



Bee Integrated Demonstration Project
Pragmatic Beekeeping, Forage and Farming Practices
Grant proposal to North Dakota Outdoor Heritage Fund

November 1, 2016

Outdoor Heritage Fund Program
State Capitol
Fourteenth Floor, 600 East Boulevard Ave. Dept. 405
Bismarck, ND 58505
outdoorheritage@nd.gov

To the Outdoor Heritage Fund Advisory Board and Industrial Commission:

Keystone Policy Center is pleased to submit this grant funding proposal to the North Dakota Outdoor Heritage Fund (OHF) on behalf of the Honey Bee Health Coalition and the Bee Integrated Demonstration Project. Bee Integrated is a new, innovative project incorporating habitat establishment into a broader context of integrated practices for honey bee health in North Dakota; as such, it may differ from traditional projects funded through OHF in its overall structure and approach. We believe that it presents a unique opportunity to meet the OHF goal of improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching. Included below is the North Dakota Outdoor Heritage Fund application form; the budget form is attached separately. For more information, please contact Julie Shapiro, Coalition Facilitator, jshapiro@keystone.org, 970-513-5830.

Sincerely,

Julie Shapiro
Honey Bee Health Coalition Facilitator
Senior Policy Director
Keystone Policy Center
1628 Sts. John Road
Keystone, CO 80435
o: 970/513-5830
www.keystone.org

Outdoor Heritage Fund Grant Application



The purpose of the North Dakota Outdoor Heritage Fund is to provide funding to state agencies, tribal governments, political subdivisions, and nonprofit organizations, with higher priority given to projects that enhance conservation practices in this state by:

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

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Exemptions

Outdoor Heritage Fund grants may not be used to finance the following:

- A. Litigation;
- B. Lobbying activities;
- C. Any activity that would interfere, disrupt, or prevent activities associated with surface coal mining operations; sand, gravel, or scoria extraction activities; oil and gas operations; or other energy facility or infrastructure development;
- D. The acquisition of land or to encumber any land for a term longer than twenty years; or
- E. Projects outside this state or projects that are beyond the scope of defined activities that fulfill the purposes of Chapter 54-17.8 of the North Dakota Century Code.

NO CONSIDERATION:

In addition to those specific items in law that are ineligible for funding, in the absence of a finding of exceptional circumstances by the Industrial Commission, the following projects will NOT receive consideration for funding:

- A completed project or project commenced before the grant application is submitted;
- A feasibility or research study;
- Maintenance costs;
- A paving project for a road or parking lot;
- A swimming pool or aquatic park;
- Personal property that is not affixed to the land;
- Playground equipment, except that grant funds may be provided for up to 25% of the cost of the equipment not exceeding \$10,000 per project and all playground equipment grants may not exceed 5% of the total grants per year (see Budget Form for how this will be calculated);
- Staffing or outside consultants except for costs for staffing or an outside consultant to design and implement an approved project based on the documented need of the applicant and the expenditures may not exceed 5% of the grant to a grantee if the grant exceeds \$250,000 and expenditures may not exceed 10% of the grant to a grantee if the grant is \$250,000 or less (see Budget Form for how this will be calculated);

- A building except for a building that is included as part of a comprehensive conservation plan for a new or expanded recreational project (see Budget Form for definition of comprehensive conservation plan and new or expanded recreational project); or
- A project in which the applicant is not directly involved in the execution and completion of the project.

Application Deadline

Applications for this grant round cycle are due on **November 1, 2016 at 5:00 p.m. CT.** All information, including attachments, must be submitted by that date. See instructions below for submission information.

Instructions

Please download this Word document (available on the Industrial Commission/Outdoor Heritage Fund Program website at <http://www.nd.gov/ndic/outdoor-infopage.htm>) to your computer and provide the information as requested. You are not limited to the spacing provided except in those instances where there is a limit on the number of words. After completing the application, save it and attach it to an e-mail and send it to outdoorheritage@nd.gov or print it and mail it to the address noted in the next paragraph.

Attachments in support of your application may be sent by mail to North Dakota Industrial Commission, ATTN: Outdoor Heritage Fund Program, State Capitol – Fourteenth Floor, 600 East Boulevard Ave. Dept. 405, Bismarck, ND 58505 or by e-mail to outdoorheritage@nd.gov. The application and all attachments must be received or postmarked by the application deadline. You will be sent a confirmation by e-mail of receipt of your application.

