

# Buffalo County Natural Resources Internship

2016 Final Report



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The Buffalo County Natural Resources Internship Program offers a college student the opportunity to receive hands-on experience in a wide-array of natural resource related fields. It is a position for a college student pursuing a degree in a natural resource related field, such as conservation, wildlife ecology, or biology. The internship begins in mid-May and concludes at the end of August. The student works 35-40 hours per week, with the total hours for the summer being around 500. The intern is awarded a \$5,000 scholarship established through generous contributions from conservation clubs, businesses, and private individuals; see the final page of this report for a complete contributor list. The internship allows students to work in a variety of projects related to conservation, while working with county, state, and federal agencies (Buffalo County Land Conservation Department, Wisconsin Department of Natural Resources, University of Wisconsin-Extension, and the Natural Resource Conservation Service). This year I was the intern for Buffalo County.

I grew up in Hampton, Minnesota and attended Hastings High School. I spend most of my time hunting and fishing. When I am not enjoying those outdoor pursuits, I put my Eagle Scout skills to the test by backpacking or camping. My strong love for the outdoors and desire to preserve our natural resources led me to pursue a degree in Wildlife Ecology from the University of Wisconsin Stevens Point. I am going into my last semester and will be graduating in December of 2016. My future plans include obtaining my master's degree by studying the population dynamics of ungulates. After that, I hope to work for the US Fish and Wildlife Service or a state wildlife agency to manage large populations of ungulates to preserve the integrity of the resource for many years to come.

## Buffalo County Land Conservation Department

My work with the Buffalo County Land Conservation Department (LCD) consisted of stream monitoring, soil sampling, and bluff prairie restoration. Water Action Volunteer Stream Monitoring Program (WAV) is a Wisconsin initiative for citizens that wish to learn about and help improve the quality of Wisconsin's waterways. The monitoring conducted in Buffalo County helps document the health of streams within the county. The program is administered by the LCD and led by Tim Wucherer, LCD Technician. WAV testing involved collecting dissolved oxygen, temperature, turbidity, stream flow, and depth measurements. Tim and I also surveyed the macroinvertebrates and vegetation present within those streams. All of these datum, when put together, helped us assess the overall health of the stream. WAV monitoring could also help Buffalo County identify when contaminants or other detrimental events occur in the stream.

The conservation of soil is one way to ensure the land we live on is around for future generations. The rapid elevation changes in Buffalo County potentially allow for high soil and nutrient loss. I assisted Tim with the collection of soil samples for local farmers to help develop nutrient management plans. The plans allow farmers to ensure their crops are getting enough nutrients without excessive application. Lands that have nutrients over applied cause an undue expense and can be harmful to the farmer's crop.

Bluff Prairies are delicate ecosystems that are rapidly disappearing from the Wisconsin landscape. The south and west facing slopes of the tall bluffs located in Buffalo County are one of the few areas in the state where these prairies can still be found. The Buffalo County Land Conservation Department coordinates the preservation and restoration of bluff prairies in the county. Fire suppression has allowed bluff prairies to become overgrown with cedar and aspen trees. The canopy created by these trees prevents sunlight from reaching the soil which is needed by native grasses and vegetation to thrive. These prairies thrive when they are warm, dry, and sunny. When those conditions are not available, the native plants do very poorly and can often lie dormant in the soil. Restoration of bluff prairies costs around \$2000 per acre. The county currently has funding available from the installation of the CAPX power lines, dedicated solely for the purpose of trout stream and bluff prairie restoration. With the help of Carrie Olson, County Conservationist, I contacted 14 private land owners and made it known that supplemental funding was available to them if they were interested. I made visits to six properties and evaluated their prairie areas. The evaluation included remnant species identifications and recommendations on how to restore the prairie back to its historic boundaries.

## Wisconsin Department of Natural Resources – Fisheries Management

Fisheries management in the United States began in 1871 with a strong desire to protect decreasing numbers of fish. Every year more than one million anglers try their luck on the waters of Wisconsin. The Wisconsin Department of Natural Resources (DNR) surveys lakes and rivers to estimate species abundance so they can set appropriate harvest regulations. One of the survey methods fisheries management uses is electrofishing. A generator produces electricity which is introduced into the water via electrodes. When using a shocking boat these electrodes are located on big booms mounted to the front of the boat. The electricity causes the fish to involuntarily swim towards the electrode and temporarily stuns them. I was positioned at the front of the boat and captured the stunned fish with a long handled net. I netted and measured the fish while Brian Brecka, DNR Fisheries Biologist, recorded data and captained the boat. We performed two shocking demonstrations for school groups. The first was for the Alma sixth graders and the other for the Pepin eighth graders. We also conducted population surveys at Spring Lake in Pool 5 and in Pool 4 near Nelson, WI. Both these locales are on the Mississippi River. We shocked at several points for each survey site. The runs lasted for ten minutes of constant shocking and netting followed by a measuring and releasing period. Species caught included: bluegill, black crappie, yellow perch, walleye, smallmouth, largemouth, and rock bass, flathead and channel catfish, spotted sucker, northern pike, common carp, bowfin, golden shiner, sheepshead, and shorthead, golden, and silver redhorse.



