will serve as platforms for live two-way videoconferencing for Virtual Field Trips (VFTs) linking UNSM’s attractions and research collections to schools across Nebraska, and fiber optic connectivity at Ashfall will make possible streaming video feeds showing fossil excavation in real time. VFTs from the UNSM’s three locations will be offered on a fee basis through the Center for Interactive Learning and Collaboration, through which schools and providers worldwide can post and request distance learning content – further expanding educational audiences for Nebraska’s unique, world-class natural history attractions. Because the NNLP, Platte Basin Timelapse Project, and Cedar Point Biological Field Station will feature prominently in the Cherish Nebraska exhibits, this proposal offers an unprecedented opportunity to showcase products of previous Trust-funded projects in public museum exhibits designed to be of Smithsonian quality, and to have them incorporated in VFTs aligned with state education standards. The expected outcome is that by helping visitors appreciate our remarkable inheritance of ecosystems and biodiversity, we expect to encourage habitat stewardship today to ensure this legacy can be passed to the care of future generations. THIS PROJECT WAS FUNDED \$233,000 IN 2016 WITH THE INTENT TO FUND UP TO \$591,000 IN YEAR TWO AND \$175,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Field to Market - Nebraska Field Sustainability Assessment **Project No:** 16-187-2
Amount Requested: \$15,185 **Term of Project Request:** 3 **Review Group:** Statement of Intent

National Ag Statistics Service lists Nebraska farms accounting for 91% of Nebraska’s land with farms covering 43.2 million acres. With such a large amount of land controlled by farmers the sustainability on these acres is critical to overall sustainability. A first step toward a more sustainable agriculture sector is to quantify the sustainability of the supply chain. A diverse group of 80 private and public stakeholders have cooperated to develop the Field to Market sustainability initiative for commodity crop production including a tool to aid in quantifying sustainability from crop fields. From this effort came the Fieldprint calculator tool. We want to work with farmers to use the tool with a goal of increased sustainability. We will use the tool with farmers, individually and in groups. The tool will enable farmers to quantify and visualize the sustainability of their fields. The Fieldprint Calculator assesses sustainability in the areas of land use, conservation, soil carbon, irrigation water use, water quality, energy use, and greenhouse gas emissions. We will use this information to help farmers enact change in farming practices which reduce inputs and increase sustainability. The tool enables farmers to compare their sustainability metrics with peers using local, state and national averages. Farmers have noted value in completing this tool as a way to visualize the abstract idea of sustainability. This grant will provide funding for three undergraduate interns (one per year for three years) who will work directly with producers in data acquisition and then follow through with data processing and communication of results. The results will be presented to farmers at a one day workshop as well as in personal communication. Our previous work with the Fieldprint Calculator has provided excellent results with 45-85% of participating farmers planning to change their practices in the areas assessed to improve sustainability. THIS PROJECT WAS FUNDED \$15,587 IN 2016 WITH THE INTENT TO FUND UP TO \$15,185 IN YEAR TWO AND \$15,510 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Enhancing Soil Ecosystem Services with Cover Crops **Project No:** 16-189-2
Amount Requested: \$83,039 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Enhancing soil ecosystem services is becoming more important than before to meet the increasing demands for food, feed, fiber, and fuel production. One of the strategies to enhance such services could be the use of cover crops. Yet, the potential multi-functionality of cover crops under different cropping systems and soil types, particularly in Nebraska has not been widely studied. Thus, the objectives of this project are to quantify soil ecosystem services of cover crops and determine whether or not cover crops ameliorate negative effects of crop residue removal for livestock or biofuel on soil services in rainfed and irrigated croplands in Nebraska. We will conduct this project at two UNL research sites and one farmer’s field in eastern, southeastern, and south central Nebraska. Two sites are rainfed and one is sprinkler irrigated. Treatments at the research sites include 5 corn residue removal rates (0, 25, 50, 75, and 100%) and three rye cover crop treatments (control, early and late termination dates) under no-till continuous corn. The treatments at the on-farm site are control and winter rye, oats, radish, and turnip cover crops under no-till corn-soybean-winter wheat rotation. We will measure wind and water erosion potential, water quality parameters, compaction, soil structural quality, hydraulic properties, soil temperature, soil biological and chemical quality and fertility, gas fluxes, soil carbon sequestration, cover crop biomass, and crop yields. We will also analyze economics of cover crop use. This project will contribute to a better understanding of cover crop benefits on soil ecosystem services in both rainfed and irrigated systems in Nebraska. It will benefit farmers, livestock producers, researchers, environmental agencies, and others because it has agronomic, environmental, social, and economic implications. We will also monitor and evaluate the impacts of the project and disseminate results through conferences, field days, extension publications, and journal articles. THIS PROJECT WAS FUNDED \$84,607 IN 2016 WITH THE INTENT TO FUND UP TO \$83,039 IN YEAR TWO AND \$84,825 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Know Your Well: A Program for Agricultural Education and FFA Students **Project No:** 16-190-2
Amount Requested: \$134,118 **Term of Project Request:** 3 **Review Group:** Statement of Intent

“Know Your Well” is a program designed for assessing the quality of drinking water derived from rural domestic wells. We propose a “crowd sourced” study utilizing this program, in which four high school Agricultural Education programs and FFA (previously known as Future Farmers of America) chapters will be selected to conduct a water sampling program for rural domestic wells in the first year and covering all 12 districts (16 schools in total) during the three years of the project. Each of the chapters will be given a test kit for measuring water parameters and will be trained on how to use them. The students and teachers also will be trained on collecting information about the well and various anthropogenic parameters that might influence the quality of water from those wells. Some of these parameters include type of well, status of the seal of well at land surface, topographic position of the well, distance of the well from cropland, types of crops grown and chemicals applied, and presence of animals within the property, etc. A customized mobile app will be developed for ease of data entry and visualization. The information will be stored and analyzed at a University of Nebraska-Lincoln (UNL) secure server. The collected water samples will be analyzed for Nebraska specific pesticides, nitrate and coliform bacteria by faculty and staff at UNL collaborating laboratories. The researchers will analyze the gathered data and the well testing results to determine parameters that seem to have most effects on well water quality. Annual workshops will be conducted at UNL to provide FFA students and teachers with feedback, updates, interaction with UNL faculty and staff, and project results. Once the project is finalized, the potential application of the method to other school districts with verification sampling will be explored in the next phase. THIS PROJECT WAS FUNDED \$127,546 IN 2016 WITH THE INTENT TO FUND UP TO \$134,118 IN YEAR TWO AND \$137,216 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Integrating the vadose zone for improved management of Nebraska's ground water quality **Project No:** 16-200-2
Amount Requested: \$130,213 **Term of Project Request:** 3 **Review Group:** Statement of Intent

In Nebraska, most of the rural population on farms, cities and towns, rely on ground water for drinking. Unfortunately, nitrate concentrations in ground water in many parts of the state are rising. In addition to nitrate, some pesticides and even uranium and other metals may be found to be increasing across the state. While the state and local agencies have conducted regular ground water monitoring, very little work has been done to characterize the vadose (unsaturated) zone. The vadose zone acts like a "skin" of the earth, regulating recharge and chemical movement. Contaminants present in the vadose zone may eventually appear in the underlying aquifers. If found in public water supplies, a utility must either treat the water or find an alternative supply should these contaminants exceed the maximum contaminant levels. While there have been ad hoc approaches to characterize nitrate in shallow soils and even in deeper vadose zone, little has been done to coordinate contaminants occurrence and movement in the vadose zone, which can be hundreds of feet thick. We propose here an integrated and on-line program using GIS mapping and database of quality assessed data from past and ongoing studies of Nebraska's vadose zone. This publicly assessed database will be used by numerous state and local entities for decision making and preparation for future changes in water quality. The quality assessed data will contain chemical and hydraulic properties of the cores taken from the vadose zone. Linkages to existing databases, such as the quality-assessed agricultural chemical database, will permit water managers and others to make correlations with occurrence with what is present in the vadose zone. We have leveraged resources from various entities and the NET funding help put individual efforts to a robust product for wide use in Nebraska. THIS PROJECT WAS FUNDED \$146,000 IN 2016 WITH THE INTENT TO FUND UP TO \$130,213 IN YEAR TWO AND \$107,414 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Multiple
Project Name: People, Terns and Plovers of Nebraska: Sharing the Sand **Project No:** 17-115
Amount Requested: \$195,318 **Term of Project Request:** 3 **Review Group:** Education

Habitat management and species protection for ESA-threatened Piping Plovers (*Charadrius melodus*) and ESA-endangered Interior Least Terns (*Sterna antillarum*) must often be done in areas used by people for jobs, housing, and recreation. Balancing the competing needs of people and these legally protected species is an on-going challenge that too often results in conflicts between birds, property owners, industry, regulatory agencies, and private individuals. Bridging the gap between birds and people by engaging all concerned parties in Nebraska is what the Tern and Plover Conservation Partnership (TPCP) does best. We work with terns, plovers, and people at sand and gravel mines, lakeshore housing developments, and dredging operations along the lower Platte, Loup, and Elkhorn rivers. Recent analyses demonstrate the importance of the work the TPCP does--the persistence, recovery, and eventual delisting of the Platte-Missouri River plover metapopulation depends on the reproductive output of birds nesting at mines and housing developments along the lower Platte River. The metapopulation has a very low likelihood of extinction over the next 100 years (nearly 0%) if the birds can depend on the stable, secure nesting habitats they find at sand and gravel mines and lakeshore housing developments. The extinction probability reaches nearly 48% if only nesting on river sandbars is considered. The continued presence and efforts of the TPCP to protect, manage, and monitor these areas will help ensure the survival of these two remarkable species and the people who share the landscape with them. The TPCP is a valuable member of the conservation community; there is a continuing need for the presence of the TPCP in protecting people, terns, plovers, and their habitats in Nebraska. We are asking the NET to help us continue our work by supporting our program coordinator and student interns.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Ashland
Project Name: Biological Monitoring of Restored Chutes in the Lower Platte River **Project No:** 17-140
Amount Requested: \$76,237 **Term of Project Request:** 3 **Review Group:** Rural Habitat

Nearly all rivers throughout the world have experienced some degree of human-induced alteration. The degradation of flowing systems has led to the decline in biodiversity and has prompted many researchers to initiate various restoration projects in an attempt to restore and preserve biological communities. Restoration projects are challenging however, and many projects have not had the foresight to collect pre-restoration data, or maintain post-monitoring efforts to determine the true affects the project has on the ecosystem. Flood-plain habitats (i.e., chutes) were recently restored on the Nebraska Army National Guard (NEANG) training facility grounds near Ashland, Nebraska. A previous grant obtained from the NEANG provided funding to monitor the biological community and physical changes in the chute prior to and following construction. The restored chute was immediately transformed from a simple, non-native fish community to a diverse fish community consisting of many riverine species, including shovel nose sturgeon and shoal chubs, which have been identified as species of special concern. Although these findings were significant, it is important to continue to monitor these results as the physical properties of the chute continues to evolve. Continued monitoring will provide the necessary information to determine the effectiveness of creating floodplain habitat and may provide the template for future mitigation and restoration activities with in Nebraska and elsewhere. We seek funds from the Nebraska Environmental Trust to support the collection of fish and macroinvertebrates from University personnel.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Nebraska’s water footprint: sustainability indicator to support informed water decisions **Project No:** 17-144
Amount Requested: \$134,424 **Term of Project Request:** 2 **Review Group:** Water

Both natural factors such as drought and human factors such as unsustainable use of water have heightened the competition for water between agriculture, energy, industry, human use, and the environment. Public and private decision makers cannot prevent droughts, but they can develop strategies to reduce unsustainable water use. Making better choices in using and managing the limited water resources require better understanding of the economic and environmental consequences of the different alternatives. The need to support more informed decision-making on water issues, therefore, has placed considerable importance on collecting and generating water use data of the different sectors of the economy and measuring water scarcity. The proposed study aims to assess the current and past water footprint (WF) of different sectors of the economy at different spatial (catchment/basin, NRDs, county, and state) and temporal (intra/inter-annual) scale, develop a WF database of products (crops, livestock and industrial products), and assess water scarcity. WF assessment provides transparency in water accounting and informs decision-makers in the evaluation of effectiveness of different measures. Information on WF of products or processes will also help producers evaluate trade-offs between inputs (e.g., water, energy, or other substitutes) and encourage consumers to shift their purchases to less water-intensive products. Water footprint assessment, therefore, leads to an informed and efficient water allocation by ensuring a balance between water supply and consumption for sustainable economic development of the state. It will also help in the implementation of the NRDs’ Integrated Management Plan (IMP) by providing the required information to limit water demands (basin cap setting) or to use it more efficiently (setting benchmarks for water-use activities). The result can be integrated into the INSIGHT Tool of Nebraska DNR. The WF calculator and the database will also be freely available through a website to the general public and other researchers.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Multi-Purpose Field Deployable PCR System for Environmental Control **Project No:** 17-148
Amount Requested: \$209,380 **Term of Project Request:** 3 **Review Group:** Water

E. coli is used as an indicator of pathogenic contamination of surface waters and the Nebraska Department of Environmental Quality (NDEQ) has established water quality criteria to protect human health during recreation in water. The majority of Nebraska’s surface water impairments result from E. coli exceeding the water quality criteria. Currently, E. coli are detected using culture-based methods that involve logistical and time constraints. A field-deployable PCR system will be developed and tested in conjunction with scientists from NDEQ to evaluate its efficacy as an alternative method to test for the presence of E. coli in water sources across the state. Since PCR is a DNA test, it can aid in determining the sources of the E. coli, which will provide information necessary to correcting the impairments. The field-deployable system consists of two instruments with easy work-flow between them. The lyser can process four water samples at a time. A novel element of the lyser is our own-manufactured super paramagnetic nanoparticles (NPs) coated with a poly-cationic polymer. A small amount is used per lysis step (150 µg) but the huge surface area facilitates the capture of DNA molecules – consequently sensitivity is superb. The captured DNA is transferred to the second instrument – the PCR amplifier. DNA products of the four samples are detected in real time after three to five minutes. Cost is low – consumables cost approximately \$1/cuvette and the lyser+PCR (once commercialized) are estimated to be \$4,000. Processing times are ten to twenty minutes. Both instruments operate from batteries, have dimensions similar to a shoebox and weigh less than ten pounds. The cold chain is minimal –enzymes are lyophilized and other reagents are stored in a cooler. Due to the versatility of PCR, this system will find applications in environmental forensics and detection of other organisms.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Nebraska Master Naturalist Program: Volunteers in Action **Project No:** 17-152
Amount Requested: \$203,778 **Term of Project Request:** 3 **Review Group:** Education

The Nebraska Master Naturalist (MN) Program provides Nebraska citizens an opportunity to contribute to natural resource conservation through meaningful science-based volunteer experiences. The MN Program began in 2009 through a public and private partnership that recognized Nebraska’s conservation agencies and organizations have limited resources and capacity for proactively managing natural resources. Over the last seven years, the MN Program has established a highly motivated workforce of 336 volunteers, or Certified Master Naturalists, that are actively contributing to at-risk species conservation, restoring native habitats, preventing degradation of waterways, and improving waste management. Their impact has been substantial. Master Naturalists have contributed 40,148 hours to conservation action on over 2800 projects in Nebraska which translates to a value of \$945,886 in salary savings to natural resource agencies and organizations. The Master Naturalist Program’s positive reputation and workforce is growing and Master Naturalist volunteers are experiencing increasing requests for their service. Currently the demand for volunteer services far exceeds current volunteer capacity. The goals of this proposal are to increase number of new certified master naturalists by 90 over the next three years; support the established Master Naturalist Community through continuing education on advanced topics; empower local, coalesced workforces to conserve Nebraska's natural resources by providing at least 7,500 hours of volunteer service that support at least 20 conservation organizations or agencies, and reach over 15,000 individuals by informing and educating citizens about natural resource conservation; and increase program sustainability.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Shade Our Streets (SOS) – Mitigating the Impact of EAB **Project No:** 17-154
Amount Requested: \$546,416 **Term of Project Request:** 2 **Review Group:** Urban Habitat

Shade Our Streets (SOS) is a statewide, two-year initiative, designed to prepare communities for the impact of Emerald Ash Borer (EAB) by promoting and investing in intensive tree planting demonstrations, innovative resource management, community capacity building and public education. Nebraskan communities are home to 83% percent of the state’s population, and community inventories document that Nebraska has lost up to 50% of its community tree resource in recent decades due to extreme weather events, diseases, insects and human neglect. Replanting has not kept up with these losses. These chronic factors, combined with more frequent and intense weather events and new invasives threaten to degrade the resource further if actions are not taken. Of great concern is the recent confirmation of EAB in Nebraska and the impact and expected loss of the 896,000 ash trees in communities. The Nebraska Forest Service is requesting \$546,416 to strategically target funding for the SOS Initiative. SOS will strategically target funding and technical assistance for public tree planting and education with sustainable community forest management practices in targeted communities. The program will enable at least 75 different demonstration SOS projects; plant up to 8,000 large-maturing trees (with eventual annual benefits of up to \$855,000); educate at least 4,000 Nebraskans about proper tree planting and management practices; and engage and empower at least 500 volunteers and resource professionals in proper planting and tree care. The program will be a multi-partner collaboration with NFS the Nebraska Statewide Arboretum, Nebraska Community Forestry Council, natural resources districts, Nebraska's green industry, NE 150 Initiative and participating communities statewide. If funded, the program will leverage more than \$1,000,000 in matching funds from a wide-variety of sources and partners. The program will advance each of the Trust’s funding priorities with a special emphasis on Habitat, Surface and Ground Water and Air Quality.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Improving Natural Resources Through Invasive Species Outreach & Management **Project No:** 17-155
Amount Requested: \$136,856 **Term of Project Request:** 3 **Review Group:** Education

The Nebraska Natural Legacy Project identifies invasive species as a key stressor in Nebraska. Invasive species are a current and growing threat to Nebraska’s natural resources and economy, and have widespread impacts for a variety of users, including: ranchers, farmers, sportspersons, power industries, municipalities, irrigation systems, fisheries, and recreationalists. Natural resource users and land managers are key audiences to target to prevent the spread of invasive species and increase management efforts. The program will target invasive species of concern to the Nebraska Invasive Species Advisory Council, a group of experts and stakeholders which serves as an advisory council to the Legislature, especially eastern red cedar which is threatening ranching livelihoods and natural resources in the state. The program will be instituted by the Nebraska Invasive Species Program, a grant funded program that is a partnership of state, federal and NGO resource agency partners, and including members of the public appointed by the Governor. Deliverables will include interpretive displays, printed materials, attendance and presentations at state and regional meetings, content on the Nebraska Invasive Species Program's website, landowner surveys on invasive species management efforts and a minimum of 3 land manager workshops in various locations of the state. The program will: 1) Decrease the risk of invasive species introduction by targeted messaging, training and outreach across multiple user groups, 2) Evaluate landowner management of eastern red cedar across the state, 3) Conduct eastern red cedar landowner management workshops and outreach and 4) Increase local and regional collaboration in the prevention and control of invasive species. This program will increase momentum towards preventing the spread of invasive species into and across Nebraska. We are initiating a multi-institutional program that will, in the long run, save millions of dollars and help to preserve Nebraska's natural resources.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Establishing a Peer-to-Peer Engagement Program for Conservation of Nebraska's Natural Resources **Project No:** 17-168
Amount Requested: \$32,000 **Term of Project Request:** 1 **Review Group:** Education

The University of Nebraska-Lincoln (UNL) continues to be better steward of Nebraska's ecology and environment. Despite continuous growth in student population and campus space, UNL's greenhouse gas emissions are declining, diversion of solid waste from landfill is increasing, better storm water management practices are in place, and we are seeing increased volumes of recycling and composting. These practices are direct result of UNL's focus on resource use efficiency. However, a series of recently conducted internal surveys and research at UNL demonstrates that university can achieve more in terms of lowering energy use, increase recycling, lowering water use, more diversion away from landfill by providing right information, training and engaging faculty, staff and students in the process. Through the Nebraska Environmental Trust grant, UNL aims at establishing a one-year pilot program to study the potential of smart and sustainable peer-to-peer engagement in improving Nebraska's air, water, soil quality. The program will be administered by the Office of Sustainability (OS). The OS plans to use local expertise in establishing best management practices, prepare educational materials, recruit and train volunteers, and establish "Green Teams" at different departments and academic units. The trained volunteers will serve as first line of contact in terms of information dissemination, developing norms around sustainable behaviors like energy conservation, water conservation, recycling and composting. By the end of the study period the OS aims at producing tangible results not only in increased solid waste diversion and lowering GHG emissions but also in increased involvement and education of our faculty, staff and students in sustainable behaviors. The program has significant potential in scaling the process and practice to other Nebraska communities and institutes of higher education. All the training materials prepared and report generated by the end of the study period will be made publicly available through our website.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: STEM education and citizen science: occurrence of terrestrial microplastics in Nebraska **Project No:** 17-173
Amount Requested: \$135,935 **Term of Project Request:** 2 **Review Group:** Education

This project is seeking support for STEM education materials development and a citizen science program aimed at participants from K-12 classrooms across the state of Nebraska to help identify and catalogue the occurrence of terrestrial microplastics in soil, sediment and water from across the State of Nebraska. The underlying rationale of this proposed study is that a citizen science program designed for K-12 participants across the state of Nebraska will engage students and encourage future STEM discovery, especially if the topic of the citizen science data collection is cutting-edge and develops connections between Nebraska and global environmental issues. In this two year project, we will develop educational materials and recruit classrooms to participate in a statewide citizen science program and develop an interactive web-based database of microplastics data. This project will impact a number of state agencies interested in water quality and water quality education including the Nebraska Department of Education, the Nebraska Department of Natural Resources and the Department of Environmental Quality.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Sidney
Project Name: Using High-Carbon Char as an Amendment for Improving Soil Productivity and Environmental Quality **Project No:** 17-175
Amount Requested: \$347,334 **Term of Project Request:** 3 **Review Group:** Soil Management

Application of soil amendments with high carbon (C) concentration can be a strategy to improve soil and environmental quality and sustain crop production. High-C char (30% C), a by-product of sugar beet processing by the Western Sugar Cooperative, could be a potential amendment to restore the soil C levels and improve soil health, particularly in degraded soils with low organic matter and low pH. This by-product has essential nutrients and negligible amounts of heavy metals; and is slightly basic (pH=7.7). This project will quantify the impacts of the high-C char on environmental parameters (soil erosion, water quality, C sequestration, and nutrient leaching), crop yields; soil properties; soil fertility, and others on five sites including low organic matter sandy loams and low pH soils across rainfed and irrigated systems in Nebraska. We will use three farmer's fields and two UNL research sites for 3 years. Five replicated treatments: a) control (no char), b) 5, c) 10, d) 20, and e) 30 tons/ac of char application will be used. About 600,000 tons of high-C char is available and more will be produced each year. We will measure environmental parameters (water erosion, water quality, wind erosion, C sequestration, nutrient leaching), crop yields; soil physical, chemical, and biological properties; soil fertility, and others. Western Sugar provided some funding in 2015 to collect exploratory data for two sites near Scottsbluff, NE. The initial exploratory data will be critical to expand this char project to the whole state with the support from the Nebraska Environmental Trust. We will analyze economics of char use. This project will benefit farmers, researchers, environmental agencies, and others because it has agronomic, environmental, social, and economic implications. We will disseminate results to producers, researchers, and others through social media, journal and extension articles, and field days.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Valentine
Project Name: Niobrara forest health and services in the face of climate variability and extremes **Project No:** 17-179
Amount Requested: \$339,734 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The forests along the Niobrara River, one of the most treasured natural features of the State, are ecologically unique to North America and host diverse tree habitats. Niobrara forests provide many vital ecosystem services benefiting Nebraskans, such as habitat for threatened terrestrial and aquatic wildlife and migratory birds, carbon storage, protection of soil and surface and ground water health, and many recreational activities, as well as the revenue that they generate. These functions, however, are threatened by climate-related stressors, including increasingly damaging fires, pest outbreaks, and long-term climate warming and drying. There is little longitudinal data on tree populations to link forest changes to these environmental drivers, but these data are critical for effective management and protection of the public and ecosystem services of Niobrara forests. This project's objectives are to establish a set of permanent forest monitoring plots spanning Niobrara forests in order to: (1) estimate how rates of tree growth, survival, and reproduction respond to changes in water availability, temperature, pest-pressure, and fire, (2) build statistical models to predict and forecast changes in forest health and services, (3) develop adaptive management plans to mitigate potential threats, and (4) develop a citizen-science engagement program to educate Nebraskans about value of Niobrara forests. Our project will enhance the Nebraska Legacy Plan's goals by forecasting the future of Niobrara forests, which can guide conservation actions. We will conduct workshops on modeling forest dynamics for prediction, focused on managers from the region. Managers will thus be better positioned to quantify the effects of future disturbances, such as imminent pest outbreaks (emerald ash borer), on Niobrara forests. The forest plots will be a valuable platform for other research in the Niobrara, particularly for at-risk wildlife populations, enabling effective management of an ecologically unique system of great conservation, recreational and economic importance to Nebraska.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Excellence in Ag Sciences: Invasive Species and Habitat Management **Project No:** 17-180
Amount Requested: \$201,990 **Term of Project Request:** 2 **Review Group:** Education

As Nebraska’s population and agricultural development increase, wildlife habitat can be lost with the potential for plant and animal species to be negatively impacted. Conversion of land is not the only threat to Nebraska’s wildlife habitat, invasive species, pollution, loss of pollinator species, and over use of natural resources negatively affect the quality of wildlife habitat. Many wildlife conservation initiatives help to conserve natural habitats, flora, and fauna. The Nebraska Natural Legacy Project promotes a program that allows volunteers to be proactive and put conservation practices into place. The Nebraska Game and Parks Commission has programs designed to restore habitat that has been degraded over time. Excellence in Ag Sciences Day is a professional development program designed to place emphasis on the science within agriculture. This annual summer in-service is held in the eastern and western parts of Nebraska to accommodate agricultural teachers. The structure of Excellence in Ag Sciences Day will expand its focus to include current wildlife management related research, specifically in the areas of invasive species, ecological relationships, Integrated Pest Management (IPM), and habitat loss/restoration. Due to the focus on wildlife management related issues, it is anticipated that approximately 100 agricultural teachers will participate in this event. During year one of this program the conference will be one day in length and held in two locations to accommodate participants. Year two of the program will feature an expanded conference that includes two nights lodging, and a day and a half of programing. Two locations will be used during year two and possible locations include but are not limited to the following NE state parks: Niobrara, Lake McConaughy, Fort Robinson, and Mahoney. To further enhance the reach of this program, approximately 30 extension educators will be invited to participate and share information in their communities.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Improving the Health of Manured Soil through Solarization **Project No:** 17-186
Amount Requested: \$305,537 **Term of Project Request:** 2 **Review Group:** Soil Management

Under the Soil Management funding category, this proposal is designed to develop a best management practice to remove contaminants in soil following the land application of livestock manure. Livestock manure is a renewable source of the vital nutrients for crop growth, as it is rich in phosphorus, nitrogen, and organic matters. However, livestock manure also contains contaminants such as pathogens, antibiotics and antibiotic resistance genes. Pathogens in soil can contaminate nearby water sources and crop plants. Antibiotic resistance genes are the genetic materials that confer antibiotic resistance to bacteria, while antibiotics cause the emergency and spread of antibiotic resistance genes. Antibiotic resistance has been recognized as a threat to public health and environmental quality. Hence, the objectives of this proposed work are to (1) quantify the effectiveness of solarization on killing pathogens, reducing antibiotic resistance genes, and degrading antibiotic residues in soils following the land application of livestock manure; and (2) develop educational programs to teach undergraduate students and train high school teachers and students on soil conservation and environmental quality. Greenhouse studies will be conducted to test the effectiveness of solarization, which simply employs transparent plastic covers and relies on passive solar heating to increase soil temperature. Elevated soil temperatures are expected to kill bacteria, including those that are pathogenic and that contain antibiotic resistance genes, and accelerate antibiotic degradation. Soils will be collected from different parts of Nebraska. These representative soils will be tested individually in greenhouse studies. Findings from the project will be used to develop course modules about manure management for undergraduate students in Lincoln and Omaha. In addition, every summer high school science teachers will be recruited to participate in the greenhouse study at UNL, and a 1-day camp will be held for high school students to learn about manure management practices and environmental quality.

Sponsor Name: Board of Regents, University of Nebraska**Nearest Town:** Lincoln**Project Name:** Reducing Green House Gas Emissions**Project No:** 17-190**Amount Requested:** \$382,991**Term of Project Request:** 3**Review Group:** Air Quality

Methane is a potent greenhouse gas (GHG). Among the major contributors of methane production, ruminant livestock is considered as the largest source of human related methane. At the heart of methane production in ruminants is a microbial food chain. The microscale processes of these microbes greatly contribute towards methane production. Therefore understanding the rumen microbial population and controlling the microbes involved in methane production will lead to reduce methane emission from ruminant livestock. Rumen is a competitive environment where rumen microbes compete with each other for nutrients. Therefore certain microbes in the rumen produce inhibitory compounds/molecules against other microbes including microbes involved with methane production. Identifying microbes that are inhibitory to methane producing microbes and increasing their abundance within the rumen can result in less methane and better air quality. Therefore, our goal is to develop and demonstrate science-based intervention strategies to reduce greenhouse gas emission from cattle, by using microbial species that inhibit methane production in the rumen. This strategy will reduce the use of antibiotics in ruminant livestock and also decrease GHG emissions from cattle. The technical milestones of this proposal address the practical aspects involved in developing probiotic microbial strains as feed additives to reduce GHG emissions while increasing animal performance. These include: isolation and characterization of microbial species from the rumen; evaluating the effectiveness of the microbial isolates in reducing GHG emissions; and measuring methane emission in cattle production systems using the microbial isolates identified to reduce methane emission to achieve maximally efficient production. As such, this project will discover ways a beef or dairy cow can conserve energy that would otherwise be lost as methane. Additionally, outreach attempts described will result in science-based producer friendly extension curricula, which will help understand air pollution and methods to reduce GHG emissions in ruminant livestock.

