

Outdoor Heritage Fund Grant Application

Name of Organization	University of North Dakota
Federal Tax ID#	45-6002491
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List names of co-applicants if this is a joint proposal

Principal investigators: Brett Goodwin (UND Associate Professor and Biology Department Chair), Brian Darby (UND Biology Department Assistant Professor)

Key-Personnel: Lorilie Atkinson (Soil Conservationist, Natural Resources Conservation Service (NRCS)- Grand Forks Field Office), Anne Cummings (Resource Conservationist, NRCS-Grand Forks), Susan Ellis-Felege (UND Biology Department Assistant Professor), Phil Gerla (UND Geology Department Associate Professor), Kristine Larson (Watershed Coordinator, Grand Forks County Soil Conservation District), Chris Merkord (UND Biology Department Adjunct Research Assistant Professor), Isaac Schlosser (UND Biology Department Professor and Field Station Director)

MAJOR Directive:

X **Directive B.** Improve, maintain, and restore water quality, soil conditions, plant diversity, animal systems and to support other practices of stewardship to enhance farming and ranching;

Additional Directives:

X **Directive A.** Provide access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

X **Directive C.** Develop, enhance, conserve, and restore wildlife and fish habitat on private and public lands; and

X **Directive D.** Conserve natural areas for recreation through the establishment and development of parks and other recreation areas.

Type of organization:

X State Agency

Project Name: Enhancing the wildlife value of working and public lands in the Grand Forks Prairie Project Area through demonstrated land management

Abstract/Executive Summary

Our objective is to incorporate and demonstrate land management practices that can enhance the farming, ranching, wildlife, and conservation values of the public and working lands in Grand Forks County. A large area of nearly contiguous grassland that occurs in Grand Forks County serves as valuable wildlife habitat and the cornerstone for this effort. These grasslands provide crop pollination, water management, wildlife habitat, forage production, and soil health services, and we need to manage them in order to sustain the contributions they make to our regional economy. Our intention is to work with regional stakeholders to promote activities on public and working lands that improve their economic and wildlife value and exemplify the potential for collaborative ventures among those with farming, ranching, and wildlife interests in North Dakota. By working with local agencies and private landowners, we will:

1. Implement fire management (which has been absent for multiple decades) on public lands to improve their forage and wildlife habitat values (addresses OHF Directives A, B, C),
2. Demonstrate agricultural practices geared toward improving crop production, soil health, and wildlife habitat values associated with row-crop agriculture (addresses OHF Directive B),
3. Evaluate our efforts by monitoring management effects on plant diversity, insect communities, soil health, and wildlife (addresses OHF Directive B),
4. Conduct stakeholder input events (spring workshops, fall field tours) to jointly evaluate management approaches and outcomes with regional public and private stakeholders (addresses OHF Directive B),
5. Double the availability of public recreation area in the region south of Highway 2 by forming a joint Wildlife Management Area agreement with North Dakota Game and Fish (NDGF) for UND's Oakville Prairie (addresses OHF Directives A, D).

Our efforts will address all four OHF directives and will encourage stronger networking among regional stakeholders to improve the value of the working and public landscape for farming, ranching, and wildlife interests. UND is uniquely positioned in this effort in our ability to support the monitoring efforts that are necessary to evaluate and demonstrate management success. An inter-disciplinary team of faculty investigators will work with personnel at the Natural Resources Conservation Service Grand Forks Field Office and the Grand Forks County Soil Conservation District, a regional project coordinator (hired by this grant), and a team of undergraduate technicians (hired by this grant) over a four year period (4/1/2014 to 3/31/2018). We anticipate \$836,859 in project costs at the University of North Dakota which will be supported with a 44% share from UND. This project is a unique, and timely, effort among UND faculty, personnel at local conservation agencies, and private citizens, and will serve as an example of how to integrate conservation and production interests to create working landscapes with public wildlife value in North Dakota.

Amount of Grant request	\$ 466,547
Total Project Costs	\$ 836,859
Amount of Matching Funds	\$ 370,312 (44%)

Source(s) of Matching Funds

Cash	\$ 50,000
In-Kind	\$ 143,024
Unrecovered indirect costs	\$ 177,288

Certifications

X I certify that this application has been made with the support of the governing body and chief executive of my organization.

X I certify that if awarded grant funding none of the funding will be used for any of the exemptions noted on Page 1 of this application.

Narrative

Organization Information

The University of North Dakota (UND) was founded in 1883 with a charter calling for the establishment of a liberal arts and letters college and a normal school for the training of teachers. The University aims to serve the state through teaching, research, and service activities of its faculty.

Instruction in the Natural Sciences was an important component of the first curricula at UND, and UND continues to play an important role in training conservation professionals through the Biology Department's Fisheries and Wildlife Biology program. As part of this effort, UND acquired fallow land in Grand Forks County for use in educational and research endeavors between the 1950's and the early 2000's. While this and other public land acquisitions were fruitful for ensuring educational and public access to natural systems, these efforts were without plans for instituting management necessary for maintaining the wildlife and economic value of these lands.

In recognition of this need, UND has been building faculty expertise in land management through recent faculty hires (Grassland Ecology: Yurkonis, Soil ecology: Darby, Wildlife Ecology: Ellis-Felege) and was a signator on the 2012 Grand Forks Prairie Project Memorandum of Understanding (GFPP-MOU) (attached) with seven other entities. The GFPP-MOU established a conservation working group in the region, and, reflecting the changing face of conservation action, defines the Grand Forks Prairie Project **as a project that unites production and conservation interests** (following models elsewhere in the country) **to develop a sustainable, working landscape**. Following the GFPP-MOU, NRCS has been coordinating with local producers through outreach efforts and UND has taken a lead in coordinating management efforts that require input of additional financial, personnel, and equipment resources. With this proposal, we seek funding to implement and evaluate management efforts to catalyze additional, sustainable, public and private land management in the region.

Purpose of Grant

Need

The landscape immediately west of the city of Grand Forks contains a nearly contiguous area (~10 x 30 miles) of public and privately held grassland in an agricultural matrix (Figure 1). This grassland area roughly outlines a geological location where saline groundwater upwells to the ground surface, resulting in wet, salinity prone soils that are typically unfavorable for row-crop production. As a result of this groundwater upwelling, much of the area either remains in grassland cover or has been reverted to grassland cover following early settlers' attempts at cultivation. Currently, grazing enterprises (primarily cattle and bison) have been successful on this landscape and many private grasslands are variously enrolled in conservation programs. Public agencies (state, federal) hold several parcels within this area, and, as such, the area contains the largest concentration of grassland habitat within North Dakota's Northern Red River Valley.

