

# **Buffalo County Natural Resources Internship Program**

---

## **Dry Bluff Prairie Restoration & Education Project**



**2015 Final Report**

Tristin Christopher

## Introduction

The Buffalo County Natural Resources Internship Program is an internship provided for a college student pursuing a degree in a natural resources field. The internship lasts about 3 months, June-August, and the intern works around 35-40 hours per week. Throughout the summer, the intern gets an opportunity to work with the Wisconsin Department of Natural Resources (WDNR), Natural Resource Conservation Service (NRCS), Buffalo County Land Conservation Department, and University of Wisconsin – Extension. This year, the UW-Extension office received a Wisconsin Environmental Education Board grant. This grant provided funding to hire an intern, to help study dry bluff prairies in Buffalo County. Due to the grant funding along with other generous contributions from conservation clubs, business and private individuals, I was hired for the summer and received a \$5,000 scholarship. The other internship position was filled by Jarod Schamaun. Before the summer internship started, we successfully completed pesticide application training, CPR and first aid training, electrofishing safety, and chainsaw safety training to help with projects throughout the summer.

## 2015 Intern Background

I grew up in Modena, WI which is a small town in Buffalo County. Growing up in the heart of the Driftless Area, I developed a true appreciation for all of the natural resources this area had to offer. I was fortunate to grow up on a tree farm, where most of my time was spent outside fishing, hunting, or helping my father develop desired habitat for multiple wildlife species. I currently attend the University of Wisconsin – Eau Claire, and I am studying Environmental Public Health. In the past two years, I have had the opportunity to participate in two research projects in Eau Claire County. The first was on tick-borne diseases. I collected ticks and tested them for tick borne illnesses like Lyme disease. The second was a radon assessment survey. With this project, I gathered data from the public about their understanding on radon and how it can affect human health. After the survey, Health Department employees, university students, and I created a plan to develop awareness about radon in the Eau Claire area.

This summer I was fortunate to be chosen as one of the Buffalo County Natural Resources Intern with an emphasis on dry bluff prairie restoration. My interest in bluff prairies started when I was in high school. My family realized we had a small remnant prairie, so we attended the annual bluff prairie meeting in Alma, WI in 2013. Since then, we have cut and burned the prairie for two years. Even with the years of work ahead of us, seeing results right away sparked a passion for the prairie and the hard work we completed.



Taking a picture of a prairie plant on a dry bluff prairie, the yellow flower pictured is Prairie Coreopsis.

## About Dry Bluff Prairies

Dry bluff prairies are an exceptionally rare ecosystem found in the Driftless Area. The prairie remnants in Buffalo County, WI are most often located on steep, south and west-facing bluff slopes. Bluff prairie restoration efforts have inherent conservation value, contributing to the long-term existence and sustainability of an ecosystem that has been steadily declining since the beginning of the European settlement. Without help from concerned citizens and resource professionals, dry bluff prairies will disappear from the landscape in 20 to 30 years.



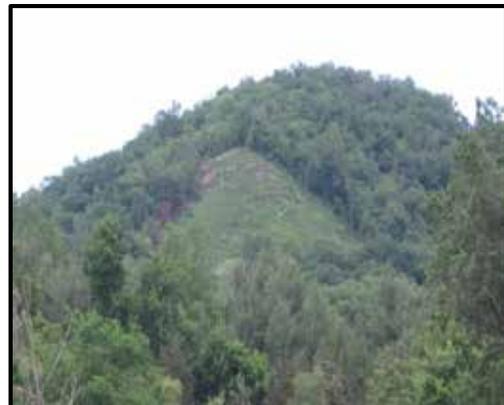
Naturally, this bluff prairie was still open without trees. The wood lily (orange flower) is a very rare prairie plant. Little blue-stem grass, harebell (purple flower) and leadplant are more common.



Spraying undesired Siberian elm that is growing in a dry remnant prairie (Round Hill) in Durand, WI. Typically, you do not want any woody vegetation on the prairies, so they can remain open and receive a lot sunlight.