You may submit your application at any time prior to the application deadline. Early submission is appreciated and encouraged to allow adequate time to review your application and ensure that all required information has been included. Incomplete applications may not be considered for funding. **Any item noted with an * is required.**

Oral Presentation. Please note that you will be given an opportunity to make a ten-minute Oral Presentation at a meeting of the Outdoor Heritage Fund Advisory Board. These presentations are strongly encouraged.

Open Record. Please note that your application and any attachments will be open records as defined by law and will be posted on the Industrial Commission/Outdoor Heritage Fund website.

Name of Organization * Keystone Policy Center
Federal Tax ID# * 84-0688506
Contact Person/Title * Julie Shapiro, Senior Policy Director and Honey Bee Health Coalition Facilitator
Address * 1628 Sts. John Rd
City * Keystone
State * CO
Zip Code * 80435
E-mail Address * jshapiro@keystone.org
Web Site Address www.keystone.org; www.honeybeehealthcoalition.org
Phone * (970) 513-5830
Fax # (970) 262-0152

List names of co-applicants if this is a joint proposal

As the legal entity facilitating and supporting the Honey Bee Health Coalition, Keystone Policy Center will serve as the lead on the Bee Integrated Demonstration Project. This is not a joint proposal, but the project will involve numerous collaborative partners that are described later in this proposal (see project management).

MAJOR Directive: (select the Directive that best describes your grant request)*

Choose only one response

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

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Additional Directive: (select the directives that also apply to the grant application purpose)*

Choose all that apply

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

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Type of organization: (select the category that describes your organization)*

- State Agency
- Political Subdivision
- Tribal Entity
- Tax-exempt, nonprofit corporation**

Project Name*

The Bee Integrated Demonstration Project

Abstract/Executive Summary. An Executive Summary of the project stating its objectives, expected results, duration, total project costs and participants.* (no more than 500 words)

The Upper Midwest is the summer home to 40% of all honey bee colonies in the United States. Honey bee habitat is important, in particular, to North Dakota because beekeepers bring approximately 500,000 hives into the state each summer. In 2014, more than 42 million pounds of honey was produced at a value of \$84 million. Several North Dakota commodity crops benefit from the abundance of bee hives in the state during the growing season. Recent concerns about honey bee losses and pollinator populations critical to food production make this a state and national concern. A broad consensus has emerged in the scientific research and beekeeping communities that the primary risk factors associated with the current high rates of colony loss are honey bee pests and diseases, poor nutrition, and crop pest controls.

Multi-factor problems call for multi-factor solutions. The Honey Bee Health Coalition's Bee Integrated Demonstration Project is a one-of-a-kind, cutting-edge project that will leverage and integrate effective programs and best practices into a common project and agricultural landscape to improve bee health. No other project is taking this integrated approach; the Honey Bee Health Coalition has selected North Dakota for this project because of its importance for honey bees.

Objective:

- Demonstrate how effective best practices for bee forage and nutrition, crop pest control, varroa mite management, and farmer/beekeeper cooperation can be effectively combined and implemented into an integrated program

Bee Integrated will bring together pairs of beekeepers and farmers in North Dakota to demonstrate how a portfolio of best practices can be used together to improve bee health. The project will implement best practices to address each of the risk factors described above. Overarching metrics characterizing the results and success of the project include annual colony loss and honey harvest. For each priority factor impacting honey bee health, Bee Integrated will implement a best practice and assess impact with an outcome measure. For example, honey bee forage will be planted and evaluated based on the extent to which bees use that forage.

The Coalition's diverse membership will unite and build upon the following partner efforts:

- the Honey Bee and Monarch Butterfly Partnership's effort to increase the acreage and forage value of pollinator habitat in the Upper Midwest
- USGS research on forage establishment and pollen utilization

- the Bee Informed Partnership’s work to improve hive health treatment and monitoring
- North Dakota Department of Agriculture’s managed pollinator protection plans to promote best practices related to crop pest control

The project timeline is January 1, 2017-December 31, 2019. The total cost of the pilot effort (including all matching contributions) is \$527,076. The total amount of funding requested in this grant proposal is \$94,768 – this is the funding needed specifically to support the bee forage component of the project.