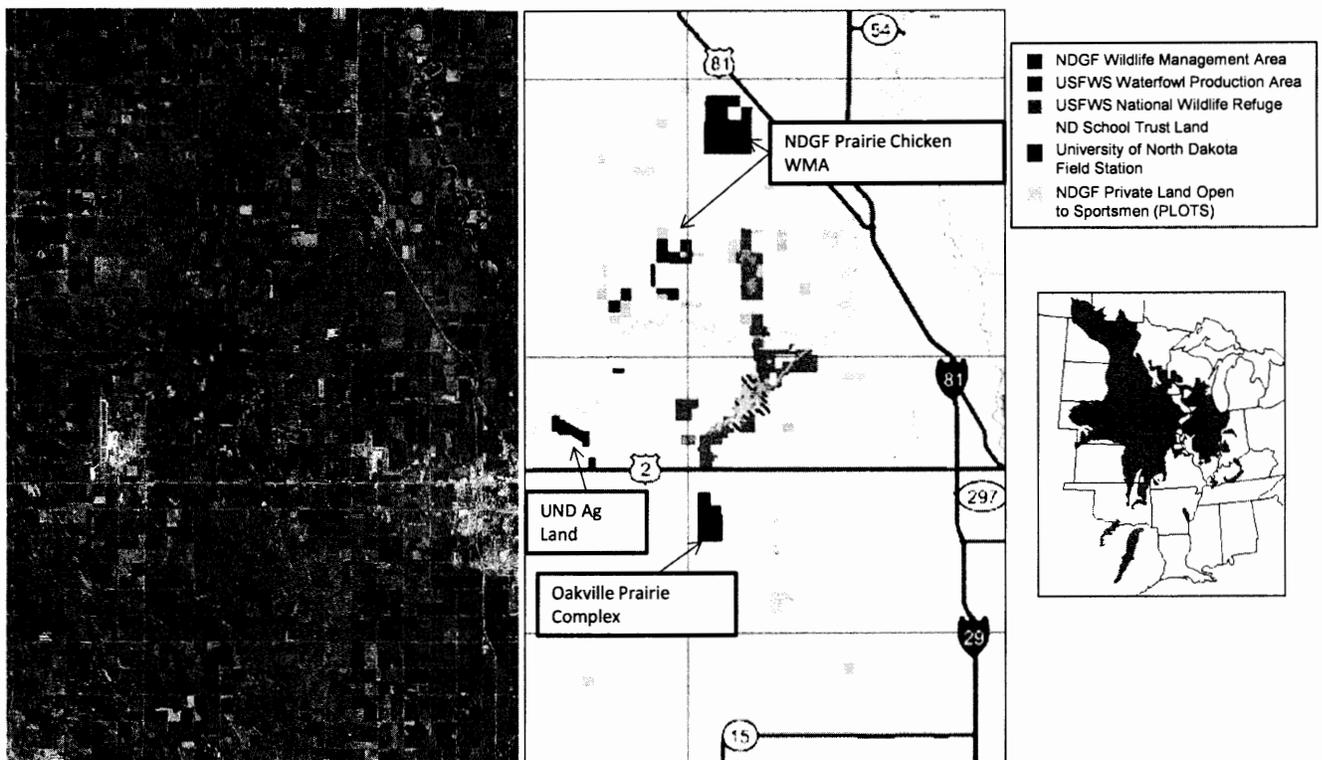


Figure 1 The Grand Forks County Prairie Project Area located in the northern portion of the tallgrass prairie biome (green area in left-most panel with start indicating Grand Forks) encompasses 10 x 30 mile area west of the city of Grand Forks. The nearly contiguous grassland area is located within an agricultural matrix and nearly 10,000 acres are managed within state and federal holdings. We will focus management efforts on the UND lands (dark blue) and the NDGF Wildlife Management Areas (Red).

In addition to supporting farming and ranching enterprises, this landscape is important in the cultural heritage of the area and serves a large contingent of citizens through education and recreation opportunities. Cultural ties to the landscape are evident in the many farming and ranching operations that often support four generations of family members. Former state legislator Enoch Thorsgard memorialized his experiences growing up and living on the landscape through his 2009 book: *Enoch's Saga: Horsepower to Satellite in a Single Lifetime*. Hunting and birding communities are active in the region, and the citizen-based Grand Forks Prairie Partners organization grew out of this interest in the early 2000's. This fall, the region gained national attention through a visit by Neil

Hayward (www.accidentalbigyear2013.blogspot.com), who arrived in Grand Forks to view sharp-tailed grouse with the Grand Forks Prairie Partners president and local bird expert Dave Lambeth. Finally, the Grand Forks county eco-ed camp at Turtle River State Park hosts nearly 700 students annually to learn about North Dakota's environmental heritage, and UND faculty actively use this landscape during course activities for the Fisheries and Wildlife Biology program.

As with many areas in the state, the Grand Forks county landscape is dynamic and constantly changing. Each parcel has likely been managed in several ways within the last century and these management changes, which have been driven by local (i.e., ownership, land-owner preferences) and non-local (i.e., commodity prices) forces, are likely to continue into the next century. Given this context, we aim to understand the factors that contribute to how the regional landscape is managed and demonstrate alternative, on-the-ground farming and ranching practices that can be used to improve the economic and wildlife habitat values of this working landscape.

The landscape in Grand Forks county provides several services which directly contribute to our farming, ranching, and recreation economies (Figure 2). The soils in the region harbor living organisms (bacteria, fungi, microorganisms) that facilitate nutrient cycling and production of nutrients necessary for plant growth. These soils, and the nutrients they produce, support plant growth on agricultural (row-crop), grazing (forage), and public lands (wildlife habitat and recreation areas). The plant diversity that is harbored on these lands further supports insect populations that are necessary for row-crop production (i.e., beans and sunflowers) and that are an important food source for wildlife. Wildlife variously use all of these types of areas for habitat and additional food sources (seeds, prey).

Land management decisions directly influence how each parcel contributes to the regional economy and how well each parcel supports our insect and wildlife populations. By essentially eliminating fire and grazing management from public lands, we have reduced their capacity to serve species which need more open, high nutrient content vegetation (which includes cattle and bison). By using farming practices that disturb the soil and leave much of the soil surface exposed each year, we negatively affect the soil organisms and insect populations that we depend on to maintain high crop yields. **In order to improve how the Grand Forks County landscape serves our region, we need to consider whether current land management practices could be improved upon to meet our economic and wildlife habitat goals.**

Anyone familiar with working lands understands that managers must take actions on their lands in order to promote desired suites of plants and animals and inhibit others. Grasslands, and former grassland areas, are no exception. **Their soil, plant, insect, and wildlife resources need to be managed, or their capability to provide the services we depend on will change.** It is well established that agricultural lands benefit from reduced tilling and perennial cover, as this increases soil health, increases water infiltration, prevents soil

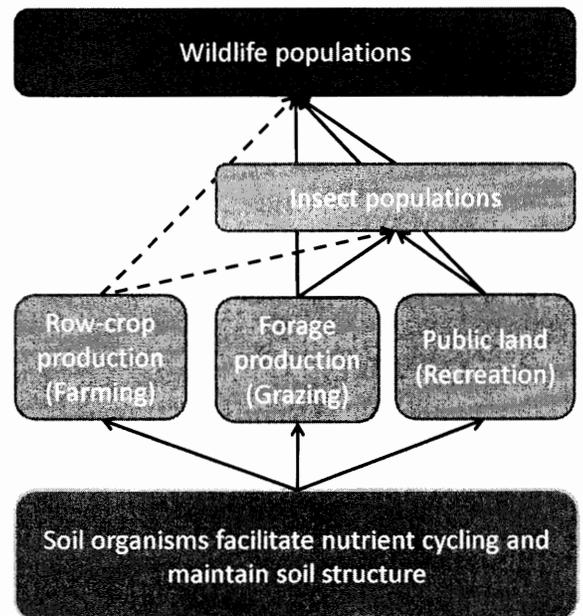


Figure 2 Our regional soils support plant production that meets our farming, grazing, and public recreation needs. All three of these land-cover types can be managed to support insects and wildlife while meeting our economic goals. However, we need to consider whether we are using best-available practices to do so. For example, changing current tilling and cover practices (indicated by dashed lines) in row-crop lands could increase their wildlife values while maintaining or even improving crop-yields.

loss, and provides wildlife habitat. Areas with more permanent grassland cover benefit from fire and grazing management which helps to maximize the production of their plant, insect, soil, and animal communities. While alternative land management practices (reduced tilling, increasing the use of fire on grasslands) could benefit our region, it is understandably difficult to take on the risk of implementing new practices. Traditionally, public agencies have been positioned to reduce this risk by facilitating and demonstrating the gains that individuals could make with alternative management decisions.