Sponsor Name: Board of Regents, University of Nebraska**Nearest Town:** Lincoln**Project Name:** Utilization of Eastern Red Cedar Trees for Production of High Quality Mesoporous Carbons**Project No:** 17-191**Amount Requested:** \$256,449**Term of Project Request:** 3**Review Group:** Air Quality

Biomass materials can be used for producing a wide range of value-added products including biofuels and bioproducts. This project focuses on developing an alternative new process for higher value use of lignocellulosic biomass, eastern red cedar, for production of high quality of mesoporous carbons which is in great demand. Eastern red cedar trees can grow on a wide variety of soils and tolerates salt and harsh climatic conditions. This adaptability causes rapid and widespread expansion of these trees that result in a serious ecological and economic concern. There is a need to investigate new utilization pathways for beneficial products from these invasive trees, control their rapid expansions and improve Nebraska's economy at the same time. In the present project, eastern red cedar woods components will be converted to high quality mesoporous carbons (well-ordered mesoporous structure) alternative to use of phenolic types of resins as precursors. Hydrophilic non-ionic co-polymers surfactants (e.g. Pluronic F127) will be mixed with eastern red cedar components (lignin+carbohydrates in the hydrolysate or only lignin) in tetrahydrofuran solvent in acidic medium. After drying process, the solid residue left over will be carbonized at high temperature under N₂ gas flow. Physical and chemical activation techniques will be applied for activation of mesoporous carbons and improved their quality. A techno-economic assessment of utilizing eastern red cedar for high quality mesoporous carbon will also be conducted. High quality mesoporous carbons will be promising materials for many applications including supercapacitor applications as well as adsorbents, catalysts, and energy storage materials. On the other hand, partially removing of invasive eastern red cedar trees from the lands for production of this bioproduct (larger scale production in near future) will cause positive impacts on environment and wildlife habitat. The productive grasslands that were converted to eastern red cedar forest in the past will be regained.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Brule
Project Name: Comprehensive Project on Cover Crops and Grazing Annual Forages in Western Nebraska **Project No:** 17-192
Amount Requested: \$475,343 **Term of Project Request:** 3 **Review Group:** Soil Management

Cover crops have been grown in the eastern Corn Belt and Nebraska for many years. It is widely thought that cover crops have the potential to provide many benefits in a cropping system including preventing erosion, improving soil's physical and biological properties, supplying nutrients, suppressing weeds, improving availability of soil water, enhancing deep percolation of precipitation, aquifer recharge and increasing beneficial insects while breaking pest cycles. This comprehensive multi-disciplinary project will examine the effects of including cover crops in a rainfed cropping system and grazing annual forages in comparison to continuous corn in a rotation relating to operational costs (input, logistical, and water supply) and benefits (marginal profit, beef production, forage production, water supply, water quality, soil management and weed management). Yearling cattle will be grazed on large plots to determine average daily gain and carrying capacity of the forages. Small plot research will determine the production and quality of 10 species/mixtures of cover crops at three locations. Soil water status will be measured and the water balance of growing cover crops will be determined to investigate possible water quantity and quality impacts on surface and groundwater resources. The fundamental goal of this project is to enable producers in water limited areas to make informed decisions in their financial, soil, and water management relating to the use cover crops and grazing of forages. This project will fill a void in the research of growing cover crops and grazing a forage mixture in an irrigated system. The knowledge gained by this study is leveraged by developing and sharing information and providing educational opportunities in central and western Nebraska through new and existing outreach of UNL-Extension faculty and staff. Two annual field days will be held, one near Brule, NE and one on a collaborating site near Culbertson, NE.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** North Platte
Project Name: Strengthening Irrigation and Nitrogen Management Through the Use of Soil Water and Electrical Conductivity Measurements **Project No:** 17-193
Amount Requested: \$165,548 **Term of Project Request:** 2 **Review Group:** Water

Practicing poor or ineffective irrigation and nitrogen (N) management can have a negative impact on the quality and quantity of water resources as well as the environmental and financial sustainability of an area. To minimize the degradation of our soil and water resources it is imperative that best management practices and new technologies are adopted to improve irrigation and N use efficiency. Several soil and water conservation and University Extension programs promote the use of soil water monitoring equipment for irrigation scheduling and crop reflectance sensors for in-season N management, which results in different sensors being utilized for the two practices. The use of a single sensor to aid in both irrigation and N fertilizer management would help offset cost for technology adoption and would help promote conjunctive water and N fertilizer management. In Nebraska, the adoption of electromagnetic (EM) sensors that measure/estimate soil water content, temperature, and electrical conductivity (EC) has increased primarily for irrigation management with little attention provided to the EC measurement. Soil EC is a proxy for the amount of salts present in the soil from natural processes as well as from applied fertilizer and irrigation water. Through on-station and on-farm research, soil EC response to changes in nitrate (NO3-N) availability across different soil types, temperatures, and water content ranges will be evaluated to determine the suitability of using soil water and EC measuring devices for conjunctive water and N fertilizer management. This will provide value to existing soil water sensors' EC measurements that are currently being underutilized as well as mitigate some of the challenges of using crop reflectance-based sensors.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Grand Island
Project Name: Super Soils & Wonderful Waste **Project No:** 17-194
Amount Requested: \$452,000 **Term of Project Request:** 1 **Review Group:** Soil Management

This application addresses the TRUST CATEGORY AREAS in SOIL MANAGEMENT and WASTE MANAGEMENT by proposing an integrated expansion of Raising Nebraska: Your Food and the Families Who Grow It. Specifically, this application proposes an expansion of the Living Soil exhibit and the Leveraging Livestock exhibit to create a synergistic educational experience focused on the connection between soil health and waste management, and particularly the role of livestock waste in building productive soils. This new educational experience will allow Raising Nebraska to achieve three main objectives: 1) strengthen the connection between the food we eat and the soil in which it grows, 2) further expand the concept of nutrient cycles – from soil to people, and 3) compare and contrast different ways to augment farm soils and agricultural production through strategic management of livestock waste. Two existing exhibit areas within the Raising Nebraska space on the Nebraska State Fairgrounds will be expanded and enhanced: “Living Soils,” which debuted at the 2016 Nebraska State Fair utilizing NET funds, and “Leveraging Livestock,” a significant expansion of the animal agriculture space, which includes information on beef, dairy, pork, and poultry production. This application proposes a synergistic, integrated approach that focuses on an important cross-pollination between two major content areas of Raising Nebraska. This integrated approach mirrors the “systems” thinking that is prevalent in today’s agricultural and natural resources management, and will highlight the key fact that the stories of soil health and waste management are connected. Integrated exhibits will help visitors visualize and connect those dots.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Beneficial Insects of Nebraska **Project No:** 17-196
Amount Requested: \$296,189 **Term of Project Request:** 3 **Review Group:** Education

Beneficial insects provide critical ecological services such as pollination (bees, butterflies, beetles), pest control (natural enemies), nutrient cycling (dung beetles, soil dwellers), and biological indicators (aquatic insects) of the quality of our environmental surroundings. Therefore, protecting beneficial insect communities is vitally important in the preservation of our ecosystem and sustainability of land and wildlife stewardship. Just as important is the ability to assess the impact of conservation efforts and establishing metrics for improving research and educational programming to maximize cost-effectiveness and reduce redundancy. The Beneficial Insects of Nebraska Project directly supports the development and implementation of the Beneficial Insect Protection Plan (BIPP) for the state of Nebraska. The BIPP is a collaborative and concerted effort among UNL and dozens of private/public, industry, small business, and citizen partners to develop best management guidelines, educational programming, and outreach that ensures Nebraska maintains healthy beneficial insect communities and sustainable ecosystem services. The two objectives of the Beneficial Insects of Nebraska Project are: 1) To establish baseline information about the status of beneficial insects including their abundance and diversity in biologically unique, urban, and agriculturally managed landscapes throughout Nebraska. This is so landscape enhancement and restoration projects to improve pollinator habitats may be assessed and improved. 2) To develop a centralized web-based interactive library that will organize conservation resources and coordinate efforts among BIPP partners. The library will provide research-based information, educational tools, and outreach programming for beneficial insects, ecosystem services, and ways to protect them and engage the public, researchers, educators, industries, land managers, regulatory agencies, and other interested parties. Our project partners include: the Nebraska Game and Parks Commission (NGPC) and the Nebraska Wildlife Federation (NWF). We are requesting \$296,189 from the Nebraska Environmental Trust for this three-year project. The University of Nebraska-Lincoln and project partners will provide \$466,309 in-kind match.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Lincoln
Project Name: Source identification of pesticide contamination inside farmhouses and possible solution **Project No:** 17-198
Amount Requested: \$132,239 **Term of Project Request:** 2 **Review Group:** Air Quality

This project will focus on collection, identification and elimination of pesticide residues inside farmhouses to reduce or eliminate the health risks posed on children and other residents. In Nebraska, a majority of land is used for agricultural purposes and a critical portion of the population works in or close to crop fields. To ensure high yield, pesticides, mainly herbicides and insecticides, are applied in massive amounts, leading to high level of their exposure among farm workers and their families. As reported by many literature, the pesticide concentrations in urine of children were usually higher than that in urine of adults, due to high amounts of indoor pesticide residues. Meanwhile, increasing numbers of research indicated the widely used pesticides, e.g., glyphosate, s-metolachlor and cyfluthrin, which used to be regarded non-harmful to human, might substantially disrupt endocrine system and have potential to induce reproductive problems. Therefore, it is imperative to identify sources of indoor pesticides and develop methods for their reduction or elimination. In Year 1, collection, identification and removal of pesticides from protective clothes, which might have close proximity to applicants with the highest amounts of pesticide residues will be carried out. Though a number of research on removing pesticides via laundering have been done in 1990s, conduction of new laundering research is still necessary, as the dominating pesticides are different from 1990s, and the washing machine are using 50% less water than 1990s. In Year 2, collection and identification of indoor pesticides from different sources, mainly incoming air, protective and daily clothes, upholstery surface and carpets will be conducted, and approaches for maximum reduction of indoor pesticides will be proposed. Completion of the project will remarkably reduce pesticide hazards and improve the quality of life of farm residents, especially children, in Nebraska.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Increasing Awareness of Soil Health Improvement Resulting from No-Till Practices **Project No:** 17-203
Amount Requested: \$270,268 **Term of Project Request:** 3 **Review Group:** Soil Management

Soil health is important to farmers, the environment and society. A healthy soil is critical for maintaining productivity, regulating and partitioning of water and solute flow, filtering and buffering against pollutants, and storing and cycling nutrients. Although farmers are aware of the general benefits of no-till, many do not know whether their current tillage practices are maintaining, enhancing or degrading soil health. The aim of this project is to increase awareness of soil health improvement from implementing no-till practices through monitoring procedures that involve farmers' participation. The project proposes to involve 80 no-till farmer cooperators in conducting a regular soil tests to assess current soil health conditions, record changes in soil health, record crop yield, and compare fields and management practices. The results will be used in outreach programs to provide data driven information that will increase awareness of soil health improvement from implementing no till practices. We will use the NRCS soil quality test kit to assess the soil health status. The project results will be analyzed to track changes of soil health parameters over time, compare soils under different years of continuous no-till practice, and demonstrate the effects of no-till practices on soil health. The results will be disseminated through several outlets including scientific manuscripts, education and outreach publications, and presentations at local, state, and professional national meetings. The project objective is aligned with the Nebraska Environmental Trust mission to improve environment through responsible stewardship of the natural resources.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Management of Eastern Redcedar for Ecological, Agricultural and Educational Benefits **Project No:** 17-204
Amount Requested: \$140,444 **Term of Project Request:** 3 **Review Group:** Rural Habitat

While Eastern Redcedar is native to Nebraska, its ability to thrive in many soils and under a broad range of climatic conditions has contributed to its designation as an invasive species that is “infesting” the state’s grasslands. The environmental, ecological, economic, and social threats posed by Eastern Redcedar tree encroachment are substantial and relevant statewide. Multiple agencies in Nebraska continue to focus efforts on the issue of Eastern Redcedar encroachment; however, landowners bear the majority of the burden to act on controlling cedars. The goal of this project is to demonstrate value-added uses for woody biomass that can help offset the cost of tree management activities and encourage landowners to manage Eastern Redcedars for ecological preservation, wildlife habitat protection, fire prevention, and water resources conservation. The proposed project will leverage resources and utilize current and new relationships among UNL researchers, Nebraska Extension, Natural Resource Districts, the USDA-ARS, the Nebraska Forest Service, landowners, and secondary school agricultural program participants to: expand the demonstration of woody biomass application as a valuable land treatment practice that can help offset the cost of tree management activities; encourage landowners to manage Eastern Redcedars for ecological benefits; quantify the impacts of woody biomass land treatments on water and nitrate transport in soil; and improve science literacy and student understanding of research methods, soil health improvement practices, information transfer, and related career opportunities in Nebraska. Student-led demonstration plots and outreach activities throughout Nebraska will support intended outcomes of demonstrating the value woody biomass value as a land treatment for improved soil health and encouraging landowner management of Eastern Redcedar trees.

Sponsor Name: Board of Regents, University of Nebraska **Nearest Town:** Statewide
Project Name: Physical Dimension of Ecosystems’ Risk of Extreme Hydrometeorological and Climate Events in Nebraska **Project No:** 17-208
Amount Requested: \$511,334 **Term of Project Request:** 3 **Review Group:** Education

A major challenge to ecosystem integrity and the sustainable development of local and global ecosystems and human activities is the future availability of water. Considering that the spatial distribution and temporal variability of water availability is regulated by integrated moisture and energy exchanges among the atmosphere, land surface and the ocean, an improvement of the predictability of extreme hydrometeorological in Climate events (EHCEs) can contribute to ecosystem resiliency and sustainability. The present proposal goal is to improve the predictability of HCEs’ and the associated ecosystems’ risks in Nebraska. The objective is to build a conceptual framework that integrates modeling and data to estimate vulnerability, exposure and hazard indices. Indices will be tested within a diagnostic and prognostic timeframes and hydrologic and spatial geopolitical contexts (Basin-, Natural Resources District-, and county-scale). Expected uncertainties, sensitivities to modeling parameters spatiotemporal contexts will be identified and characterized. We expect to provide data and information on ecosystems resiliency relevant to decision and policy makers, as well as researchers and general public. Also, data and information will contribute to design and planning projects to adapt to climate change in the state, preserving (natural and human-built) ecosystems.

Sponsor Name: Board of Regents, University of Nebraska - Omaha **Nearest Town:** Bennington
Project Name: Glacier Creek North Tract Initiative **Project No:** 17-153
Amount Requested: \$1,330,000 **Term of Project Request:** 3 **Review Group:** Urban Habitat

The Glacier Creek Preserve: North Tract Initiative is a \$1,330,000 proposal over three years to purchase the remaining 101+ acre North Tract located adjacent to Glacier Creek Preserve, an ecosystem-level, community education and research facility. The North Tract contributes to this resource having both long- and short-term benefits central to maintaining a functioning ecosystem into the future, one that connects a metropolitan population to its rural heritage through education, research, and personal experience. A private donor will provide the funds necessary to complete the purchase should this proposal be approved. Long-term benefits include (1) providing a buffer to facilitate active management of the land, including current prescribed burning and future large-animal grazing, (2) protecting the sub-surface hydrology that maintains creeks, springs, and seeps and the wildlife they support throughout the preserve, and (3) expanding both the habitat diversity and the size of the preserve to meet the ever-increasing use of the preserve by a diversity of public and private educational and other groups, organizations, and individuals. Additional benefits include the connection of the preserve to a historic wetland habitat and an expansion of a portion of the upland adjacent to those on which Native American artifacts were recently found. Less tangible benefits include improvement of water quality, reduced soil erosion, and a degree of flood control. This submission supplements NET's 2013 Grant (No. 14-140). Importantly, and to varying degrees, the acquisition of the North Tract meets all five of the NET's Feature Program criteria. A 2015 private donation was used to obtain a 3-year option on the 101+ acres. In sum, this purchase is key to the long-term sustainability of the preserve as a significant community resource within a metropolitan area for the benefit of future generations.

Sponsor Name: Board of Regents, University of Nebraska - Omaha **Nearest Town:** Omaha
Project Name: Determining Milkweed Establishment Rates to Assist Monarch Butterfly Conservation **Project No:** 17-195
Amount Requested: \$9,952 **Term of Project Request:** 1 **Review Group:** Education

Monarch butterfly populations have dramatically declined in the past 15 years and monarch butterflies are currently being formally considered for protection under the Endangered Species Act. There are many factors causing the decline of monarch butterflies but the main suspected culprit in the USA is declines in milkweed plant abundances. Current efforts to increase monarch butterfly populations in the USA have focused on increasing the number of milkweed stems on the landscape by one billion. However, no one has determined how many milkweed seeds must be sown for one billion stems to establish. It also does not appear that anyone has determined the best management practices to maximize milkweed establishment from seed. I propose a project to determine average establishment of milkweed from seed across different management practices. Luckily, although no one has determined average establishment of milkweed from seed, many private, state, and federal landowners have planted seed mixes that include milkweeds and they have kept records of the amount of milkweed seed that was planted. However, this information has never been systematically examined and combined. I will use existing landowner contacts and will create new contacts to find locations in eastern Nebraska, western Iowa, and northeastern Kansas that contain records for the amount of milkweed seed planted and for the management of the planting (e.g. planted into bare soil or existing vegetation). I am aware of several instances where milkweed counts have already occurred, but I will also complete milkweed counts in 10 locations where counts have not occurred. I am requesting funding for part of the expense of the project, including my time during the summer and for mileage and some travel expenses. The information from this project will benefit Nebraska private and governmental landowners as they plant milkweed for monarch butterfly conservation.

Sponsor Name: Boy Scouts of America - Longs Peak Council **Nearest Town:** Chadron
Project Name: Chadron State Park Tree Plant **Project No:** 16-163-2
Amount Requested: \$15,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Boy Scouts of America, Longs Peak Council will provide the manpower and program to educate youth and volunteers in the replanting of trees to areas of Chadron State Park which sustained damage and loss to the trees due to a forest fire in the summer of 2012. Our goal is to plant 3000 trees each year for five years. We are looking at a better than expected turnout for this first year, so we are requesting funding for the remaining four years to meet our five year commitment. THIS PROJECT WAS FUNDED \$15,000 IN 2016 WITH THE INTENT TO FUND UP TO \$15,000 IN YEAR TWO AND \$15,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Brownell Talbot School **Nearest Town:** Statewide
Project Name: Geosciences and Environmental Concerns Outreach Program for Students and Teachers **Project No:** 17-137
Amount Requested: \$50,232 **Term of Project Request:** 3 **Review Group:** Education

Geosciences and Environmental Concerns of Nebraska Outreach Program for Students and Teachers is designed to take instructors and students into the field to explore of the geology, hydrology, and climate of Nebraska and then examine how these factors along with the activities of man have impacted Nebraska's modern day environment. In each stage of the program, the activities will include a component specifically directed at environmental concerns facing Nebraska such as: erosion, water usage, invasive species, and storage of waste products. The program consists of six trips with each having duration of six days and five nights. Three of the trips are focused on student educational experiences and three of the trips are focused on teacher professional growth experiences. Sites to be visited will include but are not limited to: Schramm Park, Morrill Hall, Red Cloud, Chimney Rock, Agate Fossil Beds National Monument, Nebraska Sand Hills, Niobrara River, and Ash Fall State Park. Some evenings will include time for telescope observations. The student-centered trips incorporate learning activities at each site and journaling in the evening. The teacher-centered trips will include time for the teachers to discuss and collaborate in creating activities and resources for their classrooms. Nebraska Environmental Trust Fund funding will be used to help underwrite the expenses incurred by this program. Students will be asked to pay five hundred dollars to participate in the trip. The trips for instructors will be free of charge. Brownell Talbot will donate the use of a Suburban for travel and the Project Director is donating their time. A previous program sponsored by the Hubbard Foundation and conducted by UNO and Brownell created the field guide to be used on the trip.

Sponsor Name: Bruckman Rubber CO. **Nearest Town:** Hastings
Project Name: Vulcanized Rubber Waste Reduction **Project No:** 17-129
Amount Requested: \$282,118 **Term of Project Request:** 1 **Review Group:** Recycling

Bruckman Rubber Co. has worked with Nebraska Department of Environmental Quality to develop methods to utilize crumb rubber in our mixing processes. With much success in the compounding area, we analyzed our molding process. Our molding processes are outdated, and have outdated technologies that hinder us from being good stewards of the Earth. We are seeking funding to help offset the purchase and installation of a new rubber molding machine. This machine has technologies that have the potential to reduce operational waste and utilize less kilowatts compared to current manufacturing methods. The 1st year alone we are reducing our carbon footprint by a projected 55.5 tons of coal and 32.6 tons of manufacturing waste. This is not a one time savings on investment, rather an on-going savings year after year. We currently manufacture a part that has seen sustained growth, and created a unique opportunity to look for technology that should reduce operational waste and electrical consumption.

Sponsor Name: Buffalo County Historical Society- Trails & Rails Museum **Nearest Town:** Kearney
Project Name: Living History Prairie Pathway **Project No:** 17-229
Amount Requested: \$18,350 **Term of Project Request:** 1 **Review Group:** Urban Habitat

The Trails and Rails Museum, operated by Buffalo County Historical Society, will soon be breaking ground for a new facility on property the organization owns, which is adjacent to our current grounds. The new construction has afforded the organization the opportunity to reconfigure several conventional landscape features as exhibit spaces that will add to the educational value of a visit to Trails and Rails Museum. Our new, living exhibit will consist of a walkway surrounded by native Nebraska plants that have been specially selected to appeal to pollinators and, particularly, butterflies. The exhibit will add to the visual appeal of our grounds and represent an opportunity to educate visitors about the beauty and importance of using pesticide free, native plants to provide habitat for pollinators throughout the community.

Sponsor Name: Cass County **Nearest Town:** Plattsmouth
Project Name: Cass County Compressed Natural Gas (CNG) Motor Vehicle Fuel Project **Project No:** 15-139-3
Amount Requested: \$150,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Cass County Compressed Natural Gas (CNG) Motor Vehicle Fuel Project will facilitate the use of Natural Gas Vehicles (NGVs) in the county, city of Plattsmouth and surrounding communities. CNG offers an immediately available fuel solution to make substantial reductions in air pollutants from commercial and personal vehicles. CNG is by far the most abundant and cost effective commercially viable fuel option on the market today. Cass County will sponsor this project. OFC / Schmidt Liquid Trucking will partner in funding the project. The two entities will focus on constructing a public CNG fuel facility on the OFC property that is located just off of Highway 75 north of Plattsmouth. This location is also just 6 miles southwest of the new I-29 bridge that will open in 2015. OFC successfully operates 14 NGVs to date with the intention of converting its entire fleet of 175 class 8 semi trucks to NGVs over the course of the next several years. Cass County intends to purchase 10 NGVs as well. In addition to local vehicles, Cass County has gained commitments from several fleets across the country to use this facility regularly as they pass through the area on dedicated routes. The Nebraska Environmental Trust will provide a positive environmental impact with its support of this project. In addition to environmental benefits, all entities surrounding the county will be provided an opportunity to save fuel costs immediately following the completion of this project. Cass County is requesting \$750,000 from Nebraska Environmental Trust Fund to aid in the purchase of equipment necessary to build a CNG fueling facility that will be open to the public. The total costs for the project will be \$1,656,519. OFC will provide all additional funding necessary to complete and insure the success of the project. THIS PROJECT WAS FUNDED \$150,000 IN 2015 WITH THE INTENT TO FUND UP TO \$150,000 IN YEAR TWO AND \$150,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Central Community College **Nearest Town:** Hastings
Project Name: Nebraska Living Building Challenge Demonstration and Leadership House **Project No:** 17-138
Amount Requested: \$819,988 **Term of Project Request:** 3 **Review Group:** Air Quality

Central Community College (CCC) requests funding support for a portion of the Nebraska Living Building Challenge (LBC) Demonstration and Leadership House for education and replication of environmental stewardship. As a Living Building, this facility will be a demonstration/model of how a regenerative future is within reach. Given the unique and profoundly transformative nature of Living Buildings, this residence/house and educational center will attract visitors to learn about the future of a net gain environment. Central Nebraska provides a unique and ideal location for an LBC building. By being the first in the state and in the Central US corridor (including North Dakota, South Dakota, and Kansas), the Nebraska LBC Demonstration and Leadership House has an opportunity to showcase regional applications for innovative design, and an ecologically regenerative built environment. The Nebraska LBC Demonstration and Leadership House will serve as a residential and commercial model for industry professionals, students, businesses, community leaders and others. Trainings and educational opportunities will be offered during construction and regularly thereafter to encourage knowledge implementation and application beyond the house project. Through partnership with ILFI and the Crane Trust, CCC and the project will pursue Living Building Certification. The project will inspire and educate individuals throughout Nebraska and the Midwest on the importance of environmentally sustainable design and the importance of preventing resource degradation through tours, trainings, and coursework, as well as, online exposure and case studies showcasing the building. We are asking for NET's support in reaching specific petal standards as outlined in the Budget, specifically the Habitat Petal. The house project has the potential to greatly impact Nebraska's environment by serving as a model in demonstrating the potential and future of environmental sustainability and the impact of a net gain environment.

Sponsor Name: Central Nebraska Public Power & Irrigation District **Nearest Town:** Lexington
Project Name: Centralized Water Use Database for Irrigation Water Management in CNPPID **Project No:** 15-155-3
Amount Requested: \$67,260 **Term of Project Request:** 3 **Review Group:** Statement of Intent

This project has the goal of gathering irrigation water use and environmental data to support the irrigation water management, water conservation and water quality goals of the Central Nebraska Public Power and Irrigation District. This will require education and promotion of on-farm precision management practices of irrigation water with producers to sustain water availability and maintain or improve water quality. The project would collect irrigation water use data directly from irrigation flow meters and weather monitoring sensors crucial to irrigation management. Data will be collected using UHF radio technology and be delivered to the Central district offices and individual irrigators through digital means including e-mail, text messaging or cell phone applications which will help water users make sound irrigation management decisions. Irrigation management software will be used by cooperating producers to manage plant available soil moisture and match irrigation water application to crop water use (ETc). The project will partner with UNL Extension to deliver a portion of the educational component and the McCrometer Company for the technical expertise to train equipment installers and accomplish data collection. This project fits in the Trust Board funding categories of Surface and Groundwater and Habitat. It will foster best management practices; efficient and effective management of water use. As the demand for irrigation water is reduced; aquatic and shoreline habitat is enhanced at Lake McConaughy. Many native species inhabit the waters or shores of the lake and water conservation is beneficial to recovery efforts for the threatened piping plovers and endangered interior least terns nesting on the sand beaches. THIS PROJECT WAS FUNDED \$61,380 IN 2015 WITH THE INTENT TO FUND UP TO \$65,460 IN YEAR TWO AND \$67,260 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Central Platte Natural Resources District **Nearest Town:** Cozad
Project Name: Central Platte Grassland Conservation Project **Project No:** 15-107-3
Amount Requested: \$259,245 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Loess Canyons grassland ecosystem is being wiped out by a coniferous Eastern Red Cedar forest. We have the opportunity to prevent ecosystem loss, and to protect against a devastating wildfire. This project is based on an innovative concept: removing seed source from a large area in a short period of time to double the practical and cost effectiveness of the project. The project will reclaim, and preserve up to 12,000 acres of crucial habitat in three years. This is an excellent example of a project involving landowners, local, state and federal partners to accomplish a necessary goal. Trust funding is essential for this project to move forward. We are seeking funding from the Trust to facilitate the mechanical tree clearing and prescribed burn technical assistance, while partners will provide resources for tree clearing, grazing deferment, prescribed burning, coordination, meetings and training. We believe a collaborative project like this is the only way to create a lasting impact and help save this landscape from economic hardship and devastating wildfire. THIS PROJECT WAS FUNDED \$259,245 IN 2015 WITH THE INTENT TO FUND UP TO \$259,245 IN YEAR TWO AND \$259,245 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Central Platte Natural Resources District **Nearest Town:** Multiple
Project Name: Advanced Hydrogeologic Frameworks for Aquifer Management in Critical Sections of the Platte River Basin **Project No:** 16-167-2
Amount Requested: \$364,900 **Term of Project Request:** 2 **Review Group:** Statement of Intent

Water management in the Platte and Republican River basins continues to be a difficult task for water managers and users alike. Recent drought conditions and management needs within the Twin Platte and Central Platte Natural Resources Districts (NRDs) require new information and understanding of the natural system for determining the proper course for utilization of infrastructure and revenue. NRDs need detailed information of the aquifer conditions and the subsurface hydrogeologic framework to effectively design and apply integrated management plans. In particular, they need to understand the aquifer geometry, characteristics, inter-connection with surface water, impacts of new and existing infrastructure and interaction with adjacent aquifers. Currently, NRDs rely on the traditional method of geologic test hole drilling for information regarding the subsurface geology. This approach is vital to the understanding of the area, but alone cannot provide enough spatially distributed information to complete a detailed hydrogeologic framework of a NRDs aquifer resources. Often, these test holes are spaced on 6 mile centers, a distance that does not provide the detail to be useful in developing a local hydrogeologic framework upon which new infrastructure and future sub-regional groundwater model investigations can be developed for evaluation of the proposed management practices. The total project cost is \$966,000. The applicants are requesting \$670,000 (70%) in funding from the Environmental Trust to pay for developing the tool for optimizing the collection of data with the realization limited funds. A total of \$296,000 (30%) in match funds will be provided by the NRDs and Exploration Resources International in the form of cash and/or in-kind services for aerial collection and subsequent data interpretation, databases, map production, data reports and improvements to the AEM process. THIS PROJECT WAS FUNDED \$305,100 IN 2016 WITH THE INTENT TO FUND UP TO \$364,900 IN YEAR TWO PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: CLEAR Team **Nearest Town:** statewide
Project Name: Community Lakes Enhancement and Restoration (CLEAR) Team **Project No:** 15-189-3
Amount Requested: \$255,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The CLEAR program has received three previous grants from NETF for community lake rehabilitation and enhancement projects. Thirty-five community lakes have already been rehabilitated under the CLEAR program. Currently, numerous communities are seeking funding and technical assistance to complete lake improvement projects. The CLEAR program, comprised of individuals representing NDEQ and NGPC is seeking funding for three years to complete four additional lake improvement projects in Nebraska communities. NDEQ has identified 3 potential communities that would be ready to start as soon as funds are available with at least one additional project that could start within 2 years. Additional projects will be considered if funds are available. THIS PROJECT WAS FUNDED \$510,000 IN 2015 WITH THE INTENT TO FUND UP TO \$255,000 IN YEAR TWO AND \$255,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Community CROPS **Nearest Town:** Lincoln
Project Name: Healing the Earth With Gardens **Project No:** 17-163
Amount Requested: \$71,136 **Term of Project Request:** 1 **Review Group:** Education

The Healing the Earth with Gardens project focuses on the many ways gardens can have a large environmental impact. Our educational project will teach the public and our community gardeners how small, yet impactful gardening steps can have huge positive environmental benefits. Simple actions, like composting, drip irrigation and organic gardening, can not only reduce one's carbon footprint and feed one's family, but can also directly connect one with the global movement of addressing climate change. The project will also focus on the creation of pollinator and wildlife habitats in our city's community gardens, at the Southern Heights Food Forest, and at our school gardens. Once created, our educational outreach will include signage and classes to promote these urban habitats. With the high percentage of Nebraska's population living in cities, growing food in gardens is of particular relevance for our state, despite our agricultural background. Growing food would not be possible without our pollinators, though. Pollination is critical to successful orchards, field crops, forage crops, home gardens, endangered species and ecological restoration. As food producers and consumers, we all need to be aware of the importance of pollinators to plants and our environment. We will increase awareness by educating both our gardeners and our community about organic growing methods, water conservation, pollinator habitats and soil and waste management. Through this project 1000 people will learn about one or more of these topics through workshops, online communication and site visits and 1000 people will be able to learn by directly growing their own food in community gardens. Funds from the Nebraska Environmental Trust will be matched by community funds to provide the staff time to educate the community, as well as the needed physical resources to make the project a success.

Sponsor Name: Crane Trust, The formerly Platte River Whooping Crane Maintenance Trust **Nearest Town:** Wood River
Project Name: Long-Term Biological Monitoring (LTBM) **Project No:** 17-209
Amount Requested: \$171,850 **Term of Project Request:** 3 **Review Group:** Rural Habitat

We are seeking funding for the Crane Trust's Long-Term Biological Monitoring (LTBM) Program. With NET and partner support in 2015 and independently in 2016, we implemented the inventory phase of a landscape-level biological monitoring plan. We permanently marked 54 monitoring plots across 6,000 total acres. Sites were chosen based on soils, land use history and vegetation community. We developed standardized methodologies and recorded the vegetation, avian, small mammal, and butterfly communities present at each unique monitoring site. Over 470 plant and 230 bird species were recorded during this phase. Our methods are broadly based on the National Science Foundation's Long-Term Ecological Research (LTER) Program. LTBM has the ability to detect relatively small changes because research is conducted at the same location on a set rotation over time, allowing conservation practitioners to compare the effectiveness of particular management actions and establish best management practices. Many ecosystem responses are not clear in the first years following management actions, necessitating a longer-term research approach to adaptive management. The LTBM program allows us to better understand biological trends and provides the opportunity to gather specific habitat information regarding species of concern. The Crane Trust's goal is to fully implement the monitoring phase of this program and expand on it by implementing Institute for Bird Populations' MAPS bird banding program (Monitoring Avian Productivity and Survivorship), providing important demographic data on bird populations. The LTBM program has the ability to serve as a standardized repeatable model for the advancement of effective biological monitoring and adaptive management along the central Platte River. Three more years of data will allow us to apply for LTER-8 funding to continue this research indefinitely, benefiting conservation efforts in the region. We will share findings through public presentations, an annual symposium, annual field workshop, official reports, peer-reviewed publications, and public outreach.