Project Duration:*

36 months.

Pilot Project Timeline: January 1, 2017-December 31, 2019. Each site enrolled in the project (comprised of a farmer-beekeeper pair) will have a duration of 3 years, with the pilot sites established in 2017 and running through 2019. The pilot effort of three sites will provide the essential experience and framework necessary to scale to the target of ten sites in subsequent years. Additional sites will begin in 2018 and run through 2020.

Amount of Grant request \$ *\$94,768

Total Project Costs \$* \$527,076

(Note that in-kind and indirect costs can be used for matching funds)

A minimum of 25% Match Funding is required. Amount of Matching Funds \$*

Please indicate if the matching funds will be in-kind, indirect or cash.

- Applicant cash match: \$67,482
- Other project sponsor cash match: \$174,881
- Other project sponsor’s in-kind match: \$189,945

Source(s) of Matching Funds*

Please provide verification that these matching funds are available for your project. Note that effective as of July 1, 2015 no State General Fund dollars can be used for a match unless funding was legislatively appropriated for that purpose.

Matching funds (cash and in-kind) will be provided from the following; support letters can be provided if needed:

- Honey Bee and Monarch Butterfly Partnership (Pheasants Forever, Project Apis m., Browning Honey)
- US Geological Survey
- DuPont Pioneer
- Syngenta
- Honey Bee Health Coalition annual membership support
- National Honey Board (pending grant approval)
- Foundation for Food and Agriculture Research (pending grant approval)

No State General Fund dollars will be used as match.

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 – Briefly summarize your organization’s history, mission, current programs and activities. *

Include an overview of your organizational structure, including board, staff and volunteer involvement. (no more than 300 words)

The Honey Bee Health Coalition, www.honeybeehealthcoalition.org, a diverse coalition that brings together more than 40 diverse organizations – including beekeepers, commodity and specialty crop producers, agribusinesses, supply chain companies, NGOs, universities, and agencies - to promote a vision of ‘Healthy Bees, Healthy People, Healthy Planet.’ The Coalition’s mission is to collaboratively implement solutions that will help to achieve a healthy population of honey bees while also supporting healthy populations of native and managed pollinators in the context of productive agricultural systems and thriving ecosystems. The Coalition advances strategies in four priority areas: honey bee forage and nutrition, hive management, crop pest control, and outreach and education. We have developed and delivered important tools and best practices for beekeepers and growers in each of these areas. More information about our activities in each of these areas is available on our website.

The Honey Bee Health Coalition is a member-based organization with a Steering Committee selected by and with representation from each of its main interest groups (beekeepers, growers, etc.). Keystone Policy Center provides facilitation and project management staffing support, and members volunteer their time through various working groups. The Coalition’s diverse members have designed the Bee Integrated Demonstration Project and will oversee its implementation and outreach.

The Honey Bee Health Coalition is a project of the Keystone Policy Center (www.keystone.org), a 501(c)3 nonprofit that brings together crucial teams of stakeholders who have diverse individual perspectives but recognize a common need to address urgent issues with lasting solutions. For more than 40 years, Keystone has helped leaders move beyond fixed positions toward collaborative, action-oriented approaches to problem-solving on topics including agriculture, natural resources, energy, health, and education. In this age of polarized debate on nearly every major topic in public policy, Keystone Policy Center offers a refreshing yet proven blueprint for progress.

Purpose of Grant – Describe the proposed project identifying how the project will meet the specific directive(s) of the Outdoor Heritage Fund Program *

Identify project goals, strategies and benefits and your timetable for implementation. Include information about the need for the project and whether there is urgency for funding. Please indicate if this is a new project or if it is replacing funding that is no longer available to your organization. Identify any innovative features or processes of your project. If your project includes tree/shrub/grass planting, please provide a planting plan describing the site design, planting methods, number of trees/shrubs by species and stock size, grass species and future maintenance. A statement certifying that the applicant will adhere to USDA-NRCS tree/shrub/grass planting specifications along with the name of the governmental entity designing the planting may be substituted for a planting plan. If your project includes Section 319 program funding, please provide, in detail, the specific best management practices that will be implemented and the specific projects for which you are seeking funding. Please note that if your proposal provides funding to an individual, the names of the recipients

must be reported to the Industrial Commission/Outdoor Heritage Fund. These names will be disclosed upon request.