Unfortunately, in a location where public agencies have the land-holdings necessary to take leadership in evaluating alternative land management approaches, the agencies have lacked the initial capital (equipment, resources, personnel) to do so. Public grassland tracts within the Grand Forks Prairie Project (GFPP) area have either been idle for decades (i.e., UND's Oakville Prairie, the NDGF Crawford Oakville Prairie Wildlife Management Area, and tracts within the NDGF Prairie-Chicken Wildlife Management Area) or managed with moderate grazing and haying practices (i.e., tracts within the NDGF Prairie-Chicken Wildlife Management Area). Fire is only most commonly used on private grasslands to promote forage production and, in conjunction with chemical and mechanical means, to control woody plant encroachment (Russian Olive, Snowberry).

If we are to continue to expect the Grand Forks County landscape to meet our farming, ranching, recreation, and wildlife needs, we need a coordinated, multi-stakeholder effort to implement and evaluate alternative land-management practices. This requires collaboration and an infusion of resources that none of the local agencies have at their disposal (singly or collectively). Regional stakeholders took the first step in this process by signing the Grand Forks Prairie Project Memorandum of Understanding (GFPP-MOU; attached) in 2012. We are continuing this effort by seeking funding with this proposal to hire a project coordinator and implement and evaluate public land management practices in order to catalyze sustainable, public and private land management in the region.

Project goals

Our goal is to introduce and demonstrate management practices on public lands that can be used to increase the economic, wildlife, and cultural heritage value of the regional grassland landscape. We specifically aim to:

- 1) Introduce prescribed fire to public land holdings with experienced, professional assistance (i.e., with fire breaks and smoke management) (Addresses **OHF Directives A, B, C**)

Fire is an important grassland management tool as it removes accumulated litter, stimulates plant growth, and reduces woody plants. Some private landowners (e.g. Thorsgard family) already use spring burning to increase forage production on their lands. We will facilitate implementing this practice on UND and NDGF lands to increase their forage value and encourage use of grazing contracts within the NDGF Prairie Chicken Wildlife Management Area. We will use a four-phase burn plan in order to establish a patch-burn grazing network on these sites. Because of logistics (installing fencing, wells, forming grazing contracts), UND will post-pone establishing grazing contracts on UND land until 2018 (2017 OHF grant submission).

- 2) Establish a demonstration site for agricultural practices that will preserve our regional soil resources (Addresses **OHF Directive B**)

While perennial cover crop and conservation tillage practices have had demonstrated success in other regions, it is unclear what the economic and soil health gain of these practices would be in our region. We will work with the Natural Resources Conservation Service Grand Forks Field Office and

the Grand Forks County Soil Conservation District to implement alternative no-till cover crop practices on a portion (~8 acres) of the for-lease agricultural land owned by UND.

- 3) Monitor the effects of implemented grassland and agricultural management practices on plants, insects, soils, and wildlife (Addresses **OHF Directive B**)

Using a team of undergraduate researchers, we will monitor plant, insect, soil, and wildlife responses to grassland fire management and use of perennial cover crops in no-till row-crop agriculture systems. Given the faculty expertise, UND is uniquely positioned to monitor how these approaches will affect multiple aspects associated with the forage and agricultural value of these areas.

- 4) Conduct stakeholder input events (spring workshops, fall field tours) to jointly evaluate management approaches and outcomes with regional public and private stakeholders (Addresses **OHF Directive B**)

The success of this project will depend on input of knowledge, skills, and abilities from stakeholders with experience on the landscape. We will co-host discussions among GFPP-MOU participants and private land-owners to share monitoring reports and jointly evaluate management success.

- 5) Double the availability of public recreation area in the region south of Highway 2 by forming a joint Wildlife Management Area agreement with NDGF for UND's Oakville Prairie (Addresses **OHF Directives A, D**)

We are in the process of entering into a cooperative agreement with NDGF to establish the UND Oakville Prairie land as a NDGF Wildlife Management Area. This effort would double acreage available to private sportsmen in the southern portion of the project area. Recent outreach events highlighted the availability of public access opportunities (i.e. ND PLOTS program) and we will continue to seek interested parties in the southern portion of the project area.

Strategies

We are following the catalyst model of landscape change whereby we aim to invest capital and expertise on public lands (UND Field Stations and NDGF Crawford Oakville Prairie Wildlife Management Areas) in order to catalyze best-practice management efforts on other public and private lands.

Aim 1: Introduce prescribed fire

We will coordinate with a private prescribed fire company (Badger Creek Wildfire, Poplar, MT; www.badgercreekwildfire.com; has current contract with NDGF) with experience in North Dakota to implement fire with a four-year return interval (Figure 3) on the UND Oakville Prairie and NDGF Prairie Chicken Wildlife Management Area complexes. This company will produce annual burn plans, secure appropriate permits, contact local stakeholders regarding our effort, supply federally certified personnel, and supply equipment to burn our designated management units. We will contract with local, private individuals to facilitate fire break mowing on these sites. We will monitor plant, insect, soil, and wildlife responses (see Aim 3, below) to these management actions.

Aim 2: Establish a no-till perennial cover crop demonstration site

We will coordinate with the Natural Resources Conservation Service Grand Forks Field Office and the Grand Forks County Soil Conservation District to establish no-till, perennial cover crop demonstration plantings (~ 8 acres) on agricultural land owned by UND located in the western part of the project area (Figure 1). Replicated portions of the area will be seeded with none, one, or a combination of two, five, or ten perennial cover crop species (which includes traditional turnips and radishes and cool

and warm-season grasses). The area will then be annually seeded with a cash crop (i.e., wheat, soybeans, corn) which will be harvested at the end of each growing season in conjunction with local producers. We will record crop yield in each planting type and monitor co-occurring plant, insect and soil responses to these planting types (see Aim 3, below).

Aim 3: Monitoring management effects

A substantial portion of the budget and personnel effort will go toward monitoring management (fire, cover crop planting) effects on plant (PI Yurkonis), insect (PI Goodwin), soil (PI Darby with Key Personnel Gerla), and wildlife communities (PI Goodwin with key personnel Merkord and Felege; details described under Evaluation, below). This effort is essential for documenting and jointly evaluating the benefits of using these management actions on our landscape.

Aim 4: Conduct stakeholder input events

The success of this project has and will be dependent on the joint contributions and perspectives provided by the regional stakeholders. We will co-organize with other GFPP-MOU agencies spring workshops held in a community venue to communicate project progress and discuss outcomes with stakeholders. Fall field tours will be an opportunity for on-the ground discussions and highlighting management effects on plant yield. A pilot workshop (limited budget) in Spring 2013 and field tour in fall 2014 were well attended (20-40 people) and resulted in additional private land-owner inquiries about our efforts and land management possibilities in the region.

Aim 5: Creating additional public recreation areas

In the past year, UND worked with NDGF to establish its Forest River Biology Area as a joint research station and NDGF Wildlife Management Area. This resulted in a venture that provided successful public hunting opportunities for sportsmen and that will be followed up upon by members of the 2013 wildlife management class (supervised by Key Personnel Felege) at UND. We will continue this effort by working with NDGF to establish a joint Wildlife Management Area on UND's Oakville Prairie Field station. While a substantial amount of public recreation land is available North of US 2 in the project area (Figure 1), only three ¼ sections are open to sportsmen in the southern grassland area. This effort will double the land area available for recreation in this area.

