# Final Report

Wildlife Preservation Fund

Project Title: Help the Prairie Insects

Grant Agreement Number: 11-002W

January 24, 2011 – November 18, 2011

Ballard Nature Center
5253 E. US Hwy 40
Altamont, IL 62411
(618) 483-6856
ballardnc@frontiernet.net

Report prepared by
Patty Gillespie
Ballard Nature Center's Co-Director
(618) 483-6856
ballardnc@frontiernet.net

**Promotion**
**Media Notification**
**Local Public Newspapers**
**(See Appendix A for Published Article)**

Ballard Nature Center receives grant from the Illinois Department of Natural Resources Wildlife Preservation Fund
Article by Patty Gillespie

Ballard Nature Center is recognized as recipient of Illinois Wildlife Preservation Fund
or
Bugs Are a Good Thing

By Patty Gillespie and Karan Greuel

"Look what I caught in my net! What kind of insect is it?" But we educators at Ballard Nature Center would respond, "Capture it for a moment, and you can identify it using the guides." In fact, the participants of one nature camp this summer, children of only 7 or 8 years old, found many "bugs" and identified 26 different insect species! Also the camp participants were so very observant and enthusiastic that they discovered a dragonfly species which had not yet been documented at the center. Yes, a "Young Explorer" proudly netted this new species, a swamp darner dragonfly, with green striping on a large brown body and with remarkably blue eyes. The excellent guides which the children used for finding the names of the insects were purchased through a grant.

This spring Ballard Nature Center received money from the Illinois Wildlife Preservation Fund. These funds enabled the center to begin a project, titled "For He's a Jolly, Good Insect" or "Help the Prairie Insects." The project began with the planting of certain various prairie forbs or wildflowers. In April young volunteers, associated with the HMAC Community Action Committee, helped the center's naturalists with the planting. By planting these Illinois ecotype species, the naturalists were able to enhance the prairie restoration areas at Ballard Nature Center.

The goal of the project is to create critical habitat for prairie dependent insect species of conservation concern. One such insect in need of conservation practices for its survival is the rigid sunflower borer moth (*Papaipema rigida*) whose caterpillar utilizes wild sunflowers and Golden Alexander (*Zizia aurea*) which is one of the first to show its yellow blooms on the prairie in the spring. Another is the liatris borer moth (*Papaipema beerina)* which feeds upon blazing star such as *Liatris aspera*. This blazing star species has just begun to show its lovely clusters of pinkish purple blooms arranged on tall spikes in the center's restored prairie areas. Additional plantings will include shrubs this fall, and the naturalists are eager to include in the work youth who wish to become engaged in their communities.

The Illinois Wildlife Preservation Fund also helped with the purchase of supplies enabling the naturalists to teach about the importance of insects as members

of natural communities. Often filling an important role on the trophic levels as a primary consumer (an herbivore or plant-eater), an insect becomes the food for the secondary consumer (a carnivore or predator). For example, a grasshopper may be a staple food for a huge variety of other creatures, birds and mammals and other insects, etc.

Since the vast prairies of pre-settlement times have dwindled, prairie restoration projects and natural community management projects are significant in efforts to maintain Illinois's natural heritage. Being recognized as worthy of the support of the Illinois Wildlife Preservation Fund indicates Ballard Nature Center's success in providing high-quality environmental education, in maintaining balanced natural communities, and in offering wonderful opportunities for both learning and recreation in the outdoors.