Dry bluff prairies also benefit numerous game and non-game wildlife species. They provide ideal habitat for songbirds, hawks, eagles, whitetail deer, butterflies, insects, reptiles and many other small mammals. The prairies are also the only place where timber rattlesnakes are typically found. Without these areas, their population will suffer. Other benefits include brood-rearing habitat for wild turkeys and preferred foraging areas for whitetail deer and other wildlife. This is especially true the year after a burn, when new growth will contain much higher levels of nutrients than surrounding unburned vegetation. Native wildflowers also bloom throughout the growing season, supporting numerous pollinators. Prairies also harbor a rich diversity of plant life and can contain over 100 plant species in a prairie of less than 5 acres. Nearly 2,000 invertebrate species have been found that depend on these unique areas.

Typical management practices of the dry bluff prairies include removal of woody invasive and non-desirable trees by cutting and/or chemical control. Next, control regrowth of woody and herbaceous invasives, and prescribed burn yearly initially, then every 3-5 years as needed.



Emma's Point, a dry bluff Prairie that has been cut and burned near Nelson, WI.

## Goals/Objectives

Buffalo County, Wisconsin holds a great portion of the remaining dry bluff prairies in the Driftless Area. The DNR, NRCS, and Buffalo County Land Conservation Department started restoration projects in early 2000's. Overall, my goal was to make an informational excel spreadsheet of private landowner's property and contact information as well as documenting my on-site visits. The on-site visits included gathering property information from the landowner, looking and assessing the prairie condition (whether it is very open, covered in trees, and how many prairies are in the surrounding area), and documenting native plants and potential invasive species that would hinder restoration.

## Approach/Methodology

At the project's start I was provided a list of private landowners that had bluff prairies and interest in restoration. My first step was contacting the landowners with a letter. The letter explained what I was doing over the course of the summer, informing them about potential funding options to help with restoration practices, and the importance of the restoration. After two weeks passed, I followed up with a phone call to talk with landowners one on one.

Aside from the initial 27 landowners that had a background and understanding of bluff prairies, I expanded the list of private landowners that have bluff prairies to 47. I did this by looking at aerial photos and simply driving around the county. I approached these landowners similarly by first sending them a letter and an informational brochure about the Dry Bluff Prairie Restoration & Education Project. My goal was to have 25% of those additional landowners interested in restoring their bluff prairies.



Private landowner's bluff prairie that currently has contractor's tree cutting and removing brush in Nelson, WI. This is normally the first step in the restoration process.



This is yellow cone flower that is growing on Five Mile Bluff in Nelson, WI.



This is a bluff prairie that has been cut and burned multiple times that overlooks Nelson, WI. Pictured is flowering spurge (white flower), purple-prairie clover (purple flower), and Prairie Coreopsis (yellow flower). These plants indicate this area is a truly undisturbed, natural prairie.

## Project Results

I began the Dry Bluff Prairie Restoration and Education Project with 27 landowners that had bluff prairies and interest in restoration. From looking at aerial photos and driving around the county, I added an additional 20 landowners that I believed had remnant prairies. Through the course of my work on the project, 15 of the 47 landowners began restoration practices or started a management plan. These landowners are in various stages. Some have cut and burned their prairies for a few years. Others have contractors on their property, starting the cutting and brush removal, and a few had a management plan implemented. The remaining landowners are still in the initial contact phase, not interested, or would like to be contacted at a later time. To get a landowner started in the restoration process, I visited their property to look at the prairie, identified as many native plants as possible, and helped them with the next steps. If they were interested in funding, I provided them with an application and explained the eligibility and terms of agreement. If they were not interested in funding, I provided them with as much technical assistance as possible.

Restoring bluff prairies is a very long process that typically has a minimum of a ten year management plan. Depending on what happens year to year, the management plan can change. In the future, I hope more landowners become aware of the rare ecosystem on bluff prairies and I hope to see more restoration projects put into action. Since the funding is still "new", I believe we have made great progress thus far.

## Newspaper Articles

The publicity of the restoration efforts made its way around Western Wisconsin. A newspaper article that highlighted the Dry Bluff Prairie Restoration & Education Project was in the Winona Daily News, La Crosse Tribune, Buffalo County Journal, and Mondovi Herald. Outreach like this is essential; the public became aware of what we were doing and focused attention to the importance of restoration efforts.