Sponsor Name: Ducks Unlimited, Inc. **Nearest Town:** Scottsbluff
Project Name: North Platte River Valley Wetland Restoration **Project No:** 17-131
Amount Requested: \$110,230 **Term of Project Request:** 1 **Review Group:** Rural Habitat

The North Platte River Valley Wetland Restoration project is a joint effort by conservation partners to protect and restore three parcels of land that will provide crucial wetland functions and values along the North Platte River. The North Platte River landscape is included as a priority area in all four major bird plans: North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, Partners in Flight bird plan, and the North American Waterbird Conservation Plan. The North Platte River also contains habitats and species of plants and animals of concern for the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service (USFWS). This signifies the clear importance of the lands. Nebraska Environmental Trust funds will be used to restore three tracts within the North Platte River floodplain in which the landowners would not be able to afford the restoration themselves. While restoring diverse wetlands, the proposal will protect the restored habitats long-term with working land conservation easements with no NET funds being used for acquisition of the easement. The three working land conservation easements will permanently protect 333 acres of North Platte River habitat, including over 1.5 miles of the North Platte River and ¼ mile of Spring Creek. The North Platte River Valley Wetland Restoration proposal is leveraging North American Wetlands Conservation Act, private landowner, and USFWS funds. For every NET dollar requested in this proposal, Ducks Unlimited (DU) and partners are matching over 3 dollars, with a request of \$110,230 and matching funds equal to \$378,870. From a project standpoint, the proposal is cost effective, utilizes matching resources, protects and restores critical wetland habitat, and provides ecosystem services to western Nebraska citizens and visitors.

Sponsor Name: Ducks Unlimited, Inc. **Nearest Town:** Melbeta
Project Name: Melbeta Wetland Complex Protection & Restoration **Project No:** 17-132
Amount Requested: \$169,410 **Term of Project Request:** 1 **Review Group:** Rural Habitat

Ducks Unlimited, Inc. protects, restores, and manages wetlands and its associated habitats for waterfowl and wetland dependent wildlife in North America. Given that nearly 98% of land is in private ownership in Nebraska, we focus work with private landowners in order to achieve our goals and benefit wildlife, people, and the environment. The Melbeta Wetland Complex Protection and Restoration project is a showcase example of how working with numerous landowners can make a significant landscape level impact. This project will focus on a property that is adjacent to several tracts of perpetually protected habitat. Two of the nearby protected properties currently have wetland restoration projects underway that are partially funded through the Nebraska Environmental Trust (NET). The addition of this 220-acre tract will build upon this perpetually protected habitat complex along the North Platte River protected by DU Working Lands Conservation Easements. No NET funds will be used to acquire the working lands conservation easement. DU is requesting funding from NET to assist with the restoration of the degraded backwater wetland habitat located on the property that the landowner could not afford himself. The value of protecting these properties in perpetuity cannot be understated with the thousands of migratory birds that use this stretch of riverine habitat as loafing, roosting, feeding, and breeding areas extensively throughout their lifecycles. The proposed restoration project will increase the capacity of this property to provide wildlife habitat benefits with over 7,000 linear feet of North Platte River backwater slough habitat restored via excavation and floodplain grassland habitat restored via Russian olive removal. This project will protect and restore critical habitat and provide ecosystem services to western Nebraska citizens and visitors. This project will protect water quality, flood storage, and improve wildlife viewing and recreating on this stretch of the North Platte River.

Sponsor Name: Ducks Unlimited, Inc. **Nearest Town:** Burwell
Project Name: Loup River Public Wetland **Project No:** 17-133
Amount Requested: \$149,000 **Term of Project Request:** 1 **Review Group:** Rural Habitat

This is an exciting new step for Ducks Unlimited, Inc. (DU) into the Loup River wetland ecosystem, which is an underserved area of Nebraska as it pertains to wetland restoration for the benefit of wildlife, the public, and the environment. The Loup River watershed is a major tributary of the Platte River in central Nebraska, and the Loup and its tributaries, including the North, Middle, and South Loup Rivers, comprise over 1,800 miles of streams draining approximately one-fifth of Nebraska. The Loup Rivers are a critical link between the Rainwater Basin, Platte River, and Sandhills of Nebraska, but as is the case throughout much of Nebraska, the river wetlands have been altered or degraded resulting in wetland loss. The purpose of this proposal will be to restore and enhance roosting and feeding habitat along the Loup River for spring migrant species that depend on the resources benefitting Tier 1 At-risk species. These restored wetlands will also improve water quality, increase flood storage, and serve to re-charge groundwater. The restoration techniques used to restore the ephemeral wetlands and remnant channels on these sites are proven and have achieved instant increase in use by wildlife and the public along the Platte River. This proposal is matched at greater than 1:1 by DU and its partner, the Nebraska Game and Parks Commission (NGPC). With \$149,000 from NET to do work on 5 separate public areas, you would be hard pressed to find a more cost-effective proposal for beneficial wetland restoration work.

Sponsor Name: Ducks Unlimited, Inc. **Nearest Town:** Valentine
Project Name: Valentine National Wildlife Refuge Wetland Restoration **Project No:** 17-147
Amount Requested: \$99,000 **Term of Project Request:** 1 **Review Group:** Rural Habitat

This application seeks funding for the restoration of approximately 890 acres of degraded wetlands on the Valentine National Wildlife Refuge (VNWR). Located in north-central Nebraska, VNWR lies in the sandhills of north-central Nebraska and provides valuable wetland habitat for migratory birds, multiple threatened, endangered and at-risk species and other indigenous wildlife. Water quality and productivity of many wetlands and lakes on VNWR has been severely degraded by the infestation of common carp. Carp are a non-native invasive species that have detrimental impacts on aquatic ecosystems. The VNWR wetland restoration project outlines a plan to improve infrastructure to impede carp movement between water systems. These efforts will lay the foundation needed to manage carp movements which will protect these areas from future infestation. Ducks Unlimited (DU) will seek additional funding to complete phase two of this project which will include rotenone application to eradicate the remaining carp populations. Ducks Unlimited protects, restores, and manages wetlands and associated habitats for waterfowl and wetland dependent wildlife in North America. Similarly, the mission of the US Fish and Wildlife Service (USFWS) is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. This project provides an opportunity for DU and the USFWS to combine expertise and resources to achieve goals related to specific categories outlined by the Nebraska Environmental Trust including; 1) restoration of native habitats and areas critical to at-risk, rare, and endangered species; 2) restoration of lakes and wetlands; and 3) conservation of water and efficient and effective management of water use. Ultimately this project will leverage resources and funds to restore degraded habitat on one of the largest public wetland complexes in the state that will provide benefits to the environment, wildlife, and the public alike.

Sponsor Name: EcoStores Nebraska **Nearest Town:** Lincoln
Project Name: Gypsum and Other C&D Materials Grinder **Project No:** 17-176
Amount Requested: \$280,400 **Term of Project Request:** 2 **Review Group:** Waste Management

The EcoStores Nebraska (a "dba" division of the Joslyn Institute for Sustainable Communities) is seeking NET funding for the purchase of equipment to establish construction-site grinding for both scrap and bulk processed gypsum drywall, weather –proof storage containers, and personnel costs to operate and manage the diversion of construction and demolition waste from landfills. JISC case studies of Construction and Demolition (C&D) waste in 2015-16 confirm that approximately 3.89 lbs of waste per sq. ft. comes from commercial construction, while residential new construction generates approximately 4.38 lbs per sq. ft. Wood, drywall, cardboard, and scrap metals account for approximately 80% of the new construction waste (wood @ 39%, drywall @ 20%, cardboard @ 11%, and scrap metals @ 10%). Locally, and in most Nebraska communities there are viable, options for diversion of a high percentage of these materials from the landfill and back into the local economy. Drywall is the primary exception. At present, there is no industrial or commercial depository or repurposing option in Nebraska to keep this considerable volume of material from an end location in the local landfill. In a continuing partnership with four commercial general contractors, plus the addition of two contractors specializing in residential construction, and one pre-fab construction enterprise, the EcoStore proposes to establish a year-around service for on-site grinding and repurposing drywall construction waste. We estimate an additional diversion in 2017 and 2018 of drywall C&D waste of approximately 500 tons/yr. from the L/LC landfill. After 2018 the repurposing operation will be self-supporting from commercial, consumer, and contractor income, and the opportunities for expansion to other locations in Nebraska, during 2017-18 will be planned as a result of this grant. The purchase of the specified equipment will also allow diversion of other C&D materials such as wood, brick, and asphalt shingles.

Sponsor Name: Enginuity BioProducts Nebraska **Nearest Town:** Statewide
Project Name: Demonstration of Innovative Rotary Compression Unit (RCU) Technology on Nebraska Invasive Eastern Redcedar **Project No:** 17-188
Amount Requested: \$1,612,406 **Term of Project Request:** 2 **Review Group:** Air Quality

Enginuity BioProducts Nebraska LLC (Enginuity), is fully owned subsidiary of Enginuity Worldwide LLC. Enginuity Worldwide was formed in 2009 and has been awarded patents for new processes. Enginuity developed a novel Rotary Compression Unit (RCU) that uses biomass, such as Eastern Redcedar, to produce value-added bioproducts and enable water resource improvements, air emission reduction, soil carbon improvements, and carbon sequestration. Completed and on-going work for Nebraska has been funded by Nebraska Forest Service and Nebraska Department of Environmental Quality to validate the technical and potential socioeconomic benefits of Enginuity's RCU process. As follow on to the current work, Enginuity proposes to demonstrate in Nebraska an RCU capable of extracting Redcedar essential oil feedstock. Enginuity is seeking NET funds for fabrication and deployment of a transportable version of their technology to demonstrate Eastern Redcedar processing to harvest essential oil feedstock, and also further processing the oil-reduced cedar chips into either BioCoal™ fuel or biochar. Concurrent with the work at NDEQ and the present request of NET, Enginuity has commitment of USDoE Idaho National Labs to chemically characterize the process. The proposed Nebraska RCU will be used to demonstrate production of three bioproducts: Redcedar Essential Oil, BioCoal™ Fuel, and biochar. The Redcedar Essential Oil has multiple high-value uses, converting waste to valuable product. BioCoal™ fuel is used as co-fire fuel to coal units, reducing atmospheric carbon emission from power generation. Biochar, when used as a carbon soil amendment, increases water holding and cation exchange capacity, and increases fixed carbon in soils. Biochar is used as filtration medium, a sustainable material for filtering of water discharge. Enginuity may also demonstrate use of the RCU with other diverse waste streams; animal manure, crop residuals, prairie grass restoration, and industrial waste. This proposal seeks to deploy the unit, as well as quantify the projected ecological benefits.

Sponsor Name: Farwell Irrigation District **Nearest Town:** Farwell
Project Name: Stream Flow Enhancement and Retiming **Project No:** 17-118
Amount Requested: \$2,205,624 **Term of Project Request:** 2 **Review Group:** Water

This project will enhance water sustainability in the Middle Loup Basin by recovering more than 5,725 acre-feet of unmanaged spill from Farwell’s Main and Lower Main Canals each year and retaining this water in Sherman Reservoir. This will allow retimed releases to provide increased stream flows at times of peak need, enhanced groundwater recharge, sustained crop production, preservation of wildlife habitat, and improved health of the Middle Loup River. Precise control of flows through the Main and Lower Main Canals will allow enhanced groundwater recharge, flood control, reduced excess river extractions with increased instream flows and river health, enhanced recreational opportunities, and enhanced aquifer and surface reservoir water availability in dry years. Precise flow measurement and control gates will be installed on the Main and Lower Main Canals and a control system will continuously manage flows through these canals to exactly match the needs of users, thereby eliminating unmanaged operational spill and creating water savings for further beneficial use. The technology employed by the irrigation district provides a key opportunity to economically recover water in the canals and laterals of their irrigation system. Water savings can be achieved by addressing the loss components that are generally present in these irrigation systems. The project construction involves the installation of automated flow control gates and an accompanying telemetry network and control system. This project is expected to take two years to complete. The first year will include a detailed inspection and analysis of the Irrigation District’s Main and Lower Main Canal system to confirm system specifications. The preparation of structures and installation of control gates, communications, hardware, software, and training. Year 2 will consist of continued implementation any uninstalled components, to complete the entire project. This grant request for \$2,205,624 is 40% of the expected project value of \$5,514,060. It is anticipated that an additional \$3,308,436 will be received from the Water Sustainability Fund Grant. Additional resources are expected which will be civil work provided through the Farwell Irrigation District.

Sponsor Name: Five Rivers Resource Conservation and Development, Inc. (RC&D) **Nearest Town:** Multiples
Project Name: Southeast Nebraska Household Hazardous Waste Collections **Project No:** 16-222-2
Amount Requested: \$54,446 **Term of Project Request:** 3 **Review Group:** Statement of Intent

According to the EPA, each person in the United States produces an average of 4 pounds of household hazardous waste each year for a total of about 530,000 tons/year. The average U.S. household generates more than 20 pounds of household hazardous waste per year. As much as 100 pounds can accumulate in the home, often remaining there until the residents move out or do an extensive cleanout. Reduction and recycling of HHW conserves resources and energy that would be expended in the production of more products. Proper disposal prevents pollution that could endanger human health and the environment (EPA, 2014). The Nemaha NRD, Five Rivers RC&D, the Lower Big Blue NRD, as well as the cities and counties located in the southeastern Nebraska region have received numerous requests for additional household hazardous waste collections from concerned residents. The events will be conducted in each county in the Five Rivers eight-county area and will give all citizens an opportunity to help protect the environment and their own families from possible exposure to toxic materials once a year over the course of three years. We expect our participation to be similar to other regional collection events. For example, the NRD partnered with Five Rivers RC&D and collected and recycled 61,490 pounds of HHW and 30,600 pounds of batteries in 2007 and Five Rivers RC&D collected and recycled over twelve tons of household hazardous waste materials and an additional 804 pounds of batteries in 2010 as well as over thirteen tons of hazardous materials and 960 florescent light bulbs in 2015. The events will not only provide citizens with a safe disposal site, but will educate residents on the hazards of improper disposal and the negative effects of that waste entering our soil, water, and air. THIS PROJECT WAS FUNDED \$54,446 IN 2016 WITH THE INTENT TO FUND UP TO \$54,446 IN YEAR TWO AND \$54,446 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Five Rivers Resource Conservation and Development, Inc. (RC&D) **Nearest Town:** Tecumseh
Project Name: Native Grassland Protection Against Invasive Weeds III **Project No:** 16-223-2
Amount Requested: \$56,579 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Native prairies are the most threatened ecosystem in North America. Losing native prairies, oak woodlands, and plant diversity is resulting in significant impacts to our valuable native wildlife habitat, soil quality, water quality, and economic sustainability. Today less than one percent of tall-grass prairie remains in the continental United States. Approximately two percent of Nebraska’s tall-grass prairie remains mostly as remnants less than eighty acres in size. With the increase of invasive species present in the area, we see its negative impacts on these remaining landscapes and losses to our other grazing lands and native habitat. The lack of control reduces the production, profitability and sustainability of grasslands and causes economic hardships. This has resulted in some grasslands being converted to row crop production because of difficulties and costs of controlling invasive weeds. Invasive species are severely threatening the ecoregion’s biological diversity. Smooth brome, Kentucky bluegrass, reed canary grass, purple loosestrife, Eurasian phragmites, Sericea lespedeza, garlic mustard, Caucasian bluestem, and other species have competitively excluded native plants and degraded habitat for fish and wildlife. The introduction of carp, zebra mussels, emerald ash borer, and other species have altered habitats and increased competition for native species. In the past three years, the WMA has assisted in combatting troublesome weed species on approximately 3,000 acres and educated over 300 landowners through workshops, conferences, and weed walks. The WMA continues to educate landowners and managers and continually receives inquiries along with new applicants seeking aid in controlling troublesome weed species. Extending the program for an additional three years will allow the WMA to continue providing additional educational workshops, conferences, and weed walks further educating the general public on the importance of protecting our native prairies. THIS PROJECT WAS FUNDED \$56,579 IN 2016 WITH THE INTENT TO FUND UP TO \$56,579 IN YEAR TWO AND \$56,580 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Five Rivers Resource Conservation and Development, Inc. (RC&D) **Nearest Town:** Syracuse
Project Name: Pollinators and Honey Bees on the Farm for Environmental and Economic Benefit **Project No:** 17-172
Amount Requested: \$283,705 **Term of Project Request:** 3 **Review Group:** Education

Pollinators are vital to our environment; honey bees are important pollinators that bring additional business opportunities. In Nebraska, farms are increasingly eliminating existing or potential pollinator habitat by replacing grasslands and undisturbed sites with commodity crops. We seek to reverse this trend in southeast Nebraska by developing beekeeping sites on farms and acreages and by recruiting agricultural land owners and beekeepers to be proactive stewards of pollinator habitat. Pollinators & Honey Bees on the Farm for Environmental and Economic Benefit is a three-year project with the primary goal of increasing pollinator and honey bee habitat and husbandry on Nebraska’s agricultural land in order to support healthy ecosystems and provide economic opportunity. Our objectives are to: (1) Educate farmers and others on the importance of pollinators and honey bees; (2) Train farmers and acreage owners on the conservation practices and husbandry skills needed to create and maintain pollinator and honey bee habitat and populations; (3) Facilitate relationships between farmers and beekeepers for collaborative enterprises; and (4) Encourage farmers to install and maintain pollinator habitat on their own farms. This project is designed to move farmers and acreage owners along a continuum toward proactive pollinator and honey bee habitat development, protection, and husbandry. We will provide workshops and farm tours addressing pollinator habitat, conservation practices, and honey bee husbandry. We will help farmers host beekeepers or keep their own bees through support and mentorships. We will develop resource connections to help farmers sustain their conservation and beekeeping projects. Farmer participants will find the level of engagement that works for them - maintaining pollinator and honey bee habitat, hosting outside beekeepers, or maintaining their own hives - while developing a strong understanding of and commitment to supporting pollinators. The project will increase pollinator habitat and honey bee populations to protect and expand the environmental services they provide, while expanding economic opportunity for farmers

Sponsor Name: Fontenelle Forest Association **Nearest Town:** Bellevue
Project Name: Oak Woodland and Wildlife Habitat Restoration **Project No:** 15-168-3
Amount Requested: \$108,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The lands owned and managed by Fontenelle Forest include Neale Woods, Fontenelle Forest, and the Andrews tract, in all totaling approximately 2,053 acres. These parcels are comprised of three ecological communities including oak-hickory-basswood uplands, deciduous wooded floodplain, and wetlands. Oak woodlands and prairies support a variety of unique biodiversity. These lands are crucial habitats for migratory birds, small mammals, invertebrates, and a range of woodland-dependent plant species, as well as several species in need of conservation. Fontenelle Forest, Neal Woods, and our Andrews tract, three of the unique remaining oak woodlands within the Missouri Valley, are being severely degraded by an increasing shade-tolerant canopy, sub-canopy and understory, invasion by exotic plants, such as garlic mustard, autumn olive and honeysuckle, lack of fire, and no natural oak regeneration. Fontenelle Forest has created a strategic oak woodland and wildlife restoration plan to restore and enhance approximately 1160 acres of oak woodland/floodplain forest, and prairie, by conducting prescribed fire, controlling invasive species, and thinning shade-tolerant shrubs and trees. We plan to enhance and expand recreational opportunities within our borders and with our neighbors, as well as create a public awareness campaign highlighting the importance and relevance to the community of sustaining a healthy, fully functioning oak woodland/prairie ecosystem. We will conduct our planning, preparation (constructing fire breaks, thinning), and burning using contractors, seasonal and permanent staff. We will partner with the Bellevue City Fire Department to reduce our fuel load and plan our fire breaks. Partner funds from FWS and NGPC will be used for on-the-ground habitat management and manipulation. This restoration project will reduce soil erosion in woodlands and riparian areas and enhance groundwater quantity and quality. This project will fulfill several Nebraska Natural Legacy conservation objectives within the Missouri River Biologically Unique Landscape. THIS PROJECT WAS FUNDED \$121,000 IN 2015 WITH THE INTENT TO FUND UP TO \$99,000 IN YEAR TWO AND \$108,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Friends of Heron Haven, Inc. **Nearest Town:** Omaha
Project Name: Environmental Education at Heron Haven Wetland Sanctuary **Project No:** 16-218R-2
Amount Requested: \$2,700 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Friends of Heron Haven requests three years of funding to maintain and strengthen two environmental education programs presently supported by the Trust (13-175-3). The first of these programs consists of Guided Nature Study programs that primarily involve walking nature trails and observing natural phenomena of various kinds in the company of one or more experienced volunteer naturalists or, during inclement weather, that may involve watching educational shows, listening to talks, or engaging in activities related to natural history. These programs are tailored to meet the needs of several different target audiences. The second environmental education program is the annual Heron Haven Wetland Festival, a one day event that provides visitors of all ages with an opportunity to learn about local wildlife, including mammals, birds (especially raptors), butterflies, aquatic organisms and plants, as well as a variety of exotic mammalian and reptilian species. The goals of these two basic environmental education programs are to acquaint interested members of the public and their families with the freely accessible natural assets of the Heron Haven Wetland Sanctuary and with the enjoyment and restorative effects that even brief immersion in natural environment can produce. It is hoped that such positive experiences would cause our visitors to appreciate this natural site and perhaps, to make donations to, or to become members of, Friends of Heron Haven, which provides essential support for our organization. THIS PROJECT WAS FUNDED \$7,290 IN 2016 WITH THE INTENT TO FUND UP TO \$2,700 IN YEAR TWO AND \$2,700 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Green Star Gasifiers **Nearest Town:** South Sioux City
Project Name: Mobile Biomass Gasification Unit: A Resource Based Approach Against the Emerald Ash Borer **Project No:** 17-214
Amount Requested: \$1,500,000 **Term of Project Request:** 1 **Review Group:** Equipment

Warning- the State of Nebraska is under attack! Sounds like a horror movie, right? In truth, the reality is that the State of Nebraska is plagued by two environmentally invasive species: the emerald ash borer and the overgrowth of red-cedar trees statewide. The estimated management cost for the emerald ash borer alone is predicted to exceed \$1 billion dollars and the red-cedar trees, virtual powder kegs waiting to ignite, are adding 38,000 acres of forest to the state every year. In 2012, the forest fires in western Nebraska resulted in damage to 500,000 acres, the loss of 65 structures and \$12 million dollars in firefighting costs alone. Members of the Nebraska Forest Service note that the threat for another fire of equal or greater magnitude is imminent. With a limited annual budget, the Nebraska Forest Service has worked diligently to educate communities and landowners about the necessity of healthy forest management, but it appears as if the problem is greater than one entity alone can handle. Because management costs for dealing with the red-cedar trees and the emerald ash borer are anticipated to reach well over a billion dollars, the Nebraska Forest Service has explored alternative options that might aid in offsetting the rising costs of tree removal and disposal. Given that wood waste has value as an energy source, the Nebraska Forest Service has partnered with Green Star Gasifiers, LLC, who is seeking \$1.5 million in funding to help in the construction of a \$3 million dollar mobile biomass renewable energy unit that the Nebraska Forest Service will utilize during the ash and red-cedar tree removal process to generate "green" electricity, which will be supplied to the rural communities in an effort to help offset taxpayers out of pocket costs.

Sponsor Name: Groundwater Foundation, The **Nearest Town:** Statewide
Project Name: Recharging Groundwater: Tools for Community Engagement and Action **Project No:** 17-127
Amount Requested: \$377,980 **Term of Project Request:** 3 **Review Group:** Education

The Groundwater Foundation is requesting funding to capitalize on the revision of science standards to build the infrastructure for students across Nebraska to learn about our state’s most precious natural resource, groundwater, and to convert the classroom learning into action to protect it. The project: “Recharging Groundwater: Tools for Community Engagement and Action”, is a long-term investment in the effective management of our groundwater resources. By funding the project the Trust will be fulfilling its mission of ensuring a prosperous future for our state and its natural resources by fostering a generation of capable water managers. As one of the GF’s Groundwater Guardian team members recently stated: “Regardless of state or federal policies, the responsibility for protecting a community’s groundwater supply ultimately rests with the community itself. As water scarcity becomes an increasing concern, community-based groundwater protection plays an increasingly important role in sustaining a safe, reliable water supply.” Nebraska has been ahead of the game in managing its water resources, notwithstanding the complexities that surround it. In order to stay ahead of the curve, we must involve the next generation of leaders. "Recharging Groundwater" will utilize proven tools, strategic partners and leverage the opportunity to ensure our statewide science curriculum includes groundwater education. Specifically through this project educators will be trained and equipped with groundwater education tools to use in their classrooms for years to come, students will be introduced to careers in the water industry through mentorships offered in the private and public sector by project partners, and youth will be involved in on-the-ground protection efforts by joining efforts of the Groundwater Foundation's volunteer teams (Groundwater Guardians) that are working in local communities across Nebraska.

Sponsor Name: Habitat for Humanity of Omaha ReStore **Nearest Town:** Omaha
Project Name: Deconstruction Program Phase 2 **Project No:** 17-130
Amount Requested: \$675,000 **Term of Project Request:** 3 **Review Group:** Waste Management

HFHO demolishes 50 blighted houses annually in an effort to "fight-the-blight" and stabilize neighborhoods. HFHO provides the expertise to acquire properties, many with complex title issues. HFHO's project management team coordinates the demolitions utilizing a competitive bid process to ensure an effective use of our funds. Our success is extremely gratifying through the numerous benefits realized by the removal of blighted houses within our community's neighborhoods; however, we believe that more can be done to improve the outcomes. Each demolition produces an average of about 10,000 cubic feet of debris to local landfills. HFHO is disheartened to recognize that much of those materials can be recycled or repurposed; however, the additional costs to fully deconstruct a house and divert salvageable materials away from the landfills, versus a typical demolition, have stymied efforts to enhance our demolition program. HFHO seeks to continue the Deconstruction Program, by annually completing 5 full deconstruction projects on blighted houses and "soft strip" partial deconstructions for an additional 100 houses in our current demolition program or from third party renovation projects. Anticipating that it will take 3-5 years for our Deconstruction Program to self-sustaining, we seek funding for the next three years to continue the program. Deconstruction includes selectively dismantling a house and reusing, recycling, or upcycling the maximum materials possible, thereby diverting them from the landfill. Typically, 60% of a house can be salvaged, in some cases over 75%. Materials that can be recycled or repurposed include: plywood, dimensional lumber, hardwood flooring, bricks, windows, concrete, fixtures, doors and knobs, hinges, paneling, insulation, stairs and railings, trim, lathe, cabinets and countertops. In addition to the environmental benefit of decreasing landfill use, a second goal is to reduce the need for raw materials by making salvaged materials available for use in new and rehabilitation construction projects. A peripheral benefit of the program is to facilitate the marketability for salvaged dimensional and old-growth lumber and other reusable building materials, thereby decreasing the future subsidies. HFHO's demolition funding partners will provide base funds for the cost of a typical demolition. We request that NET fund the delta between the cost of demolition and cost to deconstruct.

Sponsor Name: High Plains Weed Management Association **Nearest Town:** Scottsbluff
Project Name: North Platte River Invasive Species Control Project (Phase 3) **Project No:** 17-128
Amount Requested: \$900,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The High Plains Weed Management Association is requesting \$900,000 for three years towards existing projects which need to be completed and future projects in helping to restore the waterways of the North Platte and South Platte Rivers and its tributaries. For the last three years over 4,000 acres of Russian olive, Salt Cedar, and Phragmites have been removed in watersheds. Over the last 50 years, invasive species have invade the riparian areas of the Platte Rivers. At the present time, High Plains Weed Management has \$319,087 in existing projects covering 1,223 acres to be completed. Our invasive species eradication and control project targets 123 miles along the North Platte River, nine miles of the South Platte River and all perennial streams that feed the main river channel. During the last three years, the Nebraska Environmental Trust and the High Plains Weed Managements Association in a partnership with the USDA Natural Resource Conservation Services, the eight county weed superintendents of Garden, Morrill, Sioux, Scotts Bluff, Banner, Kimball, Cheyenne and Deuel, the South Platte NRD and the North Platte NRD have been working to restore habitat along the Platte Rivers and its tributaries. What should be open meandering waterways have become inaccessible for both man and beasts due to the congestion of Russian olive, Salt Cedar and Phragmites. With the help of the Nebraska Environmental Trust and our partners, we have removed 3,800 acres under contract with removal of Russian olive trees along with a 10 year follow-up plan with landowners for spraying Russian olive re-growth. In partnership with the Nebraska Department of Agriculture and the Nebraska Environmental Trust, additional acres of Russian olives, Salt Cedar trees and Phragmites will be sprayed.

Sponsor Name: Howells, Village of **Nearest Town:** Howells
Project Name: Repurposing of Pokorny Dam **Project No:** 17-160
Amount Requested: \$94,000 **Term of Project Request:** 2 **Review Group:** Lake Rehabilitation

The proposed project will repurpose Pokorny Dam from a single-purpose flood control structure to a multi-purpose structure that provides many benefits. Upgrading and retrofitting this high hazard earthen dam and adding innovative changes to the operation of the impoundment will expand water habitat for waterfowl and wildlife, improve water-quality, enhance groundwater recharge, while still protecting people and structures downstream. The height of the dam will be raised approximately three feet, and an auxiliary spillway will be added to comply with the regulatory requirements for High Hazard Dams. Furthermore, the structure will provide additional protection from the peak flood flows and will allow water to pass through once the reservoir is at capacity, thereby preventing catastrophic failure from overtopping. The bed of the existing reservoir will be excavated to store the original surface thereby restoring capacity this coupled with raising the high of the dam will provide greater flood control protection. The excavated bed and raiser pipe will be configured to provide shallow water habitat and wetlands for waterfowl and wildlife. Finally, water quality will be improved as a result of the project by implementing Best Management Practices (BMPs) that effectively capture not only agricultural runoff that currently runs through the structure, but also prevent contaminants- such as sediment, nitrogen, phosphorus, and other harmful bacteria- from flowing downstream. By capturing rainfall, runoff, and groundwater seeps that generates base flow, the impoundment will provide intentional recharge to the aquifer. This repurposing project could be used as a template for other projects on a statewide basis, thereby demonstrating how single-use structures can be converted to multi-use structures to enhance environmental status through water quality and habitat creation, enhance groundwater recharge, reduce risk, and increase safety.

Sponsor Name: Iain Nicolson Audubon Center at Rowe Sanctuary **Nearest Town:** Kearney
Project Name: Integrating new core habitat **Project No:** 16-144-2
Amount Requested: \$49,905 **Term of Project Request:** 2 **Review Group:** Statement of Intent

Iain Nicolson Audubon Center at Rowe Sanctuary (Rowe Sanctuary) is dedicated to the conservation of Sandhill Cranes, Whooping Cranes and other migratory birds and their habitat along the Platte River in southcentral Nebraska. Rowe Sanctuary seeks funds to integrate new core habitat and restore essential interconnectedness between grasslands and the Platte River through execution of the following Nebraska Natural Legacy Project strategies: 1) Restore additional grassland habitat in the valley through high-diversity, local ecotype restorations, 2) Undertake tree clearing to maintain open meadow habitat for Sandhill Cranes, Whooping Cranes, and grassland birds, and 3) Implement planned grazing strategies to reduce exotic cool-season grasses and improve native plant diversity and vigor. Additionally, Rowe Sanctuary will use its unique ability to gather people as an opportunity to highlight the resulting habitat and provide nature-based interpretation and education focusing on the annual crane migration and central Platte River ecosystem. This work will take place at the core of the contiguous, protected complex at Rowe Sanctuary. Work will focus on restoring agricultural land to native upland prairie and wet meadow habitat, increasing native plant diversity, reducing habitat fragmentation and removing hazards to at-risk species. Work will also improve our ability to manage habitat more effectively and by a variety of means for the benefit of at-risk and other target wildlife species. The activities outlined in the following proposal are critical to our ability to adequately ensure protection of important bird species which currently do or might use the Sanctuary. We intend to make our work replicable, and have tools in place to assess the impact and success of the project. We currently have additional, confirmed funding to support this project, and will work within the scope of the existing cooperative efforts to restore and enhance habitat within the Central Platte River Valley. THIS PROJECT WAS FUNDED \$37,551 IN 2016 WITH THE INTENT TO FUND UP TO \$49,905 IN YEAR TWO PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Joslyn Castle Institute for Sustainable Communities **Nearest Town:** Lincoln
Project Name: New Construction to House EcoStores Nebraska **Project No:** 17-177
Amount Requested: \$622,200 **Term of Project Request:** 2 **Review Group:** Waste Management

After more than ten years of turning donated building materials into useful and economically important value, the store is now faced with possible closure. The operation must either find an affordable new location, or close its doors. The EcoStore, since 2005 has demonstrated an effective ability to divert thousands of tons of still useful material from the Lincoln/Lancaster County landfill, thereby reducing the pressure for new landfill space and deferring new public investment in managing its waste stream, while also effectively conserving limited natural resources in the Midwest region. In order to be a sustainable operation, and to continue this valuable public service into the future, EcoStores Nebraska is requesting a two year grant of \$622,200 for construction of a new 10,000 sq.ft. warehouse. We are proposing a new partnership with the City of Lincoln, whereby the City would provide a long-term lease of two acres of industrial property in recognition, annually, of the economic value of reduced pressure on the growth of the landfill, and the increasing recycling services that the EcoStore will continue to provide into the future. As the city continues to grow, in both demographics, construction, and the per-capita volume of the waste stream, reduction services as historically provided by the EcoStore will be of increasing value to the reduction of public expenditures, environmental quality, and greater materials conservation.