# Detailed Budget Report

| Item | Quantity | Materials/Supplies Suppliers | Check # | Total |
|---|---|---|---|---|
| Potted Plants (and small quantity of seed) | 155 plants Price/Item: $1.50 to $4.75 | Missouri Wildflower Nursery | 0616 | $374.00 |
| | 38 plants Price/Item $2.50 | Bluestem Prairie Nursery | 0610 | $ 95.98 |
| | 5 plants $5.50 each | The Plant Farm | 0660 | $ 27.84 |
| | 35 plants @$3.00 each | EIU Botany Club | 0621 | $100.00 |
| Prairie Seed | | Hamilton Native Outpost, LLC | 0609 | $150.00 |
| | | Earthskin Nursery | 0610 | $133.96 |
| Shrubs | 35 shrubs Price/Item: @$9.40 | Missouri Wildflower Nursery | 0649 | $400.20 |
| Educational Materials | Field guides, pamphlets, books, DVDs, insect nets, observation aids, insect display storage containers, insect craft supplies, laminating film | INRS- Institute of Natural Resources, Wal-Mart, Amazon.com, Buycostumes.com, Musicofnature.com BioQuip, MO Department of Conservation Nature Shop, Nature Images and Sounds, Angie's Nine Patch, ACCO Brands Inc., GBC | | $727.57 |
| | | | | |
| | | | **Total** | **$2,009.55** |

**Addresses and Dates of Purchase**

Potted Plants

Missouri Wildflower Nursery, 9814 Pleasant Hill Road, Jefferson City, MO 65109
Paid 4/4/11
Paid 9/16/11

Bluestem Prairie Nursery, Ken Schaal, 13197 East 13th Road, Hillsboro, IL 62049
Paid 3/3/11

The Plant Farm, 204 West End Ave., Newton, IL 62448
Paid 11/15/11

Janice Coons, Biology Department, Botany club, Eastern Illinois University, 600 Lincoln Ave, Charleston, Illinois 61920
Paid 4/15/11

Prairie Seed

Hamilton Native Outpost, 16786 Brown Road, Elk Creek, MO 65464
Paid 3/10/11

Earthskin Nursery, Lou Nelms, 9331 NCR 3800E, Mason City, IL 62664
Paid 3/10/11

Shrubs

Missouri Wildflower Nursery, 9814 Pleasant Hill Road, Jefferson City, MO 65109
Paid 9/16/11

Educational Materials

INRS- Institute of Natural Resources, 1816 south Oak Street, Champaign, IL 61820
Paid 7/28/11

Walmart, Olney, IL 62450
Paid 7/13/11, 11/14/11

Amazon.com
Paid 6/01/11, 8/16/2011, 8/17/11

Buycostumes.com
Paid 8/16/11

Musicofnature.com
Paid 5/31/11

BioQuip, 2321 Gladwick Street, Rancho Dominquez, CA 90220
Paid 8/24/11

MO Department of conservation, Nature shop-PO Box 180, Jefferson City, MO 65102
Paid 8/25/11

Nature Images and Sounds, LLC, musicofnature.org
Paid 5/31/11

Angie's Nine Patch, 804 S. Henrietta St., Effingham, IL 62401
Paid 11/16/11

ACCO Brands Inc, 300 Tower Parkway, Lincolnshire, IL 60069
Paid 11/16/11

Project Expenditures paid by funds other than Special Wildlife Grant:

$9.55 for plants or seed or supplies

## Project Objective

Funding through the Wildlife Preservation Funds was awarded to Ballard Nature Center (BNC), enabling the staff to purchase Illinois ecotype prairie plants and prairie forb seed and native shrubs in order to enhance the prairie restorations at the nature center. This prairie enhancement is designed to benefit prairie dependent insect species, especially those insects of conservation concern known to occur in southeastern Illinois.

The restored prairies at Ballard Nature center are representative of prairies that historically occurred in the Southern Till Plain Natural Division of Illinois. BNC staff and volunteers have restored approximately 100 total acres of prairie plots ranging from a few acres to 47 acres in size. The plantings of 2011 are intended to diversify these prairie restorations' plant communities and to provide habitat for numerous prairie-associated insect species that occur on site. Another purpose of the project to enhance the prairie restorations is to provide critical grassland and shrubland habitat for certain insect species of conservation concern. One example of these insects are *Papaipema necopina* (sunflower borer moth) who utilize *Helianthus* species as host plants.