Benefits

This is a new project and OHF funds will provide the necessary financial capital to create a sustainable, public and working landscape in Grand Forks County. While several organizations are involved in the GFPP-MOU, independently, the organizations involved do not have the equipment or personnel in the area to facilitate this kind of coordinated plan. UND's involvement in the project will help to establish a coordinated management network and bring a unique set of expertise to the project that cannot be replicated within any single agency.

The project will directly increase the quantity and quality of wildlife habitat open to sportsmen and engage with local land-owners to enhance stewardship of the soil, plant, insect and

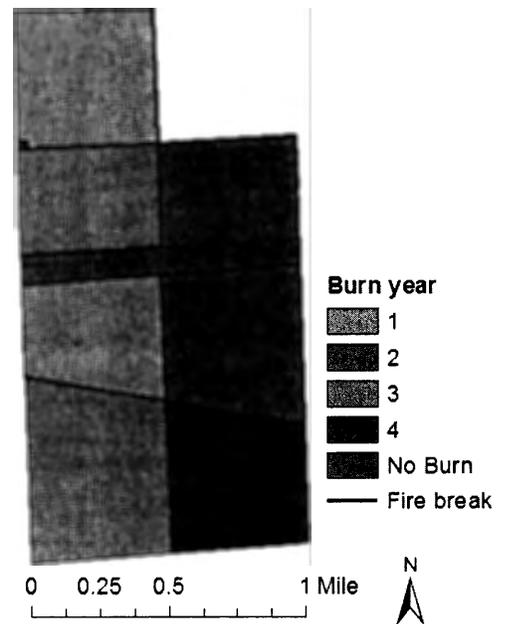


Figure 3 The Oakville Prairie complex will be divided and ¼ of the area will be burned annually with a four-year return interval. We will contract with private individuals to maintain fire breaks (30ft; mown monthly after June 15th; ~ 27 mown acres) surrounding infrastructure (UND observatory, City of Emarado Dump, power lines) and focal burn units.

wildlife resources on our farming and ranching lands. Through our efforts we will meet all four of the OHF directives by: providing access to the UND Oakville Prairie for sportsmen through creation of a joint NDGF Wildlife Management Area (Directive A, D), supporting enhanced farming and ranching stewardship practices that will increase soil health and plant, insect, and animal diversity (Directive B) and enhance wildlife habitat through prescribed burning on UND and NDGF land (Directive C).

This project will serve as an example for our colleagues throughout North Dakota on how multiple stakeholders can work together to ensure quality land stewardship while meeting our economic goals. Outcomes from this project will be used to demonstrate the value of grassland management to our regional heritage and establish a landscape level effort to ensure the availability of diverse wildlife habitat in the Red River Valley.

Timetable

Year 1 (2014 field season):

- Develop burn plan for Oakville Prairie and Prairie-Chicken Wildlife Management Area in consultation with regional stakeholders and Badger Creek Wildfire (Poplar, MT)
- Prepare and plant row-crop agriculture demonstration plots
- Contract with a private producer to begin annual maintenance of the fire breaks on these sites (this income will directly benefit a private producer)
- Conduct pre-management assessment to use as a baseline for comparison
- Implement first phase of the burn plan in Fall 2014

Year 2 (2015 field season):

- Implement second phase of the burn plan
- Conduct annual fire-break maintenance
- Conduct pre- and post-management assessment on burned lands
- Conduct spring workshop and fall field tour for result dissemination and stakeholder input

Year 3 (2016 field season):

- Implement third phase of the burn plan
- Conduct annual fire-break maintenance
- Conduct pre- and post-management assessment on burned lands
- Conduct spring workshop and fall field tour for result dissemination and stakeholder input

Year 4 (2017 field season):

- Implement fourth phase of the burn plan
- Conduct annual fire-break maintenance
- Conduct pre- and post-management assessment on burned lands
- Conduct spring workshop and fall field tour for result dissemination and stakeholder input

We will submit an additional proposal for this region in 2017 to support incorporating grazing on the Oakville Prairie complex into this framework (adding fencing and water infrastructure).

Management of Project

Yurkonis will be the primary project contact and oversee project activities and reporting among project PI's and key personnel. Project PI's will support the project by providing specific expertise (**Goodwin**: Landscape, insect, and avian ecology; **Darby**: Soil ecology; **Yurkonis**: Plant and invasive species ecology), overseeing monitoring efforts (including sample processing, storage, and analysis) associated with their respective expertise, and preparing monitoring reports. Key personnel will

support the project through their expertise and feedback, but will not necessarily be involved in project management, personnel supervision, or daily activities. **Merkord** and **Ellis-Felege** will provide additional avian and wildlife expertise, **Gerla** will provide additional soil and hydrology expertise. **Atkinson, Larson, and Cummings** will support the project through their expertise in local resource ecology and management and experience coordinating stakeholder outreach and demonstration events. As Field Station Director, **Schlosser** will coordinate management of the Oakville Prairie complex with UND administration and the UND Field Station Committee (which oversees UND field station lands).

The project coordinator (hired with this grant) will oversee daily project activities, supervise undergraduate personnel, and serve as a liaison among project stakeholders across the region. This position will be crucial for the project success as it would be difficult for any single project PI to invest in this coordinated management and monitoring effort given their additional professional responsibilities. Undergraduate personnel will be responsible for providing the labor for the monitoring efforts and will be trained in soil methods, and plant, insect, and animal identification by the project coordinator and PI's.

Yurkonis will make arrangements to submit timely reports and to house electronic and physical samples generate by key personnel and associated with the departure of any project PI's. All personnel associated with this project have the obligation of recording all relevant information at the time of collection, and of reporting to their immediate supervisors in an accurate, timely, and organized manner. We will hold bi-weekly project personnel meetings (including key personnel to the extent that they are willing and able) to review and update research progress and project roles and responsibilities. One meeting each year will be devoted to "Project Management" as a reminder of expectations and sampling procedures. In turn, all workers have the right to provide feedback on procedures so that monitoring can be conducted in a timely fashion without undue burden. All personnel will be provided with sufficient storage media (USB flashdrives or external hard drives, as needed) and adequate computational facilities to perform their duties. We will hold quarterly working group meetings to update GFPP-MOU partners on project activities and outcomes.

PI Background and work experience

Dr. Kathryn A. Yurkonis – Dr. Yurkonis is a grassland ecologist at the University of North Dakota with expertise in plant and invasive species ecology. She completed her PhD in 2010 from Iowa State University (Ames, IA) where she worked in tallgrass prairie restoration and joined UND in fall 2011 after a post-doc at the University of Guelph (Guelph, ON) working on symbionts of forage grasses. She has experience overseeing large, multi-faceted projects and will be managing the plant components of the project and the schedule and reporting activities associated with the project.

Dr. Brett J. Goodwin – Dr. Goodwin is a landscape ecologist at the University of North Dakota with expertise in insect and avian ecology. He completed his PhD in 2000 at Carleton University (Ottawa, Canada) and did post-doctoral work at the Institute of Ecosystem Studies (Millbrook, NY). He is currently the Biology department chair at UND and has extensive experience supervising large research projects. He will manage the insect and bird components of the project.

Dr. Brian J. Darby – Dr. Darby is a soil ecologist at the University of North Dakota with expertise in the ecology and genomic analysis of soil microinvertebrates and microbial decomposers. He completed his PhD in 2008 at the University of Vermont (Burlington, VT) and did post-doctoral work at Kansas State University (Manhattan, KS) studying the ecology of grassland nematodes from the Konza Prairie Biological Station. Darby will be responsible for collecting, processing, and analyzing soil samples (in coordination with undergraduates) for chemical and biological analysis.

