# Burdette and Sarah Eagon Nature Education Preserve Restoration and Monitoring Plan 2022

University of Wisconsin – Stevens Point
College of Natural Resources
Spring 2022 Ecosystem Management and Restoration/ Ecological Monitoring
Course Professor: Dr. Michael Demchik

## Table of Contents

**Executive Summary** …..... 4

**Project Background**

Partners in Monitoring…..... 5

Restoration Plan Development Team…..... 5

**Restoration Objectives** …..... 7

**Protocols**

Upland …..... 10

Historical/ Cultural …..... 15

Wetlands/ Riparian …..... 15

FOR 434 Implementation Liaison ……... 17

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**Monitoring Plan Development Team**..... 18

**Monitoring Objectives** ..... 19

**Documented Time** …..... 21

**Protocols**

Project Coordination …… 22

Wildlife …… 23

Plants …… 33

Historical/ Cultural ……... 35

Geospatial …… 40

**Appendix**

A – Poster Presentation ……. 46

B – Upland ……. 46

C – Historical/ Cultural ……. 46

D – Wetlands/ Riparian ……. 50

E – Wildlife ……... 50

F – Plants …….. 55

G – FOR 434 Implementation Liaison ……. 55

H – Geospatial …….. 55

## Executive Summary

The Eagon property is a 14-acre parcel of land located in Northeastern Portage County, Wisconsin. It was recently donated to the University of Wisconsin Stevens Point (UWSP) Foundation by the Eagon family and is now managed by the University. The site is a mix of upland and lowland areas with a Class 1 trout stream running along the northern edge. The wide variety of cover types favors many different plant and animal species found in central Wisconsin.

University students were tasked with creating a restoration management and monitoring plan for the site. The site will feature a new primitive campsite along with an access trail for use by undergraduate students and the Tomorrow River Charter School that highlights important historical and ecological aspects.

The primary goals of the restoration and monitoring project was to preserve, create or enhance several habitats, historical and ecosystem aspects. These site goals include:

- Preserve historical remnants found on the site
- Control of invasive and unwanted plant species such as European buckthorn (*Rhamnus cathartica)*, honeysuckle (*Lonicera spp.)*, prickly ash (*Zanthoxylum americanum*), poison ivy (*Toxicodendron radicans*) and spotted knapweed (*Centaurea spp.*).
- Positively alter wildlife habitat for various neotropical bird, woodcock, ruffed grouse, and amphibian species
- Develop a primitive campsite for educational and recreational purposes
- Enhanced plant species and structural diversity

Dr. Michael Demchik (UWSP) along with three classes taught by him; Natural Resources 459 Ecosystem Management and Restoration (NRES 459), Natural Resources 457 Ecological Monitoring (NRES 457) and Forestry 434 Section 3 Restoration Field Techniques (FOR 434) were the active participants conducting both the restoration and monitoring of the site. Students from each class were assigned into different groups and were responsible for different aspects of the project. The NRES 459 class of students created restoration protocols and objectives for the different ecological aspects of the property which are upland, historical/cultural, and wetland/ riparian. The NRES 457 class of students created monitoring protocols and objectives for the different aspects of the property including wildlife, plants, and historical/cultural. The geospatial group was tasked with collecting, analyzing, and archiving data to make effective maps for each group. The FOR 434 class of students were responsible for conducting the restoration activities including brush saw, chainsaw, seeding, and planting. An additional chainsaw certification class (S-212 Wildland Fire Chainsaws) offered through UWSP and the US Forest Service conducted overstory removal of trees in the upland. The final monitoring plans will be used by future UWSP students and interested volunteers to maintain the site for its intended purpose.

# Project Background

**Project Partners for Various Aspects of the Project:**
UWSP Undergraduate Students in NRES 457, NRES 459 and FOR 434 Section 3
UWSP Foundation
Central Wisconsin Environmental Station
Wisconsin Department of Natural Resources - Fisheries
Ruffed Grouse Society
UWSP Society of Ecological Restoration
UWSP Wildlife Society
UWSP Fire Crew

This project has been made possible by the collaboration between University of Wisconsin Stevens Point (UWSP), Wisconsin Department of Natural Resources, Central Wisconsin Environmental Station, Ruffed Grouse Society and UWSP student organizations. This collaboration helps us to implement and monitor the plan described in the following document. Dr. Michael Demchik has three classes associated with this project, NRES 459, NRES 457 and FOR 434. The NRES 459, Ecosystem Restoration and Management class designed the habitat and restoration activities. The NRES 457, Ecological Monitoring designed the monitoring plan. The FOR 434 Restoration Field Techniques is assisting with the field work associated with activities such as cutting and planting.

## Restoration Plan Team

*Project Coordination Team:*

- Erin McCune - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for coordinating communication and reviewing, editing, and compiling documents.
- Brett Peabody – Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for coordinating communication and reviewing, editing, and compiling documents.

*Implementation Liaison:*

- Sean Buhler - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for ensuring (UWSP) Forestry 434 fieldwork matches desired goals for management plan.

*Upland Team:*

- Kasy Walker-Daniels - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.