Overview

Bee Integrated is a new, innovative, one-of-a-kind project that will bring an essential, integrated, collaborative approach to addressing the many factors influencing bee health. This approach is not being implemented anywhere else, and North Dakota has been selected given its critical importance to bee health as well as other agricultural production. Funding is needed now so that we can start in early 2017 with the planting of bee forage and implementation of other critical practices for bee health in the spring of 2017.

North Dakota farmers, ranchers and other landowners in partnership with beekeepers have made the state number one in honey production for several decades. According to the 2014 ND Department of Agriculture Pollinator Plan,¹ beekeepers bring approximately 500,000 hives into the state each summer. In 2014, more than 42 million pounds of honey were produced at a value of \$84 million. Additionally, several North Dakota commodity crops benefit from the abundance of bee hives in the state during the growing season. The North Dakota Pollinator Plan notes, “although not completely dependent on insect pollination, crops such as canola, dry edible beans, buckwheat, and sunflowers have been shown to greatly benefit from bee pollination.”

Beekeeping and honey production face many challenges in North Dakota and nationally. More than one-third of hives die over winter and must be replaced each year. There is broad consensus in the scientific research and beekeeping communities that the primary risk factors associated with the current high rates of colony loss are honey bee pests and diseases, poor nutrition, and crop pest controls. Hives return to North Dakota each spring to build populations capable of providing winter pollination services across the country such as helping pollinate 800,000 acres of almond trees in California with a value of more than \$6.4 billion in 2014.

The North Dakota Department of Agriculture’s Pollinator Plan lists a variety of critical strategies for beekeepers, growers, and pesticide users to protect bee health. Among these are best management practices for hive placement and management, planting bee forage, best practices for use of crop protectants, and communications between beekeepers and farmers. Bee Integrated is intended to help deliver on the state’s pollinator protection plan recommendations by implementing the various recommended practices together in one place.

In May of 2015, President Obama’s National Pollinator Health Task Force published a national strategy for pollinator health that included key goals around reducing honey bee mortality and increasing honey bee forage. Accompanying these goals are a variety of strategies to address the risk factors described above, with a particular emphasis upon public-private partnerships. Bee Integrated is designed to help achieve the goals of the national strategy and provide an example of public-private partnerships in action.

The overarching goal of the Bee Integrated Demonstration Project is to demonstrate how honey bee health can be improved by using a portfolio of tools together in the same agricultural landscape to address the primary risk factors affecting bee health. The project will demonstrate how existing best practices for forage and nutrition, crop pest control, varroa management, and farmer/beekeeper cooperation can be effectively combined and implemented into an integrated program. While individual practices are being implemented in

¹ North Dakota Pollinator Plan. North Dakota Department of Agriculture. Bismarck, ND, 9pp.

separate projects, Bee Integrated represents the first attempt to bring them together into a single location and integrated system for supporting bee health.

In the process, we also anticipate that integrated approaches will:

- establish new honey bee forage and habitat along with habitat for other species
- improve the profitability of beekeepers by reducing colony losses;
- sustain and improve the environmental quality and natural resource base of agricultural lands through conservation plantings that also
- provide ecosystem services such as water quality control and soil health for row crop farmers;
- improve the security of pollination services for farmers of pollinated crops;
- enhance the quality of life of farmers, beekeepers, and agricultural communities by promoting enhanced communication and collaboration;
- enhance food security for society as a whole by creating integrated approaches to protect bee health

The primary Outdoor Heritage Fund directive that Bee Integrated addresses is **Directive B: Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching.** This project will leverage established programs and practices along with partner dollars and in-kind contributions to deliver conservation practices on agricultural lands. Honey bee forage can have multiple co-benefits as a conservation practice that provide habitat for other species, plant diversity, soil health improvements, and even water quality improvements. This project will also address **Directive C: Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands** by increasing flowering plant diversity for the benefit of honey bees, monarch butterflies, native pollinators, pheasants, sharp-tail grouse, and other wildlife.