Evaluation

Evaluating our management success is essential and crucial to documenting project gains. In the fire management areas (Oakville Prairie and Prairie Chicken Wildlife Management Area complexes) and the field agricultural demonstration site we will annually assess management effects on:

- A) Plant diversity and biomass production: Plants provide important wildlife habitat and forage biomass. We will record the composition (species, functional, % invasive species, % weed species), height, litter depth, biomass production, and forage nutrition value of the standing plant biomass in permanent, rectangular (2 x 0.5 m) plots placed systematically (1 sample location per hectare) across each fire management site in the fall of each year (320 total locations). We will count the number of woody stems in larger (10 x 10 m) adjacent plots. In the agriculture demonstration sites, we will conduct the same small-scale plant diversity sampling in small (2 x 0.5 m) permanent plots (10 total locations) and additionally record crop yield/acre with the harvest equipment.
- B) Invertebrate diversity: Invertebrates are an important food source for grassland birds and provide pollination services for local row-crops. We will sample herbivorous insects in all permanent plant sampling plots (in fire managed areas and in agricultural demonstration sites) in June and August (prior to plant sampling) each year with a suction vacuum sampler. Pollinator traps (yellow solo bowls filled with a mild detergent solution) will be placed on the southeast corner of each permanent plant plot for two days in June and August. Additionally, we will conduct sampling for specific crop pests in the agricultural areas based upon the cash crop planted each season. Specimens will be identified to order within each sample during the winter months.
- C) Soil biota: Soil microbes (bacteria and fungi) and their microinvertebrate predators (protozoa, nematodes, mites, and collembolans) are the organisms that liberate nutrients from litter and organic matter and transform vital soil nutrients into a form that is available for plant uptake. We will use molecular sequencing to annually characterize the composition of the microbial and microinvertebrate communities (bacteria, fungi, protists, and nematodes) and enzyme assays to annually measure microbial activity in each permanent plant sampling plot. Soil samples will be collected in June and stored for analysis during the winter months.
- D) Soil physical and chemical structure: The soil chemical and physical environment also affects plant productivity. We will use colorimetric chemical assays to measure soil nitrogen, phosphorous, and organic carbon content (spring annually), and rigid core extractions (spring annually) to measure soil moisture, electrical conductivity, bulk density, porosity, and water infiltration rates associated with each permanent plant sampling plot. Soil will be collected in June and stored for analysis during winter months. Soil moisture (to 20 cm) will also be monitored monthly in each plot during the growing season with Time Domain Reflectometry.
- E) Wildlife use: Birds (game and non-game) are a significant component of the wildlife community in the area. We will sample bird occurrence with point-transect surveys (one sample point per 4 hectares) throughout the fire managed lands and in the agricultural demonstration site (two survey points) each June and sample general animal occurrence with camera traps in the agricultural demonstration site from May to November.

Stakeholder views and input are crucial to project success. To document and evaluate our progress on interacting with local stakeholders we will:

- F) Summarize and report **stakeholder views and input** on the grassland landscape through directed input meetings and survey tools, and
- G) Summarize and report **site visitation and use for educational outreach** including attendance at spring workshop and fall field tour events.

Financial Information

ATTACHMENT: **Project Budget**

X I certify that a project budget will be sent to the Commission

Sustainability

We will work to ensure minimal ongoing site management (mowing, burning) in the Oakville Prairie complex through support from the UND Field Station Committee, which is funded through a lease of UND owned agricultural land (~600 acres). We will actively seek external funding sources (federal, state, non-profit) to support monitoring efforts and provide additional management support for the North Dakota Game and Fish Prairie Chicken Wildlife Management Area. We foresee submitting a second OHF application in fall 2017 to fund efforts to develop infrastructure (fencing, wells) to further support grazing activity in these sites.

Partial Funding

Reducing funding will reduce our capacity to monitor and evaluate the benefits of the proposed management activities. This may necessitate submission of additional, future OHF proposals to meet these needs.

Budget Standard Form

Project Expense	OHF Request	Applicant's TOTAL Match Share	Applicant's Match Share (Cash)	Applicant's Match Share (In- Kind)	Applicant's Match Share (Indirect- 38%)
Management	\$ 50,000	\$ 49,000	\$ 30,000	\$	\$ 19,000
Personnel	\$ 362,457	\$ 280,758	\$	\$ 143,024	\$ 137,734
Travel	\$ 16,090	\$ 16,114	\$ 10,000	\$	\$ 6,114
Outreach and Demonstration	\$ 10,000	\$ 3,800	\$	\$	\$ 3,800
Equipment/Supplies	\$ 28,000	\$ 20,640	\$ 10,000	\$	\$ 10,640
Total Project Costs	\$ 466,547	\$ 370,312	\$ 50,000	\$ 143,024	\$ 177,288

Budget Justification

Overall, we are requesting \$466,547 from the OHF which will be matched at **44%** through a combined \$370,312 from UND cash, in-kind, and unrecovered indirect cost (38% of requested OHF funds) matches. The Grand Forks Natural Resource Conservation Service and Soil Conservation Districts have expressed their willingness to provide technical support for this project through expertise, facilities, and personnel (see attached letter of support and memorandum of understanding). However, due to administrative limitations, they (nor any other potential third party) will not be accountable for reporting the cost of this contribution during the administration of this project at UND. As such, any potential value of third-party technical support is not reported.

The budget detail below is being submitted for proposal evaluation purposes only. Due to limitations within the university's accounting system, the system does not provide for accumulating and reporting expenses at the level of detail submitted.

Management: We will need \$20,000/yr ($\$20,000 \times 4 \text{ years} = \$80,000$) to cover costs associated with **maintenance of the conservation agriculture demonstration site (annual seeding, harvest), the Oakville Prairie Complex (mowing, burning), and the Prairie Chicken Wildlife Management Areas (mowing, burning)**. We are requesting \$50,000 for this effort from the OHF, which will be matched by a cash contribution of \$30,000 from UND. UND will coordinate with local, private individuals to facilitate mowing and harvesting and with a private, federally certified and insured prescribed burning company (Badger Creek Wildfire; Poplar, MT) to implement burning.

Personnel: We are requesting funding to hire a **full-time project coordinator** for the duration of the project (\$38,000 annual salary + 49.23% fringe benefits = \$56,708 in year 1) with an annual 4% annual cost-of-living increase (\$58,976 in year 2, \$61,335 in year 3, \$63,788 in year 4). Managing the monitoring effort and interacting with stakeholders is a full-time activity that would be in excess of faculty teaching and research duties. Following models of similar efforts in Iowa and Wisconsin, we are requesting funding for a full-time project coordinator that would handle day-to-day project management. This individual will, at minimum, have a Master's of Science degree and experience in land management and monitoring. This individual, supervised by the project PI's, will coordinate daily monitoring activities among project personnel during the growing season and oversee sample processing (identification, analysis), project reporting, and planning efforts in the off-season.

Plant, soil, invertebrate, and animal monitoring efforts are labor intensive due to the effort associated with collecting, identifying, and processing specimens (which can exceed three hours total effort for a single sample). We seek funding to hire **four full-time undergraduate students each summer** (40 hours/wk x \$11/hr x 14 weeks x 4 students + 8% fringe benefits = \$26,611 annually) and retain **one part-time undergraduate student each academic year** (10 hours/wk x \$11/hr x 32 weeks + 8% fringe benefits = \$3,802 annually) for sampling efforts. During the field season, each of the four students will be assigned as the primary contact (sharing responsibilities when necessary) for plant, invertebrate, soil, and animal sampling efforts. The off-season student will be responsible for additional invertebrate and soil sample processing and analysis efforts.