- Jacob Friemel - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.
- Touger Vue - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.
- Dylan Doporcyk - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.
- Calli Oberg - Biology student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.
- Ellie Blank – Biology student at University of Wisconsin Stevens Point. Responsible for field data collection, plant identification surveys for Upland Team.

*Historic/Cultural Team:*

- Kaylyn Bryant – Biology student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Shannon Haley – Wildlife Ecology and Management student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Paul List – Master of Science in natural resources at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Jessica Bielak – Wildlife Ecology student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Caillyn Contreras – Biology Student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.

*Wetland/Riparian Team:*

- Forrest Lampert - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification surveys for Wetland/ Riparian Team.
- Jon Brunner - Wildland Fire Science student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification surveys for Wetland/ Riparian Team.
- Ben Noble –Wildland Fire Science student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification surveys for Wetland/ Riparian Team.

- Ian Walton - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification surveys for Wetland/ Riparian Team.
- Willow Pingel - Biology student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification surveys for Wetland/ Riparian Team.

*Geospatial Team:*

- Arua de Castro Ferreira – Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and map composition.
- Ryan Cavil – Natural Resources Management student at University of Wisconsin Stevens Point. Responsible for field data collection and map composition.

**Restoration Objectives**:

Five main priorities serve as the guiding principles of Burdette and Sarah Eagon Nature Education Reserve mission:

- Refuge: Preserve, maintain, and restore native ecological communities of Central Wisconsin.
- Wildlife Habitat: Development of usable habitat for woodcock, ruffed grouse, neotropical bird species and amphibians.
- Research & Education: Serve as an outdoor laboratory for teaching and research.
- Recreation: Provide recreational opportunities for schools and the community, while also providing a primitive camping ground.
- Preservation: Keeping the historic landmarks of the property unchanged while providing information about its past.

*Site Goals:*

- Maintain the physical artifacts of cultural history on this site
- Favor woodcock and ruffed grouse habitat elements
- Favor or remain neutral to amphibians and trout with all activities
- Increase structural diversity
- Develop a primitive camping site for use by the Central Wisconsin Environmental Station
- Reduce both invasive wood plants and poison ivy
- Develop a trail to the standards of USGS Class 2 https://www.fs.usda.gov/managing-land/trails-fundamentals

**Upland Restoration Objectives:**

Primary objectives of the upland restoration plan are to reduce invasive species, favor bird habitat for ruffed grouse *(Bonasa umbellus),* woodcock *(Scolopas minor)* common yellowthroat *(Geothylpis trichas*), eastern wood-peewee *(Contopus virens),* eastern towhee *(Pipilo erythrophthalmus),* rose breasted grosbeak *(Pheucticus ludovicianus).* Increase structural

diversity and improve species composition of the grassland area and the forest areas. Finally, future management will focus on increasing woody species that produce soft and hard mast.

**Historic/Cultural Restoration Objectives:**

Primary objectives of the historic/cultural plan are to identify historical features while providing educational resources and preserve the sites for future use. Document the remains of historical structures on this site, and to enable the students using CWES and Tomorrow River Charter School to access and learn from the site while simultaneously protecting sensitive restoration areas and preserving historical structures. We would also hope to enable the Central Wisconsin Environmental Station to utilize the site for environmental education programming with low site impact and to integrate environmental education programming with the ongoing restoration and monitoring needs for the site.

**Wetland/Riparian Restoration Objectives:**

Primary objectives of the wetland/riparian plan are to increase structural diversity and to create early successional habitat that can be used by bird species, like woodcock, during several phases of their life cycle. Removal of invasive species will help increase competitive position of native species and allow for an increase of soft mast and hard mast food sources. Planting of additional native plants and shrubs will create improved habitat. A buffer around critical amphibian habitat will be kept intact to prevent disturbance. Trout in Flume Creek will also be favored by maintaining a buffer along the creek.

**Forestry 434 – Restoration Field Techniques Implementation Liaison Objectives:**

Primary objective of the Forestry 434 liaison is to ensure that all work on the Eagon property by the Forestry 434 class aligns with the restoration and ecological monitoring goals of the NRES 459/457 classes. Some of these activities include brush saw and habitat pile construction that focus on the removal of woody invasive species such as european buckthorn and honeysuckle which will reduce their competition with the native alder shrubs. Another activity would be cutting alder to promote resprouting which will benefit ground birds such as woodcock and ruffed grouse, which require high stem density for feeding areas. Cut brush to be used in the construction of habitat piles that will benefit other forms of wildlife such as birds, insects, and amphibians. Woodcock and frog surveys will be done in early spring via the protocols drawn up by the NRES 457 Wildlife team, (refer to section). Tree planting will be required on site to improve stand composition, (refer to NRES 459 riparian and uplands section).