Sponsor Name: Kearney Area Children's Museum **Nearest Town:** Kearney
Project Name: Little Sprouts Outdoor Classroom/Prairie Garden Walk **Project No:** 17-228
Amount Requested: \$94,551 **Term of Project Request:** 1 **Review Group:** Education

The Kearney Area Children's Museum is developing an outdoor classroom that will give children and families the opportunity to experience the natural environment and agriculture, together, and to learn about nature in ways that will have a lasting impact on their understanding of and connection to our environment, our agricultural community and the world around us. The outdoor classroom will enable us to present activities that require movement in wide-open spaces. Families will get their hands dirty and learn about sustainable agriculture when they experience the joy of planting, cultivating and growing vegetables in our community garden. Our Prairie Garden Walk will lead visitors from a native plant area in the front of the building to the outdoor classroom space and will illustrate the importance of native prairie plants in maintaining natural biodiversity and contributing to the health of our world and ourselves.

Sponsor Name: Keep Alliance Beautiful **Nearest Town:** Alliance
Project Name: 2017-2018 Recycling Center Operations and Education Program **Project No:** 17-223
Amount Requested: \$83,755 **Term of Project Request:** 1 **Review Group:** Waste Management

Keep Alliance Beautiful (KAB) Board of Directors and Staff wish to continue recycling and the education programs in Box Butte County, Nebraska. We will continue to operate and accept recyclables at the Recycling Center and the trailers stationed in Alliance and Hemingford, Nebraska. KAB will continue to send the bulk of our gathered and baled commodities to Western Resource Group in Ogallala, Nebraska via a local transportation company (Nebraska Transport Company) to minimize transportation costs and maximize commodity proceeds. KAB is committed to recycling and has diverted over 305,000 lbs. of waste from the local landfill during the first 6 months of 2016 and continually strives to increase the recycling in the community. KAB is seeking Grant funding to sustain Box Butte County recycling operations, equipment maintenance, education, and staff wages. The mission of Keep Alliance Beautiful is to educate, empower, and inspire Box Butte County residents to take greater responsibility for their community and the environment through activities, programs and education in area schools and in the community. KAB has access to materials from Keep America Beautiful for programs to engage students and individuals of all ages. Several school programs will be implemented in 2017 including the KAB Black Ops program. The new summer art program put in place by KAB in 2016 will continue in 2017 along with an after school art program during the school year. The art program focuses on creating art from items that will be discarded. With the continued financial support of the City of Alliance, private donations, and Grant funds, KAB is able to accomplish our mission and projects by partnering with area businesses, community leaders, local government, and neighbors to work together to create a clean and safe place to live and work for future generations.

Sponsor Name: Kroll, Tom **Nearest Town:** Arlington
Project Name: In Memoriam: Lewis and Clark **Project No:** 17-134
Amount Requested: \$164,100 **Term of Project Request:** 1 **Review Group:** Rural Habitat

My desire is to convert this 44.19 acres into wildlife habitat. It will be a rare combination of both uplands and wetlands centered between the Platte (4 miles W) and Elkhorn Rivers (2 miles E). Currently 8 +/- acres of serpentine wetlands are unfortunately silted in enough to become 99% dry during heavy irrigation season/drought conditions in late July to late August. Other than those months it is near full pool and teeming with a myriad of wildlife: frogs, snakes, songbirds, butterflies etc. Much of the upland is brome hay but there are several incredible areas of native prairie and wet meadows that exist, mostly on the east side of property. Focus is three fold: One, excavate a considerable amount of silt out which would create different levels of water then current flat bottom. This allows a fishery to be established year round even in severe drought. Two, convert the Brome to native grasses/tall prairie which is ideal habitat and filtration for wetlands and expanding the thickets on property. Trees and brush also to be planted. Three, create a couple silt basins near bordering property which is heavily farmed and considerable silt comes in annually. If silt continues unchecked, these wetlands will be gone forever. I'm seeking funds to upgrade my equipment as well as materials and habitat items to complete project. I'm willing to commit this 44.19 into a long term venue by enrolling it in the Wetland Reserve Program (WRP) or other such suggested programs that would make NET comfortable with its investment in this application. I understand I would need to work with the NRCS in that capacity. I currently am on some EQIP weed control/native grass planting process under way. Possibly co-op with Ducks Unlimited who could assist in plans and solidify long term agreement needs?

Sponsor Name: Lied Lodge and Conference Center **Nearest Town:** Nebraska City
Project Name: Tree Adventure Nature Explore Cabin **Project No:** 17-121
Amount Requested: \$126,960 **Term of Project Request:** 1 **Review Group:** Education

The Nature Explore Cabin was built around the concept of children exploring the woods and bringing their found treasures back to the cabin to be studied. It continues to serve as an exhibit for visitor's exploration and discovery of the environment while being both an entertaining and educational experience. Tens of thousands of guests visit the Cabin each year. We partner with the community to enrich the lives of others with environmental education. Through our Tree Adventure attraction and the support of Peter Kiewit Foundation and their Summer Fun Days program, we are able to provide youth with an opportunity they wouldn't otherwise have, to learn about and experience nature up-close. The impact on these young minds is profound, and it tells us that we have many more people to reach who could benefit from these interactive educational experiences. This funding request includes the addition of many interactive educational experiences, as well as enhancements to exhibits that are currently available. Research has shown that hands-on, sensory-based, interactive elements greatly enhance visitor's experience and education in places such as our Nature Explore Cabin. The National Association of Interpretation cites the following as important to helping "people engage with the resource both mentally and physically: questioning, role-playing, sensory experience, challenges, games, participation, props." With the experience and expertise of our Nature Interpreters who help guide our guests, our goal is to expand the information provided to include binoculars, microscopes, models and replicas to give our guests a fun, hands-on learning experience. Our tour curriculum is aligned with Nebraska State Science Standards. These updates will increase our ability to meet these standards for both guided and self-guided tours. With these improvements, the Nature Explore Cabin will positively impact the visitor experience and continue to educate and inspire sustainability for years to come.

Sponsor Name: Lincoln Children's Zoo **Nearest Town:** Lincoln
Project Name: Lincoln Children's Zoo Expansion **Project No:** 17-157
Amount Requested: \$929,000 **Term of Project Request:** 3 **Review Group:** Urban Habitat

Improved habitat of endangered species, efficient and effective use of surface water, and reduction of greenhouse gases are all critical environmental elements included in the upcoming expansion planned for Lincoln Children's Zoo. This project is a dynamic partnership with the city of Lincoln, Lancaster County, Lincoln Public Schools and philanthropic support from corporations, individuals and foundations. Lincoln Children's Zoo respectfully asks the Nebraska Environmental Trust to consider funding for the following project elements within the five-acre expansion area. Funding the elements included in this proposal will result in clear environmental benefits matching the priorities which the Trust has established as important to the state of Nebraska, including:

- Habitats: The Zoo plans to add five new animal habitats, including the Black-footed ferret, an endangered species native to Nebraska. The Zoo plans to increase capacity in its propagation efforts of the Salt Creek Tiger Beetle, another endangered species. In addition to a focus on animals, the Zoo plans to create spaces that are placed with drought-resistant plant species, many native to our state, that will be utilized to assist pollinator insects and birds in performing their valuable service to nature.
- Surface and Ground Water: Rain gardens, bio-retention cells and permeable pavers are planned in the project to ensure rainwater is absorbed and managed prior to flowing into Antelope Creek, which is a critical piece of the city's Antelope Creek Watershed Management Plan.
- Air Quality: The Zoo plans to utilize the most efficient HVAC and lighting in new buildings to reduce its carbon footprint in addition to preserving and adding additional woody plantings to assist in the longterm absorption of CO2 and for nature water filtration and purification.

Sponsor Name: Lincoln, City of **Nearest Town:** Lincoln
Project Name: Eastern Saline Wetlands Project- 2016 **Project No:** 16-116-2
Amount Requested: \$265,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Eastern Saline Wetlands Project 2016 will conserve the most imperiled natural community in Nebraska. The eastern saline wetlands ecosystem is located primarily in the Salt Creek watershed in northern Lancaster and southern Saunders counties. Conserving these wetlands protects the fauna and flora which survive in these saline wetlands unique to this limited area of the state including the Salt Creek tiger beetle and saltwort plant. Approximately 4,700 acres of saline wetlands still exist and these acres are only partially conserved. Conservation would be afforded the saline wetlands in four ways: 1. By restoration and management work on the saline wetlands. 2. By acquiring the wetlands and adjoining buffer and connective tracts in fee simple or purchase of permanent conservation easements from willing sellers. 3. Implementing activities identified in Upper Little Salt Creek Saline Wetlands Planning Project (2015) 4. By continuing to retain a full-time Saline Wetlands Coordinator. Future wetland restoration projects were identified through the Upper Little Salt Creek Saline Wetlands Planning Project (2015), which was funded through the City of Lincoln 2012 NET grant. The plan developed a spatial analysis tool to evaluate existing conditions of the saline wetlands to assist the Partnership in prioritizing future conservation projects. Land acquired or conserved is largely left in its natural state or used for limited agricultural purposes. The saline wetlands exist in the flood plains of the streams. The conservation of them provides a permanent measure of flood control along the waterways and protects the quality of water from typical urban and agricultural pollutants. With the Saline Wetlands Conservation Partnership and a Coordinator focused on the project, the partners will implement the Planning Project; a framework for effective and higher-leverage conservation of the eastern saline wetlands. We feel the Eastern Saline Wetlands Project 2016 qualifies for the feature program bonus. THIS PROJECT WAS FUNDED \$265,000 IN 2016 WITH THE INTENT TO FUND UP TO \$265,000 IN YEAR TWO AND \$265,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Lincoln, City of **Nearest Town:** Lincoln
Project Name: Safe, Legal, and Green Toxics Reduction! A Proposal to Equip and Supply the New Lincoln-Lancaster County Household and Small Business Hazardous Materials Collection Center **Project No:** 17-117
Amount Requested: \$100,000 **Term of Project Request:** 1 **Review Group:** Waste Management

The Lincoln-Lancaster County Health Department (LLCHD), in cooperation with Lincoln's Public Works and Utilities (PWU) Department is seeking \$100,000 to equip and supply the new Lincoln-Lancaster County Hazardous Materials Collection Center for households and small businesses that is currently under construction. Located at the North 48111 St. Solid Waste Disposal Facility (aka: Transfer Station), the new community asset will allow for year-round access to the safe collection, diversion and recycling of hazardous materials for 115,000 plus households (300,000+ residents) and upwards of 4,000 small business/agencies that are exempt from state and federal hazardous waste regulations. This new asset will help to protect public health and the environment. The goal of this project is to fully equip and supply the new Hazardous Materials Collection Center with a focus on safety and environmentally-friendly purchases. This includes both major and minor equipment in addition to supplies (e.g. solar photovoltaic system, forklift, and facility monitoring equipment) which will only complement other "green" elements of the new center. A well-equipped facility will reduce health risks to staff and public while also reducing environmental contamination of water, land and air caused by improper disposal of hazardous wastes. It will also support the growth and prosperity of small businesses in Lincoln and Lancaster County by offering a lower cost option for safe and legal hazardous waste diversion and disposal. The Lincoln-Lancaster County Solid Waste Plan 2040 process revealed that 69% of residents surveyed believe a building should be constructed to accept hazardous waste year round. The plan also noted a HHW/CESQG Facility would likely result in: increased accessibility to hazardous/toxic waste disposal and increased opportunities for toxics-reduction education. LLCHD committed substantial funds along with securing City Capital Improvement Project dollars, Nebraska Environmental Trust and Nebraska Department of Environmental Quality funding for facility site preparation and construction.

Sponsor Name: Lincoln, City of **Nearest Town:** Lincoln
Project Name: StarTran Renewable Natural Gas Bus Fueling Station **Project No:** 17-120
Amount Requested: \$1,400,000 **Term of Project Request:** 2 **Review Group:** Air Quality

StarTran requests \$1,400,000 to complete the \$3,163,220 RNG bus fueling station installation near the Lincoln Wastewater System's (LWWS) wastewater treatment system. LWWS will construct a \$7.5 million replacement of its anaerobic digestion system cogeneration facilities. RNG is a byproduct of the anaerobic digestion from the treatment of 30+ millions gallons per day of wastewater. The fueling station allows the use of the RNG to fuel City buses. The new system will capture 250 CFM (Cubic Feet per Minute) of methane gas to fuel buses. Up to 300 CFM will be available in the future. No additional modification is needed for Compressed Natural Gas (CNG) buses to use RNG. Additionally, the stand-alone RNG fueling station could be used to fuel other City-owned vehicles, further reducing GHG (Green House Gas) and PM (Particulate Matter) emissions, improving air quality. Benefits: • Reduce GHG tailpipe emissions by 16% • Reduce PM emissions by 97% • Eliminate the flaring of methane from the LWWS treatment plant of approximately 70,000 SCF (Standard Cubic Foot) daily by capturing and converting 95.4 to 97.8% of these GHG into RNG fuel. • Lower fuel costs for StarTran's CNG fleet, allowing the public transit system to use savings to expand public transit, increasing ridership and reducing public dependence on private vehicles, further improving air quality. Additionally, fewer vehicles reduce the need to build more roads and paving over land, resulting in improved habitat preservation, less run-off from storm events improving surface and groundwater, and improved soil management. • Furthers improvements in waste management. • Locate RNG fueling station within 1.5 miles from the optimum Model Selection Point. • Eliminate the need to travel 20 miles, round trip, from bus barn to a commercial CNG fueling station. • Cost savings of 35% over diesel fuel, resulting in an approximate savings of \$50,000 to \$80,000 per transit bus over a vehicle lifetime of 12 to 15 years.

Sponsor Name: Lincoln, City of - Parks and Recreation Department **Nearest Town:** Lincoln
Project Name: Prairie Corridor Phase II **Project No:** 16-122-2
Amount Requested: \$305,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Vision: To manage and enhance tallgrass prairie, riparian habitat and wetland areas, linking two premier environmental education centers, Pioneers Park Nature Center and Spring Creek Prairie Audubon Center, with a 10-mile trail traversing the length of the corridor, and trail segment connecting to Conestoga Lake State Recreation Area. Visitors will be able to experience and learn from the Prairie Corridor, exploring a diversity of habitats and species. Since the initiation of Phase I, the project has protected an additional 492 acres of prairie and other natural resources through the purchase of land and conservation easements for a total of 5,020 acres of conserved prairie, and has reestablished 38 acres of tallgrass prairie. Phase II Components: Conservation - Purchase of fee simple and conservation easements from willing property owners. Habitat - Prairie land management, enhance existing native seeding, manage saline wetlands, replant riparian areas, and tree removal. Research - To increase the knowledge regarding tallgrass prairie management and investigate the rapid decline of pollinators, UNL's School of Natural Resources will partner with LPRD to investigate the following: Pollinators: Research will look at how to increase pollinator species in design and management of prairie reconstruction, or conduct monitoring to document trends in species abundance and richness to help identify potential causes of change. Habitat Diversity within the Urban/Rural Nexus: Research will look at how composition, size and shape of various prairie areas from virgin prairie to Conservation Reserve Program (CRP) grasslands, to reconstructed prairie on agricultural ground, to the rough in the Pioneers Park golf course contribute to diversity, resiliency and species richness, and how the Prairie Corridor can best be designed and managed to further this diversity. Trail/Economic Development will increase recreational opportunities and tourism, enhancing the economies of the City of Lincoln and the Village of Denton. THIS PROJECT WAS FUNDED \$305,000 IN 2016 WITH THE INTENT TO FUND UP TO \$305,000 IN YEAR TWO AND \$150,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Little Blue Natural Resources District **Nearest Town:** Minden
Project Name: Puddles under the Pivots **Project No:** 16-111-2
Amount Requested: \$208,865 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Activities outlined in this proposal will restore wetlands and provide compatible solutions that will compliment agriculture operations. Grant funds will be leveraged with significant funding from a Natural Resources Conservation Service’s (NRCS) Wetlands Reserve Easement Partnership (WREP) grant. Annually, NRCS requests proposals to develop WREP Special Initiatives. These Special Initiatives focus on innovative approaches that enable tracts, enrolled in the Wetlands Reserve Program, to “fit” into local agriculture operations. This year the Rainwater Basin Joint Venture (RWBJV) submitted a 1,200 acre proposal focusing on programmatic flexibility necessary to ensure producers could retain the right to pass the pivot over enrolled acres. In the past, landowners were hesitant to enroll because it would inhibit their ability to complete full rotations if the pivot had to travel over program acres. The \$626,600 of Nebraska Environmental Trust funding will be used for wetland restoration, pivot modification, and establishment of grazing infrastructure. A variety of pivot modifications could be utilized, like moving the pivot point, integration of track systems, and/or low pressure tires to name a few. These modifications will eliminate any impact to the restored wetlands and ensure the pivot can pass over the enrolled acres. Grazing infrastructure (perimeter fence, pivot gates, livestock well, etc.) will be established to ensure the restored acres can be seamlessly transitioned from flood prone cropland to forage production. Grazing will maintain the working nature of the lands and maximize habitat conditions. Three of Nebraska’s largest pivot manufactures (Lindsay, Reinke, and Valmont) have signed on as corporate partners. These companies have committed to develop a cost-share program for pivot modifications and assist with outreach and marketing through their diverse pivot dealer network. These dealers will be able to identify a multiple producers that will be a good fit for this program and ensure implementation success. THIS PROJECT WAS FUNDED \$208,865 IN 2016 WITH THE INTENT TO FUND UP TO \$208,865 IN YEAR TWO AND \$208,870 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Little Blue Natural Resources District **Nearest Town:** Minden
Project Name: Hydrogeology Project **Project No:** 17-185
Amount Requested: \$63,000 **Term of Project Request:** 1 **Review Group:** Water

The Little Blue River basin is one of thirteen major river basins in Nebraska. The basin's agricultural productivity is enhanced by widespread irrigation from groundwater supplies. There are over 700,000 irrigated acres in the portions of eight counties that make up the basin. The same aquifers that supply irrigation water are also the primary source of drinking water for basin residents. The LBNRD and TBNRD seek funding from the Nebraska Environmental Trust (NET) to accelerate the two districts' programs to drill test holes, record down-hole data, construct groundwater observation wells and install dedicated water-level recorders to gather more detailed baseline information about groundwater quality, quantity, and aquifer composition. The expansion of a monitoring network will allow the districts to develop a more complete picture of the current status of groundwater resources, and provide data to create a Basin water budget and support groundwater modeling efforts. Basic hydrogeologic data collected through test hole drilling and down-hole geophysical logs is critical to development of a complete regional hydrogeologic overview. This data is needed as soon as possible because the two districts are currently working with the Nebraska Department of Natural Resources (NDNR), developing voluntary integrated water management plans (IMPs). The districts' groundwater monitoring programs will provide enhanced support of planning and management activities. Water quality data collection and monitoring is another important responsibility of the Districts and dedicated monitoring wells enable collection of unaltered samples from distinct zones in the aquifer. Hydrogeologic characterization from test holes, stratigraphic analysis, water chemistry, and water-level information will help the Districts improve their water management plans, programs and activities, which will enable them to more effectively protect groundwater resources.

Sponsor Name: Little Blue Natural Resources District **Nearest Town:** Steele City
Project Name: Post-Flood Habitat and Environmental Restoration **Project No:** 17-187
Amount Requested: \$550,000 **Term of Project Request:** 2 **Review Group:** Bank Stabilization

The Little Blue Natural Resources District (LBNRD) is requesting funding support from the NET for Post-Flood Habitat & Environmental Restoration on the Little Blue River. This Project is the first step in implementing the Little Blue River Basin Water Management Plan (Plan) and addresses other downstream priorities identified by the State of Kansas, Nebraska's State Nonpoint Source Plan, and Nebraska's 303(d) impaired water list. The Plan identified target areas along the Little Blue River that are in need of environmental restoration as a result of excessive bank erosion. Floods in 2015 and 2016 after Plan development, including the highest flows ever recorded on the Little Blue, have intensified bank erosion. The Project's purpose is to enhance the environmental integrity of the Little Blue River by stabilizing highly erosive stream banks. The use of bendway weirs provides a unique approach to streambank protection that will also result in improved aquatic and riparian habitat and a reduction in impacts from sediment and nutrient loads. In addition to weir construction, streambanks will also be re-shaped and stabilized with willows, dogwood, hardwoods and grasses. Private ground surrounding the site will be established as a grass buffer to enhance project performance and reduce future maintenance costs. LBNRD is modeling the Project after a highly successful downstream effort by Kansas in Washington County. Two sites have been selected for this project, both of which will be used as demonstrations for other interested landowners. Pre-project and post-project biological monitoring will be conducted by NDEQ to quantify changes in the biological communities and document project benefits. This will be a two-year project with design, engineering and permitting being completed in year one and construction completed in year two. This project will be accomplished through a public/private partnership between the Nebraska Department of Environmental Quality, property owners, LBNRD, and NET.

Sponsor Name: Little Blue Natural Resources District **Nearest Town:** Hebron
Project Name: Stream Monitoring **Project No:** 17-189
Amount Requested: \$15,000 **Term of Project Request:** 1 **Review Group:** Water

The Little Blue Natural Resources District (LBNRD) is requesting \$15,000 for the installation of two additional stream gages in the Little Blue River Basin to monitor surface water flows and flood elevations. The LBNRD is divided into six main watersheds; Upper, Middle, and Lower Little Blue; Big Sandy Creek; Spring Creek; and Rose Creek. Currently there are three gages located within the LBNRD that monitor stream flows in Big Sandy Creek and the Middle and Lower Little Blue watersheds. An additional state-line gage lies just across the Kansas line at Hollenburg, KS which monitors water flows for Kansas-Nebraska Blue River Compact compliance. The additional gages would assist the LBNRD, National Weather Service, Emergency Managers, State of Nebraska and resources interests in monitoring volumes and velocity of surface water flows particularly in the in the Spring Creek and Rose Creek watersheds. Stream flow information would assist the LBNRD with implementation of the Little Blue River Basin Water Management Plan (Basin Plan). The Basin Plan was developed in 2015 to establish a strategy to manage surface and groundwater quality and quantity over the next 30-years. The Basin Plan estimated that the Little Blue Basin currently has in annual decrease of 35,000 acre feet of groundwater storage per year. Additionally, the Little Blue River has seen an increase in days where flows have fallen below levels necessary to meet required flows set by the Blue River Compact. To reduce the aquifer declines and to augment stream flow, many projects were recommended, including groundwater recharge and re-timing projects. Stream gage data would provide the LBNRD information necessary for planning and design of the projects identified in the Basin Plan to improve ground and surface water quantity and quality.

Sponsor Name: Live Well Omaha **Nearest Town:** Omaha
Project Name: Heartland B-cycle Transit Oriented Expansion **Project No:** 16-219-2
Amount Requested: \$109,750 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Heartland B-cycle, a program of Live Well Omaha, is the recent receipt of a \$930,327 federal grant to fund 80% of an expansion of 36 stations and 152 bikes and is seeking matching funds for these dollars. With this funding, Heartland B-cycle is positioned to expand the system by adding bikes and stations in spring of 2017, 2018, and 2019. The goal of this expansion is to increase the bike share system's ability to function as a transit extender and last-mile solution for bus commuters. By making alternative modes of transportation easier for commuters, we seek to increase the number of commuters using bike sharing as an active mode of transportation, thus decreasing car use, and improving air quality. Large-scale bike sharing systems are a viable, accessible, and sustainable transportation option that improves air quality and public health by reducing the vehicle miles travelled (VMT) among existing car users. A widely available network of stations allows users to use a bike instead of a car for all or part of their trip. Even with tremendous use to date Heartland B-cycle's 31 station system needs a larger footprint to help drive more ridership and adequately benefit all willing users in the metro area. Nebraska Environmental Trust (NET)'s financial support and public partnership helps make this vision a reality by providing critical matching funds for the expansion grant received in partnership with Metropolitan Area Planning Agency (MAPA). With NET's investment, MAPA estimates this equipment could reduce 609,790 kg of pollution over the equipment's 10-year useful life. As a critical funder of this project the Trust would be recognized prominently on the 36 stations and 152 bikes that are part of this grant, helping to educate the public on air quality issues, and providing a visible and lasting legacy for our state. THIS PROJECT WAS FUNDED \$292,667 IN 2016 WITH THE INTENT TO FUND UP TO \$109,750 IN YEAR TWO AND \$36,583 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.
 Board approved sponsor transfer to the City of Omaha, August 2016

Sponsor Name: Loess Canyon Rangeland Alliance, The **Nearest Town:** Curtis
Project Name: Grassland Stewardship with Prescribed Fire **Project No:** 17-212
Amount Requested: \$480,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Loess Canyons is a 338,000-acre mosaic of largely unfragmented mixed-grass prairie and wooded canyons. Due to its deep, fertile soils, this landscape is a valuable forage resource in the region. The land and cattle support family-owned ranches and an associated land stewardship ethic. In return, 29 species of concern thrive in the prairies over which these landowners steward. The Loess Canyons has been identified as a Biologically Unique Landscape by the Nebraska Natural Legacy Project and as a focus area for the USFWS Partners for Fish and Wildlife Program. Eastern red cedar invasion and the consequences of such for Nebraska's grasslands are well-documented and alarming. This hardy tree, which is easily killed by fire, thrives in the deep soil and semi-arid environment of the Loess Canyons. Some properties are over 70% covered by cedars. The "Grassland Stewardship with Prescribed Fire" project plans to build on the success of landowners and burn associations to restore ecological resiliency and rangeland productivity in the Loess Canyons. This will be accomplished by empowering landowners with the knowledge, funds, and technical assistance to remove cedars, create firebreaks, defer grazing, and work with local burn associations to return fire to the ecosystem. Timing will be critical to maintain the current synergy between landowners, burn associations, and resource professionals as they aspire toward the goal of burning 33,000 acres per year. The Loess Canyons Rangeland Alliance (LCRA), private landowners, NGPC, USFWS, Twin Platte NRD, NRCS, and others have an effective and successful partnership in place to restore grasslands within the Loess Canyons. The LCRA seeks to expand this partnership and use \$480,000.00 in grant and matching funds to do over \$1,000,000.00 worth of restoration activities. This is expected to result in over 4,000 acres of invasive trees removed and to facilitate 30,000 acres of prescribed fire.

Sponsor Name: Loup Basin Resource Conservation and Development Council **Nearest Town:** Ericson
Project Name: Cedar River Corridor Project III **Project No:** 17-207
Amount Requested: \$83,138 **Term of Project Request:** 2 **Review Group:** Bank Stabilization

The Cedar River Corridor Project III is a regional project covering more than 100 miles along Cedar River. This project addresses the Environmental Trust's priorities: Habitat and Surface and Groundwater. This is a follow up to the Cedar River Corridor Projects I and II that stabilized 32 streambanks from 2002-2005. The streambanks were stabilized to reduce surface water degradation and sedimentation loading of the river system, improve the aquatic habitat through riparian buffers, decrease the amount of sediment and chemicals entering the river and reverse the loss of prime cropland and rangeland. Very little post monitoring has been conducted to determine the success of the two previous projects. An extreme flow event occurred following the 2010 failure of Lake Ericson Dam, potentially causing many of the stabilized streambanks to fail. A study to evaluate the various treatment alternatives implemented, their success and function, and their cost-effectiveness would be important for future similar efforts, and could save thousands of dollars on future stabilization projects, in the Cedar and other Nebraska Rivers. This proposed project will evaluate the effectiveness of the 32 stabilized streambanks, installed in 2002-2005 on Cedar River that were partially funded by the Environmental Trust. The primary goals are to: 1) quantify the streambank erosion rates with and without stabilization prior to and after dam failure; 2) assess the current stability of streambanks with and without stabilization; and 3) quantify the cost effectiveness of the various practices used for streambank stabilization. This project will be a collaboration between the Loup Basin RC&D (Outreach), University of Nebraska-Lincoln (technical assistance), Nebraska Department of Environmental Quality (monetary assistance) and landowners in the watershed (transportation and accessibility to study sites). Funding from the NET and NDEQ will provide funds for field data collection and graduate student support.

Sponsor Name: Loup Power District **Nearest Town:** Platte Center
Project Name: Wilkinson WMA 12.5kV powerline removal and marking of a 34.5kV powerline shield wire **Project No:** 17-105
Amount Requested: \$14,132 **Term of Project Request:** 1 **Review Group:** Rural Habitat

Nebraska's wetlands provide critically-important habitat for an abundance and diversity of migratory waterbirds (e.g., waterfowl, cranes, shorebirds, and others). Wilkinson Wildlife Management Area (WMA), located in Platte County, is one of the state's premier wetland areas. Wilkinson WMA has become a location for concentrations of waterbirds, and in spring of 2016, three state and federally endangered adult Whooping Cranes stopped-over during their migration for a remarkable twelve days. The cranes' presence at Wilkinson WMA, however, raised serious concerns because a portion of the WMA where the birds frequented is bisected by a 12.5kV distribution powerline that runs through the interior of the wetland. Powerlines inadvertently kill birds. Powerlines are a known source of mortality for juvenile and adult Whooping Cranes. The powerline currently located in the interior of the wetland complex at Wilkinson WMA was not the result of a poor siting decision, but an artifact of a different era when the wetland was farmed. A partnership that includes Loup Power District, the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service has developed a plan to completely remove the power line from the interior of the wetland. This single action will eliminate a potential source of bird mortality and is a remediation action needed to continue to restore this portion of the wetland at Wilkinson WMA.

Sponsor Name: Lower Big Blue Natural Resources District **Nearest Town:** Jansen
Project Name: Cub Creek 12A Reservoir Water Quality Project **Project No:** 17-104
Amount Requested: \$298,000 **Term of Project Request:** 2 **Review Group:** Lake Rehabilitation

This water quality improvement project will be conducted on Cub Creek 12A Reservoir, located in Jefferson County, Nebraska. The reservoir is owned and operated by the Lower Big Blue Natural Resources District (LBBNRD). Cub Creek 12A Reservoir is listed as "impaired" from E. coli bacteria on Nebraska's 2016 Section 303(d) List and has been on this list since high concentrations were documented in 2005. In 2011 the LBBNRD concentrated efforts to improve watershed conditions with a goal of reducing bacteria and nutrient loading by 30 percent. Increased cost-share and incentives were provided through a combination of funding from the USDA, NDEQ, and the LBBNRD. Landowner participation in land treatment program was tremendous resulting in a bacteria loading reduction of more than 47 percent. With the accomplishment of major watershed improvements the LBBNRD will now focus on improving reservoir conditions. Reservoir alternative selection and project design was based on results and conclusions from watershed and reservoir assessments. In 2016, the NRD received additional project input from NDEQ and NGPC, whereby the design was modified. This project is identified as a "high priority" in the Lower Big Blue River Basin Nonpoint Source Watershed Plan and is listed as an Impaired Lake Identified for Restorative Actions in the Nebraska Nonpoint Source Pollution Management Plan. The LBBNRD proposes to utilize a combination of funding sources including NET for reservoir deepening, installation of jetties, the creation of wetland areas, and shoreline stabilization.