### **LACROSSE TRIBUNE: BUFFALO COUNTY RESIDENTS, AGENCIES RESTORING RARE BLUFF PRAIRIES**

ALMA -- Buffalo County has enlisted the resources of as many as 10 county, state and federal agencies in restoring and preserving natural bluff side prairies. Steep slope dry prairies, sometimes called goat or hill prairies, are endangered ecosystems that are becoming overrun with trees and brush. "Pretty much every south-facing bluff in the county has some form of goat prairie," said Bill Kiser, an upper Mississippi River biologist with the U.S. Fish and Wildlife Service. Todd Mau, of the USDA Natural Resources Conservation Service in Buffalo County, said restoration of bluff prairies began with a couple of projects in Nelson, Wis., and rural Eagle Valley near Fountain City, Wis., in 2006. Public fascination with goat prairies has grown since 2012, when sand mining raised environmental awareness through the river valley regions of Buffalo County. Buffalo County land conservationist Brooke Muhlack said 13 landowners have chosen to participate in restoration projects and 40 more are interested.

The county has an estimated 25 percent of all remnant goat prairies that remain in Wisconsin, a statistic that sparked interest in learning more about them. Muhlack said most people are unaware of bluff prairies, though they frequently see the bald looking spots near bluff tops facing the sun.

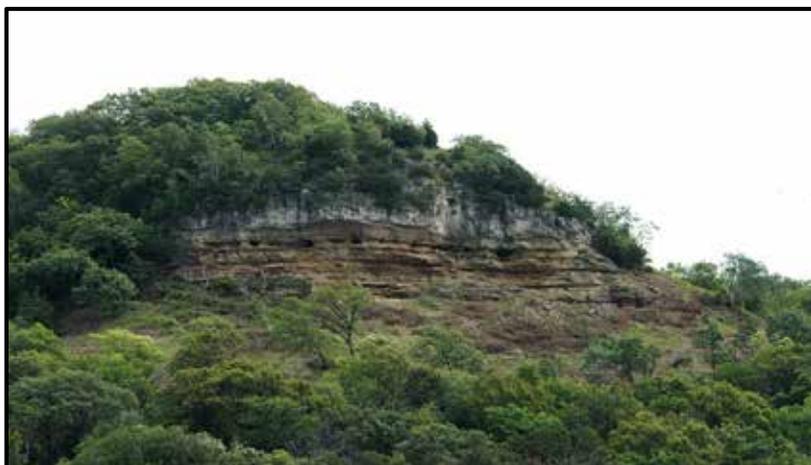
"It's expensive, hard, physical work," Mau said, and cost-sharing is available to hire contractors to cut unwanted trees and brush that prevent native prairie seed plants from growing. Sites are normally burned off in the winter and undesirable vegetation is treated to keep it at bay. Bluff prairies are dry and semi-arid because of full sunlight and heat exposure. Soils are shallow and poor quality, but species that evolved to grow and adapt to that environment flourish under the harsh conditions. Hundreds of native plant species that grow on goat prairies are being cataloged in a database along with other information.

UW-Extension Services in Buffalo County secured a grant to employ a college intern, Tristin Christopher of Mondovi, Wis., to build a database of information about goat prairies in the county. Another local intern, Jarod Schamaun, a biology student at UW-River Falls, also is helping with bluff prairie work and other conservation duties. The prairies also provide habitat for reptiles and amphibians, including rattlesnakes, snails and lizards, as well as monarch butterflies and a variety of moths. The sites often become favorite hunting grounds for eagles in the winter, Mau said, evidence of more positive impacts of restoring the sites. The Buffalo County Board authorized spending up to \$75,000 of CapX funds over five years to help pay for restoration projects. That and money put up by other government agencies pay the lion's share of restoration expenses for landowners interested in signing up for a 10-year program to preserve the prairies. Mau said the CapX money committed by the county was likely to see triple return in dollars raised from other agencies and organizations backing prairie restoration.



Tristin Christopher (intern) and Brooke Muhlack (Buffalo County Land Conservationist)

Once a site is cleared of woody vegetation, the sun is able to warm the exposed soil and sprout the native plant seeds that exist there. The most common invasive species on goat prairies are cedar and birch trees. A site might be overgrown, but the native seed bank is still there, conservationists said. Christopher, an environmental public health student at the university in Eau Claire, was doing an inventory and site visit with landowners interested in restoration projects. Total cost of restoring an average two to three acre prairie site runs from \$1,500 to \$2,000 per acre. A long-range plan forecasts funding available to clear 100 or more acres of bluff prairie over the next five years. Kiser said Buffalo County is one of only a few places left in the Midwest where native bluff prairie plants are still intact. "It's not something that you come across every day," he said. (Written by David Brommerich)



This is a private landowner's prairie where contractors have cut trees beneath the rock. Since this photo, they have also cleared the whole top of the bluff.