## Protocols

### Upland

#### *Vision*

- Reduce undesirable species
- Favor woodcock, eastern wood peewee, rose breasted grosbeak, common yellowthroat, and eastern towhee habitat.
- Improve species composition of the grassland and forest areas
- Manage susceptible tree species
- Increase structural diversity
- Promote soft and hard mast species

#### *Current Stand Condition*

Current stand conditions are a mosaic of unique species and while there is some variability in vertical structure, most of the property is in one or two age classes. Understory development is inconsistent with some areas composed of native species while others are dominated by invasives. In the upland, some of the desirable woody/semi-woody species are brambles (*Rubus spp.),* staghorn sumac *(Rhus typhina),* and American hazelnut (*Corylus americana*). Additionally, the upland tree species are predominately central hardwoods composed of red oak (*Quercus rubra*), red maple (*Acer rubrum*), and white pine (*Pinus strobus*) dominated with some presence of basswood (*Tilia americana*), aspen (*Populus tremuloides*), and paper birch (*Betula papyrifera*). The lowlands were extremely variable with a significant amount of the interface between uplands and lowlands occupied by balsam fir (*Abies balsamea*), boxelder (*Acer negundo*), and tag alder (*Alnus incana*). The undesirable species are European buckthorn (*Rhamnus cathartica),* poison ivy (*Toxicodendron radicans*), honeysuckle (*Lonicera spp.),* prickly ash (*Zanthoxylum americanum*), and spotted knapweed (*Centaurea stoebe*). There is a small field which is used as a parking lot in the southeast portion of the property. The open ground area in the east follows under a powerline and has a row of red pine dividing the property and the neighboring agricultural property. Lastly, a privately owned house lot is located near the middle of the property adding another variable to sound management.

#### *Desired Future Conditions*

Desired future conditions would be reduced undesirable species composition on the site to less than 5%. These species include poison ivy, prickly ash, spotted knapweed, honey suckle and common buckthorn. Our cover type goals for the upland site would be 30% grasslands, 25% brush cover type, 10% conifer dominated, and 35% northern/central hardwoods. Having at least 30% cover type grasslands which include both cool and warm season grasses, sedges, and wildflowers will promote a favorable habitat for birds. This will provide a singing ground for woodcock along with attracting pollinators. The grassland opening will also have brush cover

surrounding it to provide more soft mass and habitat for our targeted species. To achieve 25% brush cover on site, we plan to convert the box elder area into a brush prairie site by planting a range of native shrubs which include hazelnuts, plums, chokecherries as well as forb and legume plugs. For the 10% conifer cover of the site, we plan to plant white spruce into areas of balsam fir mortality in the interface between the upland and lowland stands. We chose white spruce due to its deer browse resistance and high branch density to provide thermal cover. A single large eastern hemlock is present on this site, and we intend to retain this tree for diversity and as a specimen tree. While there is significant mortality within the balsam fir, it will still provide excellent thermal and bedding cover and the seedlings spruce will act as a long-term reinforcement for this thermal cover. The swamp hardwood stand is heavily composed of black ash, which is subject to eventual mortality by the invasive emerald ash borer. To assist in recovery after this invasion, we are planting seedling swamp white oaks. While the aspen present on site is predominantly a single age group, staggered cutting during the next 20 years will allow variability in age of these stands with a goal of creating at least 3 different types of age classes of aspen on site. Currently, this site is low in coarse woody debris, which are an important habitat element for both amphibians, birds, and small mammals. Our long-term goal is 800 $ft^3$/acre of coarse woody debris in different decomposition classes. To initiate progress towards this goal, we intend to create at least 1 drumming log per acre and 3 snags per acre to provide habitats for cavity nesting birds and invertebrates. We intend to increase the diversity of soft and hard mast producing shrubs present on this site by planting plum, chokecherry, black cherry, hawthorn, grapes, hazelnuts, and red osier dogwood.

***The Targets***

- Reduce presence of undesirable and invasive species by cutting and/or applying herbicides.
- Creating and maintaining grassland opening on site by prescribed burning on a 2–5-year cycle.
- Promoting and managing the brush cover that surrounds the grassland opening
- Cut the majority of the box elder and use the residue to create habitat piles and coarse woody debris and logs for stream channel restoration. Follow up the boxelder removal by planting shrub species to gain a brushy cover type to promote high shrub stem density for neotropical bird habitat.
- Improve conifer thermal cover by planting white spruce as reinforcement planting into the balsam stand.
- Increase species diversity on site by planting a diverse array of tree and shrub species and using the expanding gap method on the hilly forest located to the west of the grassland parking area to promote new regeneration on site.
- Reduce presence of disease susceptible tree species such as red oak (oak wilt is present on the site) and black ash (emerald ash borer is expected in the next decade)
- Promote soft mast and hard mast species within the upland area. Soft mast species that we will promote include plum, black cherry, choke cherry, hawthorn, grape species, and red osier dogwood. Hard mast species that we will focus on are swamp white oak and hazelnut.
- Increase coarse woody debris by cutting hazard trees at a rate of at least one grouse drumming log per acre.