UND faculty personnel will oversee efforts associated with project coordination (PI Yurkonis) and plant (PI Yurkonis), invertebrate (PI Goodwin), soil (PI Darby), and animal sampling (Key-personnel Merkord and Felege). This will annually require approximately one summer month of PI Goodwin (currently \$8,891/month) and Darby's (currently \$7,168/month) effort and one summer month and half of a month during the academic year of PI Yurkonis' effort (currently \$7402/month). These efforts are included (with 4% annual cost-of-living increase and 24% fringe benefits) as in-kind match to the requested personnel funding.

Fringe benefits are calculated at 8% for undergraduate personnel, 49% for the project coordinator, and 24% for faculty. Amounts shown for fringe benefits are estimates determined by historical data and are provided for proposal evaluation purposes only. Actual fringe benefit costs will be charged according to each employee's actual benefits.

Travel: Seasonal travel to conduct monitoring efforts at the field sites (which are separated by nearly 30 miles) will be significant. We are requesting annual funding for **two 4 x 4 pick-up trucks from the ND State Fleet** (currently 0.633/mile) and estimate that each will be driven 5,000 miles/season (5,000 miles x 0.633 x two vehicles = \$6330 in year 1, a 2% annual rate increase results in \$6,457 in year 2, \$6,586 in year 3, \$6,718 in year 4). We request \$16,090 from the OHF for this travel cost, which will be matched by \$10,000 cash from UND. The 5,000 mile estimate is based on the number of miles driven in 2013 to sample additional sites in the area. We must use 4 x 4 vehicles in order to access sites on low-maintenance roads throughout the region. Field-season travel costs will be annually split between UND (May, June) and OHF (July, August, September) funds.

Outreach and demonstration: We are requesting \$2,500 annually to cover costs associated with **gathering stakeholder input, hosting annual spring stakeholder workshops, and leading fall field tours** in collaboration with the Grand Forks NRCS and SCS district. This funding will cover costs associated with advertising events, providing transportation, and renting facilities/equipment to conduct the events.

Equipment (< 5,000) and supplies: We are budgeting for \$9,500/yr to cover the **small equipment (wildlife cameras and batteries), supplies (marking stakes, shears for sampling plants), consumables (materials to construct insect traps, notebooks), and external analysis costs** associated with the monitoring effort. This value includes \$2,000/yr for a complete forage analysis (\$60.00/sample) on plant matter harvested from pre-burn and post-burn habitats to assess their value as livestock forage. In order to adequately assess management effects on soil health we will monitor soil chemical nutrients (carbon, nitrate, nitrate, ammonium, pH, salinity, and phosphorous; \$600/yr), soil microbe activity (microbial extracellular enzyme and substrate use analysis; \$400/yr), and soil biota composition (molecular analysis of bacteria and protists [\$2500/yr] and molecular sequencing of fungi and nematodes [\$1500/yr]). This thorough monitoring effort is a unique aspect of UND's participation in this

regional effort and will enable regional stakeholders to establish and explain management effects on parameters that are of value to farming, ranching, and wildlife interests.

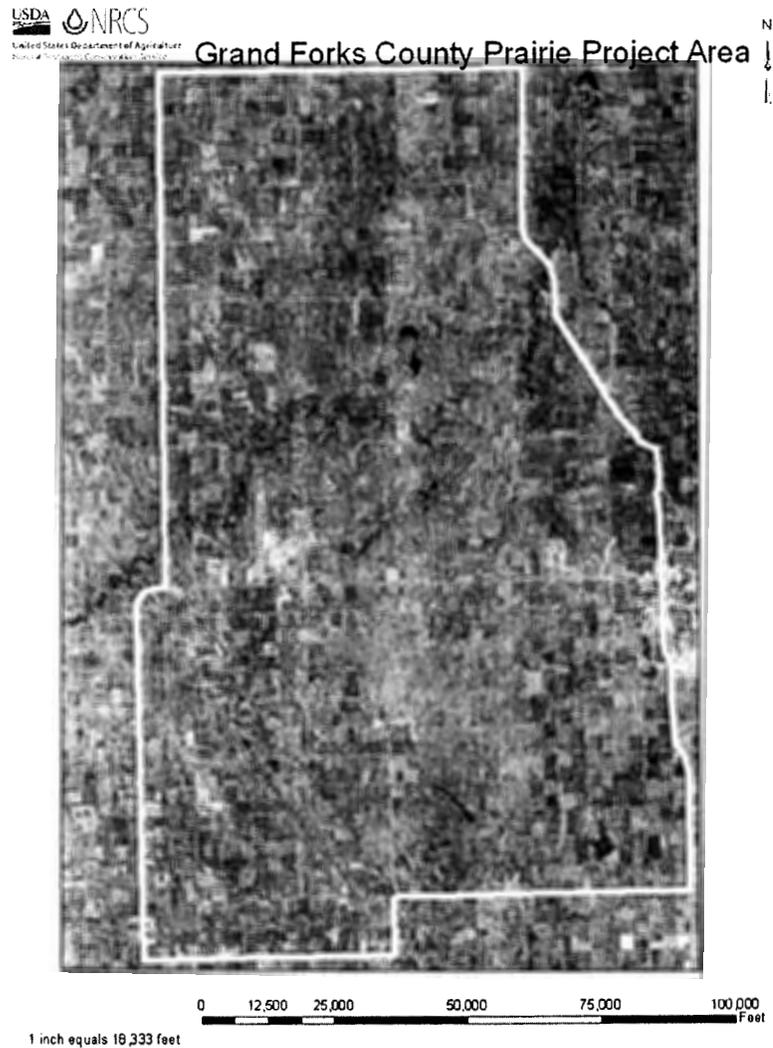
MEMORANDUM OF UNDERSTANDING
between
NORTH DAKOTA NATURAL RESOURCES TRUST
and
GRAND FORKS COUNTY PRAIRIE PARTNERS
and
NATURAL RESOURCES CONSERVATION SERVICE
and
UNITED STATES FISH & WILDLIFE SERVICE
and
NORTH DAKOTA GAME & FISH DEPARTMENT
and
UNIVERSITY OF NORTH DAKOTA
and
PHEASANTS FOREVER
and
AUDUBON DAKOTA

The North Dakota Natural Resources Trust (NDNRT), Grand Forks County Prairie Partners (GFCPP), Natural Resources Conservation Service (NRCS), United States Fish & Wildlife Service (FWS), North Dakota Game & Fish Department (NDGF), the University of North Dakota (UND), Pheasants Forever (PF), and Audubon Dakota (AD) as parties to this Memorandum of Understanding (MOU), hereby acknowledge and declare as follows:

I. Introduction

In the interest of mutual cooperation, the NDNRT, GFCPP, NRCS, FWS, NDGF, UND, PF, and AD developed this Memorandum of Understanding (MOU) to coordinate and facilitate the conservation of natural resources in the Grand Forks County Prairie Project area (Figure 1). In general, the Grand Forks County Prairie Project area is located from N.D. Highway 15 northward to the Walsh County line between County Road 2 and U.S. Interstate 29 in Grand Forks County, North Dakota.

Figure 1



II. Purpose

The purpose of this MOU is to establish a framework for early coordination and participation among the Signatories to this agreement to ensure the timely review of and action on proposed non-Federal and Federal conservation projects in the Grand Forks County Prairie Project area.

The NDNRT, GFCPP, NRCS, FWS, NDGF, UND, PF, and AD all have a mutual interest in sustaining, enhancing, and restoring the natural resources in the Grand Forks County Prairie Project area. The purpose of this agreement is to:

- Deliver prairie landscape conservation through, 1) Conservation technical assistance and conservation cost-share programs available to the landowners and operators of the Grand Forks County Prairie Project area; and 2) Restoration and management on existing Federal and State owned lands to augment private land actions.

