

**US Fish and Wildlife Service
Private Stewardship Grant Program
Project Proposal
1.23.06**

**Project title: Oak savanna and wet prairie restoration at
St. Michael's Ridge, Ohio**

Objectives:

1. Restoration of native vegetation characteristic of rare oak savanna and wet prairie communities
2. Establishment and maintenance of self-sustaining populations of eight state-listed rare plant species
3. Establishment of specific habitat requirements that will support several state and federal listed butterfly species
4. Continuance long-term monitoring and maintenance of site indefinitely.

Summary of Costs:

Budget Summary		
Item	Cost	Frequency/timeframe
Plant materials	6,850	Initial cost
Management	10,500	First five years
Monitoring	5,700	Annually
Total Project cost	\$23,050	Over 5 years
Total matching	\$6,300	Initial and ongoing (in-kind labor)
Grant request	\$16,750	

Note: this project is partially fundable since monitoring components could be reduced and/or controlled burn frequency reduced.

Contact Information

Christian F. Lenhart
3540 34th Ave. S.
Minneapolis, MN 55406
Phone: 612-269-8475
Email: lenh0010@umn.edu

Project description:

Proposed activities shall include restoration of rare black oak savanna on the sandy soils of St. Michael's Ridge, the 3rd beach deposited by post-glacial Lake Erie. Wet prairie and forested swamp are being established on the flat, poorly-drained clay soils. This project will restore habitat for eight state-listed plant species and could benefit the federally endangered karner blue butterfly and two Ohio listed butterflies. Approximately 50 acres of the site is already under conservation easement through the CRP and WRP programs. The Lenhart Farm project would entail native vegetation establishment and management over the next five years over the 50 acres plus additionally lawn and cornfield areas. Total restoration area would be 70 acres (25 oak savanna, 30 wet prairie, 15 swamp forest). The farm was recognized as a centennial farm by the State of Ohio and has been held by the same family since initial settlement by German settlers in 1848. It is currently owned by the Lenhart Family Farm, LLC, a group of four family members with the goal of maintaining continual ownership by the Lenharts and conducting conservation and native plant restoration projects.

Location: the project is located in Northwest Ohio, in Defiance County along an area known as St. Michael's Ridge. The project is about 10-15 miles from the Oak Openings Region in Lucas, Fulton and Henry County, where oak savanna and wet prairie exist supporting the last known population of Karner Blue Butterfly in the state of Ohio.

Figure 1: Regional project location



Figure 2: Site location in relation to the glacial Lake Erie beach ridges



Benefits for rare species and communities

This project will restore native vegetation to 20 acres of oak savanna along with 30+ acres of wet prairie and swamp forest. Oak savanna is a globally rare plant community type and has been nearly eliminated in Ohio. Wet and mesic prairies are two of the rarest plant community types in the Midwestern U.S, particularly in Ohio. The oak savanna community types host more rare species than any other type in Ohio. Individual species that would benefit from the project include eight state-listed plants providing habitat for three rare butterflies. The project would provide suitable habitat for the Karner Blue butterfly, a federally endangered species, with 20 acres of restored oak savanna habitat.

Table 1: Rare species benefited by the project			
Common name	Scientific name	Habitat type	Status
ANIMALS			
Karner Blue butterfly	<i>Lycaeides Melissa samuelis</i>	Oak savanna/lupine	Federally endangered
Frosted elfin butterfly	<i>Incisalia irus</i>	Oak savanna/lupine	Ohio State endangered
Persius dusky wing butterfly	<i>Erynnis persius</i>	Oak savanna/lupine	Ohio State endangered
PLANTS			
Dogbane	<i>Apocynum sibiricum</i>	Wet prairie	Ohio State threatened
Rattlesnake master	<i>Eryngium yuccifolium</i>	Oak savanna	State threatened

Table 1, continued			
June grass	<i>Koeleria macrantha</i>	Oak savanna	State endangered
Bicknell's sedge	<i>Carex bicknelli</i>	Wet prairie	State threatened
lupine	<i>Lupinus perennis</i>	Oak savanna	Potentially threatened
Missouri Ironweed	<i>Vernonia missurica</i>	Wet prairie	State endangered
Porcupine grass	<i>Stipa spartea</i>	Oak savanna/dry prairie	Potentially threatened
Giant manna grass	<i>Glyceria grandis</i>	Wet prairie	Potentially threatened
*note: only plant species found on site or that are readily available from nearby native plant nurseries were listed in this table			

Unique attributes. The Lenhart farm site has historical significance and geologically unique attributes. The project site is situated between the Oak Openings region of Lucas, Fulton and Henry Counties and the great Black Swamp and therefore has characteristics of both regions. The site has both dry sand beach ridges supporting oak savanna, and flat lake plain clay soils (Hoytville clay) supporting wet prairies and swamp forest. It lies on the 3rd beach of post-glacial Lake Erie, also known as the Defiance Moraine (Figure 2). Historically, the St. Michael's Ridge is one of the oldest settlements in Defiance County, as the sand ridges supported some of the first livable settlements in the Great Black Swamp region. German settlers established homesteads in the 1840's on the high dry ridges above the swampland. Peter Lenhart settled on the farm site in 1848 directly from Germany. The property has been owned by the same family ever since that time.