***Actions needed to reach those targets:***

We will reduce undesirable species by using brush saws to cut the stems and applying herbicides as needed. To allow herbicide applicators to treat both invasive woody shrubs as well as invasive herbaceous plants such as knapweed, a tank mix of Milestone and Garlon 3A will be used in the uplands. Main initial target areas are around the campground, and trails. We want to focus on the campground and walking trails first because those areas will be heavily used. To get a 30% grassland cover type we are going to consistently burn the parking lot area and north of the parking lot area every 2-5 years to set back succession, to maintain it as grassland. We will be maintaining the brush cover that surrounds the grassland opening by promoting soft mass species. To reach the 25% brush cover type goal, we will manage the Box Elder area by removing the box elder and other undesirable species in the area. This will be done in the first year. We will leave the brush piles on the site. We will purchase or collect soft mast and hard mast species, to plant on the site. The soft mast species consists of red osier dogwood, choke cherry, plum, black cherry, choke cherry, hawthorn, and grape species. The grape species will be planted adjacent to the brush piles which will act as natural arbors. The hard mast species consists of swamp white oak and American hazelnut We will also encourage regeneration of other soft mast/hard mast species where possible. To reach 10% conifer type in the stand we want to plant 100 white spruce saplings between the riparian area and the upland area. This will be done in the first year of management. In the northern hardwoods cover type located west of the grassland parking lot, we are going to use the expanding gap method of overstory removal. We plan on doing this in the second or third year. We are also planning on promoting swamp white oaks on the upland site. We will do this by planting more swamp white oaks, releasing swamp white oaks and replacing susceptible tree species with swamp white oaks. We are going to plant plum, choke cherry, hazelnut, and red osier dogwood in the northern hardwood areas. We will first plant them around the camping site to compete against the invasive species. This will be done in the 1st year of management. Under the powerlines we plan on coppicing the American hazelnuts to provide more soft mass availability on site. When coppicing we will flag species that we intend on keeping to make sure they do not get removed. We will do this on the second year. Oak wilt is present on the site so red oak trees will not be promoted for future stand conditions. The red oaks will eventually die which will create snags and coarse woody debris as the stand ages and the forest dynamic changes. Emerald Ash borer is expected to reach this site within a decade, this will likely kill all or nearly all the black ash. While this is regrettable, there are adequate other species in the lowlands to naturally regenerate the sites and some supplemental plant of other species such as swamp white oak will diversify the species cover. The mortality will act to increase both snags and coarse woody debris. To promote user safety, hazard trees near the campground and trails will be removed during the first year of management. To create various natural stages of coarse woody debris habitat, we will remove 1 tree per acre every 3 years. We would first remove the hazardous trees, then the susceptible tree species like red oak and ash.

**Timeline**

**2022**

- Mark property, stand, and upland/riparian zone boundaries

- Remove hazardous/undesirable species, including:
    - Leaning and wind-thrown trees
- Use fallen undesirable trees to create grouse drumming logs
- Remove boxelder in the boxelder area
- Remove undesirable species by brush cutting or herbicide, including:
    - Remove prickly ash surrounding campground
    - Cut and apply herbicide to common buckthorn, honeysuckle
    - Apply herbicide to spotted knapweed, poison ivy
- Create habitat brush piles using downed trees

**2023**

- Coppice half of aspen population
- Apply herbicide to invasives, undesirables
- Complete initial cutting for expanding gap method, select crop/shelterwood trees
- Plant wild grape around habitat brush piles
- Cut and plant dogwood, hazelnut
- Cut all buckthorn, other invasives
- Plant desirable tree species (Northern hardwood habitat)
    - Choke cherry
    - Swamp white oak
    - Plum

**2025**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2027**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2028**

- Burn grassland in the Spring, boxelder areas (Spring)

**2030**

- Coppice half of the aspen and expand the gaps opened on 2022 stand entry

**2031**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2033**

- Burn grassland in Spring

**2035**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2038**

- Coppice one third of the aspen and expand the gaps opened on 2030 stand entry
- Burn grassland in Spring

**2039**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2042**

- Burn grassland in Spring

**2043**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2046**

- Coppice one third of the aspen and expand the gaps opened on 2038 stand entry

**2047**

- Burn grassland in Spring
- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2052**

- Burn grassland in Spring

**2053**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2054**

- Coppice one third of the aspen and expand the gaps opened on 2046 stand entry

**2057**

- Burn grassland in Spring

**2059**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2062**

- Burn grassland in Spring
- Coppice one third of the aspen and expand the gaps opened on 2054 stand entry

**2065**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2067**

- Burn grassland in Spring

**2070**

- Coppice one third of the aspen and expand the gaps opened on 2062 stand entry

**2071**

- Cut buckthorn, other invasives (as needed)
- Apply herbicide to invasives, undesirables (as needed)