Measuring a bass on Spring Lake

Trout have received special conservation treatment across many areas of Wisconsin. They are very sensitive to contaminants in the water and demand cold, oxygenated water. Wisconsin has put millions of dollars into preserving and improving trout streams. The DNR conducts shocking surveys on trout streams to get an accurate idea of recruitment in the stream. I spent four days assisting the Baldwin fisheries crew with their annual trout stream surveys. Every summer they shock streams in Buffalo, Pierce, and Pepin counties with a shocking raft. The raft carries a generator which sends electricity out to three hand held electrodes. The shockers sweep these back and forth underwater with one hand while netting fish with a net held in the other hand. The trout are measured to the nearest one-tenth inch and returned to the water. I was both a shocker and measurer/data recorder during the period that I helped. The number of trout 7-9 inches was way up this year indicating a large upcoming year class. We shocked all three species of trout present in streams in Wisconsin; brook, brown, and rainbow.



22 inch Brown Trout in Pierce County

The future of any sport relies on the recruitment of youth. Although the number of anglers has been decreasing in Wisconsin, the DNR in Buffalo County is introducing many young kids to the sport. I worked every Wednesday evening helping with kids' fishing night on the Great Alma Fishing Float. The owners of the float are generous by allowing the kids to fish free one evening a week during the summer. Every Wednesday during the summer for an hour and a half I helped kids catch, unhook, and measure their fish. I assisted them in tying lines and re-baiting their hooks for the many fun weekly competitions.

## Wisconsin Department of Natural Resources – Wildlife Management

I assisted the DNR with bird banding, pesticide application, and lots of chainsaw work. I received three certifications (chainsaw, ATV, and pesticide application) at the beginning of the summer that were extremely helpful and necessary for the summer work.

Peregrine falcons were at severe risk of extinction between 1950 and 1970 because of the agricultural application of DDT. Large efforts have been made in the Mississippi River valley to reintroduce the birds to their sandstone bluff nesting sites. I had the opportunity to help band peregrine falcon chicks on one of the bluffs near Nelson, WI. The location of their nests makes them extremely difficult to get to. Individuals from the Raptor Resource Project in Iowa came to repel down the cliff face and lift the chicks up in a carrier. There were three chicks, two females and a male, that were 28 days old. Peregrine falcons have made a massive population recovery in the area.

The US Fish and Wildlife Service (FWS), in cooperation with state natural resource agencies, manages the populations of all waterfowl species including the Canada Goose. The large amount of hunting pressure that waterfowl receive make it very important to conduct population estimates. The FWS uses leg bands to collect mark-recapture data. In Buffalo County, the Wisconsin DNR traps and bands geese on the Mississippi River. I assisted with the trapping and banding. We corralled the birds using several boats and radio communication. A holding pen was constructed on the shore of an island and all of the geese were herded into the pen. Of the 600 goose quota on the river, they only had around 160 left for pool 5. We met the banding quota and had birds left over. The data collected is used by the FWS for population, age, and sex demographics. I received experience in both handling and sexing the geese.



Goose banding on the Mississippi

Black bear hunting is a unique opportunity for hunters living in the United States. Wisconsin uses a lottery system to determine who is given a hunting tag for that season. Annual population assessments are important for determining how many tags should be made available. I was fortunate enough to assist in the annual bear baiting survey conducted in the Clark County forest. We hung 50 bags of meat and fat trimmings from trees spaced out a half mile along roads throughout the forest area. We waited one week and then revisited the baits and determined whether or not the baits had been visited by a bear or another critter. Around 35% of the baits were visited this year which is right on par despite the heavy flooding in the area around the time of the sample. The survey allows the biologists in the area to develop a population index for bears in the area.

The control of invasive species is a key objective in the preservation of wildlands. One way the DNR manages their invasive species is the application of pesticides. I assisted with the application of chemicals in the Tiffany Wildlife Area, near Durand. An ATV mounted sprayer and a backpack unit allowed us to spray a great quantity of Siberian elm and black locust.