WORK PLAN

1. Obtain native plant materials from nurseries (Spring 2006)
 - Seed mix to be purchased from Pheasants Forever Ohio
 - Plugs to be purchased from Naturally Native Nursery in Bowling Green Ohio or other suitable native plant nursery.
 - Tree seedlings to be purchased from plant nursery this winter and planted in spring.
2. Prepare land for planting (herbicide weeds)
3. Install seed mix spring or fall 2006 (drill-seeding).
4. Plant tree seedlings spring or fall 2006.
 - Lenhart family members will plant trees. We have fifteen years of tree-planting experience establishing hundreds of trees on this site and others
5. Plant herbaceous plugs in spring 2007

- Wild lupine, milkweeds and other plugs will be planted to establish specific food and habitat requirements for the rare butterfly species. Lenhart family members will plant plugs.
6. Conduct controlled burns in years 2007, 2009, 2011 and 2015 with licensed contractor.
 7. Mow as needed, no more than twice per year at height of 6-12 inches outside of primary growing season (May or September).
 8. Monitor success of plantings annually. Monitor water levels in wetland using continuous recording gauge to determine area of wetland established.

Project Partners and role in project

Lenhart Family Farm LLC, land owners, will do planting and management work
Pheasants Forever Ohio – will provide low cost native seed mix and management plan review.

Budget and cost-sharing

Plant materials

- Native plant seed mix from Pheasants Forever Ohio \$100/acre* 20 acres = \$2000. (Additional may be purchased from Heartland nursery in Ft. Wayne, IN (50 miles from site)
- Native herbaceous plugs (lupine, rattlesnake master, puccoon) (available from Naturally Native Nursery in Bowling Green, Ohio (40 miles from site) 1000 x \$3.50 = \$3,500.
- tree seedlings (black oak, bur oak, shagbark hickory)= 300*\$4.50 = \$1,350

Materials total: \$6,850

Management and labor cost

Planting labor costs = \$2,000. To pay local farmer for field preparation and drill-planting. Rental of appropriate drill-seeding implement for fine-seeded native species.

Maintenance: controlled burns every 2 years for 1st 5 years. After that point conduct burns every 5 years. Cost for first five years= \$2000* three burns = \$6,000. In non-burn years, mowing will be done once or twice per year; once in May, and possibly a second time in September for a total of \$250 x 10 mows = \$2,500

Management total= 10,500

Oak savanna and wet prairie restoration at St. Michael's Ridge, Ohio		
Project timeline		
Seeding of wet prairie	2006 spring	Seed from nearest local plant suppliers
Planting of tree seedlings	Fall 2006, spring 2007	
Controlled burns	2007,2009,2011, 2015	Hire a certified burn specialist.
Planting of plugs for key species: lupine, butterfly weed, rattlesnake master	Spring 2006 and 2007	Purchase from local nursery to ensure local ecotype species
Monitoring	Done annually for plant species diversity and coverage. Monthly for water level data.	

Monitoring and follow-up

Measurement of project success will be determined by plant establishment, measuring acres restored, acres of wet prairie and savanna established, native vs. exotic plant coverage. Monitoring of tree canopy coverage in the savanna will be done with a goal of 40-50% canopy coverage. Rare plants will be measured in terms of coverage in square feet. For populations less than 100 species, a species count will be conducted each year for the first 5 years.

Monitoring will be performed by Chris and Peter Lenhart. Chris Lenhart is a water resources scientist working in Minnesota with two M.S. degrees from the University of Wisconsin-Madison. He has six years experience planning, monitoring and reviewing ecological restoration projects.

Cost of monitoring 20 hours annually: = \$400 x 5 years= \$2000

Water level monitoring in wet prairie. Using automatic OTT water level loggers installed in vertical PVC pipes, the hydrologic regime of the wet prairie will be monitored to determine the characteristics and area of wet prairie established. The same device will be placed in an adjacent cornfield as a reference for pre wetland-restoration hydrology.

Cost= \$750 per OTT water level logger (two loggers) = \$1,500

Installation and data management = 30 hours first year, then 20 hours annually.
 = 110 hours for first ten years = \$2,200.

PROJECT BUDGET SUMMARY

Cost sharing

Pheasants Forever: \$300 in-kind labor via staff review time

Lenhart Family Farm LLC

 Peter Lenhart 300 hours (in-kind)

 Chris Lenhart 80

 Ben Lenhart 80

 Others 40

= 400 hours* \$15/hr = \$6000

Total matching = \$6300

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Financial need

The cost of native plant restoration and management can be prohibitively expensive for small private landowners (up to \$1000/acre). Additionally trained professionals are needed to conduct controlled burns which are critical to the success and long-term viability of prairie and savanna communities. Without this grant, we would not have the funds available to conduct the project at the large scale proposed. The Lenhart Family Farm LLC is a group of four brothers and sisters who purchased most of the farm from Emily Lenhart to ensure long-term family ownership of the property. We intend to restore native ecosystems and continue managing the property for the next several decades at least.