Most significance also is the use of the restoration areas as outdoor classrooms for environmental education opportunities and as outdoor laboratories for biological research. The purchase of educational materials, featuring an emphasis on the ecological importance of prairies and shrubland communities, of which insect species are a significant component, will augment the educational programming at BNC. These materials will be used by the center's educators during innovative learning activities which will be engaging, experiential, and enjoyable for the participants.

## Project Description

The Ballard Nature Center is a 210-acre environmental education center located in Effingham County, Illinois. The center provides environmental education for a large portion of southeastern Illinois. The BNC's proposal included the purchase of native prairie plants, prairie forb seed, native shrubs and additional educational materials that focus on helping the prairie insects by providing habitat in southeastern Illinois. The purpose was to allow the continued natural community restoration efforts and environmental education programs at the nature center. Expanding environmental education and restoring prairie and shrubland and wildlife management were identified as goals and objectives in the comprehensive State Wildlife plan for the Southern Till Plain Natural Division, in the C-2000 Upper Little Wabash Watershed Plan and as goals in the master plan for the Ballard Nature Center.

## Summary of Project Accomplishments

Introduction

Upon recognizing the goals and objectives set forth in the Comprehensive State Wildlife plan for the Southern Till Plain Natural Division in the C-2000 Upper Little Wabash Watershed Plan, Ballard Nature Center's staff members, Patty Gillespie and Karan Greuel, under advisement of IDNR natural heritage biologist Terry Esker, created a plan by which to expand environmental education and to enhance restored prairies for use by prairie-dependent insects. The plan included the planting of native prairie botanical species by the installment of potted native forbs or wildflowers and of potted native shrubs and by the spreading of forb and grass seed. In order to enhance existing environment education programming and to add additional educational opportunities, the plan included the purchase of certain tools and supplies. The plan included, as well, the placement of the plants (shrubs, wildflowers, and grasses) in areas where those species could be easily observed by the center's visitors and readily utilized by insect species.

Materials and Methods

Upon notification of Ballard Nature Center's being awarded the Illinois Wildlife Preservation Fund, the BNC staff felt the plans for the Prairie & Shrubland Restoration project were achievable and purchases were made. Potted plants were purchased in March and planted in April and a few, in September and November. Seed was purchased in March and April. Planting occurred in March through May and again in September through November. Shrub species were purchased at the end of September and were planted in October.

Some potted plants, shrubs, and wildflower seeds were planted at the transition area between the Wetland/Prairie Trail and the Woodland Trail, where the center's naturalists could easily point the plants out to students visiting on field trips or where observant hikers could readily notice the newly installed species. Planting also occurred near the newly installed observation deck at the westerly wetland to allow for observation by center's patrons. Potted prairie forbs, shrubs, and seed were planted along a hilltop prairie restoration site visible from Second Creek Trail system. The grass seed was used to help stabilize steep hillside's soil in order to prevent erosion. Other planting sites were selected by considering the soil and light conditions needed for the specific plant species to be best situated for insect uses.

Several purchases of supplies were made to augment educational programming and for the development of new innovative activities designed to enlighten student, both children and adults, about insects. .

Pamphlets and books, and field guides enabled the educators to help individuals identify insects and read about their characteristics.

Results

Survival rate of the planted shrubs and potted plants has been good due to adequate rainfall and recent increasing warmth during the growing season. The seed has sprouted and grown during the summer. The addition of the prairie and shrubland plants to the established restoration areas at BNC has resulted in the enhancement of the area's plant diversity. Certain wildflower species have bloomed and been noted by observers at

Ballard Nature Center. It has been noted that the plants have been serving as food for wildlife. Further studies will need to be conducted to determine if the prairie-dependent insect species have benefitted from the plantings.