**2072**

- Burn grassland in Spring

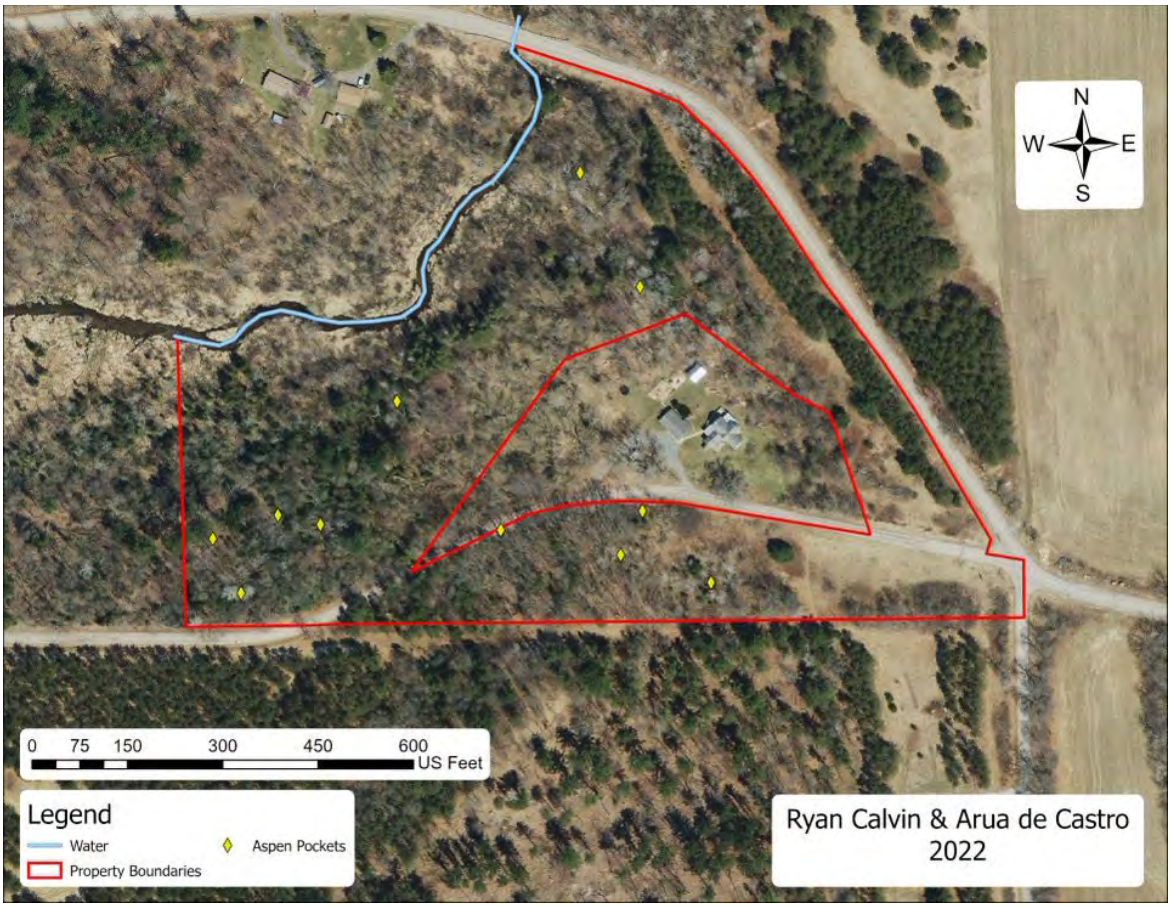



**Figure 1: Eagon Property Indicating Aspen Pockets and Stand Boundaries**

**Historic/Cultural**

***Vision***

We intend to gather a site history using archival resources to provide a learning tool for the Central Wisconsin Environmental Station (CWES) and Tomorrow River Charter School (TRCS). This site provides a glimpse into the past of Central Wisconsin. We intend to archive photos and develop a timeline of the sawmill, dam, and post office. The historical team will use all resources available including historical archives, viable websites, and walking the site for observational purposes.

- The historical features present are remnants of the foundation of the mill with steel sheets near it, a dam that was breached, and large stones that were used in the foundation of the house that was used for a post office. Much of this is obscured with plant cover that may block the view and trails and presents an access barrier.
- Protocols involving the historical team with others on the site include:
    - Aiding the other teams in helping to identify and preserve the historical features in a safe manner.
    - Helping the other teams design the trails to highlight the historical features while limiting damaging to them.

***Current Conditions*** Encroaching greenery on the historical site needs managing as well as any trash needing to be removed off the historical sites.

***Desired Future Conditions*** An aesthetic view of both plants well placed far enough away that it will not damage the historical sites nor block the view of the historic sites.

***Targets*** Get the site prepped before the public viewing as well as have the timeline finished with barcode before the public presentation.

***Actions Needed to Reach those Targets*** Pruning and removing vegetation that disrupts visuals of the historical sites.

***Materials Needed*** Entrance sign and brochure.

***Timeline*** We are meeting up to clarify understanding of our objectives, cleaning up the presentation, finishing touches on brochure, and cleaning up the historic sites for viewing.

**Wetland/Riparian (Focus- Woodcock, warblers, and trout)**

***The Vision***

The Eagon property has great potential to be a valuable resource for many different species of neo-tropical birds, woodcock, amphibians, as well as many other species. Our vision is to improve the habitat and structural diversity to favor the bird species, namely woodcock, yellow warbler, American redstart, and veery. The property will also continue to be favorable to the amphibian and reptile (herp) species that reside there and continue being a valuable habitat for trout. Students and community members will also be able to use the site for recreation and education on the importance of habitat management. All-in-all, our vision for this site is a haven for many species of wildlife, and a beautiful place for humans to learn about and interact with the habitat that is vital for their survival.