Sponsor Name: Lower Elkhorn Natural Resources District **Nearest Town:** Norfolk
Project Name: Real-Time Monitoring Well Network Telemetry **Project No:** 17-135
Amount Requested: \$78,673 **Term of Project Request:** 2 **Review Group:** Water

The Lower Elkhorn Natural Resources District (LENRD) is committed to the conservation of groundwater and recognizes the significant value a reliable groundwater source has for its constituents. In its efforts to proactively manage and conserve groundwater, the LENRD proposes the Lower Elkhorn Real-Time Monitoring Well Network Telemetry Project. This project will result in real-time access to groundwater level data by any individual with internet access. The ability to utilize real-time data when making management decisions is necessary for the LENRD to proactively manage the ground water supply in northeast Nebraska. The Eastern Nebraska Water Resources Assessment (ENWRA) and the University of Nebraska Conservation and Survey Division (CSD) fully support this effort, and are committed to providing assistance to the LENRD for this project. Nebraska Environmental Trust support of this project will enable the LENRD to install telemetry equipment on its established groundwater well monitoring network at 45 well sites. Funding to purchase 14 replacement transducers is also being requested. These transducers have reliably provided data to the LENRD, but require periodic replacement to ensure that accurate data continues to be collected. In return, the LENRD will install and maintain all components of the project, including all staff time and travel costs and any subscription fees or web platform development fees. ENWRA will purchase and install one telemetry system and purchase a replacement transducer for the well site, as well as assisting the LENRD with data processing and evaluation. CSD will contribute staff time and resources to evaluate well sites and provide a detailed aquifer description. The partnership between the LENRD, NET, ENWRA, and CSD will result in an innovative method of collecting and disseminating vital groundwater level data to all entities and individuals that can utilize the information when making management decisions.

Sponsor Name: Lower Platte South Natural Resources District **Nearest Town:** Raymond
Project Name: Upper Little Salt Creek Saline Wetlands Conservation **Project No:** 17-114
Amount Requested: \$400,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Upper Little Salt Creek Saline Wetlands Conservation Plan (Plan) completed in December 2015 was developed through the Saline Wetlands Conservation Partnership (SWCP) with funding provided through the City of Lincoln 2012 NET Grant. The Plan targeted six saline wetland management areas in the 3,194 acre Saline Wetland Preservation and Rehabilitation area of the Upper Little Salt Creek Watershed; sub-area of the Little Salt Creek Watershed. Nebraska's eastern saline wetlands are one of the most imperiled natural communities in Nebraska. The four objectives of the Plan were: 1. Identify planning area boundary and land management, rehabilitation, and conservation goals for the planning area 2. Collect field and spatial data to evaluate conditions and prioritize projects; 3. Evaluate techniques used in saline wetlands rehabilitation; 4. Assist the Saline Wetlands Conservation Partnership with future decision making for the planning area. The SWCP Plan Team used spatial analysis results to prioritize projects in the planning area. Saline Wetland Improvement Projects (SWIPs) were identified with the spatial analysis results. SWIPs for saline wetland management areas were identified and prioritized from 1 (highest) to 3. With this grant the Lower Platte South NRD (LPSNRD) is intending to implement several high priority SWIPs on district properties with the cooperation of the SWCP. This process would include initially hiring a consultant firm to perform the final design of the selected projects. Examples of the SWIPs may include: 1. Armoring head-cuts; 2. In-stream grade control; 3. Habitat shelf development; 4. Sediment trap construction; 5. Channel re-alignment (Re-meander channelized portions of Little Salt Creek). Conserving these wetlands protects the fauna and flora in these unique saline wetlands, including the Salt Creek tiger beetle and saltwort plant. The LPSNRD will implement this eastern saline wetlands conservation project in cooperation with the SWCP and a Coordinator focused on the project.

Sponsor Name: Lower Republican NRD **Nearest Town:** Franklin
Project Name: Rural Water Project **Project No:** 17-142
Amount Requested: \$27,412 **Term of Project Request:** 1 **Review Group:** Water

Lower Republican NRD serves rural water customers in parts of Franklin, Webster, and Nuckolls Counties. In just the past three years, almost four million (4,000,000) gallons of water have been lost due to undetected water leaks. Presently, customers read their own meters and compute their water usage. Some customers read only once or twice a year-not monthly. This has led to large amounts of water loss through undetected/not reported leaks on properties where meters are not read regularly. This project seeks to provide new digital water meters to 186 Lower Republican NRD rural water customers. With new remote-read digital meters and associated support equipment, the Lower Republican NRD's Rural Water superintendent can drive the entire system in one day and read the meters on a monthly basis. In completing this project, water usage monitoring is enhanced and millions of gallons of water conserved.

Sponsor Name: Middle Niobrara Natural Resources District **Nearest Town:** Ainsworth
Project Name: Long Pine Creek Watershed – Phase II Implementation **Project No:** 17-167
Amount Requested: \$3,347,000 **Term of Project Request:** 3 **Review Group:** Water

The Long Pine Creek Water Quality Management Plan (WQMP) and associated Sand Draw Creek Restoration Plan evaluates 13 subwatersheds and prioritized management actions to address water quality and aquatic habitat issues within the area. The WQMP also outlines restoration plans for lower reach of Sand Draw Creek and identifies over 25 Best Management Practices (BMPs) and grade control structures to enhance stream bank stability, down cutting, and erosion problems. Additional special priority areas are also classified; structural and nonstructural BMPs will be implemented. Hidden Paradise is identified; concerning the effects of wastewater entering the watershed. The Nebraska Environmental Trust (NET) and NDEQ Section 319 funds and project sponsors' monies secured Phase I, and support Phase II of the Long Pine Creek WQWMP. However, delays in the review process have interrupted implementation. Phase II will continue Phase I implementations and commence future improvements. BMP's in Phase II are focused to manage groundwater and surface water irrigation runoff in the high priority sub watersheds. The specific implementations addressed in Phase II will include: practicing forestry management by creating fire breaks and access points, also utilizing forestry biomass; designing and permitting of an additional eight (8) grade control structures as part of phase 1; designing and permitting of additional grade control structures on up to four (4) sites to address stream instability and aquatic habitat issues; funding a watershed coordinator to work closely with the landowners to implement BMPs; implementing numerous structural and nonstructural BMPs to correct land use deficiencies contributing to pollution of surface water and groundwater, instability of the streams, and degradation of aquatic and terrestrial habitat.

Sponsor Name: Middle Republican Natural Resources District **Nearest Town:** Curtis
Project Name: Middle Republican NRD Observation Well Network **Project No:** 17-149
Amount Requested: \$128,705 **Term of Project Request:** 2 **Review Group:** Water

The Middle Republican Natural Resources District (MRNRD) requests funds to design and construct a network of dedicated observation wells for groundwater quantity and quality monitoring. The existing MRNRD network is sparse (1 well per township) compared to other areas of the Republican basin (3 - 8 wells per township) and it consists primarily of irrigation wells owned by cooperating farmers. Dedicated observation wells will improve this network by increasing the density of wells, addressing critical areas and issues, and providing continuous monitoring. A strategic approach will be used to plan, design and install 20 dedicated observation wells at key locations throughout the District. The MRNRD will partner with the University of Nebraska to conduct hydrogeologic assessment of the District prior to, during, and after installation of the wells to achieve a cost-effective, scientifically sound network for data collection. A preliminary hydrogeologic framework will be established to identify target areas for observation wells. Test holes will be drilled at key locations to determine basic aquifer characteristics and to design the wells. The wells will be equipped with digital data loggers for continuous monitoring. Water sampling will be conducted after well installation to establish base-line water chemistry and determine groundwater ages for analysis of the groundwater flow system. The data gathered from the improved network will provide valuable information to researchers, water managers and the public. This information will benefit the preservation and protection of groundwater for future generations.

Sponsor Name: Nebraska Cattlemen **Nearest Town:** Statewide
Project Name: Leopold Conservation Award Video Project **Project No:** 16-134-2
Amount Requested: \$10,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

In his influential book, A Sand County Almanac, Aldo Leopold called for an ethical relationship between people and the land they own and manage. This land ethic lives on in farmers and ranchers across Nebraska and nationwide who are committed to the enhancement of the land, water and wildlife in their care. Since 2006, Nebraska Cattlemen and Sand County Foundation have presented the Leopold Conservation Award (LCA) to families who internalize this land ethic and are dedicated to leaving their land better than they found it. Since 2010, the LCA Program has benefited from the announcement of the award recipient by the Nebraska Governor at the State Capitol on Earth Day. The governor's involvement has increased media interest in the award, including three Nebraska television stations, both major Nebraska newspapers, and numerous other print and online publications. The Associated Press picked up the Omaha World Herald's story for the past several years, expanding its reach to media outlets as far away as The Connecticut Post. The LCA Video Project seeks to capture the landowners' ethic in their own words, giving recipients an opportunity to share their story. Visual media are essential for not only archival purposes, but also for educating the general public on conservation practices occurring every day in Nebraska. Aside from actually setting foot on these operations, these videos are the best way to experience the exceptional efforts of these agricultural families. The project involves a full day of crew time interviewing the landowner and filming their conservation practices. The video will be professionally produced first as a stand-alone piece to be shown during speaking engagements, conventions, the Nebraska State Fair and trade shows, and second as a piece to be placed on the Foundation's YouTube channel, award partner and sponsor websites, and other online video outlets.

THIS PROJECT WAS FUNDED \$10,000 IN 2016 WITH THE INTENT TO FUND UP TO \$10,000 IN YEAR TWO AND \$10,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Nebraska Community Energy Alliance **Nearest Town:** Omaha
Project Name: Integrated Energy Systems: Solar Power Generation, Electric Vehicles, Battery Storage **Project No:** 17-164
Amount Requested: \$239,429 **Term of Project Request:** 1 **Review Group:** Air Quality

The Nebraska Community Energy Alliance (NCEA) was organized to build and promote advanced technologies in buildings and transportation fuel that save energy, reduce CO2 and other pollutants, and cut costs. Buildings and transportation are the two largest consumers of fossil fuels for energy and two largest contributors of CO2. NCEA has demonstrated the environmental benefits of EVs and utility scale solar generation. Specifically deployed projects thus far have saved 23.6 tons in CO2 emission reduction (47,217.47 lbs.), not including over 27,000 tons (54 million pounds) over the next 25 years once the two 500kW solar projects in Gothenburg and in Central city are operational. This proposal introduces battery storage as a component of solar and EVs. Battery storage enables renewable energy to be stored and delivered later, as needed, back to the grid, used in the adjacent building or to fuel an electric vehicle. When multiple advanced technologies are in sync, "integrated energy systems" are created that work together to save energy, reduce CO2 emissions and cut costs. Specifically, NCEA grant partners Allen Consolidated Schools, the City of Bellevue, the City of Nebraska City and the University of Nebraska at Omaha (UNO) request Trust funds to defray 50 percent of the total cost for the purchase and installation of various advanced technology systems. Allen Consolidated Schools proposes to purchase and install a 2.6 kW integrated solar and battery storage system; Bellevue proposes to purchase and install a 25 kW integrated solar and battery storage system, purchase two municipal fleet Nissan Leafs™ and two dual port ChargePoint™ Network charging stations; Nebraska City to purchase two CNG pickups; and UNO will purchase one Nissan Leafs™ and three dual port ChargePoints™ as part of a campus vision that includes various advanced technologies that may involve major solar system installations in the future.

Sponsor Name: Nebraska Community Foundation **Nearest Town:** Multiple
Project Name: Wetlands Reserve Enhancement Partnership Special Initiative **Project No:** 17-113
Amount Requested: \$475,650 **Term of Project Request:** 3 **Review Group:** Rural Habitat

Funding from this grant will be leveraged to restore 300 acres of wetlands and associated upland. In addition to habitat work, grant (\$475,650) and match funds (\$1.5 million) will be used to modify pivot irrigation systems to eliminate impacts to the restored wetland and establish grazing infrastructure to seamlessly transition the tract into the producers operation. Annually, NRCS requests proposals to develop Wetland Reserve Enhancement Partnerships (WREP). These partnerships focus on developing innovative approaches that allow tracts enrolled in the Wetlands Reserve Easement to “fit” into agriculture operations. This year the Rainwater Basin Joint Venture (RWBJV) was awarded a 300 acre WREP focusing on programmatic flexibility to allow producers to retain the right to pass pivot irrigation systems over enrolled acres. In the past, landowners were hesitant to enroll because they could not pass the pivot over enrolled acres and complete full rotations to effectively irrigate adjacent cropland in the field. To ensure the pivot can cross the restored wetlands a variety of pivot modifications will be used, including moving the pivot point, track systems, and/or replacing pneumatic tires with low pressure tires. These modifications will eliminate impact of the pivot to the restored wetlands and ensure pivot passage over enrolled acres. Grazing infrastructure (i.e. perimeter fence, pivot gates, livestock water) will be established to seamlessly transition the flood-prone cropland to forage production. Grazing will maintain the tract as working lands and maximize habitat conditions. Nebraska’s three largest pivot manufacturers (Lindsay, Reinke, and Valmont) have signed on as corporate partners. These companies have committed to technical assistance and financial assistance through a cost-share program for pivot modifications. They will also assist with outreach and marketing through their dealer networks. These dealers will be able to identify multiple producers that will qualify for this program, ensuring implementation success.

Sponsor Name: Nebraska Conservation Education Fund **Nearest Town:** Statewide
Project Name: Common Ground **Project No:** 17-220
Amount Requested: \$85,000 **Term of Project Request:** 3 **Review Group:** Education

The Common Ground Program educates Nebraskans across the state about conservation issues facing their communities and provides them with the tools they need to address their local environmental concerns. Through locally-led education efforts and asset-based community development, Common Ground empowers Nebraskans to protect their environment. The Nebraska Conservation Education Fund (NCEF) launched a pilot of the Common Ground Program April 1, 2016 in six communities: Scotts Bluff, Hastings, Broken Bow, Plainview, Wayne, and South Sioux City. So far, more than 200 people have engaged with the Common Ground Program, including community members, City Administrators, elected officials, NRDs, and economic development teams. This grant from the Nebraska Environmental Trust will be an investment in NCEF’s continuation and expansion of Common Ground. How Common Ground works: * NCEF recruits volunteer Community Education Coordinators (CECs) from each participating community. CECs receive training in asset-based community development and group facilitation. They also receive instruction about pressing environmental issues facing Nebraska. With their training, they organize public events and small group discussions that provide information about local conservation concerns. Their objective is to increase public knowledge about potential threats to local and state natural resources, and provide community members with the tools needed to prepare for the future and ensure sustainable use of natural resources. * NCEF utilizes a train-the-trainer model to build teams of citizen-educators, and a network that is equipped to enact solutions to local environmental problems. Common Ground addresses all five of the Nebraska Environmental Trust’s priority areas through informing and educating Nebraskans about threats to their local habitat, water, and air quality, and about soil and waste management. The Nebraska Environmental Trust’s investment in Common Ground will strengthen the program and plant seeds for real change in the general population’s attitude toward the environment and their role in its protection.

Sponsor Name: Nebraska Department of Natural Resources **Nearest Town:** Multiple
Project Name: Platte Basin Water Management Action Initiative **Project No:** 15-138-3
Amount Requested: \$3,300,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The project is three year's allocation of funding for the Water Resources Cash Fund (WRCF) pursuant to the legislative mandate of LB 229, 2011, and as required by Neb. Rev. Stat. § 61-218(7)(a). All funds obtained through the allocation will be used for the purposes of the WRCF as set out in Neb. Rev. Stat. § 61-218(7)(b). The WRCF was established to fund the State's contingent water resources remediation needs in fully and overappropriated river basins. The WRCF has funded various projects since its inception in 2007. One project is the Platte Basin Habitat Enhancement Project (PBHEP), which has also been funded with NET dollars. The "Platte Basin Water Management Action Initiative" (Initiative) described below is an evolution of the PBHEP, expanding on other methods and water projects, and shifting the focus from the purchase of easements to other projects that achieve the same goal. The purpose of the Initiative is to plan, implement, and monitor activities that result in more effective water management and remediation for current depletions caused by past actions. The Initiative will assist the Department and the Platte Basin Natural Resources Districts (NRDs), in cooperation with other partners, to provide clear and direct benefits to habitat and surface and groundwater resources by: optimizing timing and efficiency of water uses, enhancing stream flows, reducing water consumption and enhancing wildlife habitat in fully and overappropriated areas. The Initiative described in this application is a portion of the currently intended uses for the WRCF. Other projects will be carried out under the auspices of the WRCF with available funds as well. Projects include both in-progress and new projects such as: surface water storage projects, groundwater retiming, leasing or purchasing water, conjunctive management of water, conservation easements, and other water use efficiency measures that would optimize water use in the basin. THIS PROJECT WAS FUNDED \$3,300,000 IN 2015 WITH THE INTENT TO FUND UP TO \$3,300,000 IN YEAR TWO AND \$3,300,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Nebraska Energy Office **Nearest Town:** Statewide
Project Name: Enhancing Access to Renewable Biofuels and Air Quality in Nebraska Project **Project No:** 16-205-2
Amount Requested: \$500,000 **Term of Project Request:** 2 **Review Group:** Statement of Intent

Enhancing Access to Renewable Biofuels and Air Quality in Nebraska Project (EARBAQNP), is a collaborative effort of the Nebraska Department of Agriculture, Corn Board, Ethanol Board and the Energy Office which will also serve as the lead agency. EARBAQNP's goal is to place 65 new ethanol blender pumps and 20 new ethanol fuel storage tanks during the grant period of 10/1/15 to 12/31/16 in fuel stations throughout Nebraska. These pumps will be placed in the state's two largest metropolitan areas: Omaha and Lincoln, and along Interstate-80 out to the western part of the state. EARBAQNP will assign blender pump preference to facilities with high potential usage on major transportation corridors. We believe promotion of greater availability of these clean burning fuels and encouragement of their use by the driving public will enhance the general air quality in Nebraska. The funding we seek from the Trust will be used to fulfill a matching requirement for the BIP Federal Funds to be used to purchase the ethanol blender pumps and where necessary new biofuel storage tanks. The Energy Office filed the BIP application on behalf of the state of Nebraska and each state was only allowed one application submission. THIS PROJECT WAS FUNDED \$500,000 IN 2016 WITH THE INTENT TO FUND UP TO \$500,000 IN YEAR TWO PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Nebraska Energy Office **Nearest Town:** Statewide
Project Name: Working with Nebraska's Local Government to Address Waste Water Facilities **Project No:** 17-165
Amount Requested: \$5,000,000 **Term of Project Request:** 2 **Review Group:** Air Quality

Working with Nebraska’s Local Government to Address Waste Water Facilities is an initiative undertaken by the Nebraska Energy Office, as the lead agency, with the University of Nebraska-Lincoln (UNL), the League of Nebraska Municipalities (LONM) and the Nebraska Department of Environmental Quality (NDEQ). The Energy Office is seeking \$5 million over two years from the Nebraska Environmental Trust (NET) to offer 1% loans to municipalities implementing wastewater plant retrofits minimizing waste and reducing energy usage by 20%. Retrofit projects will be identified based on energy use assessments conducted in 2016 and in-depth energy audits to be conducted in 2017 and 2018 through a \$327,996 competitive award from the U.S. Department of Energy (USDOE) to the Energy Office. Under the USDOE competitive award, energy use assessments completed by Energy Office staff and University of Nebraska-Lincoln Partners in Pollution Prevention (P3) faculty and student interns evaluated energy usage from over 100 small and medium sized municipal wastewater plants in Nebraska. A centralized database for the energy use of the municipal wastewater plants will be created and the 20-25 lowest performing plants will be identified to receive an in-depth energy audit. Implementation of the cost effective retrofits identified in those plants will be pursued to improve the energy, economic and environmental impacts with a targeted reduction in energy use of 20%. If awarded, the NET grant funds of \$5 million will be invested in the NEO’s Dollar and Energy Saving Loan (DESL) program’s existing pool to offer the 1% loans allowing even more municipalities to undertake improvements identified in the energy audits. The NET funds will be designated for these loans only and will be accounted for separately from other DESL loan funds. The 1% rate is significantly lower than the rate currently offered to local governments through the DESL Program.

Sponsor Name: Nebraska Farmers Union **Nearest Town:** Lincoln
Project Name: Food Waste Diversion to Composting and Vermicomposting **Project No:** 17-166
Amount Requested: \$476,326 **Term of Project Request:** 1 **Review Group:** Waste Management

Nebraska Farmers Union, a non-profit organization seeks one year funding to enhance and expand the operation of Big Red Worms, Lincoln's only commercial vermicomposting and composting project. Big Red Worms focuses on diverting organics & other materials from Lincoln's landfill into appropriate waste channels for composting and recycling. Big Red Worms has been collecting food waste and other organic materials for over one year and is already making a positive direct impact by reducing the quantity of food waste entering the landfill. The environmental and economic benefits to the community include increasing the life expectancy of the landfill, reducing the pollution from food waste and organics in the landfill, and turning a waste product into a valuable soil conditioner that will improve soil health and support food production. Big Red Worms has composted and vermicomposted over 500,000 pounds of waste during this period of time, expanded our collections from one Lincoln Public School (LPS) middle school to three LPS schools, the University of Nebraska Lincoln (UNL), multiple restaurants, breweries and coffee shops. Additional funding is needed to allow Big Red Worms to grow to serve a larger portion of a growing community while also capturing the economies of scale and end product diversification necessary to achieve long-term financial viability. Funding is needed for multiple pieces of equipment and site improvements to reduce potential run off issues and increase our capacity to process organic material. Funding would also be used to erect a tension fabric structure, providing additional storage space and allowing for more worm bins in our warehouses. Our partners include the University of Nebraska Lincoln, Lincoln Public Schools, Lincoln Airport Authority, City of Lincoln, Peoples City Mission, Community CROPS and multiple local businesses that rely on our services.

Sponsor Name: Nebraska Game and Parks Commission **Nearest Town:** Denton
Project Name: Conestoga Reservoir WMA Wetland and Water Quality Enhancement Project **Project No:** 15-135-3
Amount Requested: \$300,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The goal of this project is to enhance wetland and water quality by constructing sediment retention structures, expanding and improving wetland complexes, creating off-channel wetlands, and improving wetland functions at Conestoga Wildlife Management Area while providing educational and interpretive opportunities. A community based water quality management plan (WQMP) for Conestoga Reservoir (and watershed) has been completed. Soil management BMP's are being implemented in the watershed. The large quantities of deposited sediments and associated nutrients, eroded shorelines, shallow silt laden coves, the rough fish community, sparse rooted aquatic vegetation and high algal densities are all prescriptive of poor biotic conditions and the reason why Conestoga Reservoir is on the NDEQ 2010 Section 303(d) list of impaired waters. This wetland and water quality enhancement project will complement the ongoing BMP activities within the watershed and provide additional protection to the water quality improvement investment of excavating deposited sediment from the reservoir and by controlling future sediment influx. This project will address the water quality and aquatic habitat conditions within the reservoir, with goals of installing protective sediment control structures and wetland basins and establishing sustainable and healthy stands of beneficial rooted aquatic vegetation and functional littoral zones replete with a diverse fish and invertebrate community. The requested grant funds will facilitate the construction of in-lake sediment control structure/wetland areas, directly addressing the Trust's priorities to improve water quality, conserve water and improve habitats, which are identified within the WQMP. In addition, this project includes a component to inform and educate the public on ways to manage water and wetland resources. This project will provide protection for the future of Conestoga Reservoir while a previous project (2013 NET project) addresses remediating past sedimentation by an expansive excavation plan. THIS PROJECT WAS FUNDED \$300,000 IN 2015 WITH THE INTENT TO FUND UP TO \$300,000 IN YEAR TWO AND \$300,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Nebraska Game and Parks Commission **Nearest Town:** North Central Nebraska
Project Name: The Assessment and Demonstrated Management of Cold Water Streams in North Central Nebraska **Project No:** 15-211-3
Amount Requested: \$100,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

This public/private lands project is being developed in cooperation with private landowners, other state and federal agencies and private non-governmental organizations to assess and demonstrate the successful management of cold water streams in North Central Nebraska. This program will demonstrate how the integration of wise stewardship practices within watersheds and riparian zones, combined with site specific in-stream enhancements can provide long-term benefits to both landowners and sensitive aquatic communities. We will identify candidate cold water stream reaches throughout the north central part of the state to install long-term temperature monitoring stations to complement the Nebraska Department of Environmental Quality (NDEQ) ecoregion monitoring data. We will include streams that are publically and privately owned, those with trout and those with at-risk species. Any work on private lands will be with willing landowners. Additionally, we will select several stream reaches in north central Nebraska to serve as project demonstration sites. At these sites, additional riparian and in-stream information will be collected prior to and subsequent to the installation of habitat enhancement features to evaluate the effectiveness of management practices on a local scale. This program will further the Nebraska Environmental Trust objectives in several ways; by enhancing native cold water stream habitats which are home to several at-risk fish species (such as, Northern Redbelly Dace, Pearl Dace, Finescale Dace, and Blacknose Shiner). We also plan to work in other streams to enhance habitat for Rainbow, Brook, and Brown trout and provide angling opportunities. By implementing best management practices within and adjacent to streams, surface water quality may be improved. These management practices should also conserve soil by reducing erosion in the riparian areas. Demonstration and assessment sites will be included in habitat tours to show both strategies and sources of assistance to further make improvements to stream and streamside habitats. THIS PROJECT WAS FUNDED \$100,000 IN 2015 WITH THE INTENT TO FUND UP TO \$100,000 IN YEAR TWO AND \$100,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Nebraska Game and Parks Commission **Nearest Town:** Omaha
Project Name: Pollinator and Monarch Butterfly Habitat Restoration on the Cowboy Trail & State Park Areas **Project No:** 16-127-2
Amount Requested: \$50,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

A 4,000 acre stretch of grassland adjacent to the Cowboy Trail (CBT) has potential to provide habitat for at-risk species while providing Nebraskans the unique opportunity to appreciate and contribute to conservation in multiple biologically unique landscapes (BULs). This corridor of grassland and on lands in 13 State Parks is in need of restoration and/or enhancement to provide the needed resources to a variety of wildlife species with special attention directed toward pollinators and the Monarch Butterfly. Conversion of low quality grasslands to high diversity prairie plantings will be tailored to pollinators using ecotype seed to produce nectar plantings along the trail and in the state park areas over a three year period. Local community volunteer groups will be guided by educators from the Nebraska Game and Parks Commission and the University of Nebraska, Department of Entomology to participate in the restoration process by both planting specific plants and evaluating the restoration and species response. The habitat quality is significantly improved with the Nebraska Department of Roads as a partner on this project to restore and enhance 200 miles of Highway right-of way adjacent to the CBT to high quality pollinator habitat. The Prairie Plains Resource Institute (PPRI) will also partner in the project and participate in the teaching and monitoring efforts with the local community volunteers. Many at risk upland terrestrial wildlife and plant species listed in the Nebraska Natural Legacy Plan including the Monarch Butterfly are expected to benefit from these proposed improvements to more than 1,600 acres of ROW grasslands and parklands. THIS PROJECT WAS FUNDED \$50,000 IN 2016 WITH THE INTENT TO FUND UP TO \$50,000 IN YEAR TWO AND \$50,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Nebraska Game and Parks Commission **Nearest Town:** statewide
Project Name: Nebraska Natural Legacy Plan: Terrestrial and Aquatic Implementation for Biodiversity Conservation **Project No:** 16-140-2
Amount Requested: \$260,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Nebraska Natural Legacy Project (Legacy Project), the state's first comprehensive Wildlife Action Plan, was federally approved in 2005 and revised in 2011. The habitat-based plan identified at-risk species, threats to those species, conservation actions to address threats, and 39 Biological Unique Landscapes (BULs) for effectively conserving Nebraska's biological diversity. Legacy partners have worked with hundreds of private landowners to implement conservation in 21 BULs that enhanced over 300,000 acres of at-risk species habitat. The primary goal of "Nebraska's Natural Legacy Project: Terrestrial and Aquatic Implementation for Biodiversity Conservation" is to continue and expand implementation of our ongoing conservation actions throughout the state by improving over 100,000 acres of habitat over the next three years. These actions, on both private lands and conservation lands will improve the ecological condition of Nebraska's native plant communities thus benefitting at-risk and other native species. Habitat projects are delivered collaboratively with partners, using voluntary, incentive-based strategies when working on private lands. Project ranking, monitoring, and evaluation procedures are established. Our project provides economic benefits to farmers and ranchers, promotes sustainable land and water management, and enhances outdoor recreational opportunities for Nebraskans. This project also includes a biodiversity education and outreach component. The primary Legacy Project partners for this grant include the Nebraska Game and Parks Commission, US Fish and Wildlife Service, Natural Resources Conservation Service, Northern Prairies Land Trust, Pheasants Forever and the Bird Conservancy of the Rockies. We are requesting \$950,000 of NET funds for this three-year project. The project partners will provide \$1,425,000 in match. Participating private landowners will provide additional cash or in-kind match. We believe this project qualifies for the Feature Program Bonus Points for the reasons listed in the narrative section. THIS PROJECT WAS FUNDED \$430,000 IN 2016 WITH THE INTENT TO FUND UP TO \$260,000 IN YEAR TWO AND \$260,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Nebraska Game and Parks Commission **Nearest Town:** North Platte
Project Name: Restoring Native Mussels to Nebraska **Project No:** 17-123
Amount Requested: \$97,500 **Term of Project Request:** 1 **Review Group:** Education

Freshwater mussels are one of North America's most imperiled groups of organisms, with projections of extinction rates as high as 50% in North America by the end of this century. Nebraska is not immune to the pending mussel crisis. Approximately 48% of Nebraska's native mussels are considered Species of Greatest Conservation Need. Nationally, propagation in conjunction with stream restoration is recognized as a necessary step to restoring mussel populations. Two mussel species, the Plain Pocketbook and the Fatmucket, were prioritized for restoration in Nebraska. The Plain Pocketbook and Fatmucket will be propagated in a hatchery system with the objective to reintroduce the Plain Pocketbook to three streams and the Fatmucket to one stream. An endeavor of this magnitude is a substantial investment and shift of traditional fish hatchery responsibilities. Long-term success at the level necessary for species restoration requires additional and dedicated equipment and space. This request is to provide funding assistance for design, construction and equipping of a new native freshwater mussel propagation building at the North Platte State Fish Hatchery. This facility will be used expressly for the propagation of at-risk species. The long-term mussel restoration plan calls for propagation of at least nine different species of native freshwater mussels as identified in the Nebraska Natural Legacy Project. The facility will also have an educational and public benefit by inviting students and families visiting the hatchery an opportunity to tour the native mussel facility and learn about the various species of native freshwater mussels, their interesting and unique life cycle and the recovery work that the state is undertaking for native freshwater mussels.