Purchases for creation of hands-on or experiential activities included insect collecting nets and toile and embroidery hoops for making insect flight houses which would allow for collection, observation, and release of insects. The insect collecting nets, containers, and flight houses are a must when the center's explorers wish to look more closely at the insects which frequent the plants or to capture creatures momentarily for show and tell. A collection of insect specimen is being refurbished with new storage containers.

To create a little fun while learning, bug eye glasses and craft supplies were purchased and will be implemented, especially during summer nature camps with youngsters. The book *Hungry Hoppers* has been particularly useful in illustrating the concepts of habitat and food chain and insect life cycles. Also, DVD's and books about singing insects have produced much interest during programs.

To assist the students in identifying insects and discovering insects' natures, the purchased field guides and pamphlets have been most useful. Laminating film and paper was used to allow students and educators to create their own informational and pictorial pamphlets about insects. To document the insects found at the center, the educators and their students are photographing insects or finding pictures in magazines and calendars and then laminating these images for the booklet.

Discussion and Summary

During the planning stages, a survey of existing plants in the prairie and shrubland restoration areas was completed. Also research was conducted to determine which insects of conservation concern would be best served by those plant species adapted to the center's location in southeastern Illinois. This survey and research helped the staff and advisors to develop a list of plant species that would enhance diversity. Purchased were those selected prairie plants and shrubs. To increase plant diversity, certain species which are often found in Illinois but were absence or very few in number at BNC were purchased. It is our hope that these plant species will provide addition food for the prairie-dependent insect species of conservation concern as well as food for insects that help make a healthy, balanced ecosystem. Another hope is that the nature center's explorers (students on field trips, families on outings, adults on workshops, etc.) will note the various plant species and the wildlife utilizing them and that these individuals will learn about nature.

**For Education of the General Public**
**A List of Wildlife and Native Plant Resources**
**That Benefited from the Project**

Prairie Plant Species

Sampson's Snakeroot – *Orbexilum pedunculatum*
Purple Milkweed – *Asclepias purpurascens*
Royal Catchfly – *Silene regia*
Smooth Penstemon – *Penstemon digitalis*
Lanceleaf Coreopsis - *Coreopsis lanceolata*
Blazingstar – Liatris aspera
Blazingstar - *Liatris squarrosa*
Prairie Sundrops – *Oenothera pilosella*
Goat's Rue – *Tephrosia virginiana*
Sneezeweed – *Helenium autumnale*
Alum Root – *Heuchera richardsonii*
Compassplant-*Silphium laciniatum*
Pale Purple Coneflower- *Euchinacea pallida*
Purple Coneflower – *Euchinacea purpurea*
New England Aster – *Aster novae-angliae*
Rattlesnake Master – *Eryngium yuccifolium*
Wild Quinine – *Parthenium integrifolium*
Culver's Root – *Veronicastrum virginicum*
Golden Alexander – *Zizia aurea*
White Wild Indigo – *Baptisia leucantha (alba)*
Blue False Indigo – *Baptisia australis*
Leadplant - *Amorpha canescens*
Prairie Alum Root – *Heuchera richardsonii*
New Jersey Tea – *Ceanothus americanus*
Prairie Dropseed - Sporobolus heterolepis
Side-oats Grama - *Bouteloua curtipendula*
Prairie Dropseed –*Sporobolus heterolepis*
Eastern Gamma Grass – *Tripsacum dactyloides*
Switchgrass- *Panicum virgatum*
Curlytop Ironweed – *Vernonia arkansana*
Various sunflowers - *Helianthus spp.*
Various goldenrod - *Solidago spp.*