- Identify the mutual interests that all parties have in providing these technical services.
- Identify the resources that NDNRT, GFCPP, NRCS, FWS, NDGF, UND, PF, and AD will share to deliver these programs.
- Identify the tasks and deliverables that will be accomplished through the sharing of resources.

III. Mutual Interest

The mission of the NRCS is to provide leadership in a partnership effort to help people conserve, maintain, and improve our land, water, wildlife and related resources. The mission of the North Dakota Natural Resources Trust is to preserve, enhance, restore, and manage wetlands and associated wildlife habitat, grasslands, and riparian areas in the state of North Dakota.

This pooling of resources on private and public lands by entities with common interests into a joint initiative will result in conservation priorities being addressed in a more efficient and effective manner, as opposed to each entity acting independently. The pooling of resources accomplished through this MOU will allow NDNRT, GFCPP, NRCS, FWS, NDGF, UND, PF, and AD acting together, to fund increased technical resources for the purpose of addressing conservation and land use priorities.

Accelerated delivery of technical assistance through funding increased staff resources will address environmental quality issues and will result in reduced soil erosion, improved soil health, improved water quality and quantity, enhanced wildlife habitat, and improved grazing conditions. Agricultural production and land conservation will be promoted and the economic viability of local agricultural enterprises and rural communities will be enhanced. The combined resources will result in enhancing the protection of land and water resources in the county, and the conservation and restoration of wildlife habitat. This MOU will assist eligible farmers and ranchers with Federal, State, and local conservation programs.

IV. Tasks and Deliverables

This MOU is effective from June 1, 2012 through December 31, 2014.

Annual goals for the Grand Forks County Prairie Project Area

Conservation Reserve Program – 700 acres: Accomplished through new enrollment and reenrollment acres.

Grassland Reserve Program – 400 acres: Attained using rental contracts and restoration agreements on working grasslands.

Prescribed Grazing Plans – 1500 acres: Achieved using multiple agency programs, such as, NRCS Conservation Technical Assistance (CTA), Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentives Program (WHIP), FWS Partners for Fish and Wildlife program (PFW), and NDGF Private Lands Open To Sportsmen (PLOTS) program that cost share fencing and water developments on grazing lands.

Protection – 640 acres: Reached using the FWS grassland and wetland easement program and NRCS Farm and Ranch Lands Protection Program. Funding may also be available through the United States Land and Water Conservation Fund (LWCF), a North American Wetlands Conservation Act (NAWCA) grant, and Federal Duck Stamp Program dollars.

Grassland Restoration – 100 acres: Grassland planting on working lands can be done through a variety of NRCS programs including CTA, EQIP, and WHIP and the FWS Partners for Fish and Wildlife program.

Wetland Restoration—50 acres: Wetland restoration and enhancement can be reached through the NRCS Wetland Reserve Program (WRP) with funding also available through the FWS Partners for Fish and Wildlife program and the North Dakota Game & Fish Department Private Lands Initiative (PLI).

Invasive Species Management – 25 acres: Identify priority grassland and wetland areas needing invasive species management and identify potential management options. For example, removal of invasive woody species such as Russian olive and reduction of Canada thistle through biological, mechanical, herbicide application treatments, or other appropriate methods.

Residue Management/Soil Health – 100 acres: Promote no-tillage/minimum tillage and the use of cover crops on harvested crop acres to provide wildlife habitat and additional grazing acres for livestock. Cover crops can also treat the symptoms of saline affected crop acres.

Education/Experiential learning– The UND Biology Department will support upper-level undergraduate student involvement in the project to assist with project implementation through course credit opportunities for interested students. Pre-requisites for student involvement will be successful completion of related upper-level biology courses and an interest in pursuing a career involving land management for conservation purposes. Duties could include assisting staff with land enrollment, developing an updated GIS map of the management region and preserved lands in the region, developing monitoring protocols for preserved lands, and coordinating volunteer/outreach events. Student progress will be directly supervised by UND faculty.

V. Roles and Responsibilities

A. North Dakota Natural Resources Trust: The NDNRT will provide technical and financial assistance in partnership with NRCS and other Federal, State, local, and other non-governmental entities' programs for habitat restoration, management, and protection on private and public lands.

B. Grand Forks County Prairie Partners: The mission statement of the GF CPP is to protect, enhance, and restore prairie communities, while providing opportunities for educational, cultural, and interpretive experiences.

- C. The Natural Resources Conservation Service:** The NRCS is the lead Federal Agency when financial assistance is provided through USDA programs for conservation projects. NRCS may serve in a cooperating agency role when providing conservation planning and technical assistance on non USDA funded projects. NRCS may at the request of the other partners assist with resource inventories and conservation planning as they relate to the environmental, social and economic impacts of sponsored conservation projects where Congress has not authorized a federally funded project purpose.
- D. The United States Fish & Wildlife Service:** The Service, acting through the National Wildlife Refuge System, will support a partner based landscape level approach to habitat restoration, management and protection on private and public lands. The FWS will focus on habitat development and connectivity by working with private landowners and the partners listed in this document. Programs delivered will be through our Partner for Wildlife program as well as protection through the National Wildlife Refuge System's grassland and wetland easement programs. The Service will also look for opportunities to develop additional water storage in the Kelly's Slough area to improve wildlife habitat and store water to reduce downstream flooding.
- E. The North Dakota Game & Fish Department:** NDGF will provide technical and financial assistance through the Private Land Initiative (PLI), specifically the Private Land Open To Sportsmen (PLOTS) Program and various other sources such as the Landowner Incentive Program (LIP) , State Wildlife Grants and Pittman-Robertson funds. NDGF will deliver and implement these programs using a Department private land biologist located out of the Devils Lake NDGF office.
- F. University of North Dakota:** UND will support the project milestones as permitted by the availability of faculty with related expertise. Support could include, but is not limited to, advising students in pursuit of the education milestones and providing scientific consultation, on a time-available and as-needed basis, in support of the proposed project milestones.
- G. Pheasants Forever:** Pheasants Forever is dedicated to the protection and enhancement of wildlife populations through habitat improvement, public awareness, education, and land management policies that benefit landowners and wildlife.
- H. Audubon Dakota:** As a unit of the National Audubon Society, and as part of a regional Audubon Prairie Bird Initiative (PBI) extending from northern Texas through the Dakotas, Audubon Dakota will support the partnership in a variety of ways. We will focus on supporting the conservation of grassland birds by serving as a resource for avian science, developing bird conservation metrics, and monitoring bird response to conservation actions. We will also share information being developed related to market-based incentives for sustainable grazing. Finally, we will coordinate with our Washington, DC based staff and partners to help foster programs conducive to grassland conservation.

VI. All parties mutually agree:

1. that each and every provision of this MOU is subject to the laws and regulations of the United States;
2. to evaluate staff needs and contingent upon funding execute staffing plans which will enable a timely and thorough conservation planning process, notwithstanding NRCS Farm Bill appropriations;
3. that nothing herein shall be construed as obligating either the FWS or NRCS to expend, or as involving the United States in any contract or other obligation for the future payment of money in excess of appropriations authorized by law and administratively allocated for those projects by either agency;
4. that each party recognizes that the other parties may work independently and in cooperation with other entities in the completion of the conservation activities applicable to this agreement.

A. North Dakota Natural Resources Trust agrees to:

1. Provide technical and financial assistance for habitat restoration, management, and protection.
2. Help facilitate partnership coordination and project implementation.