## Additional Projects

### *Wisconsin Department of Natural Resources – Wildlife & Ecology*

I also experienced numerous other activities with the WDNR. My very first week of the internship I worked with Dean Edlin (WDNR Ecologist) and the National Park Service banding bald eagles on the St. Croix River. This definitely was an experience of a lifetime as I learned a lot about bald eagles and their young that we banded, and helped with data collection.

Another day on the job was banding peregrine falcons with individuals from the Raptor Resource Project. This group specializes in preserving falcon's habitat. Peregrines rely on nesting in high places on cliffs and large rock faces. Most of the birds nested in natural places, but some use man-made structures; either a box in the rock faces or on the smoke stack in Alma to make their nest. They are the fastest bird in the world, reaching speeds over 200 miles per hour when they dive into flight. It was very fascinating to observe their behavior and participate in banding them.



Helping band a 7 ½ week old bald eagle



Helping band a peregrine falcon chick

Throughout the summer I also sprayed herbicide on crown vetch, bird's-foot trefoil and black locust that was growing on two remnant bluff prairies. I also helped Todd Mau (NRCS District Conservationist) spray buckthorn and clear trails on the TNC Conservancy in Nelson. I also worked with Gary Wolf (WDNR wildlife technician) conduct a black bear survey near Black River Falls. The week prior, they had put bait on trees and then we checked them one week later. We checked every bait on a specific route every half or full mile. We would check to see if the bait was still there, and determine if it was hit by a bear or a different animal. By conducting this survey, they monitor bear population trends for the area. Later in the summer, Dean Edlin, Armund Bartz (WDNR Ecologist) and I surveyed timber rattlesnakes in Maiden Rock, WI. During the one hour survey, we found five timber rattlesnakes. This survey and others show a timber rattlesnake dependence on dry bluff prairie habitat; dry bluff prairies provide ideal open habitat for thermoregulation.

Also, I had the opportunity to work with Darcy Kind, (WDNR Private Lands Biologist). We viewed a private landowner's property that had a lot of great potential for restoration. To help with more funding for restoration, I also worked with Bill Kiser from the US Fish and Wildlife Service. With this work, I think it is very important to create and keep positive collaboration with other agencies, which can help with technical and funding options.

### ***Wisconsin Department of Natural Resources – Fisheries***

Another highlight of my summer was spent helping Brian Brecka (WDNR fisheries biologist) on a fish survey. In July, we went electrofishing between Nelson, WI and Wabasha, MN. In a certain amount of time, we would shock and net all different species as possible. We would then stop to record the species type and length. Performing these surveys provides data to monitor fish populations. I also got the opportunity to survey two trout streams with WDNR staff from Baldwin and Eau Claire. I helped shock and record data on the Eau Galle River and Willow River. We kept track of how many total fish were caught, the species, and the length of the trout caught. In the Eau Galle River, it was interesting to see young largemouth bass in the cold-water stream. We believed that the cause of this is due to recent flooding which carried the bass into the stream. At the Willow River we shocked many rainbow trout (which were stocked in past years). It was very exciting to see these beautiful rainbow trout, since I have never seen them in a Wisconsin trout stream before. Most of them were between 7-10 inches.



Electrofishing – Walleye



Largemouth Bass

### ***Natural Resource Conservation Service***

Throughout the summer I attended a few tours with the NRCS in Buffalo and Vernon County. The tours included looking at dry bluff prairies and informing other NRCS offices about these opportunities. I also joined Brooke Muhlack, (Buffalo County Conservationist), for a tour of the watershed project in Vernon County. I learned a lot about the watershed project and much about contour farming. I was also able to work with Scott Stipetich, a Farm Bill Biologist with Pheasants Forever. I joined him one day where we went to four farms and talked with interested landowners about planted prairies for pollinator habitat. Planted prairies are great habitat not only for pollinators but many other small animals. Later in the summer, we went to four Wetland Preserve properties and made sure the boundaries of the preserve were not being encroached by agriculture and checked boundary signs. Later in the summer, I worked with a NRCS soil scientist, Mike England. I learned about how to

classify and identify different soil locations and types. We traveled to four sites in Buffalo, Trempealeau, and Eau Claire counties.