Implementation

This project envisions participation of approximately 10 beekeepers and 10 farmers – for a total of 10 pairs working on 10 sites in North Dakota for three years each, with an initial set of pilot sites beginning in 2017. Participants will be recruited in early 2017 through the Coalition’s network of beekeeper and farmer organizations. Overarching measures of success of the project include annual colony loss and honey harvest. For each priority factor impacting honey bee health, Bee Integrated will implement a best practice and assess impact with an outcome measure.

- The honey bee forage improvement component of the project will establish pollinator-friendly forage through the Honey Bee and Monarch Butterfly Partnership. The forage will be established in spring of 2017 and monitored and maintained over the three-year period. The primary outcome measure will evaluate honey bee utilization of the planted forage through pollen analysis.
- The hive management component of the project will provide support to beekeepers in monitoring and treating for varroa mites for three consecutive years. The Bee Informed Partnership’s Tech Transfer teams will support the effort with four scheduled visits per year. The Coalition’s Tools for Varroa Management guide will serve as a resource for identifying effective mite testing and treatment strategies. The primary outcome measure will be varroa mite loads.
- The crop pest management component of the project will utilize the North Dakota Managed Pollinator Protection Plan (MP3) as the best practice protocol, with support from the state departments of agriculture, Extension, and Coalition advisors. The project will also incorporate specific training on handling of treated seed and conducting foliar applications. Trainings will occur in the first year and

technical expertise will be provided as support throughout the project. The outcome measure for this priority area will be number confirmed colony mortality incidents due to accidental pesticide exposures.

- Mutual education, cooperation and communication will be encouraged throughout the project. The project will also include a job swap activity in the first year to better enable farmer/beekeeper pairs to understand each other's operations and the challenges and decisions they face. Interviews will be the primary means of evaluating the impacts of the job swap on participant attitudes and behaviors.

Planting Plan

Working in partnership with the Honey Bee and Monarch Butterfly Partnership, projects will be established using habitat mixtures designed specifically for North Dakota to maximize diversity, provide season long foraging opportunities to commercial honey bees and native pollinators, provide breeding habitat for Monarch butterflies and provide brood rearing habitat to upland game birds. More information on the seed mixes (species, planting rates, etc.) is available at http://projectapism.org/?page_id=1410. The habitat seed mixtures will be provided directly to landowners for projects at 100% cost share. Participation as a farmer/landowner will require establishment of a minimum of 10 acres, which could be divided among more than one patch. Bee yards will be established as close as possible to project habitat, and within one mile of the established habitat. Landowners will be allowed to hay or graze the project outside of the program dates of April 15th to September 30th. Establishment will be supported by the Honey Bee and Monarch Butterfly Partnership.

This project does not include Section 319 program funding.

Management of Project – Provide a description of how you will manage and oversee the project to ensure it is carried out on schedule and in a manner that best ensures its objectives will be met.*

Include a brief background and work experience for those managing the project.

Julie Shapiro, Facilitator, Honey Bee Health Coalition, Senior Policy Director, Keystone Policy Center. Julie is the lead facilitator of the Honey Bee Health Coalition. As the legal entity facilitating and supporting the Honey Bee Health Coalition, Keystone Policy Center will manage the various components of the project including the work of the project partners. Julie has more than 13 years of experience in the environmental and natural resource field as a facilitator, mediator, and educator. As a Senior Policy Facilitator at Keystone Policy Center, Julie works with diverse public, private and NGO stakeholder groups on topics including sustainable agriculture, sustainable beef production, honey bee health, landscape conservation, renewable energy standards, oil and gas development, forest health, carbon sequestration, mine reclamation, water quality, and biodiversity. Through these efforts Julie also has substantial experience managing complex projects.

Our project partners include the following – each will be contributing on specific aspects of the overall Bee Integrated project.