***Current Condition***

Currently, much of the lower riparian area of the site is dominated by a dense thicket of tag alder. These tag alders are mature, standing around 20 feet tall. There are scattered overstory trees in this area that consist of black ash, quaking aspen, paper birch, white pine, black cherry, and swamp white oak. There are also small patches of red osier dogwood along the stream bank. Invasives including common buckthorn, honeysuckle and barberry are present in small pockets throughout the stand but are not overwhelming the native vegetation. There are several groundwater seeps that have been found that have been documented and will provide important habitat for the amphibians present on the site.

***Desired Future Condition***

The future condition of the riparian area should include an element of early successional habitat with good structural diversity that will favor woodcock as well as the other neo-tropical birds. Invasives will be reduced or eliminated so that the regeneration of native species can be favored. Planting of native shrubs such as red osier dogwood and swamp rose can provide understory structure as well as soft mast as a food source. Mature trees should not dominate this portion of the site but releasing and favoring crop trees can provide structural diversity and an aesthetic for public visitors. The black ash is a species of concern because of the possibility of emerald ash borer to be in the stand in the future. This species will not be favored, but it will be kept on the site, as the dying trees provide spaces for the birds to find insects and will also provide coarse woody debris in the future.

***The Targets***

Removal of the buckthorn, honeysuckle, and barberry with a goal of reducing the presence to less than 5% of shrub cover will increase the competition advantage of the native species on the site. To increase structural diversity for the alder stands, 20% of the stands will be coppiced every 6 years. This diversification of structure will favor early successional birds like woodcock, yellowthroats, and yellow warblers. The cut invasives and tag alder will be put into habitat piles to provide nesting and escape cover for small mammals, rabbits, sparrows and wrens. Planting shrubs and trees such as red osier dogwood, plum, and swamp rose will provide a soft mass food

source for many bird species, as well a low dense cover that is ideal for nesting habitat. Planting of swamp white oak will also provide a long lived overstory cover as well as a source of hard mast.

***Actions Needed to Reach Those Targets***

We will begin by marking our tag alder/ aspen, buckthorn, and honeysuckle be cut. Those sites will be supplementally planted with seedling trees and shrub species. This preparation will be done by piling the brush into our habitat piles and ensuring a clean place to plant our tree species. The alder that has been cut will also be piled, and our work cutting, and site prepping will in essence be done. Our last step will be to mark our areas to be planted, then go out and plant our seedlings in those areas. The spruce will be planted in clusters to provide structure and thermal cover, and the Swamp White oak and American Plum will be planted throughout in a patchy mosaic type way. Lastly our Swamp Rose will be planted, and Red Dogwood cut and planted throughout the riparian area as a final step to ensure the planting of our tree seedlings does not harm or interfere with our smaller Rose and Dogwood plantings.

***Materials Needed***

The materials needed will include the plants that need to be planted, and the tools that are needed to cut and remove the alder and invasives on the site. Tree seedlings will need to be ordered quickly and should be the first step in obtaining materials. Marking paint to designate the cutting areas will also need to be purchased. A detailed map of the site that includes the boundaries of the stands as well as the cutting areas will need to be created and distributed to the crew members. Chainsaws and brush saws will be necessary, along with required PPE. Herbicide will need to be acquired along with the materials to apply them. PPE will also be needed for those applying pesticides. Gardening snips will be needed to cut the dogwood to replant.

***Timeline***

These actions will take place during the spring of 2022 between February and March 15, which is the cutoff date for our seasonal restriction for work in the riparian area. We will mark the areas of the alder to get cut and will remove the brush from the areas that are forming into habitat piles. Pockets of buckthorn and honeysuckle will also be marked and cut. Resprouts will be cut during fall 2022 and treated with Garlon 3A. Once the ground has thawed, we will plant our tree species in the clusters and groups that have been outlined in our plan. The last step in our timeline is to harvest and plant dogwood cuttings taken from the site. This is something that can be done in conjunction with stakeholders or interested groups to boost involvement and project buy-in and will be a good last step in showing off the work that has been done.

**Forestry 434 – Restoration Field Techniques Implementation Liaison**

***Vision***

The Eagon property can turn into a great habitat for many neotropical migrant birds as well as woodcock. The restoration that will be occurring will be done by activities such as brush saw and habitat pile construction that focus on the removal of woody invasive species such as common buckthorn and invasive honeysuckle which will reduce their competition with the native alder shrubs. Another activity would be cutting alder to promote resprouting which will benefit ground birds such as woodcock and ruffed grouse, which require high stem density for feeding areas. Cut brush to be used in the construction of habitat piles that will benefit other forms of wildlife such as birds, insects, and herps ash, etc.

***Current Conditions***

The current conditions on the Eagon property are mostly comprised of a riparian area and an upland area. The riparian area is mainly made up of old alder that is beginning to lean over horizontally which is poor habitat for our desired wildlife species. The upland area of the property was composed of various species such as boxelder, red pine, white pine, balsam fir, black cherry, quaking aspen, and paper birch. Invasives on the site include buckthorn, honeysuckle, spotted knapweed, and barberry in some spots. Undesirable species on the site are prickly ash and boxelder.