B. Grand Forks County Prairie Partners agree to:

1. Increase public awareness and appreciation of the prairie landscape in Grand Forks County through print and broadcast media, giving presentations, leading field trips, and describing how land owners and operators may become involved in prairie enhancement and restoration projects.
2. Continue working with Federal, State, and nongovernmental organizations that manage land within the Grand Forks County Prairie Project Area.

C. Natural Resources Conservation Service agrees to:

1. provide a staff person to oversee conservation activities and projects and provide for their coordination amongst Federal, State and County units of government and non-governmental organizations;
2. provide training opportunities as it pertains to the conservation planning process for

identifying good project sites within the county;

3. develop project work groups to view proposed conservation project sites prior to local sponsors;
4. and regardless of federal funding, explore opportunities with all partners to streamline conservation planning in the county.

D. United States Fish & Wildlife Service agrees to:

1. Utilize Partners for Wildlife staff to develop conservation delivery with local landowners and provide coordination amongst Federal, State and County units of government and non-governmental organizations.
2. Develop outreach strategies to reach out to landowners to measure interest in short and long term habitat restoration and conservation.
3. Work with local landowners that want to initiate cooperative farming agreements on federally owned land to improve habitat and increase farming opportunities.

E. North Dakota Game & Fish Department agrees to:

1. Utilize a PLI biologist to work with interested private landowners and other partners to implement habitat development and enhancement projects.
2. Provide outreach and educational opportunities through a multitude of NDGFD media sources (ND OUTDOORS magazine, ND OUTDOORS webcast, television and radio spots with NDGF outreach biologist, etc...)
3. Provide a menu of habitat development and enhancement program options including, but not limited to, cost share assistance, incentives, rental payments, public access payments and others. NDGF will piggyback on other state or federal programs whenever possible.

F. University of North Dakota agrees to:

1. Seek assistance from other resource agencies and partners to initiate development and implementation of a management and monitoring regime of UND's Oakville Prairie.
2. Provide a platform for education and outreach opportunities for activities in the project area to producers, educators, conservationists, and others interested in natural resources conservation.

G. Pheasants Forever agrees to:

1. North Dakota PF Farm Bill Biologist will assist in project consultation and implementation. North Dakota PF will provide cost-share to the North American Wetlands Conservation Act grant process to assist in receiving funding for conservation projects.

H. Audubon Dakota agrees to:

1. Assist in project consultation and implementation through its Dakota and regional staff.
2. Serve as a resource for avian science, bird conservation metrics, and bird monitoring.
3. In coordination with other partner organizations, work with private landowners to foster sustainable grazing practices.
4. Share Audubon specific GIS data layers as needed.

VII. Administration of the MOU

A. Dispute Resolution. While retaining ultimate responsibility for making determinations and exercising individual responsibilities in accordance with existing statutory responsibilities, the NDNRT, GFCPP, NRCS, FWS, NDGF, UND, PF, and AD will consult with one another to resolve disputes using existing dispute resolution methods in accordance with this agreement. If no agreement can be reached, any agency may refer the matter to a higher management level within its respective agency. The NRCS reserves the right to make a final decision on any matter within its respective regulatory authorities.

B. Modification and Termination. This MOU may be modified or amended at any time upon written request of any party hereto and the subsequent written concurrence of the other. This MOU may be terminated by any party upon providing sixty (60) days advance written notice.

C. Acknowledgement that the authority and responsibilities of the parties under their respective jurisdictions are not altered by the MOU.

1. The policy and procedures contained within this MOU are intended solely as guidance to improve the working relationships of the signatory agencies in connection with expeditious decisions with regard to Federal and non-Federal project authorizations. This MOU does not, and is not intended to, impose any legally binding requirements on Federal agencies, States, or the regulated public, and does not restrict the authority of the employees of the signatory agencies to exercise their discretion in each case to make regulatory decisions based on their judgment about the specific facts and application of relevant statutes and regulations.

2. This MOU is not a final agency action by any of the signatory agencies, and does not, and is not intended to, create any right, benefit, or trust responsibility, substantive or procedural,

enforceable at law or equity by any person or party against the United States, its agencies, its officers, or any other person.

3. This MOU is to be construed in a manner consistent with all existing laws and regulations.
4. This MOU neither expands nor is in derogation of those powers and authorities vested in the participating agencies by applicable laws, statutes, or regulations.
5. This MOU does not alter or modify compliance with any Federal law, regulation or guidance.
6. This MOU does not direct or apply to any party outside of the Signatory agencies. The terms of this MOU are not intended to be enforceable by any party other than the Signatories hereto.
7. The participating agencies intend to fully carry out the terms of this MOU.
8. This MOU does not limit the ability of any of the participating agencies to review and respond to final applications.
9. This MOU is neither a fiscal nor funds obligation document. It does not obligate, commit or authorize the expenditure of funds and cannot be used as the basis for the transfer of funds. Any endeavor involving the reimbursement or contribution of funds between the parties to the MOU will be in accordance with applicable laws, regulations, and procedures. Such endeavors, if any, will be outlined in separate agreements that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory authority. This MOU does not provide such authority
10. Nothing in this MOU, in and of itself, requires any signatory agency to enter into any contract, grant, or interagency agreement.
11. All provisions in this MOU are subject to the availability of funds.

ACCORDINGLY, the Parties have signed this Memorandum of Understanding on the dates set forth below, to be effective for all purposes as of the date last signed. The Signatures may be executed using counterpart original documents.

Signature: Karen Kreil
Print Name: Karen Kreil
North Dakota Natural Resources Trust

6-14-2012
Date

Signature: David O. Lambeth
Print Name: David Lambeth
Grand Forks County Prairie Partners

5-17-12
Date

Signature: Mary E. Podoll
Print Name: Mary E. Podoll
Natural Resources Conservation Service

6-25-12
Date

Signature: [Signature]
Print Name: Robert Houlihan
United States Fish & Wildlife Service

5/22/2012
Date

Signature: Randy Kreil for Terry Steinwand
Print Name: Randy Kreil for Terry Steinwand
North Dakota Game & Fish Department

6-13-12
Date

Signature: Phyllis Johnson
Print Name: Phyllis E Johnson
University of North Dakota

5-17-12
Date

Signature: [Signature]
Print Name: Jesse Beckers
Pheasants Forever

6-7-12
Date

Signature: [Signature]
Print Name: Marshall Johnson
Audubon Dakota

6-18-12
Date

VICE PRESIDENT FOR RESEARCH & ECONOMIC DEVELOPMENT
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264 CENTENNIAL DRIVE STOP 8367
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November 21, 2013

North Dakota Outdoor Heritage Fund Advisory Board
600 E. Boulevard Ave
Department 405
Bismarck, ND 58505-0840

Dear Advisory Board Members:

I am writing as the University of North Dakota Vice President for Research & Economic Development and Chair of the University Field Station Committee in support of the proposal submitted by Kathryn Yurkonis et al. to the North Dakota Outdoor Heritage Fund. My office will provide a total of \$50,000 in direct cash match to the project, with \$12,500 provided in each of the project's four years.

The University of North Dakota strongly supports the proposed initiative to enhance the management of grassland ecosystems in the Grand Forks Prairie Project Area. By working with local agencies and private landowners the project will bring management to the ground that has been absent for multiple decades with demonstrated value for improving soil health, the regional ranching economy, and wildlife habitat. Such efforts will not only enhance the natural heritage of the State, but also the economic and cultural heritage.

Sincerely,



Phyllis E. Johnson, Ph.D.

Vice President for Research & Economic Development

PEJ/ta