Mike Smith, Project Director, Conservation Technology Information Center. Mike and Conservation Technology Information Center (CTIC, www.ctic.org) will work closely with Julie and Keystone to provide project management for Bee Integrated, managing project implementation and results collection among the various partners. CTIC is a nonprofit 501(c)(3) organization, comprised of members of ag industry, ag publications, ag associations, conservation organizations and producers and is supported by the U.S. Environmental Protection Agency, Natural Resources Conservation Service and other public entities. CTIC's mission is to champion, promote and provide information on technologies and sustainable agricultural

systems that conserve and enhance soil, water, air and wildlife resources and are productive and profitable. They design and manage a number of coalition-based agricultural initiatives including on the ground demonstration projects and watershed projects at various scales. While at CTIC, Mike has managed several agricultural demonstration projects that required balancing input from diverse stakeholder groups. One especially relevant project utilized farmer/beekeeper pairs to evaluate the economic viability of providing pollinator habitat on the ag landscape. This project has provided valuable experience in recruiting project participants from diverse operations and working with them to build collaborative relationships.

Karen Rennich, Bee Informed Partnership Executive Director, University of Maryland. Karen Rennich and Bee Informed Partnership will provide Technology Transfer Team services for hive health monitoring and data analysis and varroa treatment support. The Bee Informed Partnership (<https://beeinformed.org/>) is a collaboration of efforts across the country from some of the leading research labs and universities in agriculture and science to better understand honey bee declines in the United States. Tech Transfer Teams are trained field agents who offer regular on-site hive inspections and sampling for large commercial beekeepers and queen breeders. The data they collect help provide large-scale beekeepers with the knowledge to make management decisions to maintain healthy colonies. As the Project Manager of the Bee Informed Partnership and the APHIS National Survey, Karen Rennich is based out of the University of Maryland's Entomology Department. She works closely with all members of the BIP team and other organizations throughout the U.S. and gets to tackle everything from data analysis to field work and all jobs in between to keep BIP's goals in sight and to keep the project moving forward. She designed and worked on large, underwater Navy sensor systems while she was employed by the Johns Hopkins University Applied Physics Laboratory for 14 years. She has been a beekeeper for 7 years and manages 12 colonies at home.

Clint Otto, PhD, Research Ecologist, US Geological Survey (USGS), Northern Prairie Wildlife Research Center, Jamestown, North Dakota. Clint Otto and USGS will support the forage and nutrition component of this project by conducting floral density analysis, forage area assessments, and pollen collection while also supporting design, implementation and interpretation of other components of this practice area. Clint and his team currently work with the Honey Bee and Monarch Butterfly Partnership as well as with USDA agencies to provide similar support for forage analysis. Clint's research program investigates the impacts of land-use change on wildlife habitat and ecosystem services in the Prairie Pothole Region and is working with public and private sector partnerships to evaluate pollinator habitat.

Pete Berthelsen, Director of Habitat Partnerships, Pheasants Forever, Inc. and Quail Forever, Honey Bee and Monarch Butterfly Partnership. Pete and the Honey Bee and Monarch Butterfly Partnership are contributing matching resources and in-kind support as part of the Bee Integrated Demonstration Project's forage establishment and maintenance component. Pheasants Forever is dedicated to the conservation of pheasants, quail and other wildlife through habitat improvements, public awareness, education and land management policies and programs. The Honey Bee and Monarch Butterfly Partnership (http://projectapism.org/?page_id=1410) is a public-private conservation partnership to improve the health and survival of honey bees and Monarch butterflies by reversing the loss of high quality pollinator habitat in a geographic region – the Midwest U.S. – that is critical to their health and survival. The purpose of the Partnership is to increase and improve pollinator habitat and to develop affordable, high diversity seed mixes for critical habitat components for honey bees and Monarch butterflies. Pete has a wealth of experience in working with USDA programs and stateside partnerships that improve wildlife habitat and farm operations concurrently. During his tenure with Pheasants Forever, he has helped design USDA-NRCS Field Office Technical Guide specifications, provided USDA staff training, administers 40+ partnerships and grants, and has over 24 years of experience in coordinating national and state-level habitat tours and wildlife workshops.

Zac Browning, Owner/Operator of Browning Honey Co., Inc. in Jamestown, North Dakota. Zac will serve as an expert consultant in the design and implementation of Bee Integrated. Zac is a fourth generation beekeeper with a dedicated interest in honey bee health and habitat. Zac operates one of the largest beekeeping operations in North Dakota and represents the beekeeping and honey industry in various rolls, including Habitat Director and former president of the American Beekeeping Federation, Honey Bee Health Coalition Steering Committee Member, and Board Member at Project Apis melifera.