Sponsor Name: Nebraska Grazing Lands Coalition **Nearest Town:** Statewide
Project Name: Rangeland Monitoring Program Enhancement of Soil Health and Water Conservation **Project No:** 15-142-3
Amount Requested: \$100,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Rangeland Monitoring Program Enhancement of Soil Health and Water Conservation Project (henceforth abbreviated as Rangeland Monitoring Program (RMP)) is a cooperative program among local rancher working groups and Nebraska Grazing Lands Coalition (NGLC) technicians that will provide Nebraska landowners with technical assistance and equipment to effectively monitor plant communities and soil resources on their lands. Most landowners are aware of existing systems designed to monitor land health. However, the application of these programs is often unpractical, cost-prohibitive and complicated, and they are not utilized. The RMP provides the next step for ranchers — on-site technical assistance and data analysis — so they can implement a scientific monitoring program. The innovative and unique approach of this project is in the design of a simple range and soil quality monitoring program that ranchers can replicate and utilize to make informed grazing management decisions, which will improve ecosystem processes as well as economic stability of their enterprises. Based on the theory of "Teach a man to fish," the RMP will provide, for a reasonable fee, an initial training session and assistance in establishing one monitoring site. This session will include: Complete monitoring equipment kit/On-site assistance of a trained technician/Potential assistance from a local rancher working group/Scientific data analysis of plant and soil samples. The goal of this training session is to provide the landowner with the equipment and skills to replicate monitoring on additional sites, and eventually train other landowners through their local working group. This is a three-year project, with the goal of conducting 60 training sessions each year. However, the scope of the RMP is exponential — with potential for establishing continual, practical plant and soil monitoring programs throughout Nebraska through simplification and sharing. In addition, this grant is requesting continued funding of two NGLC "signature" events- the Summer Grazing Tour and the Traveling Road Show as well as continued financial support for the SRM Youth Range Camp. THIS PROJECT WAS FUNDED \$100,000 IN 2015 WITH THE INTENT TO FUND UP TO \$100,000 IN YEAR TWO AND \$100,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Nebraska Grazing Lands Coalition **Nearest Town:** Statewide
Project Name: Soil Health and Water Conservation Through Grazing Cover Crops **Project No:** 16-103-2
Amount Requested: \$99,066 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Based on the theory of “Teach a man to fish,” this project focuses on grazing cover crops on highly erosive row crop acres that are part of routine row crop plant rotations and/or targeted for reseeding to pasture and range grasses for grazing purposes. On row crop acres that are part of routine crop rotations, grazing cover crops enhances soil health and conserves water through reduced wind and rain erosion. On row crop acres targeted for cool season or native grass reestablishment, the use of cover crops is a logical first step to enhance soil health. This is a three-year project, with the goal of conducting a cover crop grazing demonstration each year in each of the eight NGLC districts statewide. However, the scope of the Soil Health and Water Conservation Through Grazing Cover Crops Project has potential for greater awareness of the importance of soil health and water conservation throughout Nebraska. THIS PROJECT WAS FUNDED \$99,066 IN 2016 WITH THE INTENT TO FUND UP TO \$99,066 IN YEAR TWO AND \$99,066 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Nebraska Solar Schools **Nearest Town:** Omaha
Project Name: Solar Energy Kits for Teacher-Training Workshops **Project No:** 17-102
Amount Requested: \$30,000 **Term of Project Request:** 3 **Review Group:** Air Quality

This grant will provide K-12 educators who attend one or more statewide Nebraska Solar Schools training workshops with customized solar energy kits that will expand and enrich their science, technology, engineering and math (STEM) curricula. The kits include cross-discipline lesson plans, projects, and activities that support Nebraska State Science Standards. Each solar energy kit will contain all the materials needed for completing a classroom project or activity, making it easier for teachers to integrate renewable energy education into their annual curricula planning. The kits' costs range from less than \$10 to \$275 for a classroom of up to 30 students. Prototypes of each kit have been assembled, as well as ordering and price information for all components, which will make it easy to prepare them for teacher-training workshops. The workshops, held throughout the year, provide educators with hands-on training on how to use the kits and ways to integrate additional lesson plans and projects that don't require any special materials into their science programs. The workshops are offered to K-12 public and non-public schoolteachers and after-school club coordinators, as well as educational directors at places like schools such as children's museums, Nebraska Natural Resources Districts, zoos, and other science and nature centers. Each kit also will come with an evaluation form, which every educator receiving a solar energy kit will be required to fill out. This feedback will be used to make changes in the solar kits and accompanying lesson plans and projects to ensure they are effective teaching tools.

Sponsor Name: Nebraska Statewide Arboretum **Nearest Town:** Lincoln
Project Name: Nebraska Statewide Arboretum Greenhouse **Project No:** 17-158
Amount Requested: \$649,000 **Term of Project Request:** 1 **Review Group:** Urban Habitat

Building the Nebraska Statewide Arboretum Greenhouse is the next step toward growing an established sustainable horticulture program that touches the lives of thousands of people across Nebraska and surrounding states. This one year capital project will provide expanded greenhouse space for growing native plants from across the region that reflect the incredibly diverse ecological crossroads of Nebraska. The ecological health of community and rural landscapes will be improved via greater availability and use of regionally native and other underutilized plants; promotion and planting of pollinator-friendly landscapes; waterwise gardening; and plants grown from local seed sources. This project will provide thousands of native plants each year for residents and communities of Nebraska, while providing the general public and professionals with educational opportunities and the community through innovative partnerships. The greenhouse will feature green-based building solutions with educational and cooperative opportunities. This project will advance each of the Trust's funding priorities, with a special emphasis on Surface and Ground Water, Habitat and Waste. This grant will leverage \$705,000 of match.

Sponsor Name: Nebraska Trout Unlimited Chapter 710 **Nearest Town:** Mitchell
Project Name: Dry Spotted Tail Creek Stream Restoration Project **Project No:** 17-111
Amount Requested: \$450,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

Dry Spotted Tail Creek, is a 13.3 mile perennial coldwater stream tributary to the North Platte River with a long history of supporting recreationally important trout and native fish communities. Over time, the high volume and velocity of irrigation return flows have straightened and incised the lower reaches, thereby lowering the water table surrounding its confluence with the Platte and adversely impacting adjacent prairie and wetland communities. Devoid of in-stream habitat (e.g., overhanging cover, current breaks, and coarse substrates), the current channel flows prevent upstream passage for many aquatic life forms, especially small bodied fishes. Even trout who are especially strong swimmers, no longer reside in this stretch and now move quickly through this featureless area rather than use it as holding habitat. We are requesting NET funding assistance to rehabilitate approximately 0.75 miles of the lower reach of Dry Spotted Tail Creek, which lies within the North Platte River Biologically Unique Landscape recognized in Nebraska's "Natural Legacy Project". This project will restore natural hydrology to the confluence of the North Platte River and Dry Spotted Tail Creek and surrounding areas by restoring groundwater levels to 140 acres and installing stream sinuosity with the in-stream habitat features needed to sustain healthy aquatic, riparian and wetland communities. Planned construction will improve water quality, balance sediment transport, stabilize stream banks, install a protected buffer strip and riparian corridor, increase groundwater recharge, raise the local water table, restore up to 108 acres of historical wetlands, create in-stream habitat for trout, improve passage for native fishes and support an economically important recreational fishery with easy access to the public. Additionally this project will serve as an educational tool and demonstration site illustrating the beauty of Nebraska's coldwater streams and our responsibility to restore and protect these important resources.

Sponsor Name: Nebraska Water Balance Alliance **Nearest Town:** Statewide
Project Name: AQUAMART: improving Nebraska’s water sustainability by managing and measuring water performance at farm to watershed scales **Project No:** 17-171
Amount Requested: \$1,000,000 **Term of Project Request:** 3 **Review Group:** Water

Water is the most influential natural resource in Nebraska. Water drives the state economy, provides life to the citizens of the state and is the cornerstone of a highly diverse set of ecosystems. The hydrology of Nebraska is complex and variable. The people, policies and practices that influence water in Nebraska are equally complex and variable. When there are so many competing needs and uses, a shared sense of sustainability is needed to manage a shared resource like water. Providing food, fiber and fuel to the world is the goal of Nebraska Agriculture. Because agriculture is the largest user of water, this goal is unreachable without Sustainable Water Management (SWM). SWM requires all Nebraskans to understand their relationship to water. The goal of Aquamart is to generate sustainable and measurable improvement to Nebraska’s water resources by providing value at all levels to all stakeholders. Achieving SWM will require developing a tool box targeting SWM in hydrologically connected areas -Water Performance Zones (WPZ’s). Promoting farm scale water management creates a performance baseline for the state’s largest water user, agriculture, to demonstrate conservation values and develop improvement solutions. Aquamart will link targeted on-farm water management practices to the larger framework of water use, conservation and management across the state. Over the next 5 years, Aquamart will develop WPZ’s across the state to:

- demonstrate sustainable water stewardship for agriculture and other water uses,
- integrate regionally specific water science to improve technology and evaluation in agriculture,
- illustrate the interaction between farm based conservation and other water uses,
- demonstrate the economic value of improved water management at all levels,
- improve information sharing through the development of peer learning networks,
- create a producer led monitoring system,
- provide a blueprint for sustainable management of all Nebraska water resources.

Sponsor Name: Nebraska Weed Management Area Coalition **Nearest Town:** Kearney
Project Name: NEWMAC Counties Work Together on Invasive Species Control **Project No:** 17-125
Amount Requested: \$139,500 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Nebraska Weed Management Area Coalition (NEWMAC) is made up of 9 Weed Management Areas (WMAs) that bring together landowners, agencies and organizations in a geographical area to coordinate efforts and expertise against newly recognized invasive weed species. Members of NEWMAC who are participating in this grant include: Panhandle Research Integration for Discovery Education (PRIDE), Middle Niobrara Weed Awareness Group (MNWAG), Sandhills Weed Management Area (SWMA), Platte Valley Weed Management Area (PVWMA), and West Central Weed Management Area (WCWMA). This covers 28,156,800 acres in 36 Nebraska counties. In 2015, 1.5 million acres of Nebraska were infested with the State Listed noxious weeds. NEWMAC recognizes the need to ensure these noxious species continue to be treated. However, they also recognize the need for continued surveying and management of additional species that have the potential to become widespread problems. NEWMAC is seeking funding to accomplish three objectives that assist in preserving and enhancing Nebraska’s native biodiversity and natural beauty. 1) By using on-going research conducted in northwest Nebraska and communicating those results to private landowners and partners, we will initiate treatment of small yellow flag iris infestations along other rivers and creeks. 2) Continue publication and distribution of The Weed Watch that provides information pertaining to invasive weeds and the importance of control to over 100,000 homeowners in 48 counties. This publication provides information on identification, prevention and control of invasive species. 3) NEWMAC partners will monitor for Invasive Plant Watch List species (A list developed by the Nebraska Invasive Species Council). This proactive approach will allow for detection and control of these species before they become established and therefore more difficult and expensive to control. When new, small infestations are treated quickly, native plant communities can recover, providing quality forage and habitat for local wildlife species.

Sponsor Name: Nebraska Wildlife Federation **Nearest Town:** Multiple
Project Name: Creating Urban Monarch & Pollinator Habitat **Project No:** 17-213
Amount Requested: \$117,240 **Term of Project Request:** 3 **Review Group:** Education

Monarch butterflies and other pollinators are in trouble, due in part to the loss of milkweed and nectar-rich native plants on the landscape. Monarch Watch estimates that monarch populations have dropped by 80-90% over the last two decades. Pollinators help produce one in three bites of food eaten in the U.S., and many pollinator species are also in decline. Should monarchs be added to the Endangered Species list, it could have important economic consequences for agricultural producers. Game & Parks Commission staff have drafted a Conservation Strategy for Monarchs and at-risk Pollinators in Nebraska, and we seek funding for a three-year effort to implement selected pieces of that plan. We plan to provide habitat in urban and other areas for monarchs and other pollinators by (1) developing 25 model monarch and pollinator gardens in prominent locations, (2) developing and maintaining pollinator demonstration gardens on the UNL Campus, (3) holding 30 backyard habitat workshops and field days, and (4) organizing 15 schoolyard habitat workshops, to help individuals and schools install and improve habitat for monarchs and other pollinators. Our focus is in eastern and south-central Nebraska which represents the greatest area of need for monarch habitat. We will carry out the work in partnership with the University of Nebraska Lincoln, the Omaha Public Schools Accelerate Program, and many schools, local agencies and organizations. The activities will respond in part to a call at the national level to add 1 to 1.5 billion milkweed stems and abundant nectar resources in the central flyway by 2020.

Sponsor Name: Nebraska Wildlife Rehab, Inc. **Nearest Town:** Omaha
Project Name: Lonergan Lake Acquisition and Habitat Restoration **Project No:** 17-217
Amount Requested: \$3,000,000 **Term of Project Request:** 3 **Review Group:** Urban Habitat

Nebraska is poised to grow dramatically during the 21st century, both economically and in population size. Subsequent urban development and expansion of agricultural lands will degrade, if not destroy, most remaining habitat. The legacy of our natural environment and the wildlife that inhabit it depend on protecting these natural assets through cooperative projects anchored in our cities. Nebraska Wildlife Rehab, Inc. (NWRI) is an organization that works to protect native wildlife and migratory birds while educating the public on the importance of wildlife and habitat conservation and restoration. NWRI is requesting assistance from the Nebraska Environmental Trust to purchase the “Lonergan Lake” property in north Omaha for conservation, native habitat restoration, and protection from development. This land will house a 60-acre Wildlife Complex, which will serve the entire state with services such as wildlife emergency care and rehabilitation, innovative education programs, nuisance wildlife services, and public health information. The remaining 389 acres of prairie and woodland and the 110-acre lake will be restored to critical habitat for native wildlife. The restoration planning, implementation, and long-term maintenance will be integrated into educational opportunities for students throughout the region. This project will be implemented in collaboration with private and public partners, including the University of Nebraska system, Omaha Public Schools, Natural Resource District (NRD), Nebraska Game and Parks Commission, and others. A conservation easement on the bulk of the property and lake will be donated by NWRI to the Nebraska Land Trust. Of the \$10,000,000 list price, NWRI is requesting \$3,000,000 over three years from the Nebraska Environmental Trust to supplement a \$3,800,000 donation from the private landowner (ConAgra) and \$3,200,000 in grants and donations from private foundations and donors.

Sponsor Name: NET Foundation for Television, Inc.

Nearest Town: Statewide

Project Name: Imagining the Platte Phase II

Project No: 17-107

Amount Requested: \$125,000

Term of Project Request: 3

Review Group: Education

NET Foundation for Television requests Nebraska Environmental Trust support of \$125,000 for a continuation project to support the creation of educational media, curricula and lesson plans that address the Trust's interests in surface and ground water and habitat, and will inform and educate as part of the Platte Basin Timelape project's "Imagining the Platte." This visually compelling project uses journalistic storytelling and educational media assets to increase Nebraska students' and the public's understanding of water resources in the Platte Basin., through a comprehensive environmental educational effort that reaches elementary, middle and high school students through targeted STEM (Science-Technology-Engineering-Math) curriculum development, lesson plans and accompanying material, available free of charge for use in Nebraska schools and after school programs. Project outputs are also available to the general public via the web, and the partners will raise awareness of the project with educators and through direct community engagement. Educational efforts conform to Nebraska science academic standards. The project offers an opportunity to highlight the work of Nebraska conservationists, scientists, and researchers, and to incorporate information about conservation projects supported by the Nebraska Environmental Trust into the state's science curriculum. This application is for support of STEM related curriculum development and production of electronically delivered educational media assets. The first phase of this project was supported by Nebraska Environmental Trust grants 14-117, 14-117-2 and 14-117-3. Planning for both the first and second phases of the project has been informed by the needs outlined in the Nebraska Natural Legacy Project State Wildlife Action Plan.

Sponsor Name: North Platte Natural Resources District

Nearest Town: Multiple

Project Name: DAMP Project

Project No: 16-176-2

Amount Requested: \$571,381

Term of Project Request: 3

Review Group: Statement of Intent

The North Platte Natural Resources District (NRD) has always striven to collect the best available data to inform water management decisions. Similarly, the NRD has seen from past projects that landowners make demonstrably better farm-management decisions when they have their actual water-use data available to them. Because of time and distance to wells, both NRD staff and producers must expend considerable resources to gather this information manually. The telemetry project would expand the Data Access and Monitoring Partnership (DAMP), a partnership between the District and the Nebraska Department of Natural Resources, which incorporated a telemetry pilot project to determine the viability of telemetry as both a water management and data gathering tool. The AMCi MeterEye telemetry units offer to all parties a technology that will provide a reliable, accurate way to receive crop water use data while eliminating the man hours and resource expenditures previously needed to retrieve the data. The data will in turn be used by the NRD to improve the Western Water Use and Management Model (WWUMM). WWUMM is used by the District in evaluating if water management decisions in comparison to its Integrated Management Plan (IMP). THIS PROJECT WAS FUNDED \$52,342 IN 2016 WITH THE INTENT TO FUND UP TO \$571,381 IN YEAR TWO AND \$126,277 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Northeast Nebraska RC&D **Nearest Town:** Plainview
Project Name: Proper Recycling of HHW and E-Waste **Project No:** 15-133-3
Amount Requested: \$22,410 **Term of Project Request:** 3 **Review Group:** Statement of Intent

This project will properly dispose of and/or recycle approximately 22,500 pounds of household hazardous waste and another 45,000 pounds of electronic waste (E-waste) over a 3-year period. Citizens are continually asking for help with proper disposal and recycling of these types of materials. Keeping hazardous materials out of landfills, road ditches, and from being burned is a priority. From three to six collection events will be held annually with in the Northeast Nebraska Resource Conservation and Development (RC&D) Council's area of Antelope, Cedar, Dixon, Knox, Pierce and Wayne counties. Targeted groups are individual citizens, tribal members, businesses, local governments, and agencies. THIS PROJECT WAS FUNDED \$20,292 IN 2015 WITH THE INTENT TO FUND UP TO \$20,705 IN YEAR TWO AND \$22,410 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Northeast Nebraska RC&D **Nearest Town:** Plainview
Project Name: Early Detection and Integrated Management of Invasive Plants in Biologically Sensitive Areas **Project No:** 17-222
Amount Requested: \$69,900 **Term of Project Request:** 3 **Review Group:** Rural Habitat

Invasive species are cited frequently as significant threats to biological diversity in Nebraska's Natural Legacy Project planning document (NNLP). To address issues with invasive species, NNLP recommended development of collaborative conservation efforts to seek effective control measures, increase awareness of biological diversity, and to implement strategies that address specific issues in biologically unique landscapes (BUL's) identified in the plan. One such group is the Northeast Nebraska Weed Management Area (NNWMA). Established in 2004, they seek innovative, collaborative, and effective means to reduce ecological and economic impacts of noxious weed infestations. NNWMA is composed of a diverse group of partners. The area of responsibility covers 8 counties and 4,610,212 acres of private, public, and tribal land. Eight BUL's are partially or wholly within NNWMA boundaries. These include prairies that contain federally threatened Western Prairie Fringed Orchid and state listed Small White Lady Slipper Orchid, as well as habitats that are home to 34 other Tier 1 plant, mussel, fish, insect, bird, and mammal species. Beginning in 2017, NNWMA proposes to hire consultants to conduct Yellow flag and Blue flag iris surveys, conduct salt cedar "search and destroy" surveys, acquire biological control agents (insects) to control noxious weeds on ecologically sensitive sites, and conduct annual education and outreach tours and workshops. Releases will be prioritized and will be targeted at places where herbicide use is not desired (i.e. high diversity grasslands, wetland/riverine habitats, rangeland with organic designations or sensitive/endangered species, etc.). Targeted plants are Yellow flag Iris, Spotted Knapweed, Purple Loosestrife, Leafy Spurge, Salt Cedar, and non-native Phragmites.

Sponsor Name: Northern Prairies Land Trust **Nearest Town:** Multiple
Project Name: Expanding the Tallgrass Prairie Partnership **Project No:** 16-115-2
Amount Requested: \$251,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Prairies are among the most threatened ecosystems in North America. Most remaining prairies are privately owned, making cooperation between landowners and conservationists essential for their conservation. In 2002, Northern Prairies Land Trust (NPLT) entered into a cooperative relationship with the Nebraska Game & Parks Commission (NGPC) to implement habitat improvement projects on privately owned prairies. Our initial work was focused in areas that are now called the Sandstone Prairies Biologically Unique Landscape (BUL) and Southeast Prairies BUL in southeast Nebraska. We subsequently extended our prairie-focused work to the Verdigris-Bazile, the Middle Niobrara River Valley, and Keya Paha Watershed BULs in northeast Nebraska. Over the past thirteen years, using primarily NET, USFWS Landowner Incentive Program (LIP) and State Wildlife Grant (SWG) funds, NPLT worked with 273 landowners to enhance nearly 70,000 acres of grassland, primarily through implementation of invasive tree clearing, prescribed fire, planned grazing and reseeding prairie. Additional NET funds are critical to continued success of our now well-developed initiative. This project directly fulfills the objectives of the Nebraska Natural Legacy Project for the BULs listed above. We are seeking \$723,000 from NET for this three-year project. Participating landowners will provide approximately \$300,000 in match, and the project partners will provide \$490,000 in cash match. The project partners include NPLT, NGPC, and USFWS. Northern Prairies Land Trust will lead the project and NGPC will conduct funds management and reporting. NET funds will be used to enhance 20,000 acres of prairie on private lands through tree clearing, prescribed fire, etc. Through matching Pittman-Robertson funds we will also enhance prairie quality on NGPC Wildlife Management Areas which will improve public hunting and other recreational opportunities. We will also continue our Annual Tallgrass Prairie Management Seminar where nearly 100 landowners and conservationists learn innovative prairie and rangeland management methods each year. THIS PROJECT WAS FUNDED \$281,000 IN 2016 WITH THE INTENT TO FUND UP TO \$251,000 IN YEAR TWO AND \$191,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Northern Prairies Land Trust **Nearest Town:** Beatrice
Project Name: Nebraska Monarch Conservation Plan Implementation **Project No:** 17-141
Amount Requested: \$450,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The eastern North American migratory monarch population reached an all-time low in 2013 with an estimated population of 35 million, compared to a nearly one billion in 1996. Recently the monarch has been petitioned for listing as a federal threatened or endangered species. In early 2016, the Nebraska Monarch Steering Committee, an ad hoc group of conservation agencies, citizens and other stakeholders convened a broad stakeholder summit which produced priority conservation strategies that were used to create the Nebraska Monarch and Pollinator Conservation Plan. Our project is a proactive approach to implement the strategies of the Monarch Plan that may help prevent federal listing of the species. Our grant objectives are as follows: 1) Implement statewide monarch and milkweed survey and monitoring systems to determine the species' status and the long-term effectiveness of our state's monarch conservation efforts. 2) Increase the number of milkweed stems in Nebraska by collecting and planting 20 million local-ecotype milkweed seeds. 3) Enhance and restore a minimum of 20,000 acres of milkweed-and wildflower-rich wet meadows, prairies and savannas in Nebraska as monarch habitat through prescribed fire, grazing management, clearing of invasive shrubs and trees, and planting of local ecotype seed. 4) Conduct at least six seminars or field tours for conservationists and rural and urban landowners that demonstrate and promote land management activities that benefit monarchs. Our project partners include the Northern Prairies Land Trust, Nebraska Game and Parks Commission, United States Fish and Wildlife Service, Natural Resource Conservation Service and Prairie Plains Resource Institute. We are requesting \$450,000 from the Nebraska Environmental Trust for this three-year project. The project partners will provide \$500,000 in cash match and \$100,000 in in-kind match.

Sponsor Name: No-till on the Plains **Nearest Town:** Multiple
Project Name: Beginning and New No-till Farmer Education Program **Project No:** 17-169
Amount Requested: \$208,000 **Term of Project Request:** 3 **Review Group:** Soil Management

This is a program for beginning no-till farmers to provide educational materials, first-hand, on-farm experiences with producers currently implementing or planning to implement no-till/soil health management and create a support network for new no-till farmers. The program will use three avenues to reach producers interested in continuous no-till systems management. 1) No-till on the Plains will develop and publish a beginning no-till producer’s handbook for those interested in having a resource guide for reference. Information in the guide will focus on an ecological systems management approach, emphasizing diversity of crops grown, minimizing soil disturbance, use of cover crops, integration of livestock, promoting beneficial insects and minimization of chemical use. The publication will be available in both print and electronic formats to participating producers. 2) Workshops will also be held in 7 locations across the State to allow interaction between beginning no-tillers and more experienced producers. These daylong workshops will combine field and classroom sessions. 3) No-till on the Plains will facilitate the formation of peer groups creating farmer support and information exchange between participants in the workshops.

Sponsor Name: Omaha, City of **Nearest Town:** Omaha
Project Name: Adams Park Wetlands Center - Design Services **Project No:** 17-225
Amount Requested: \$187,117 **Term of Project Request:** 1 **Review Group:** Education

The Adams Park Wetlands Center is an outgrowth of the community-based Adams Park Master Plan, developed in 2012. This undertaking is not a single project or facility, but is a collaborative effort that includes constructed wetlands, an indoor educational facility, an interpretive trail and a nature playground. The constructed wetlands are part of a larger Combined Sewer Overflow (CSO) project designed to improve the water quality in the Missouri River. The wetlands will receive flow from storm sewers at the south end of the park. They will consist of permanent pools and emergent and upland wetlands providing habitat for diverse flora and fauna. The indoor educational facility will feature greenhouse demonstration wetlands, providing a setting for a wide variety of premier educational activities. Through display, presentation, interpretive signage and tours, visitors to the center will learn about environmentally responsible stormwater management and water reclamation. The Facility will become a dynamic, living and breathing demonstration of how interconnected we all are with the communities and environments in which we live. The City of Omaha and its partners request funding to assist in the final design and bid documents of the proposed Wetlands Center.

Sponsor Name: Omaha, City of - Department of Parks, Recreation and Public Property **Nearest Town:** Omaha
Project Name: Pollinator Park Phase 2 **Project No:** 17-224
Amount Requested: \$124,685 **Term of Project Request:** 1 **Review Group:** Urban Habitat

The City of Omaha - Parks, Recreation, and Public Property Department is seeking funding to complete phase 2 of a project located in a recently obtained park. This project is focused on preservation of the current land while enhancing the number of showy wildflowers, which are crucial to the pollinators. This strategy will not only attract the pollinators, but will also be visually appealing to park goers. As noted, this application is focused on phase 2 of the project, which includes the following: removal of brome grass (this is a 3-step application process), prairie seed mix planting with cover crop, prairie wildflower plug plantings, site furniture for the entry as well as the exploration meadow, well and water service, and drinking fountain installation.

Sponsor Name: Omaha, The Transit Authority of the City of Omaha d/b/a Metro **Nearest Town:** Omaha
Project Name: Central Omaha Bus Rapid Transit: Connecting the Dots **Project No:** 15-177-3
Amount Requested: \$200,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Funding is requested to help design and construct a bus rapid transit (BRT) project in Omaha, Nebraska. This project is nearly 8 miles in length and will provide a valuable east/west connection through the City. A BRT mimics the convenience, frequency and reliability of a rail transit system for a fraction of the cost and will serve as the central spine of the transit network. The Central Omaha BRT will provide 2,740 daily trips on opening day and will continue to grow, providing many benefits to the region including improvements to air quality, reduced damage to water quality, community development, job creation, and public health. This project has been developed through an extensive community involvement process and enjoys widespread public and political support. For the first year of the project, funding is requested for engineering/design. The request for years 2 and 3 are for construction costs. Funding amounts are scalable. THIS PROJECT WAS FUNDED \$200,000 IN 2015 WITH THE INTENT TO FUND UP TO \$200,000 IN YEAR TWO AND \$200,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Omaha, The Transit Authority of the City of Omaha d/b/a Metro **Nearest Town:** Omaha
Project Name: Upgrade of BRT Vehicles **Project No:** 16-220-2
Amount Requested: \$300,000 **Term of Project Request:** 2 **Review Group:** Statement of Intent

Metro intends to upgrade the vehicles in the ongoing Dodge Street Bus Rapid Transit (BRT) project to larger, 60 foot articulated buses powered by Compressed Natural Gas (CNG). This upgrade represents a significant augmentation of the ongoing BRT project which mimics the performance, reliability, and comfort of a rail project for a fraction of the cost. The BRT includes innovative design, infrastructure, technology, marketing and operational strategies to provide significantly better service than traditional bus service. The Dodge Street BRT project will service as a frequent, reliable, and convenient spine to Omaha’s transit network. The BRT vehicle upgrade project represents a significant investment in the vehicle acquisition beyond what was originally anticipated for this project. These larger, greener vehicles will offer significantly increased capacity to carry more passengers, further enhancing existing investments in Nebraska’s first BRT project. Significant reductions in emissions contributing to the deterioration of air quality in the greater Omaha region are anticipated including over 1,700 metric tons of CO2 emissions annually (as a result of only the incremental benefits of the vehicle upgrade). Additionally, the incorporation of alternative fuel technology in Metro’s fleet will be leveraged to facilitate the development of a CNG fueling station providing additional benefits to the larger community. THIS PROJECT WAS FUNDED \$150,000 IN 2016 WITH THE INTENT TO FUND UP TO \$300,000 IN YEAR TWO PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Omaha-Council Bluffs Metropolitan Area Planning Agency **Nearest Town:** Omaha
Project Name: Little Steps Big Impact **Project No:** 17-145
Amount Requested: \$130,000 **Term of Project Request:** 2 **Review Group:** Education

Little Steps Big Impact is an ozone awareness and education campaign coordinated by the Omaha- Council Bluffs Metropolitan Area Planning Agency (MAPA). The Omaha metro area has a problem with ground-level ozone and is close to exceeding the federal air quality standards but few people are aware of this situation. Little Steps Big Impact works to create awareness of the air quality situation with ground-level ozone, and move residents to take small actions in their daily lives to help improve it. The campaign uses several different methods in its outreach efforts to build awareness. They include: advertising on the local television and radio stations, advertising and posts on social media platforms such as Facebook and Twitter, outreach to large employers, outreach to neighborhood groups, and outreach at events such as Earth Day fairs and other community events or those sponsored by universities and employers, and most recently, an outreach program with educators and students from area school districts. We also share our information through our project partners such as the Douglas County Health Department, the City of Omaha, OPPD, Live Well Omaha, and the Nebraska Ethanol Board. Through our efforts we hope the Little Steps Big Impact campaign will have the following outcomes: Increasing awareness among the residents of the Omaha-Council Bluffs metropolitan area by educating them about the current situation with ground-level ozone and creating changes in behavior which would help reduce ground-level ozone in the metropolitan region and improve overall air quality all while helping maintain public health and helping the region continue to meet federal air quality standards.

Sponsor Name: Papio-Missouri River Natural Resources District **Nearest Town:** Omaha
Project Name: Zorinsky Water Quality Basin Number 2 (ZB2) **Project No:** 17-143
Amount Requested: \$980,000 **Term of Project Request:** 2 **Review Group:** Water

The Papio-Missouri River Natural Resources District (District), which serves over two-thirds of Nebraska’s population, has made a strong commitment to its citizens – namely, reducing flood threats, improving water quality, slowing the effects of soil erosion, creating recreation areas, and protecting natural resources. To that end, the District has been participating with the City of Omaha and the local development community in an effort to improve the water quality and extend the life of Zorinsky Lake, a flood control reservoir constructed by the US Army Corps of Engineers in 1989. In March 1999, a Community-Based Watershed Management Plan for Zorinsky Lake was published that developed community-based water quality goals and pollutant reduction strategies. This plan was funded in part by a grant from the Nebraska Environmental Trust. Studies concluded that a system of sediment control structures, known as Zorinsky Basins (ZB) ZB-1, ZB-2, ZB-3, and ZB-4, should be constructed to reduce sediment and phosphorus loading to Zorinsky Lake. ZB-2 is the fourth and final sediment structure to be designed and constructed. In April 2009, the Papillion Creek Watershed Management Plan identified ZB-2 as an integral water quality basin to be constructed upstream of Zorinsky Lake. ZB-2 would lie west of U.S. Highway 6 (204th Street) and North of F Street, on approximately 60 acres of cropland and open space. Development is quickly converging in the drainage basin above ZB-2, making ZB-2 a high priority for the District. There are limited options, time, and available land for water quality improvements and time is of the essence. The request for funding is to assist with the cost of the embankment and spillway design and construction. The design of ZB-2 is the next step toward the successful implementation of the Zorinsky Lake community-based plan.

Sponsor Name: Peoples City Mission **Nearest Town:** Lincoln
Project Name: PCM Recycling Program **Project No:** 17-112
Amount Requested: \$211,046 **Term of Project Request:** 3 **Review Group:** Recycling

In 2015 Peoples City Mission removed over 4 million pounds of potential landfill waste in the Lincoln/Lancaster community, by giving away over 1 million pounds of used textiles to 23,110 unique individuals living near the federal poverty level. At the same time its recycling operation sold more than 3 million pounds of discarded items. This recycling effort generated \$552,893 in revenue and helped PCM fund various programs to the poor. These programs assisted over 31,000 different individuals last year in the Lancaster County area. PCM’s goal is to expand its recycling operations to other cities in Nebraska. To that end, we are requesting help in purchasing 75 more Toss Boxes (collection bins), two additional balers and two later model trucks for picking up donations at these Toss Box sites. Labor and all other operating costs are projected to run between \$500,000 and \$900,000 annually over the three-year period and will be PCM’s contribution in matching funds.