***Desired Future Conditions***

Future conditions for this site include removal of the invasives on site, as well as species that are not wanted such as the prickly ash, poison ivy and boxelder. Some areas of the site where boxelder once stood are going to be converted into prairie-like system where shrub cover is available for wildlife. Plantings such as white spruce and hazelnut are going to be dispersed in that area, with seedings of grasses to compliment them. The riparian area is mostly going to be a rotating alder coppice to have a feeding corridor for woodcock and singing grounds for other bird species.

***Targets***

- Increased habitat for wildlife
- Removal of invasives
- Creation of habitat piles with cut brush

***Actions Needed to Reach those Targets***

To reach these goals, Forestry 434 students will use brushsaws to remove invasives in the upland area as well as coppicing the alder thickets near the stream in pockets. To continue this rotating coppice, students and site managers will need to cut it on a 3-to-5-year cycle to promote resprouting. Organization such as the UWSP Chapter of Society of Ecological Restoration may use the site to have land stewardship work opportunities. Herbicide treatments after cutting of woody invasives will be useful to reduce resprouting and should be done whenever possible.

***Materials Needed***

- Brushsaw
- Chainsaw
- PPE
- Garlon 3A
- Fuel/batteries

***Introduction***

The purpose of the Implementation Liaison is to ensure that all work being on the Eagon property during Forestry 434 (Restoration Field Techniques) workdays is being done in accordance with the restoration plans and ecological monitoring protocols of Natural Resources 459 (Ecosystem Restoration and Management) as well as Natural Resources 457 (Ecological Monitoring). Forestry 434 is a course taught by Dr. Michael Demchik which encompasses hands on techniques to restoration such as seeding, tree planting, brush saw operation, etc. Much of the brush saw work is going to be done in the riparian/wetland area of the property which must be legally done by March 15$^{th}$ due to the presence of an NHI (rare, threatened, or endangered) species. Other restoration and monitoring work done on the upland sites is allowed to be done until the end of May and beyond.

***Timeline***

- 2/12/22 & 2/13/22: Brush saw and Habitat Pile Construction
- 4/5/22 & 4/6/22 (evenings): Woodcock/Frog Surveying
- 4/8/22 (tentative date): Tree Planting
- 2023: Herbicide treatments on invasives
- 2025: Alder coppice & brush cutting undesirables
- 2028: Buckthorn cutting and herbicide
- 2030: Alder coppice & brush cutting undesirables
- 2035: Alder coppice & brush cutting undesirables

**Future restoration practices will rotate around a 3-5 year cycle of alder coppice adjacent to Flume Creek along with removal of undesirable and invasive species with herbicide application as needed.*

***Objectives***

- Woodcock and frog surveys will be done in early spring via the protocols drawn up by the NRES 457 Wildlife team, (refer to section).

## Monitoring Plan Development Team

*Project Coordination Team*

- Erin McCune - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for coordinating communication and reviewing, editing, and compiling documents.
- Brett Peabody – Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for coordinating communication and reviewing, editing, and compiling documents.

*Implementation Liaison*

- Sean Buhler - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for ensuring (UWSP) Forestry 434 classwork and fieldwork matches desired goals for management plan.

*Wildlife Team*

- Touger Vue - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.
- Willow Pingel - Biology student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.
- Calli Oberg - Biology student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.
- Jon Brunner - Wildland Fire Science student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.
- Forrest Lampert - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.
- Erin Richards - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and wildlife surveys for Wildlife Team.

*Plant Communities Team*

- Kasy Walker-Daniels - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification for Plant Communities Team.
- Jacob Friemel - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection for and plant identification Plant Communities Team.
- Dylan Doporcyk - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification for Plant Communities Team.
- Yulisa Olague - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification for Plant Communities Team.

- Ross Dewitt - Forestry Urban and Community student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification for Plant Communities Team.
- Evan Oium – Forestry Urban and Community student at University of Wisconsin Stevens Point. Responsible for field data collection for and plant identification Plant Communities Team.
- Sam Singers - Forest Management student at University of Wisconsin Stevens Point. Responsible for field data collection for and plant identification Plant Communities Team.
- Ian Walton - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and plant identification for Plant Communities Team.

*Historic/Cultural Team*

- Kaylyn Bryant -Biology student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Alexander Kind - Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Shannon Haley – Wildlife Ecology and Management student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.
- Cailyn Contreras - Biology student at University of Wisconsin Stevens Point. Responsible for historical documentation, environmental education curriculum and field data collection.

*Geospatial Team*

- Arua Yaym de Castro Ferreira – Ecosystem Restoration and Management student at University of Wisconsin Stevens Point. Responsible for field data collection and map composition.
- Ryan Cavil – Natural Resources student at University of Wisconsin Stevens Point. Responsible for field data collection and map composition.

## Monitoring Objectives

### Wildlife Team Objectives:

The primary goal of the wildlife team is to create standardized monitoring protocols that will be carried out by future groups of students and/or volunteers. Focal species to be monitored include American woodcock, neotropical migrant birds, and frogs.