Evaluation – Describe your plan to document progress and results. *

How will you tell if the project is successful? Please be specific on the methods you will utilize to measure success. Note that regular reporting, final evaluation and expenditure reports will be required for every grant awarded.

Overall honey bee colony health for colonies in the project will be measured based on the annual, winter and summer colony loss rate for the participating colonies. This measure will be reported via the Bee Informed Partnership Tech Transfer Teams according to their established methodology. This methodology involves on-site verification of whether colonies are alive or dead. This verification occurs in late January or February. All 40-60 colonies per yard are checked for mortality. The BIP methodology accounts for planned loss. Participants will also need to document mortality.

The second overarching colony health metric is honey production, to be self-reported by beekeepers as estimated pounds of honey per hive for the participating yard.

The project will also evaluate specific measures of success for each of the key intervention areas, including:

- 1) Forage density to determine success of plantings and bees' utilization of pollen to determine the success of the plantings in providing forage desirable to bees
- 2) Number of confirmed hive mortality incidents associated with crop pest control (the goal is zero)
- 3) Varroa mite loads

In addition, the project will evaluate the changes of attitudes, knowledge and behavior of participating beekeepers and growers.

Finally, project results may be compared to and/or substantiated by 'control hive' data from USGS and research conducted by University of Minnesota can also be utilized to substantiate observations.

Annual and final reports on the project results will be provided.

Financial Information

ATTACHMENT: Project Budget – Using the standard project budget format that is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> , please include a detailed total project budget that specifically outlines all the funds you are requesting. Note that a minimum of 25% match funding is required.*

The project budget should identify all matching funds, funding sources and indicate whether the matching funds are in the form of cash or in-kind services. Effective July 1, 2015 no State General Fund dollars can be used for a match unless funding was legislatively appropriated for that purpose. As noted on the standard project budget format, certain values have been identified for in-kind services. Please utilize these values in identifying your matching funds. **NOTE: No indirect costs will be funded.**

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

Sustainability – Indicate how the project will be funded or sustained in future years. *

Include information on the sustainability of this project after all the funding from the Outdoor Heritage Fund has been expended and whether the sustainability will be in the form of ongoing management or additional funding from a different source.

The project is seeking a variety of funding sources to ensure sustainability once Outdoor Heritage Funds have been expended. The Honey Bee Health Coalition will continue to seek additional partners and funders to expand and accelerate establishment of additional Bee Integrated sites.

The full suite of activities for each Bee Integrated site will be funded and evaluated for three years. In addition, the Honey Bee and Monarch Butterfly Partnership’s role in forage planting and maintenance will also continue based on the terms of that arrangement with specific growers for longer contracts.

With respect to bee forage, enhancement and restoration of habitat for honey bees and monarchs provides ideal upland habitat for game birds like pheasants, sharp-tailed grouse, and a host of grassland wildlife. Periodic management is critical to control aggressive plant species and encourage higher plant diversity. The benefits of the restoration and enhancement projects proposed here will have immediate short-term benefits and have the potential to be sustained for the life of the contracts involved through the Honey Bee and Monarch Butterfly Partnership. Provided active management (prescribed haying, grazing, prescribed fire) takes place periodically on these sites, the benefits of funded projects will sustain as long as the landowner manages the site.

Partial Funding – Indicate how the project will be affected if less funding is available than that requested. *

Partial funding will impact the number of sites established in spring of 2017 and the ability to scale Bee Integrated to additional sites on the timeline desired. The earliest sites will provide the framework and models to cost-effectively and efficiently scale to additional sites. It is therefore important to conduct the pilot sites in 2017 and set the model for future sites and future years. The Honey Bee Health Coalition will continue to seek additional funding to maximize impact in 2017.

Partnership Recognition - If you are a successful recipient of Outdoor Heritage Fund dollars, how would you recognize the Outdoor Heritage Fund partnership? * Please note it is a requirement that there be signage at the location of the project acknowledging the funding from the Outdoor Heritage Fund if appropriate for your project.