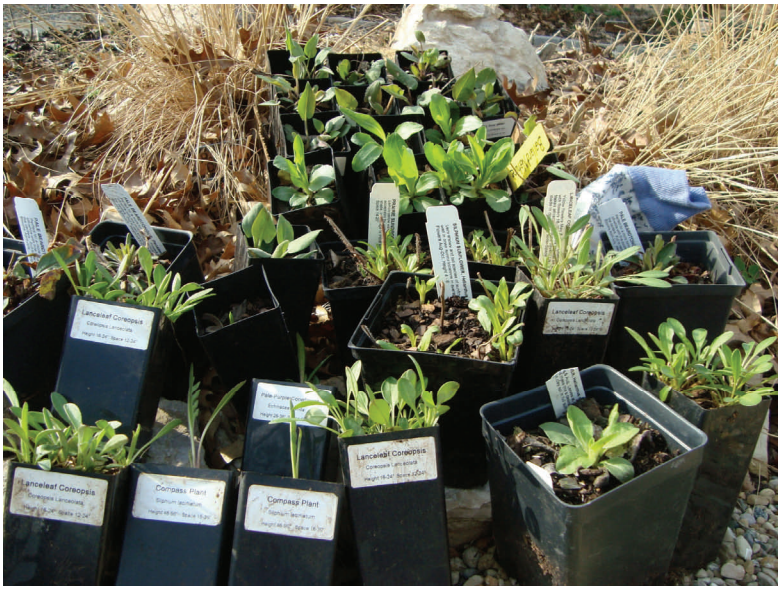
Shrubs

*Hypericum prolificuma*
*Cornus florida*

*Rhus aromatic*
*Hydrangea arborescens*
*Prunus americana*
*Prunus virginiana*
*Sambucus canadensis*
*Amelanchier arborea*
*Sambucus Canadensis*
*Lindera benzoin*
*Cephalanthus occidentalis*

Those benefiting: Wildlife benefiting would be a very diverse group ranging from brown thrasers and mockingbirds feasting upon the berries of the serviceberry bushes to monarch butterflies' caterpillars eating milkweed. Insect species of conservation concern which were noted in the selection of the plant species to be planted are Byssus Skipper, Sunflower Borer Moth, Rigid Sunflower Borer Moth, Ironweed Borer Moth, The Limpid borer Moth, Liatris Borer Moth, Silphium Borer Moth, *Schinia nundina*, etc.
Specific Audience: All patrons of Ballard Nature Center stand to benefit by increased opportunities to view a diversity of plant and animal species and by use of the educational materials made available through the Wildlife Preservation Funds.
Measurable Outcomes: An observable outcome is the increase in the existence of certain botanical species which were earlier absence or lacking in number at Ballard Nature Center. Since monitoring or surveying of the natural communities at BNC have been ongoing, an enhancement in the diversity of plants (and possibly animals) is a noticeable outcome of the project. The successful survival of the prairie–dependent insects is a desired outcome which will require extended studies in order to determine how successfully this project has helped. Understandings, developed through field observations and the use of educational materials, although difficult to assess, is a hoped-for outcome.
Products: Enhanced diversity in natural communities and greater understandings among the center's explorers are expected.

Shrubs which were purchased and planted during the Help The Prairie Insects project included elderberry (as pictured), shrubby St. John's Wort, Lead Plant, Fragrant Sumac, and others suited for survival in a prairie ecosystem in Illinois.




The prairie forbs selected were ones identified as host plants for insects of conservation concern. Species were of various genera:Silphium, Helianthus, Solidago, Vernonia, Penstemon, etc..

Seed of a number of prairie grasses and forbs was planted along with potted plants and shrubs in order to increase diversity and provide insect habitat.

Prairie species, as the ones pictured, were planted in existing restored prairie areas which had been burned , thereby the thatch of grasses would not block sunlight from reaching new plants.

Kids are always enthralled by insects, and small clear plastic boxes allow for easy examination of a bug.

How better to learn than capturing an insect yourself and determining its species!

Field guides, pamphlet and books were purchased to help the learning process.

Ballard Nature Center's staff were not the only ones planting plants. Youth volunteers often assist. Here a girl scout is sowing prairie wildflower seed.