Environmental education was also part of my summer duties. Each year the 6<sup>th</sup> grade students from Alma Area Schools participate in an environmental field day. This year they learned about the dry bluff prairies and hiked the TNC Conservancy property. They also learned about many conservation practices from members of the NRCS like recycling, soils, dairy production, and no till farming. The 6<sup>th</sup> graders also helped with tree identification and the posting of signs along the trail at the conservancy.

### ***Buffalo County Land Conservation Department***

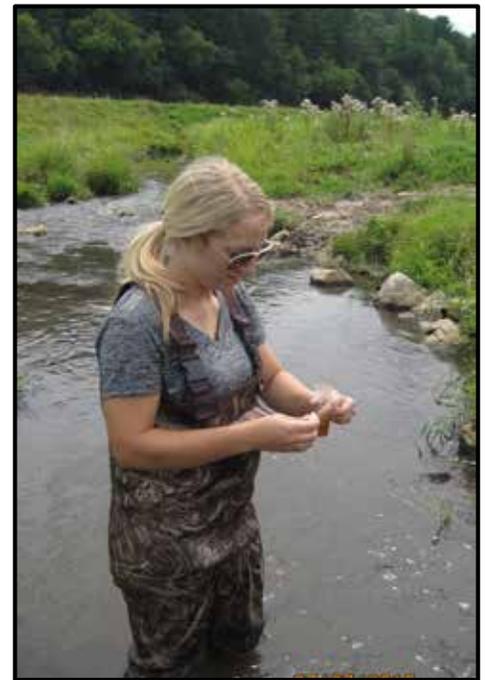
A few days during the summer I worked with Jarod Shamaun (Buffalo County Intern) and performed water monitoring on select streams in Buffalo County. Once a month, data was collected from these streams measuring transparency, temperature, dissolved oxygen content, and stream flow. From the data collection, it allows us to see the conditions and health of each stream, while also alerting us if there is a potential problem. I also went out with Brooke Muhlack and collected water samples to test for nitrogen and phosphorous levels.



6<sup>th</sup> grade conservation camp day, posting tree identification signs



Taking water samples to test for nitrogen and phosphorus near Mondovi



Water monitoring (testing for dissolved oxygen levels) in Eagle Valley

## Reflection

This internship has given me a tremendous amount of in the field experience that I am very thankful for. All of the different experiences and people that I have met over the past few months will greatly assist me in the future. The activities and programs I assisted with this summer, is an experience that cannot be taught in the classroom. There was so much diversity in activities in the summer which broadened my knowledge and appreciation for our natural resources. I look forward to bringing forth what I have learned this summer into the classroom and to my future endeavors. This internship has helped me prepare for future job opportunities and real world situations. I look forward to watching the bluff prairie restoration project continue and grow in Buffalo County. Without a doubt, working with the prairies in the county and my own remnant prairie, I've developed a connection for what these unique places have to offer. I am very thankful for the Wisconsin Environmental Education Board along with other contributors for making this internship possible. It is a truly valuable experience that would not be possible without you. I hope that the positive collaboration and donations continue for years to come, to allow many more students to experience what I have.



Planting pollinator habitat (no chemical use)

## 2015 Contributors

|  |                                     |
|--|-------------------------------------|
| Wisconsin Environmental Education Board  | John Balk                           |
| Alma Rod and Gun Club                    | Stuart Hagen                        |
| Dairyland Power Cooperative              | Swan Watch                          |
| Clearwater chapter – Trout Unlimited     | Kwik Trip, Inc.                     |
| Madison Fishing Expo                     | Brunkow Hardwood Corp.              |
| Arcadia Sportsmen's Club                 | Fountain City Lions Club            |
| Bee Forest Products, Inc.                | Kent Hurlburt                       |
| Fountain City Rod and Gun Club           | Lower Chippewa River Alliance, Inc. |
| Modena Farms                             | Mark Boesch                         |
| Waumandee Rod and Gun Club               | Ron Hurlburt                        |
| Bushy's Meat Markey and Buff's Bake Shop | Weiss Realty, LLC                   |
| Greshik Farms                            |                                     |