Landowners and beekeepers enrolled in Bee Integrated will be required to place signage at the project. Signs, contracts, program guidelines, application materials, etc. will all include the North Dakota Outdoor Heritage Fund logo and all major program partners. Additionally, we expect multiple newsletters and announcements to highlight accomplishments; landowner tours and other associated activities will promote honey bee forage and pollinator project design, implementation and management. In addition, the partners in this effort are providing updates and presentations on a state and national level. Those updates will all promote the involvement and success obtained with the North Dakota Outdoor Heritage Fund support.

Scoring of Grants

All applications will be scored by the Outdoor Heritage Fund Advisory Board after your ten-minute oral presentation. The ranking sheet(s) that will be used by the Board is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm>.

Awarding of Grants*

All decisions on requests will be reported to applicants no later than 30 days after Industrial Commission consideration. The Commission can set a limit on duration of an offer on each application or if there isn't a specific date indicated in the application for implementation of the project, then the applicant has until the next Outdoor Heritage Fund Advisory Board regular meeting to sign the contract and get the project underway or the commitment for funding will be terminated and the applicant may resubmit for funding. Applicants whose proposals have been approved will receive a contract outlining the terms and conditions of the grant. Please note the appropriate sample contract for your organization on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> that set forth the general provisions that will be included in any contract issued by the North Dakota Industrial Commission. Please indicate if you can meet all the provisions of the sample contract. If there are provisions in that contract that your organization is unable to meet, please indicate below what those provisions would be. *

Responsibility of Recipient

The recipient of any grant from the Industrial Commission must use the funds awarded for the specific purpose described in the grant application and in accordance with the contract. The recipient cannot use any of the funds for the purposes stated under Exemptions on the first page of this application.

If you have any questions about the application or have trouble submitting the application, please contact Karlene Fine at 701-328-3722 or kfine@nd.gov

Revised: December 16, 2015

Budget Standard Form
Bee Integrated Proposal
11/1/2016
Honey Bee Health Coalition

Project Expense	OHF Request	Applicant's Match Share (Cash)	Applicant's Match Share (Indirect)	Other Project Sponsor's Match Share (Cash)	Other Project Sponsor's Share (In-Kind)	Total Each Project Expense
Habitat Establishment & Evaluation	\$94,768				\$93,495	\$188,263
Participant Incentives				\$24,000		\$24,000
Hive BMPs				\$16,793	\$15,750	\$32,543
Communications				\$14,350	\$39,600	\$53,950
Overall Project Metrics				\$20,000	\$25,900	\$45,900
Project Management		\$67,482		\$99,738		\$167,220
Crop Pest Management					\$15,200	\$15,200
Total Costs	\$94,768	\$67,482	\$0	\$174,881	\$189,945	\$527,076

Habitat Establishment & Evaluation

This request to the Outdoor Heritage Fund is for the funding of the establishment and evaluation of the project's habitat on North Dakota farms:

- **\$94,768** is requested to support the Forage and Nutrition component of the overall project. This component includes habitat establishment and evaluation costs (floral density and pollen) in excess of the portion being provided by the Honey Bee and Monarch Butterfly Partnership as a match.
 - \$10,000 of this request is required to fund the remainder of the work that we are unable to provide in-kind. This work could not be conducted by the applicant because it requires the expertise of a wildlife biologist which the Keystone Center does not employ.
- The Honey Bee and Monarch Butterfly Partnership will provide **\$82,350** in-kind to assist with habitat establishment, maintenance, and technical guidance.
- Project participants will conduct site management in-kind for a contribution of their labor and use of their equipment worth **\$2,295**.
- The US Geological Survey has committed to conduct routine sample collections and habitat observations; in-kind support valued at **\$8,850**.

Other Project Activity

While this request is specifically intended to fund the work described above, it would additionally support the demonstration of an integrated agricultural/apicultural system. Detailed explanation for project activities beyond the work with pollinator habitat can be provided if desired.

Project Funding

The remainder of the project is expected to be funded through other grants and cash contributions from members of the Honey Bee Health Coalition:

- An application has been submitted to the National Honey Board to fund \$91,408 of cash expenses.
- The remaining \$150,995 is expected to be funded by both Coalition member contributions and/or a grant that is being submitted to the USDA's Foundation for Food and Ag Research.