The DNR also manages properties that contain bluff prairie habitat. These properties are maintained by the DNRs Bureau of Natural Heritage Conservation. I worked with DNR ecologist Dean Edlin and his LTE and Intern, Nick and John. We girdled hundreds of aspen and cedars at the Maiden Rock State Natural Area. Girdling these trees is the most efficient way to kill them. It allows the tree to use up the rest of the energy reserves without focusing on producing more clones. If you cut an aspen it will grow back with a vengeance. If you girdle it, you actually kill the individual. We also cut fire breaks that will be used the next time the property is burned. This area is a high quality prairie that has had a fire regiment for the last couple of years. There are plans to clear the rest of the hillside to restore it to the historic oak savannah/bluff prairie it was before fire suppression.

Storms and large weather events make large impacts on the land. In July, a large windstorm tore through Buffalo County leaving a wake of fallen trees. I worked with Gary Wolf, DNR Wildlife Technician, and cleared trails that went through the Tiffany Wildlife Area. We cut lots of trees from the trails to allow access for hunters and other members of the public. We also cleared fire trails to allow the oak savannah burn units to be burned. The ATV and chainsaw training allowed for a much more efficient and safe cleanup. The chainsaw safety was especially appreciated as storm damaged trees can be very dangerous and unpredictable.



Repairing storm damage in Tiffany Wildlife

## Natural Resource Conservation Service

The hours I spent working with the Natural Resource Conservation Service (NRCS) were mainly focused on education and construction projects. Educating youth is an effective way of making an environmentally aware next generation. The teachers in the Alma Area School District include environmental education in their students' curriculum. My first week on the job was spent working with the Alma sixth graders on their outdoor campout. We educated them about bluff prairies, the soils



Alma 6th graders learning about bluff prairies

of Buffalo County and the characteristics of the driftless area, invasive species, and soil/water protection. I taught them about the water cycle and where pollution can affect the cycle. I helped Todd Mau, NRCS District Conservationist, inform the students about local soils and invasive species (such as garlic mustard). The kids picked over 500 pounds of garlic mustard at the Alma Rod and Gun Club! We also went to the Mondovi elementary school with a large 3D replica of the county. We used the model to point out areas where the conservation of our natural resources could use some attention and common practices that farmers and local businesses are using to help protect the environment around them.

The LCD is not the only government department that works on soil conservation. The NRCS works closely with farmers in Buffalo County to help preserve their crop land. I assisted Todd in conducting crop residue checks on random highly erodible area fields to make sure that

they were in compliance with crop residue and tilling operations. The reduction of soil runoff benefits local streams and the farmers that manage the land.

Part of education is providing hands on experience with experts that know about the subject. There were two educational programs that the NRCS helped organize in Buffalo County that bridged the gap between citizens and professionals. The first was Buffalo County Trout Day. The local rod and gun clubs and Trout Unlimited chapter pitched in to help supply the kids with the necessary fishing equipment and delicious food. The local kids got an opportunity to catch some trout and learn about restoration work in the county. Everyone that attended also got to see a stream shocking demonstration and had lots of fun. The second was the Bluff Prairie tour. The day was spent with local state experts in bluff prairie restoration educating the public about the prairie ecosystem. We discussed burning, plant diversity, plant identification, funding, and the upkeep of the bluffs. Individuals got to see two local bluff prairies that had been restored and maintained. It allowed landowners to compare practices and see the breath taking views. It was a large success.

Large restoration projects require engineered plans that are both effective and easy to construct. The NRCS soils technician for Buffalo County, Chad DeWyre, plans the construction of waterways, trout stream restorations, and dam constructions. Working in a very hilly area such as Buffalo County highlights a need for water and sediment control. The installation of dams helps slow water from rain events and minimizes the erosion of the farmers' fields. I used survey grade GPS technology to measure the correct slope, distance, and height of the structure. The same technology allowed me to map a trout stream that Chad drew restoration plans for. I also helped install 1000 feet of erosion control blanket on a designed grass waterway for a farmer that was restoring a newly purchased farm after years of poor farming practices.

## Summary

I want to start out by saying a huge thank you to the donors that fund this internship position. It really would not be possible to fund an intern without your generous contributions. This summer has been my first big experience working in the field I want to work in for the rest of my life, and it has been an eye opening and useful internship. I have learned a tremendous amount of information about common DNR practices and methods. I grew to love this county over the summer and can even navigate my way to some of the farms with minimal use of a plat book now! The unique ecosystems, properties, and landowners that are in Buffalo County are amazing, and the lessons I learned from them will be continually discovered throughout the rest of my life. I cannot wait to use the opportunity I have had in this position to continue to further my career aspirations.

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