**PROJECT TITLE:** Environmental Education through Regenerative Agriculture

**I. PROJECT STATEMENT**

1. The Audubon Center of the North Woods (ACNW) seeks to build an educational sustainable farm based on regenerative agricultural practices that provides real, working solutions to the mounting negative impacts of conventional agriculture. Our farm will teach the thousands of children and adults that attend our campus each year how healthy, nutritious food can be produced that enhances environmental integrity by increasing soil health, decreasing erosion and water usage, sequestering carbon and increasing pollinator and wildlife habitat.

* Our farm will demonstrate how small, poly-culture farms are more resilient, sustainable and better able to produce more edible food per acre than mono-crop fields. In 2014, the United Nation’s Food and Agriculture Organization released findings stating that for the world to produce the food needed for the planet’s growing population, it will be possible only through small, local farms that incorporate natural systems and have high biological diversity and resiliency.
* Our farm will cover approximately seventy-five acres and will be a diverse and thriving landscape that demonstrates that food production can go hand in hand with habitat restoration, increasing environmental health and long-term preservation of soil and water resources.
* We will create lessons focused on sustainable agriculture to be used with our K-12 curriculum that reaches over 4,000 students and more than 75 schools annually, as well as college and adult audiences. Over 75% of all human land-use is for food production, meaning the largest impact we likely can have as an environmental learning center is educating people on how the choices they make with the food they purchase, grow and consume impacts the planet.
* Conventional agricultural practices are eroding topsoil, decreasing soil vitality, releasing sequestered carbon dioxide, damaging water resources, reducing insect populations, and becoming increasingly reliant on petroleum-derived chemical treatments. This is not sustainable. Our farm will be a living, functioning alternative that models sustainable practices for food production.
* Through the creation of a farm that utilizes ecological systems, biological diversity, natural animal behaviors and diets, ACNW will demonstrate how food can be produced sustainably and improve the soil quality, sequester carbon, reduce runoff, be more resilient to weather extremes and pathogens and eliminate the need for chemical applications.
* There are more people in prisons than there are farmers in the U.S. Today, less than 1% of U.S. population is farmers, compared to over 50% in 1900. Children today are less likely to grow up on a farm, and understand how food is produced. We want to demonstrate to children how they can grow & raise their own food, and see farming as potential career for them to consider.

2. This farm will consist of native-grass pastures for beef cattle, broiler chickens, egg-laying hens and hogs, orchards of fruit and nut trees, berry-producing shrubs, high-tunnel hoop houses for vegetable production, vegetable fields and pollinator habitats.

* With this grant we would amend the soil of a former 48-acre corn field, adding nutrients and minerals that have been depleted from decades of intensive row-crop production and chemical applications.
* We will plant approximately 500 fruit and nut trees & 2,000 shrubs in aisles, which over time will create windbreaks and corridors for rotationally grazing livestock and poultry that move through them, as well as produce food to be harvested, stored and served in our dining hall at our residential environmental learning center, where we serve over 50,000 meals annually.
* With rows of fruit and nut trees, berry-producing shrubs underneath and pasture at the surface level, we create production at three levels vertically, increasing yield per acre. With the grazing animals moving through the corridors, they eat falling fruit and nuts, reducing insect and fungal pests that damage the crops, reducing losses and eliminating the need for chemical applications.

3. This farm will serve as an environmental education tool in innumerable ways.

* With the planting of native grasses for grazing, we can teach about the importance of prairie ecosystems, and the role grassland grazers play with nutrient cycling and stimulating vegetative growth.
* With the elimination of tilling, we will educate about soil health and vitality, water storage and carbon sequestration benefits of permanent vegetation on the ground. By not tilling acreage, we will help improve the water quality of nearby Grindstone Lake, which is now listed as impaired by the MN DNR.
* With fruit and nut production from trees and shrubs, we will educate about the role permaculture can have, and the importance of pollinators, which are responsible for pollinating 35% of the world’s crops.
* Pollinator education through active beehives will help students learn about the importance bees play in food production. In 2014, an international team of biologists estimated that, in the past 35 years, the abundance of invertebrates such as beetles and bees had [decreased by 45 percent](http://science.sciencemag.org/content/345/6195/401.full) worldwide. Recent studies show a stunning 76% [decrease in flying insects](https://www.washingtonpost.com/news/speaking-of-science/wp/2017/10/18/this-is-very-alarming-flying-insects-vanish-from-nature-preserves/?utm_term=.646ed11d4999) in German nature preserves in the last 27 years, and a staggering 98% decrease of ground insects in Puerto Rico’s rainforest in the last 35 years.

**II. PROJECT ACTIVITIES AND OUTCOMES**

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| **Activity 1 Title:** Improving Soil Health  **Description:**We will conduct soil testing, then amend the soil with the needed nutrients to improve soil vitality.  **ENRTF BUDGET:** $10,000  **Activity 2 Title:** Planting Fruit and Nut Trees and Shrubs  **Description:**We will plant approximately 500 fruit and nut trees and 2,000 shrubs in rows that allow for grazing and production between them. The fruits and nuts will be a powerful educational tool for teaching the benefits of permaculture. The production of the fruits and nuts will be harvested and served in our dining hall.  **ENRTF BUDGET:** $63,000  **Activity 2 Title:** Establish Honeybee Program  **Description:**We will purchase hives, beekeeping materials and bees to establish honeybee colonies that will aid in the pollination of our trees & shrubs, and allow for education about the role pollinators play in food systems.  **ENRTF BUDGET:** $7,000 |  |

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| **Outcome** | **Completion Date** |
| 1. Test and Amend Soil | *Nov 1., 2020* |
| 2. Purchase bee hives, materials and establish honeybee colony | *May 1, 2021* |
| 3. Plant 500 Fruit and Nut Trees and 2,000 Shrubs | *June 30, 2023* |

**III. PROJECT PARTNERS AND COLLABORATORS:**

We have been contracting with a local organic farmer on farm concepts and are hiring him on as staff to oversee the farm, and working with our local Natural Resource Conservation Service (NRCS) office on the farm layout.

**IV. LONG-TERM IMPLEMENTATION AND FUNDING:**

We have received two grants from NRCS for livestock fencing, well and water systems, pasture plantings, and a high-tunnel hoop house. Grants are also being submitted to the MDA’s Sustainable Agriculture Demonstration program, the USDA’s Sustainable Agriculture Research & Education program, and Rural Development program.