Sponsor Name: Pheasants Forever - Cass County

Nearest Town: Louisville

Project Name: No-till Grass Drill

Project No: 17-200

Amount Requested: \$29,000

Term of Project Request: 1

Review Group: Equipment

This grant application seeks funding from the NET to purchase a no-till grass drill to be used by landowners to establish wildlife habitat. Currently, there are few no-till drills available in the area and those that are available are owned and rented out by private businesses. A no-till grass drill made available to interested landowners would increase both the quantity and quality of wildlife habitat established. Significant increases in wildlife habitat plantings in the area through programs like: Conservation Reserve Program, Conservation Reserve Enhancement Program, Continuous Conservation Reserve Program, Corners For Wildlife, Open Fields and Waters, Environmental Quality Incentives Program, etc., have greatly increased the need for this type of specialized equipment. Matching NET money with that of the Cass County Pheasants Forever chapter would purchase the no-till drill. The purchase price of a no-till grass drill is approximately \$38,600. Bill Lefler of Louisville, NE will oversee the operation, maintenance and rental of the drill. A fund will be set up to pay for routine maintenance of the drill as well as any repairs needed to keep the drill in top operating condition. The drill will be available for any landowner in the area to use at a nominal fee. A no-till grass drill is needed to handle the fluffy seeds associated with many warm-season grasses, wildflowers and legumes. These fluffy seeds are not effectively or efficiently planted with conventional drills. By increasing the amount of habitat and enhancing the quality of habitat provided by these seed mixtures, wildlife will benefit

Sponsor Name: Pheasants Forever - Dodge County

Nearest Town: Scribner

Project Name: No-till Grass Drill

Project No: 17-201

Amount Requested: \$29,000

Term of Project Request: 1

Review Group: Equipment

This grant application seeks funding from the NET to purchase a no-till grass drill to be used by landowners to establish wildlife habitat. Currently, there are few no-till drills available in the area and those that are available are owned and rented out by private businesses. A no-till grass drill made available to interested landowners would increase both the quantity and quality of wildlife habitat established. Significant increases in wildlife habitat plantings in the area through programs like: Conservation Reserve Program, Conservation Reserve Enhancement Program, Continuous Conservation Reserve Program, Corners For Wildlife, Open Fields and Waters, Environmental Quality Incentives Program, etc., have greatly increased the need for this type of specialized equipment. Matching NET money with that of the Dodge County Pheasants Forever chapter would purchase the no-till drill. The purchase price of a no-till grass drill is approximately \$38,600. Dennis Stumpe of Scribner, NE will oversee the operation, maintenance and rental of the drill. A fund will be set up to pay for routine maintenance of the drill as well as any repairs needed to keep the drill in top operating condition. The drill will be available for any landowner in the area to use at a nominal fee. A no-till grass drill is needed to handle the fluffy seeds associated with many warm-season grasses, wildflowers and legumes. These fluffy seeds are not effectively or efficiently planted with conventional drills. By increasing the amount of habitat and enhancing the quality of habitat provided by these seed mixtures, wildlife will benefit.

Sponsor Name: Pheasants Forever - Minden **Nearest Town:** Minden
Project Name: No-till Grass Drill **Project No:** 17-199
Amount Requested: \$29,000 **Term of Project Request:** 1 **Review Group:** Equipment

This grant application seeks funding from the NET to purchase a no-till grass drill to be used by landowners to establish wildlife habitat. Currently, there are few no-till drills available in the area and those that are available are owned and rented out by private businesses. A no-till grass drill made available to interested landowners would increase both the quantity and quality of wildlife habitat established. Significant increases in wildlife habitat plantings in the area through programs like: Conservation Reserve Program, Conservation Reserve Enhancement Program, Continuous Conservation Reserve Program, Corners For Wildlife, Open Fields and Waters, Environmental Quality Incentives Program, etc., have greatly increased the need for this type of specialized equipment. Matching NET money with that of the Kearney County Pheasants Forever chapter would purchase the no-till drill. The purchase price of a no-till grass drill is approximately \$38,600. Ruth Nielsen of Minden, NE will oversee the operation, maintenance and rental of the drill. A fund will be set up to pay for routine maintenance of the drill as well as any repairs needed to keep the drill in top operating condition. The drill will be available for any landowner in the area to use at a nominal fee. A no-till grass drill is needed to handle the fluffy seeds associated with many warm-season grasses, wildflowers and legumes. These fluffy seeds are not effectively or efficiently planted with conventional drills. By increasing the amount of habitat and enhancing the quality of habitat provided by these seed mixtures, wildlife will benefit.

Sponsor Name: Pheasants Forever, Inc. **Nearest Town:** Statewide
Project Name: Corners for Wildlife **Project No:** 15-181-3
Amount Requested: \$300,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

This application continues a partnership funded by the Trust from 1995 to 2014. The program successfully partners money from the Trust, Pheasants Forever, Inc., Pheasants Forever (PF) and Quail Forever (QF) chapters, Natural Resource Districts, Nebraska Game & Parks Commission and landowners throughout the state to establish permanent wildlife habitat. In the 19 years the program has been offered, Trust funds have been partnered with over \$1.7 million for materials from 45 Pheasants Forever chapters, 15 Natural Resource Districts, the Nebraska Game & Parks Commission and private landowners on 1,572 projects throughout the state. With "in-kind" contributions included, the level of financial partnership being combined with Trust funds currently exceeds \$6.5 million. Landowners receive a rental payment for a five-year contract to establish and maintain high diversity wildlife habitat on center pivot field corners. Materials to establish cover practices are cost-shared 75% by PF and QF chapters with landowners responsible for 25% of the material costs. In some cases, the cover practices are established with a 100% cost share by the participating Natural Resource Districts. This program is very successful at establishing permanent wildlife habitat as landowners have averaged 435 wildlife shrubs and/or trees per corner. Every year the program has been offered, there has been more interest in enrollment than the program can fund. Projects are established to cover practices that promote high quality nesting, brood-rearing and/or pollinator habitat for native wildlife species of concern. The habitat established on projects is specifically designed to meet the goals of the Nebraska Natural Legacy Project and many of the species and habitat types of concern identified in the statewide wildlife plan. By establishing and managing for highly diverse native habitat, the needs of native wildlife that are imperiled by the loss of diverse and undisturbed grasslands is being addressed. THIS PROJECT WAS FUNDED \$300,000 IN 2015 WITH THE INTENT TO FUND UP TO \$300,000 IN YEAR TWO AND \$300,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Pheasants Forever, Inc. **Nearest Town:** Multiple
Project Name: Grassland Improvement Program **Project No:** 16-217-2
Amount Requested: \$150,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Nearly every wildlife partnership and management plan in the state calls for the increased use of prescribed fire to reach their management and partnership goals. Despite those management plans, prescribed burning continues to be a challenging and difficult management option to apply on private lands in the state. Four primary factors are identified as limiting its use on the landscape: 1) Access to prescribed burn equipment; 2) Prescribed burn training; 3) Man-power to conduct prescribed burns; and 4) Adequate fuel loads to conduct proper prescribed burns. This application seeks to continue a unique, proven and successful partnership called the Grassland Improvement Program that has changed the culture of prescribed burning on private lands in the regions it has been offered in the past. The program works to improve grassland health and vigor by creating a synergy that overcomes these limiting factors and increases the use of prescribed burning on the landscape of Nebraska. A lynch pin to being able to conduct prescribed burns on grasslands that is capable of controlling invasive tree and cool-season grasses is the ability to have a high enough fuel load. Adequate fuel loads are only attainable if the grassland is deferred from grazing for at least one full season. The Grassland Improvement Program will offer landowner grazing deferment incentives, access to prescribed burn equipment, biologists to write burn plans, landowner prescribed burn training, guide the formation of local prescribed burn associations, help provide assistance to conduct prescribed burns, experience conducting prescribed burns and follow-up with a monitor and evaluation program on projects. The unique synergy created through this partnership will help develop additional biologically important regions of the state where prescribed burning is increasingly used on the landscape, significant environmental benefits are obtained and the objectives of the Nebraska Natural Legacy Project are implemented. THIS PROJECT WAS FUNDED \$150,000 IN 2016 WITH THE INTENT TO FUND UP TO \$150,000 IN YEAR TWO AND \$150,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Pheasants Forever, Inc. **Nearest Town:** Statewide
Project Name: Habitat Share **Project No:** 17-202
Amount Requested: \$126,500 **Term of Project Request:** 1 **Review Group:** Rural Habitat

This application is for a unique, highly efficient partnership between Pheasants Forever, Inc. and the Nebraska Game and Parks Commission (NGPC) called 'Habitat Share'. This partnership enhances the public benefit and use opportunities on state-owned lands when manpower and equipment is limited. This program completes new projects by matching federal funds and non-federal funds at a 3:1 ratio to have local contractors complete new, critical habitat efforts throughout the state. As a result, more acres are managed for wildlife, public hunting and birdwatching opportunities increase, and local communities benefit from the increased use. All of the projects completed in the Habitat Share partnership are in addition to the projects completed by NGPC staff on an annual basis. NGPC manages 289 Wildlife Management Areas throughout the state totaling 182,826 acres. Thirty-two full time staff are tasked with management, depredation calls, invasive species control, public events, etc. By assigning new and additional specific management activities to contractors for completion, more acres of eastern red cedars are cut, more brome is sprayed, and more high quality seed mixtures are planted. Contractors are able to complete more work projects during a limited spring field season, have the equipment to efficiently complete projects and allow the completion of far more projects than the NGPC can complete in a field season. This partnership is a high priority within NGPC's 'Berggren Plan' with a specific goal of managing 35,734 acres on 17 priority WMAs over a 5-year period. This program will also help deliver two National Pollinator Goals: 1) Enhance 3.5 million acres of pollinator habitat on public lands and 2) Plant 1.4 billion milkweed stems to increase monarch population. Since 2010, the Habitat Share Program has impacted 18,999 acres of additional habitat on 114 Wildlife Management Areas in Nebraska. We continue to work with an increasing number of statewide contractors with a list of over 450 names to ensure competitive bids.

Sponsor Name: Pheasants Forever, Inc. **Nearest Town:** Statewide
Project Name: Honey Bee & Monarch Butterfly Partnership **Project No:** 17-218
Amount Requested: \$879,900 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Honey Bee and Monarch Butterfly Partnership (HBMBP) is a proven, successful partnership that will deliver multiple state and national conservation plan goals. This partnership brings together 8 private, state and national funding partners with significant matching funds to deliver pollinator habitat accomplishments for honey bees, monarch butterflies, native bees and a wide range of at-risk and common wildlife species. The HBMBP offers key incentives for landowners to establish habitat necessary to meet honey bee and monarch foraging requirements. This flexible program will allow landowners to choose their contract length, have an option of an annual payment, receive establishment incentives, have the ability to hay/graze outside of pollinator season, and have a broad land eligibility option. Seed mixes include a foraging mixture designed specifically for honey bees and a habitat mixture designed specifically for monarchs. Projects will be enrolled in a fashion that brings science-based habitat considerations for honey bees and monarch butterflies together with a proven ability to design, enroll, administer and manage statewide habitat programs. Projects will be enrolled with a combination of Pheasants Forever staff, local Beekeepers and USDA offices. This project already has a waiting list of applicants wanting to enroll in 2017; therefore, applications will be ranked with established criteria to accept the highest valued projects. By bringing together 8 partners including landowners and key members of the honey bee industry, this project is an “all hands on deck” approach needed to combat the decline of both the honey bee and monarch butterfly. Not only will this partnership help deliver the Nebraska pollinator conservation goals, it will also deliver broad benefits to benefit monarch butterflies, honey bees, and a wide range of wildlife including native bees, grassland songbirds, pheasants and quail.

Sponsor Name: Platte River Basin Environments, Inc. **Nearest Town:** Scottsbluff
Project Name: North Platte River Valley Habitat Restoration and Enhancement Partnership **Project No:** 17-108
 II
Amount Requested: \$361,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

In 2012, the Platte River Basin Environments, Inc. (PRBE) joined with the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service to implement a highly popular and biologically successful partnership for habitat restoration work on private lands along the North Platte River. The partners, with crucial funding support from the NET, spent over \$967,000 in grant and matching funds to restore over 4.5 miles of wetland slough through removal of sediment, and invasive vegetation; restore 994 acres of cottonwood savannah through invasive tree removal; plant 158 acres of diverse native prairie; enhance and manage 299 acres of wetland habitat through invasive herbaceous vegetation removal; and install livestock grazing infrastructure to facilitate grazing on over 2,400 acres of floodplain grassland. The success of PRBE's efforts has resulted in high demand for habitat restoration activities. Additionally, the biological need for habitat restorations remains urgent and ever increasing due to degrading factors such as invasive species and diminished hydrology. The project partners propose to expand their partnership both in funds available and in geographic scope in order meet landowner requests and biological needs. By implementing habitat restoration activities along the North Platte River and tributaries within the watershed, PRBE will work with landowners to restore, enhance, and manage the wetland and associated upland habitat values on lands within the entire watershed and will find win-win solutions for integrating wildlife habitat into land management operations. Project goals will be achieved by (1) providing financial assistance for habitat activities on wetlands and associated uplands on private and privately owned conservation entity properties, (2) providing education and technical assistance to landowners in the restoration and long-term management of habitats and integration projects into land management operations, and (3) using demonstration sites to exhibit the numerous environmental, wildlife, and economic benefits of wetlands.

Sponsor Name: Public Health Solutions **Nearest Town:** Crete
Project Name: Recharge Battery Recycling **Project No:** 17-221
Amount Requested: \$15,000 **Term of Project Request:** 1 **Review Group:** Waste Management

People of all ages use products that use batteries-a lot of batteries. In order to power our toys, cell phones and hearing aids each American household uses about 10 pounds of batteries per year-in the Public Health Solutions district this amounts to about 24,000 pounds of batteries used up annually. Though not technically considered household hazardous waste, all household batteries contain metals and chemicals, some of which are extremely toxic and pose a threat to the integrity of our groundwater, air quality, and human health. Improperly stored used batteries also pose a fire hazard. Button batteries pose a particular hazard to children who may swallow them. In addition to the potential environmental and health risks of disposal, land-filling batteries wastes a terrific opportunity to reduce overall energy and virgin material use. The Recharge Battery Recycling project will feature a 1-year, on-going battery collection and recycling effort throughout the district, and an educational/promotional campaign to increase consumer awareness of the economic and environmental issues involved in battery use and disposal. Ultimately the project will have the effect of reducing the negative environmental and public health impact of batteries within the PHS district. Secondly the project will raise awareness of (and interest in) household hazardous waste reduction.

Sponsor Name: Quail Forever **Nearest Town:** Statewide
Project Name: Mobile Prescribed Burn Unit & Education Outreach **Project No:** 17-197
Amount Requested: \$111,100 **Term of Project Request:** 1 **Review Group:** Equipment

This application seeks to continue the process of supporting prescribed burning on private lands in the state, forming prescribed burn associations, conducting landowner education outreach events, producing landowner education materials, promoting habitat management techniques, and increasing the use of prescribed burning on the landscape. Nearly every wildlife partnership and management plan in the state calls for the increased use of prescribed burns and expanded education regarding conservation programs to reach management and partnership goals. Despite those management plans, prescribed burning continues to be a difficult management option to apply. Quail Forever is working closely with the Nebraska Natural Legacy Project (NNLP) to implement its management goals and employs 19 Biologists in the state with Pheasants Forever that are working directly with the plan. The creation of Mobile Prescribed Burn Units (MPBU) and expanding educational outreach is directly benefiting the NNLP by creating a set of tools and events that can be quickly directed to whichever NNLP Biologically Unique Landscape was the focus. The unique aspect of MPBU's is that the necessary prescribed burn equipment could be available in any region of the state in less than a day. Quail Forever identified the limitations of prescribed burning on private lands and is working to overcome them. Six different scenarios are outlined in this continuing partnership that are specifically working to expand outreach education to private landowners and increase the use of prescribed burning on the landscape. The requested funds will be matched with those of Quail Forever, Pheasants Forever, Nebraska Game & Parks Commission, Natural Resources Conservation Service, Farm Service Agency and the US Fish & Wildlife Service to purchase, maintain and administer MPBU's and continuing education equipment in strategic locations, develop prescribed burn associations and provide expanded landowner educational events and materials across the state.

Sponsor Name: Rainwater Basin Joint Venture **Nearest Town:** Minden
Project Name: Development of Grazing Infrastructure to Support the Rainwater Basin Working Lands Initiative **Project No:** 15-149-3
Amount Requested: \$102,480 **Term of Project Request:** 3 **Review Group:** Statement of Intent

If funded, this grant will provide financial assistance to continue the successful Rainwater Basin Joint Venture Working Lands Initiative. These funds will be leveraged with partner funds, including landowner contributions, to work with local producers to develop infrastructure that will facilitate grazing on abandoned wetlands throughout the Rainwater Basin Landscape. As agriculture production increased throughout the Rainwater Basin, many of the remaining wetlands under private ownership were abandoned. With the lack of disturbance these sites transitioned to monocultures of invasive/exotic vegetation (reed canary grass, river bulrush, and hybrid cattail). Once these vegetation communities are established, waterfowl, waterbird, and shorebird use is negligible. Successful implementation of this project will require four stages: 1) producers with abandoned wetlands will be contacted about integrating grazing back into their operation, 2) grant funds will be matched with partner and landowner dollars to construct necessary infrastructure (perimeter fence, cross fence, and livestock watering), 3) University of Nebraska Lincoln Extension will evaluate forage production and generate fact sheets describing economics of grazing wetlands, and 4) landowner tours will be conducted at several demonstration sites. These tours will be coordinated by Nebraska Cattlemen, Sand County Foundation, University of Nebraska Lincoln, and Natural Resource Conservation Service to ensure an open dialogue between landowners and natural resource professionals. This dialogue will help both natural resource professionals and producers develop better projects, and understand the win-win for production agriculture and wildlife. Developing infrastructure at these sites will ensure cost effective long-term management of these sites through prescribed grazing. This management will significantly increase the habitat value of these wetlands for the estimated 8.6 million waterfowl that depend on these wetlands during spring migration, as well as provide optimal habitat for Whooping Cranes, Buff-breasted Sandpipers, King Rails, and nearly 20 other priority species identified in Nebraska's Natural Legacy Plan. THIS PROJECT WAS FUNDED \$51,240 IN 2015 WITH THE INTENT TO FUND UP TO \$102,480 IN YEAR TWO AND \$102,480 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Rainwater Basin Joint Venture **Nearest Town:** Minden
Project Name: Strategic Conservation of Rainwater Basin Wetlands and Upland Buffers **Project No:** 16-112-2
Amount Requested: \$350,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The grant provides an opportunity for Rainwater Basin Joint Venture partners to find the win-win opportunities that integrate Rainwater Basin Wetlands into farm operations and maximize habitat on publically owned wetlands. On private lands, this project will implement programs that will integrate restored wetlands into local operations for haying/grazing. The 2012 drought highlighted the importance of reliable forage resources to maintain Nebraska's cattle industry. Grazing is also beneficial for the millions of migratory birds and resident species by promoting desired habitat conditions. Public lands make up less than 1% of the landscape, but they can contribute to over 50% of the available habitat for migratory birds, if intensively managed. To facilitate desired habitat conditions on-site restoration and active management against invasive species will be implemented. In addition, supplemental water infrastructure (groundwater wells, pipelines, etc.) and watershed restoration actions will also be pursued to increase flooded acres. Beyond habitat for wetland dependent birds, a recent University of Nebraska – Lincoln study highlighted that public lands in the Rainwater Basin are some of the most used, in the state, by hunters and other outdoor recreation enthusiasts. Rainwater Basin wetlands are also important to a suite of at-risk, threatened, and endangered species. Whooping Cranes, Buff-breasted Sandpipers, King Rails, and nearly 20 other priority species identified in Nebraska's Natural Legacy Plan are found here. The Rainwater Basin wetlands and associated uplands do not just provide habitat and recreational opportunities. These wetlands benefit all Nebraskans through the ecosystem services provided by playa wetlands. Research by University of Nebraska - Lincoln has documented groundwater recharge, nutrient cycling, carbon sequestration, and flood storage. Actions funded through this grant will help ensure that we will continue to have reliable groundwater for both agriculture and municipal uses. To successfully implement this project, Joint Venture partners have leveraged \$900,000 in matching funds. THIS PROJECT WAS FUNDED \$250,000 IN 2016 WITH THE INTENT TO FUND UP TO \$350,000 IN YEAR TWO AND \$300,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: Rowe Sanctuary**Nearest Town:** Kearney**Project Name:** Wetlands for Communities and Schools**Project No:** 17-162**Amount Requested:** \$50,518**Term of Project Request:** 1**Review Group:** Urban Habitat

Iain Nicolson Audubon Center at Rowe Sanctuary (Rowe Sanctuary) requests \$50,518 for its "Wetlands for Schools and Communities" project, in partnership with Kearney Public Schools (KPS). The project will create an outdoor wetland classroom at the new high school which is currently undergoing final construction. The functional wetlands will serve as a hands-on platform for study and observation of a wetland filter buffer to the adjacent Turkey Creek. To inspire continued use, curriculum will be developed by Rowe Sanctuary with the help of KPS teachers that will incorporate hands-on experiential education programs to help build a culture of environmental stewardship. The project will address the Habitat, as well as the Surface and Groundwater goals of the Nebraska Environmental Trust. In the past 100 years more than 90% of the regional wetlands have been converted to other uses. This wetland and adjacent grasslands will create approximately five acres of habitat for the waterfowl, shorebirds and grassland birds that migrate through and nest in Central Nebraska each year including several species of special concern. The wetland will filter run-off water to improve water quality and increase ground water recharge in an over-appropriated river basin. Water that passes through the wetlands at Kearney High School will travel downstream to the Platte River and past Rowe Sanctuary, demonstrating a real connection between local partners, students, community members, and the environmental stewardship we inspire.

Sponsor Name: Sandhills Journey Scenic Byway Visitor/Interpretive Center**Nearest Town:** Mullen**Project Name:** Pollinator Garden Project**Project No:** 17-230**Amount Requested:** \$218,320**Term of Project Request:** 3**Review Group:** Urban Habitat

The goal of this project is to increase pollinator populations and create public awareness of the importance of pollinator habitats in communities along the 272 mile Sandhills Journey Scenic Byway (SJSB). According to USDA Farm Service Agency, "pollinators are an essential link in agriculture. Animal pollinators, especially bees, are critical for producing more than one-third of our food products. In fact, bee-pollinated commodities account for \$20 billion in annual U.S. agricultural production and \$217 billion worldwide. In addition to bees, other pollinators, including butterflies and moths, beetles, flies, wasps, birds, and bats are necessary for pollinating more than 80% of plants in nature." This grant will provide for the education of local residents and visitors on the importance of pollinators and their role in a healthy ecosystem. Technical assistance will be provided as butterfly/pollinator gardens are developed to attract and sustain pollinators. This project will add ecotourism opportunities by attracting and educating visitors traveling the byway. Educational materials and program development will be patterned after the successful Loup Rivers Scenic Byways pollinator project and components will include: educational programs and outreach; youth and senior involvement; and a strong media promotion to encourage participation and visitation by tourists traveling the byway. The goal over the three year life of the grant will be to expand and/or develop 20 pollinator gardens and train 15 new Master Gardeners. Participants will receive education and stipends for garden establishment and when completed, will be given the opportunity to become a Certified Butterfly Garden. Partners in the project will be Sandhills Journey Scenic Byway volunteers, Sandhills RC&D, UNL Extension, local gardeners, and other experts in the field. The project will result in increased pollinator populations, enhanced economic development, and education on the importance of pollinator populations in a balanced ecosystem.

Sponsor Name: Sandhills Task Force **Nearest Town:** Multiple
Project Name: Sandhills Wetland/Grassland Conservation Partnerships **Project No:** 15-145-3
Amount Requested: \$64,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Over the course of the last twenty years, the Sandhills Task Force (STF) has matured into a successful organization that models how a small group can think large and act locally. Peer organizations have studied the STF model and continue to emulate the STF on many levels. The STF is quick to point out the value of long lasting relationships with partner organizations such as NET. As a result of the STF's commitment to conservation, NET has been able to positively impact thousands of acres throughout the Sandhills and play a large role in this ongoing success story. Presently, the STF is uniquely positioned as an organization to provide a leadership role to find innovative solutions to complex ecological concerns. It appears future conservation opportunities will become increasingly complex and require a more proactive approach to address threats such as changes in land use and landscape fragmentation, energy development, and invasive species. The Sandhills Wetland/Grassland Conservation Partnership Project will assist private landowners in the restoration of streams, wetlands, and lakes degraded by ditching, channelization, stream erosion, invasive aquatic species, and excessive grazing. As part of our ecosystem approach, the STF will continue to support landowners whose goals include improving grassland health and diversity and controlling invasive trees. Work will be done to complete about 30 projects during the three year cycle of this grant. To accomplish this work, each project will be field inspected and evaluated according to its resource value and feasibility. Qualifying projects will be surveyed, designed, and completed using matching partnership funds from landowners, Federal and State agencies, and nonprofit organizations. Each project will have a 10-year contract with the landowner and other participating partners. In addition the STF and matching partners remain committed to monitoring the biological effects of each project. THIS PROJECT WAS FUNDED \$128,000 IN 2015 WITH THE INTENT TO FUND UP TO \$128,000 IN YEAR TWO AND \$64,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Sandhills Task Force **Nearest Town:** Arthur
Project Name: Sandhills Wetland/Grassland Conservation Partnerships II **Project No:** 17-215
Amount Requested: \$420,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Sandhills Task Force (STF) is a grassroots nonprofit organization that has a 24-year history of assisting private landowners complete conservation projects on their land that benefits wildlife, waterfowl, water quality, healthy native plant communities, functional wetlands, and more. These projects were completed in partnership with other organizations and agencies that have provided technical and financial contributions. The Nebraska Environmental Trust (NET) has been a valuable partner to the STF; NET funds have been used in STF projects throughout the Sandhills to apply conservation practices and conduct educational events for many years that are positively impacting the landscape. The Sandhills of Nebraska are one of the largest in-tact native grasslands left in the world. Even though the Sandhills is still a highly functioning rangeland-wetland ecosystem, stressors are present. The main threats at the current time are invasive species, overgrazing, and impaired wetlands, streams, and lakes. The Sandhills Wetland/Grassland Conservation Partnership Project II will help the STF implement projects on private lands to help address these concerns. Also, events will be held to educate the public and landowners about innovative conservation tools and management plans that can help them improve their land resource. During the three-year grant, an estimated 30 conservation projects will be completed. Each project will be implemented on a willing landowner's property and it will be field inspected and evaluated according to its resource value and feasibility. Qualifying projects will be surveyed, designed, and completed using matching partnership funds from landowners, Federal and State agencies, and non-profit organizations. Each project will have at least a 10-year agreement with the landowner and other participating partners. In addition, the STF and matching partners remain committed to monitoring the biological effects of each project.

Sponsor Name: Sandhills Task Force **Nearest Town:** Bassett
Project Name: Sandhill Lake/Wetland Renovations; a Public Sector and Private Land Partnership **Project No:** 17-216
Amount Requested: \$323,500 **Term of Project Request:** 1 **Review Group:** Lake Rehabilitation

Common Carp are well established in numerous lakes and deeper wetlands within the Sandhills of Nebraska. They were intentionally introduced in the 1880s as a potential food source and are now considered an aquatic invasive species. It has been well documented that Common Carp have significant impacts to a wide variety of native fish, wetland wildlife, and sport fish communities. The impacts caused by carp are primarily a result of their generalist feeding habits of rooting in the substrate. This rooting action disturbs bottom sediments, removes submergent and some emergent vegetation, increases algal biomass, and causes a significant decline in water clarity that prevents the re-establishment of vegetation and hinders predation from sight feeding species (e.g., Largemouth Bass, Northern Pike). The physical alteration of habitat and the loss of vegetation cause a reduction in many macroinvertebrates. Once Common Carp become established in a lake or deep wetland, they can quickly become dominant and are then difficult to control through natural means. Through the Sandhill Lake/Wetland Renovations; a Public Sector and Private Land Partnership project, the goal would be to renovate at least one large Sandhill lake/wetland in southern Cherry County and install carp barriers to prevent reinfestation. In addition, barriers will be installed to protect a series of lakes that were recently renovated by the Sandhills Task Force, U.S. Fish and Wildlife Service, and the Nebraska Game and Parks Commission in Rock County. For lake renovations to be successful, a watershed approach is needed. In both of the targeted watersheds identified for this project there are public lakes owned and managed by the Nebraska Game and Parks Commission as well as privately owned lakes. We hope to continue to provide a coordinated approach to lake renovations through this project.

Sponsor Name: Save Our Monarchs Foundation **Nearest Town:** Overton
Project Name: NPPD Cottonwood Ranch and Brownville Pollinator Habitat Restoration **Project No:** 17-139
Amount Requested: \$48,482 **Term of Project Request:** 2 **Review Group:** Rural Habitat

Nebraska sits in the heart of the Monarch butterfly flyway, and is a significant reproductive and migratory area for these iconic insects. An enormous amount of Monarch-supporting milkweed and other pollinator plants have been eradicated in Nebraska since 2008, with approximately one million acres of habitat lost. The Save Our Monarchs Foundation (SOM) works to reverse this trend by implementing more appropriate vegetation management techniques and by introducing these plants back into the landscape. This project will create several viable pollinator habitats on Nebraska Public Power District (NPPD) properties and right-of-ways that will provide benefits for all native invertebrate species. The applicants have assessed several parcels of land owned by NPPD in two Nebraskan biologically unique landscapes where habitat restoration of native forbs and grasses would have a significant impact on pollinator population stability. On these properties encompassing 2,200 acres, SOM will provide an inventory of plant species, target alien plants for removal, and plant native forbs and grasses to encourage healthy pollinator habitat. Examples of advanced integrated vegetation restorations are needed in Nebraska to educate land owners about the long term savings and environmental improvements they can realize to improve Nebraska's ecosystems. SOM will document its research findings from the monitoring of these restored sites, and share with other property owners and conservationists the methods, means, results, economic savings and environmental benefits of this project, with the aim of securing commitments for three more new entities to commit to change their land and vegetation management to include pollinator habitat within their primary objectives. The Save Our Monarchs Foundation seeks funding from the Nebraska Environmental Trust to purchase seeds and plants needed and assistance with labor, equipment and travel costs associated with implementing this restoration work. In-kind assistance is provided by NPPD staff, SOM staff, project consultants, and volunteer monitors.

Sponsor Name: South Sioux City, City of **Nearest Town:** South Sioux City
Project Name: Storm Water Channel Transformation **Project No:** 17-136
Amount Requested: \$451,308 **Term of Project Request:** 1 **Review Group:** Water

The primary goal of the Project is to improve water quality of the existing storm water channel that drains to the Missouri River. The Project will replace a concrete lined channel with a meandering channel, sporadic pools and wetland vegetation. Natural water filtration opportunities will be provided by the channel transformation to prevent the continued contamination and degradation of the River due to this channel outflow. Additionally, the Project provides an aesthetic amenity for the adjacent neighborhoods. This Project is a private-public partnership between HCI Real Estate Company the adjacent land redeveloper and City of South Sioux City. Advance planning between the partners identified this opportunity. All key features in the Project will be labeled so this can be used for educational purposes. This can also be used as an example of innovative storm water solutions for future area developments. The existing channel conveys storm water from the current end of 29th Street to a detention basin adjacent to the Missouri River. The concrete channel bottom is 10 feet wide and has grass side slopes. The existing detention basin is located at the east end of the channel prior to the discharge to the Missouri River and currently does not provide for storm water detention. This Project will remove the existing concrete channel and re-grade to a meandering alignment. The design will include various-sized water retention ponds (including wetland pools, secondary ponds and vegetative channels) to settle out solids and reduce the speed of storm water flow through the area. Extensive wetland plantings and storm water Best Management Practices are proposed, including gabion check dams. This Project will improve the water quality of the storm water moving through the system to the Missouri River. This is a partial project funding request, remaining funds will be provided by partners.

Sponsor Name: South Sioux City, City of **Nearest Town:** South Sioux City
Project Name: Harnessing the Power of the Missouri River Without Damming It UP **Project No:** 17-174
Amount Requested: \$200,000 **Term of Project Request:** 1 **Review Group:** Air Quality

Fossil fuels are America's primary source of energy, accounting for 85 percent of the United States current fuel use. Some of the costs of using these fuels are obvious, such as costs for mining, drilling, transportation and materials for building and operating energy-generation plants. These costs are passed along to the consumer in their electricity bills or in the purchase price of gasoline or diesel fuel for automobiles, trucks and trains. But, not all costs are included in these bills. Those costs are the ones associated with human health problems caused by air pollution; environmental degradation of the land from coal mining, drilling and fracking; and water pollution and contamination. Since the producers of energy often do not pay for these costs, society as a whole must pay for them. Ever growing concerns regarding the impact fossil fuels are having on the environment and human health, as well as, the ever pressing concern that fossil fuels are a finite resource, has increased the demand for renewable energy resource based systems that are environmentally sound. In 2015, South Sioux City elected to not renew their current energy contract due to the provider's continued dependence upon fossil fuels and instead sought alternative sources of renewable energy. However, in order to pursue one of the identified renewable energy projects, South Sioux City is seeking \$200,000 in funding from the Environmental Trust to assist them in the purchase and installation of a Gorlov Helical Turbine system that will utilize the current of the Missouri River to generate renewable energy for the Scenic Park Campground. The project is expected to offer a 66% savings in electric costs, as well as, help South Sioux City to take one step closer to becoming independent from its reliance upon fossil fuels for its primary source of power.

Sponsor Name: Southwest Weed Management Area **Nearest Town:** McCook
Project Name: Western Republican River Healthy Habitat Project Phase 2 **Project No:** 17-182
Amount Requested: \$333,300 **Term of Project Request:** 1 **Review Group:** Rural Habitat

This project will continue to build upon the current work of the Western Republican Riparian Improvement Project. It will also continue to compliment the work completed on eastern half of the Republican River by the Twin Valleys Weed Management Area. With the completion of the URRNRD and NCORPE Augmentation pipelines, as well as the continued use of Colorado's Republican River Augmentation pipeline, preservation and restoration of our vital river corridors becomes even more important. SWWMA plans on continuing to restore the riparian corridor to a condition better suited for increased biologic diversity and water conservation. We feel that it is important for SWWMA to continue to demonstrate a leadership role in these areas. With increasing demands being made for dwindling water supplies, invasive species continue to place stress on our already fragile river systems. SWWMA plans to continue removing invasive species from the channel of the Republican River as well as its tributaries. Southwest Weed Management will continue to follow a top down approach with an eye towards solving problems before they can float downstream. As in previous years, SWWMA will continue to use best management practices including mechanical, chemical, and biological control methods where applicable. This year, we are placing a special emphasis on the Frenchman Creek in western Chase County. We will also continue to expand the scope of our efforts to include the Republican River flood plain. It is our belief that removing invasive vegetation in these vital areas results in increased water flows and a healthier riparian ecosystem. SWWMA was formed in 2006 and includes as members: county weed superintendents, the Upper and Middle Republican NRDs, NRCS field office personnel, and other agencies and private land owners. The group coordinates and assists efforts to identify and control noxious weeds and invasive plants.

Sponsor Name: The Nature Conservancy **Nearest Town:** Johnstown
Project Name: Fire Training Exchange in Nebraska **Project No:** 16-147-2
Amount Requested: \$68,962 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Millions of acres of land and thousands of communities are at risk from damaging wildfires and related threats. There, too, is a widespread and urgent need to improve Nebraska's grasslands, employing proactive tactics such as prescribed burning, tree thinning, controlling invasive species, and developing community plans. The Nature Conservancy requests three years of support for prescribed fire training exchanges at the Niobrara Valley Preserve (NVP). Fire training exchanges are collaborative, hands-on training experiences that build capacity for integrated fire management. We seek to advance the conservation of grasslands, forests and the human communities they support. Fire practitioners gain experience, learn about conservation, and receive position task book evaluations. Private contractors, ranchers, and landowner associations engage in events that meet national safety standards, gaining skills to work more safely and effectively. Landscapes get the management they need, resulting in improved habitats for wildlife, including threatened and endangered species. To conduct the kinds of burns that Niobrara Valley needs – given its complex terrain and complex fuels – we need the size and efficiency gained at a training exchange scale. We will hold three spring exchanges, training roughly 120 personnel and burning approximately 21,000 acres, depending on weather conditions. TNC will also lead three 'partnership burns'. There is a need and desire to implement safe fire at other times of the year and the NVP is the perfect spot to complete late summer and fall burns. These partnership burns will focus on bringing together local partners – volunteer fire departments, U.S. Fish and Wildlife Service, National Forest Service, National Parks Service, and local landowners for single events. By hosting partnership burns we not only improve grasslands and remove invasive cedars, we also demonstrate how partners can accomplish a safe burn by working together. This approach can then be implemented by other private landowners. THIS PROJECT WAS FUNDED \$66,462 IN 2016 WITH THE INTENT TO FUND UP TO \$66,962 IN YEAR TWO AND \$42,770 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: The Nature Conservancy **Nearest Town:** Johnstown
Project Name: Making a Place for Monarchs **Project No:** 16-148-2
Amount Requested: \$41,907 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Populations of monarch butterflies, honey bees, and other pollinators are declining at alarming rates. Pollinator conservation is critically important for both economic and ecological reasons. The key habitat attributes needed by pollinators (plant diversity and a wide range of habitat conditions) also cover the conservation needs for most wildlife species and for ecological health. The challenge is to figure out how to manage grasslands to meet those needs while still meeting the various objectives of landowners and land managers. The Nature Conservancy has broad expertise in grassland management for plant diversity, pollinators, and wildlife, and proposes to improve management on approximately 30,000 acres of its own land in the Platte and Niobrara River valleys. We will carefully evaluate the impacts of various management treatments to identify key management principles that can be applied elsewhere – within a variety of existing management regimes. In addition, we will use our data to create simple but effective metrics that private landowners can use to assess the habitat quality of their land. This proposal complements and strengthens two other programs funded by the Nebraska Environmental Trust: Learning from the 2012 Fire and the 2014 grant Building a Learning Community. These previously funded actions –to better understand the ecological impacts of the wildfire and to enhance our visitor and classroom facilities and to accommodate more field days and demonstration events – are important foundations from which the proposed activities work. This grant will allow us to continue to improve habitat conditions on TNC land, better evaluate and distill key principles from successful management actions, and then share those principles with interested landowners/managers who would like to improve pollinator and wildlife conditions on their land. THIS PROJECT WAS FUNDED \$57,184 IN 2016 WITH THE INTENT TO FUND UP TO \$41,907 IN YEAR TWO AND \$42,843 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE SECOND YEAR REQUEST.

Sponsor Name: The Nature Conservancy **Nearest Town:** Wood River
Project Name: Platte Prairies Crane Roost **Project No:** 17-178
Amount Requested: \$436,498 **Term of Project Request:** 1 **Review Group:** Rural Habitat

The Nature Conservancy in Nebraska is asking for grant dollars to fund our purchase of the north riparian tract (238 acres) on the Uridil property in Hall County, home to the one of the largest sandhill crane roosts on the Platte River. It provides river habitat for endangered species like piping plovers, least terns, whooping cranes, otters, and bald eagles. At a total of 859 acres, the Uridil property is one of the biggest single parcels on the Platte River. It features 540 acres of native prairie and over a mile of river frontage. With its purchase, both sides of the Platte River are protected from development, a rare thing in this system. While the property itself is a wildlife haven, it also plays a key role in conserving and enhancing the land that surrounds it. It links together other Conservancy properties plus a state wildlife area, forming a 2,735-acre conservation complex and nearly five miles of continuous prairie under Conservancy ownership. This once-in-a-generation purchase will not only ensure a world-class habitat for wildlife is conserved, it will also serve to educate the public about conservation, threatened and endangered species, prairie stewardship, and natural history. This gem will be protected for future generations of Nebraskans to enjoy. We plan to build an additional crane blind that will add visitor capacity along this important stretch of river. The Conservancy's preserves along the Platte are open free to the public for year-round hiking and nature-viewing. We support ecological researchers and host several field days annually to educate conservation professionals and the general public about the history, management, and value of our prairie ecosystems.

Sponsor Name: The Nature Conservancy **Nearest Town:** Big Springs
Project Name: Western Nebraska Irrigation Project **Project No:** 17-183
Amount Requested: \$306,024 **Term of Project Request:** 3 **Review Group:** Water

The long-term sustainability of irrigated agriculture is among our most important environmental challenges in Nebraska. The Nature Conservancy developed the Western Nebraska Irrigation Project in 2014 to: • Improve irrigation practices on farms and collect data to inform watershed management • Replenish the groundwater table and contribute to better stream functions • Collaborate with farmers to ascertain improvement in yields and other economic dimensions • Establish a replicable model to conserve water use in other agricultural watersheds This project promotes technology to help farmers better manage their irrigation. Field mapping, pivot telemetry, and soil moisture probes provide the participants with information used to determine when and how much water to apply to their crop. This approach leads to reduced pumping and more efficient application of water. At this stage of the project- our third field season-, the Conservancy and our partners are monitoring the South Platte River valley to determine changes in hydrology at the landscape level. A network of equipment provides information on movement of water at the field level, fluctuations in groundwater levels at 20 locations across the valley, and streamflow measurements in both the canal and the river. The project aims to overlay this information with data from local NRDs to gain a better understanding of how changes at the field level can impact watershed function. We are requesting financial assistance from the Trust to cover several key components of the next three year phase of this project. This includes funding for the associated science work- analyzing field scale information to determine the benefits of implementing technology, and developing a model to understand impacts at the landscape level. Additionally, we are seeking funds to cover the cost-share obligations of the project equal to half of the cost of the continued use of irrigation technology and personnel costs.

Sponsor Name: The Nebraska Land Trust Incorporated **Nearest Town:** Scottsbluff
Project Name: Pines and Buttes Preservation Project **Project No:** 15-201-3
Amount Requested: \$180,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

Nebraska doesn't have mountains, but the Wildcat Hills and Pine Ridge come close. With ponderosa pines, towering buttes, deep canyons, clear streams and expansive grasslands, these are two of the most popular and scenic destinations in Nebraska. They are also two of our most Biologically Unique Landscapes with western wildlife on the edge of its range, from mountain bluebirds to bighorn sheep. Ranching has largely preserved the integrity of these ecosystems by maintaining wide-open spaces. Unfortunately, ranches are increasingly being sold for recreational use. When recreation replaces ranching, there can be immediate impacts to the land and long-term, the land may be viewed as just one more investment to be maximized which makes eventual development much more likely, especially with 4.5 million people in the Front Range Urban Corridor a half-day drive away. Fortunately, the new Farm Bill offers significant federal funding for conservation easements that preserve working ranches, wide-open spaces, and the ecosystem integrity that comes with it. NRCS programs can fund 50% or 75% of a qualifying easement's value, but only if the matching funds can be confirmed prior to application! This is a 180 degree change from the past and a challenging new requirement, creating a critical need for this grant. THIS PROJECT WAS FUNDED \$450,000 IN 2015 WITH THE INTENT TO FUND UP TO \$270,000 IN YEAR TWO AND \$180,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: The Nebraska Land Trust Incorporated **Nearest Town:** Fremont
Project Name: Lower Platte Preservation Partnership **Project No:** 17-119
Amount Requested: \$1,000,000 **Term of Project Request:** 3 **Review Group:** Rural Habitat

The Lower Platte Valley is a braided ribbon of river, wetlands, woodlands, bluffs, prairie and farmland draped across our most populous region. It sustains wildlife in a Biologically Unique Landscape and families in agriculture. In addition, the Valley sustains 1,000,000 people with drinking water and opportunities to enjoy nature near large metropolitan areas. The Valley and its natural resources are also uniquely threatened in a region projected to have 2,000,000 people by the year 2050. Despite several state parks, its future is largely in private hands creating a challenge for conservation. The Nebraska Land Trust (NLT) has been addressing this challenge since 2002 through voluntary agreements known as conservation easements. To date 3,384 acres of Valley woodlands, wetlands, grasslands, riverfront, streams, farmland and historic sites have been permanently protected from development through 14 agreements in three counties. The Nebraska Environmental Trust (NET) has been a key partner since 2008, providing \$2,222,913 in three grants to purchase eight of these easements, which attracted \$3,089,875 in matching funds from the NRCS, landowners and others. NRDs and NGPC provided in-kind services and financial support for administrative and transaction costs. Stakeholders were engaged to provide input on project selection criteria. It is a proven partnership for success. The NLT seeks to expand upon this partnership by obtaining a minimum 1:1 federal/landowner match for a \$1,000,000 NET grant to purchase conservation easements in the Lower Platte Valley. We will expand outreach and work with stakeholders to identify, prioritize and complete quality projects. As opportunities allow we can buffer state parks from development; connect or expand already protected lands, protect watersheds, maintain wildlife habitat, preserve scenic views and conserve productive soils for agriculture. With approval of this request, the NET can again be the catalyst that stimulates such conservation in the Lower Platte Valley.

Sponsor Name: Trailblazer RC&D **Nearest Town:** Red Cloud
Project Name: Indian Creek Fish Pond **Project No:** 17-226
Amount Requested: \$48,200 **Term of Project Request:** 1 **Review Group:** Lake Rehabilitation

We are seeking funding to excavate the Pond, drill a well to ensure water flow, level resultant spoil piles, add pollinator habitat, and create a handicap accessible walkway and dock. The Indian Creek Pond Wildlife Management Area (WMA) 1 mile south of Red Cloud has provided recreational opportunities, particularly fishing, for citizens of Webster County and the surrounding areas for a few years now. Recently, it has been discovered that the drainage and seepage from surrounding farmland that had been filling the pond since its creation is being blocked, leading to diminished water levels and threatening fish populations. Trailblazers RC&D seeks to remedy that problem by drilling a well to improve water flow into the pond. The pond will also be dredged. The sediment excavation this will produce will increase the depth from 7 feet to 12 feet. To supplement these improvements, spoil piles created by the excavation will be leveled and seed for vegetation that will encourage the flourishing of pollinators will be planted. The project will also feature the installation of a handicap accessible walkway and dock. Currently, accessing the pond is limited to a parking area several hundred feet away from the surface area of the pond itself. Several area organizations are interested in using the area to encourage the handicapped, small children, and others to fish who might not otherwise be able to access the pond. Such access is crucial as there are no other handicap accessible locations and few family friendly locations in the area. Finally, the well will be available for uses other than replenishing the pond, should water be available. The City of Red Cloud and other community organizations are also interested in improving recreational attractions and possibly creating trails in the surrounding area.

Sponsor Name: Tri-Basin Natural Resources District **Nearest Town:** Multiple
Project Name: Rainwater Basin Watershed Restoration Initiative **Project No:** 17-126
Amount Requested: \$472,500 **Term of Project Request:** 3 **Review Group:** Rural Habitat

Tri-Basin Natural Resources District (NRD) is submitting this grant on behalf of the Rainwater Basin Joint Venture Partnership (RWBJV). The RWBJV is a partnership of state, federal, and local agencies, conservation organizations, and private landowners who have joined together to direct wetland habitat conservation in Nebraska's 6,100 square mile Rainwater Basin (RWB) landscape. The primary objective is to fill at least 36 abandoned irrigation reuse pits in priority watersheds. In 1975, Nebraska passed the first law regulating groundwater discharge. This law required producers to manage groundwater in a manner that does not impact neighboring properties. As a result over 10,000 irrigation reuse pits were excavated. This was a significant conservation achievement, which increased irrigation efficiency and reduced excessive groundwater pumping. Today many of these fields have been converted to pivot irrigation systems and irrigation reuse pits are not needed; unfortunately these abandoned irrigation reuse pits still fill with runoff water, intercepting runoff from precipitation events, preventing it from reaching wetlands. Filling abandoned irrigation reuse pits with compacted soil is a "win-win" for producers and wildlife. When an irrigation reuse pit is filled producers eliminate obstacles in their fields and acquire additional farmable acres. Removing pits also restores wetland hydrology and watershed function by facilitating runoff to the wetland on a regular basis. Functional RWB wetlands are critical, especially during spring migration when 8.6 million waterfowl, 500,000 shorebirds, and federally endangered whooping cranes stage in this area to rest and replenish nutrient reserves. To maximize effectiveness, emphasis will be on filling reuse pits closest to wetlands with large storage capacities. Since RWB wetlands are major recharge sites for the underlying Ogallala Aquifer, grant activities will also benefit local residents and area producers. A sustainable aquifer ensures wildlife habitat and production agriculture will coexist for generations to come.

Sponsor Name: Twin Valley Weed Management Area **Nearest Town:** Alma
Project Name: Eastern Republican and Little Blue Riparian Improvement Project **Project No:** 17-103
Amount Requested: \$154,000 **Term of Project Request:** 1 **Review Group:** Rural Habitat

The highly successful Eastern Republican and Little Blue Riparian Improvement Project continues ongoing efforts to eradicate invasive species, control vegetation in stream channels, and improve riparian habitat along the Republican and Little Blue Rivers and their tributaries within six of the Twin Valley Weed Management Area (TVWMA) counties. Control efforts are conducted in a holistic manner, utilizing a full range of mechanical, biological and chemical tools. TVWMA has undertaken this project over recent years to improve stream flow along the Republican and Little Blue Rivers to help enable Nebraska to meet its water delivery obligations to Kansas, to restore and maintain into the future a healthy river system and prevent wasteful degradation of water resources, to improve riparian habitat including re-planting beneficial species, as well as including pollinators, and to increase public awareness of the best practices that can be used to properly manage riparian lands.

Sponsor Name: Upper Loup Natural Resources District **Nearest Town:** Thedford
Project Name: Investigating the spatial and temporal characteristics of groundwater discharge in the Loup River Basin **Project No:** 15-113-3
Amount Requested: \$110,000 **Term of Project Request:** 3 **Review Group:** Statement of Intent

The Upper Loup and Lower Loup Natural Resources Districts are requesting funds in the amount of \$308,000 to facilitate the collection of airborne thermal infrared data, purchase of additional instrumentation to measure and record groundwater levels and temperature, and to oversee a study to enhance the understanding of spatial and temporal characteristics of groundwater/surface-water interaction in the Loup River basin. Additional information is needed for the management and development of water resources to sustain supplies needed for agriculture, fish and wildlife, recreation, and domestic uses. Streams in the Loup River basin are sensitive to consumptive groundwater use because of the close hydrologic connection between groundwater and surface water. Four stream reaches, totaling approximately 320 river miles, have been identified by the project sponsors as priority streams where additional groundwater/surface-water interaction information is needed. Over these reaches airborne thermal imagery will be collected and used to map stream surface temperatures to identify thermal anomalies, which may be indicative of focused groundwater discharge. Airborne thermal data will be verified with continuous water-temperature logging at existing stream-gaging stations and with self-logging thermistors. Mapped thermal anomalies will be investigated with a variety of techniques including water temperature, potentiometer, and seepage meter measurements. Within the four stream reaches, four coupled groundwater/surface-water gages will be instrumented at existing stream-gaging stations. Coupled groundwater/surface-water gages consist of a streamgage coupled with an observation well that has been completed below the elevation of the streambed and instrumented with a water-level recorder. The information provided by a network of coupled gaging stations will allow scientists and managers to analyze streamflow and groundwater discharge patterns, both temporally and spatially. Future groundwater management actions must be tied to studies such as this in order to conserve, maintain and protect our water supplies, natural environments, and economic vitality for future generations. THIS PROJECT WAS FUNDED \$103,000 IN 2015 WITH THE INTENT TO FUND UP TO \$95,000 IN YEAR TWO AND \$110,000 IN YEAR THREE PENDING AVAILABLE FUNDS AND SATISFACTORY PROGRESS. THIS IS THE THIRD YEAR REQUEST.

Sponsor Name: Upper Loup Natural Resources District **Nearest Town:** Thedford
Project Name: Upper Loup Water Budget Study **Project No:** 17-146
Amount Requested: \$27,250 **Term of Project Request:** 1 **Review Group:** Water

The Upper Loup Natural Resources District (ULNRD) is requesting NET funds to cost-share the Upper Loup Water Budget Study, a hydrological equation that can be used to describe the flow of water in and out of the watershed. This study will contribute to the ULNRD Voluntary Integrated Management Plan objectives regarding water supplies and demands. The ULNRD and the NeDNR will jointly collaborate and oversee this study, recommending changes as is appropriate. The ULNRD and their consultants will conduct the study. The Upper Loup Basin is the headwaters of the Loup River System and an important source of water to the Lower Platte River. An understanding of the water budget is critical to manage this valuable natural resource. It's strategic location in the system and available surface water and groundwater make it vital to the entire State. The Upper Loup Basin is covered almost entirely by Sandhills. This unique ecosystem is extensive spatially yet is fragile as a sparse layer of vegetation prevents the mobilization of the sand dunes. Increased downstream water demands or changing climate conditions can have serious effects on the Upper Loup Basin. This study will be a comprehensive assessment and inventory of available hydrologic, geologic, and physical data in the ULNRD. Both water use and supplies in the district boundaries will be investigated. The inventory will assemble data spatially and temporally. The study will examine hydrologic, climatic, and physical records for at least the past 25 years to gain a greater understanding of the water supplies and demands in and around the ULNRD. The proposed water balance study will help the ULNRD strengthen its water management decision-making, by assessing and improving the validity of visions, scenarios and strategies to preserve and protect the water resources of our State and the Nebraska Sandhills.

Sponsor Name: Upper Niobrara - White Natural Resources District **Nearest Town:** Chadron
Project Name: Water Conservation Utilizing Soil Moisture Probes and ET Gages **Project No:** 17-124
Amount Requested: \$100,000 **Term of Project Request:** 3 **Review Group:** Water

The Upper Niobrara White Natural Resources District (UNWNRD) is seeking to work with producers throughout the four counties within the district to better manage water utilized for irrigation. The UNWNRD is aiming to utilize 200 tested and proven soil moisture monitoring equipment and ET gages on up to 26,000 acres. The soil moisture probes the district will utilize measure the soil moisture throughout the root zone, informing the producer of the water available for utilization by the crop and the ET gage reading records the water potentially utilized by the crop. In studies by researchers at University of Nebraska-Lincoln, this technology has been shown to conserve 1-2 inches of water per acre annually. Through this project the UNWNRD plans to intensify efforts to educate irrigators and public about the use and effectiveness of this technology and offer assistance to producers who will implement the technology on their land. As well as providing cost share for equipment, the UNWNRD will continue to produce weekly crop water use reports. This is a weekly report that gives crop water use for most crops grown within the UNWNRD based on data collected from producers in the district and crop growth stage. This is published through local newspapers, radio stations, and websites.

Sponsor Name: Upper Republican Natural Resources District **Nearest Town:** Benkelman
Project Name: Irrigation Retirement Program **Project No:** 17-206
Amount Requested: \$2,500,000 **Term of Project Request:** 3 **Review Group:** Water

The Upper Republican NRD (URNRD) is requesting NET funds to permanently retire approximately 1,000 irrigated acres within the URNRD where there are significant groundwater declines or high impacts on stream flow. Retirement of such acres will help prolong aquifer life in areas of the URNRD where current rates of decline threaten water availability within the next several decades. The retirement program will also target acres near the Republican River and its tributaries where groundwater irrigation significantly impacts stream flow. Mitigation of impacts on stream flow due to groundwater pumping is important for environmental, ecological and agricultural purposes. The retirement program is one part of a comprehensive effort by the URNRD to preserve water in the District; other new initiatives not part of this grant proposal include limiting water use to evapotranspiration rates and possibly regulating water use differently throughout the district based on water availability. The cost of retiring the irrigated land under this proposal will be \$2,500 per acre and we expect significant interest in the program due to the current climate of low commodity prices and a relatively weak ag real estate market. Previous experience with another irrigation retirement program in the URNRD, the USDA's Agricultural Water Enhancement Program, showed there was relatively high demand for irrigation retirement during a time of similar economic conditions. While the cost of irrigation retirement is significant, it is the most effective way to reduce water consumption because it completely eliminates water use in priority areas such as those established by the URNRD and explained in the narrative section of this grant proposal.

Sponsor Name: Urban Bird and Nature Alliance **Nearest Town:** Omaha
Project Name: EAB Community Education & Sustainable Urban Forest Ash Tree Management Project **Project No:** 17-211
Amount Requested: \$507,996 **Term of Project Request:** 3 **Review Group:** Education

The Emerald Ash Borer, a highly invasive beetle, is slated to kill over 44 million Ash trees in the State of Nebraska over a 15 year period, causing an economic impact in the state of over \$883 million dollars, multiple safety issues and environmental devastation to the urban forest and NE landscape. In April 2016, EAB was diagnosed in Ash trees in a South Omaha Park. The loss of Ash trees in NE will result in an overall lower quality of life. The loss of the ash trees will result in habitat loss and endanger bird, insects, mosses and lichen habitat species of nearly 1000 species. It is estimated that over 14,000 Ash trees in Public Right of Ways and City Parks will die in Omaha. Over 60,000 Ash trees reside in private residential yards in Omaha. Omaha is the largest city in NE. Because there is no way of stopping the ultimate demise of our Ash trees, a rapid proactive approach must be implemented on many levels. Project EAB Community Education & Sustainable Urban Forest Ash Tree Management will enlist experts to educate and conduct workshops about EAB and EAB mitigation. Experts will work on a grass roots level with key Neighborhood Associations to devise a comprehensive plan to learn about EAB and identify Ash trees in their neighborhood, Parks and ROW. Through neighborhood engagement, Ash trees will be wrapped for visual impact. Maps will be used for Ash tree inventory along with geo-mapping. Data and inventory collected will be shared with partners. A strategic management plan will include the selection of diverse tree species to plant in the Ash tree understory to establish new trees and to plant replacement trees in areas where trees have been removed. Best practices for tree planting, care, maintenance and monitoring will be employed. Public awareness and education, along with a comprehensive approach will assist in EAB management and mitigation. The project will enlist the collaborative efforts of 8 diverse contributing agencies, non-profit organizations, city officials, university staff, students/schools, Neighborhood Associations and Alliances. The project process, data collection and results will be shared with the public and others working in EAB education and resolution. Public education, tree planting and maintenance will serve to sustain the vital tree canopy for the necessary betterment of the environment and ultimate public gain.

Sponsor Name: Wachiska Audubon Society **Nearest Town:** Richland
Project Name: Fertig Prairie Acquisition Project **Project No:** 17-156
Amount Requested: \$53,250 **Term of Project Request:** 1 **Review Group:** Rural Habitat

This proposal is a request for funding that will allow the Wachiska Audubon Society to purchase Fertig Prairie, a 45 acre native prairie located near Richland in Colfax County, Nebraska. We are requesting one half of the purchase price or \$53,250.00 of a total price of \$106,500.00 from the NET. Wachiska Audubon will be responsible for the other half of the payment through the use of matching grants and its own funds if necessary. If the Wachiska Audubon Society is able to purchase this high quality tallgrass prairie, we will insure permanent access for grade school, high school and college students in the Schuyler and Columbus area. It will be open year round for grade school events, biology classes, scientific study and research, and for use and enjoyment by the general public. The Fertig Family has been accommodating, allowing school groups to use their prairie for classes for a number of years. The Fertig family now is no longer actively engaged in farming in the area. If they should decide to sell the property for economic reasons, the new owners could easily decide to close the prairie to all public use. We want to make sure that Fertig Prairie stays open for public use and that part of the prairie is left un-hayed for school use each year. Wachiska Audubon has had over twenty years of experience in managing native prairies in southeastern Nebraska. We believe that we have the experience, volunteers and funds to manage the prairie well, to increase the rare species and reduce or remove the non-native invading species. We are also willing to seriously consider making the prairie available for youth mentored hunting or other types of hunting during the off season in order to make more efficient use of this rare and valuable resource.

Sponsor Name: Waverly **Nearest Town:** Waverly
Project Name: Waverly Source Water Assessment and Drinking Water Protection Management Plan **Project No:** 17-161
Amount Requested: \$224,000 **Term of Project Request:** 3 **Review Group:** Water

NET funds, combined with funding from the Project Partners: City of Waverly (City), LPSNRD, NDEQ and in-kind services from UNL and the Eastern Nebraska Water-Resources Assessment (ENWRA) will help cost-share a Source Water Assessment and Nebraska's first Drinking Water Protection Management (DWPM) Plan. Specifically, the purpose of the Plan is to evaluate the water-quality and protect the groundwater in and adjacent to the City Wellhead Protection Area (WHPA). Elevated nitrate levels exceeding the MCL have been measured in and around the City's wellfield. To mitigate and/or identify future management options, a thorough understanding of the contamination and hydrogeology is needed. The project will use advanced technology and analysis to assess current and future hydrogeological and environmental conditions. ENWRA will provide airborne electromagnetic (AEM) geophysical surveys to map the complex geology. UNL will provide cutting edge chemical analysis to determine the source and transport of contaminants in both the vadose zone and the groundwater. The advanced technology and analysis will provide critical information on current and future water treatment options and/or use of public education and best management practices (BMPs) to protect and improve water quality. The outcome of this analysis could prevent or reduce the need for expensive water treatment. Stakeholder outreach and public education will be integral component of the planning process. Inclusive communication techniques, such as social media, news media, and possibility one-on-one stakeholder interviews and public opinion surveys will be employed by the Project Partners to educate the public and landowners. The goal is to gain community buy-in of the Source Water Assessment and Drinking Water Protection Plan. The innovative and comprehensive Drinking Water Protection Plan - the first in Nebraska- will be developed to assist in the management of the groundwater in the WHPA and thereby ensure that the city will continue to have a safe and sustainable water supply.

Sponsor Name: Western Resources Group **Nearest Town:** Ogallala
Project Name: Western Nebraska Regional Recycling Program (WNRR) **Project No:** 17-181
Amount Requested: \$412,332 **Term of Project Request:** 3 **Review Group:** Waste Management

Western Resources Group (WRG) a household recycling facility and manufacturer of 100% recycled animal bedding is seeking to expand the collection of recyclable materials in western Nebraska. After one year of operations, it has been determined that the need for raw cardboard for animal bedding is larger than the local collection area can provide. We have discovered that there is not a centralized recycling facility serving western Nebraska. Through the Keep Nebraska Beautiful affiliate network we have been able to create an initial group of areas that are willing to send their recycling to WRG. WRG will operate as a hub in the area for consolidation and full truck load shipments to end recyclers. Funding is needed to grow the existing network, provide trailers for storage and shipment and add employees to manage and control the program. WRG has the ability to be a regional hub rural areas in Western Nebraska, however lacks the additional capital to establish the supply chain and employee wages.

Sponsor Name: Wisner

Nearest Town: Wisner

Project Name: Wisner Care Center Biomass Energy

Project No: 17-116

Amount Requested: \$161,175

Term of Project Request: 1

Review Group: Air Quality

The Wisner Care Center Biomass Energy Project, in partnership with the Nebraska Forest Service and Nebraska Department of Environmental Quality, seeks to incorporate the emerging technology of gasification into its Electric utility system to provide an alternate source of energy for its City-owned Wisner Care Center. Through this process, the City will become a better steward of its environment as it converts wood waste collected within the community into electricity to power and heat the Wisner Care Center facility while reducing carbon emissions arising from the burning of wood piles. The City of Wisner Electric utility will purchase a 100 kW biomass gasification Combined Heat and Power (CHP) system with automatic feeder to utilize wood waste to provide electric power and heat to the Wisner Care Center. Vtally important is the estimate that this project will see 432 tons less of coal being used each year to produce the energy that will now be produced by the biomass gasifier. This will result in 2 million pounds of C02 emissions from fossil fuels being removed from the environment each year. It will also use invasive trees in the area, including eastern red cedars, and will use the ash trees expected to be destroyed by the presence of the emerald ash borer. Ash trees make up approximately 30% of Wisner's tree inventory. Besides transforming wood waste into electric energy and heat rather than creating noxious emissions caused by its burning, it is projected that this gasifier system will save the Wisner Care Center over \$50,000 per year in utility expenses, providing it with better cash flow to meet other operating and capital expenses. Converting wood waste into energy will put less stress on landfills, and the by-product of the process can be applied agriculturally due to its nutrient content. Finally, based on projected utility cost savings, this project will pay for itself in six to eight years. It is truly deserving of the support of the Nebraska Environmental Trust.