### Plants Monitoring Objectives:

The primary goal of the plant team is to set up monitoring protocols and survey locations to determine species presence and abundance on the property. The monitoring will help determine the success of the restoration work and record the changes in site conditions of the stand through time.

### Historical/ Cultural Monitoring Objectives:

Primary goals of our team are to identify historical features while providing educational resources and preserve the sites for future use. To document the remains of historical structures on this site. To enable the students using CWES and Tomorrow River Charter School to access and learn from the site while simultaneously protecting sensitive restoration areas and preserving historical structures to enable the Central Wisconsin Environmental Station to utilize the site for environmental education programming with low site impact. To integrate environmental education programming with the ongoing restoration and monitoring needs for the site

# Protocols

## Project Coordination

2/4/2022: Visited site to document and collect data to create project plan for Burdette and Sarah Eagon Property.
Total time: 6 hours

2/7 - 2/11/2022: Discussed project plan, protocols, and objectives for each aspect of the site.
Total time: 6 hours

2/14 - 2/18/2022: Completed first full draft in both the restoration management and monitoring class. Protocols and objectives for each team were reviewed and teams discussed changes made.
Total Time: 6 hours

2/21 – 2/25/2022: Continued to edit first full draft in both the restoration management and monitoring class. Restoration management class visited site to collect geospatial data for map making.
Total Time: 7 hours

2/28 – 3/4/2022: Planted seeds in the Trainer Natural Resource greenhouse. Made final edits on paper and formatting.

3/7 – 3/11/2022: Presented final draft to the class and made final edits to the site plan.

| Teams | Which Document They Review |
|---|---|
| Wildlife | Historic |
| Historic | Plant |
| Plant | Wildlife |

*Wildlife team members*: Touger Vue, Willow Pingel, Calli Oberg, Jon Brunner, Forrest Lampert and Erin Richards

*Historic team members:* Kaylyn Bryant, Alexander Kind, Shannon Haley, and Caitlyn Contreras

*Plant team members:* Kasy Walker-Daniels, Jacob Friemel, Dylan Doporcyk, Yulisa Olague, Ross DeWitt, Evan Oium, Ian Walton, and Sam Singers

## Wildlife

### *Wildlife Team Introduction*

Target species that are being monitored are woodcock, 7 species of neotropical migrant birds, and 3 species of frogs. Our goal is to favor and improve habitat for all target species. Habitat for the woodcock, specifically, has declined in recent years, making them a species of unique consideration in our monitoring plan.

Amphibians are useful indicator species, as they can give us insight into the overall health of the wetlands on this site. Wood frogs (*Lithobates sylvaticus*), boreal chorus frogs (*Pseudacris maculata*), and spring peepers (*Pseudacris crucifer*) were chosen to be monitored because these species can be monitored during our spring semester when students are available to complete work.

Seeps, areas with submerged or semi-aquatic vegetation, and seasonally wet areas such as vernal pools are important features for our frogs. Protecting these areas and maintaining the habitat of our amphibians will be required in this restoration project.

The wetlands/riparian area of this site is dominated by a dense thicket of tag alder. These tag alders are mature, standing up to 20 feet tall. There are scattered overstory trees in this area that consist of black ash *(Fraxinus nigra),* quaking aspen *(Populus tremuloides),* paper birch *(Betula papyrifera),* white pine *(Pinus strobus),* black cherry *(Prunus serotina),* and swamp white oak *(Quercus bicolor)*. There are also small patches of red osier dogwood *(Cornus sericea)* along the stream bank. Invasives including common buckthorn *(Rhamnus cathartica),* honeysuckle (*Lonicera canadensis)* and barberries *(Berberis vulgaris)* are present in small pockets throughout the stand but are currently not overwhelming the native vegetation.

The final group being monitored is the neotropical migrant birds. Migrant birds live in a wide variety of habitats. Like amphibians, monitoring migrant birds can give us a better understanding of the overall health of the site. Specific species of interest are the yellow warbler (*Setophaga petechia*), rose-breasted grosbeak (*Pheucticus ludovicianus*), eastern wood-pewee *(Contopus virens),* eastern towhee *(Pipilo erythrophthalmus),* common yellowthroat (*Geothlypis trichas*), American redstart (*Setophaga ruticilla*), and veery (*Catharus fuscescens*).

### Timeline (2021-2071)

**2021:** Mark the entire stand, remove boxelder, and brush saw prickly ash near the campground Herbicide and cut (list species)

**2022:** Coppice half of the aspen, apply milestone and garlon to invasives, planting of desirable species, release crop trees and start expanding gap in areas

**2023**: Burn all applicable locations

**2025**: Reapply pesticide and brush saw if necessary

**2030:** Coppice half of the aspen and expand the gaps opened on an earlier stand entry

**2038:** Coppice 1/3 of the aspen

### *Wildlife Team Objectives*

The primary goal of the wildlife team is to create standardized monitoring protocols that will be carried out by future groups of students and/or volunteers. Focal species to be monitored include American woodcock, neotropical migrant birds, and frogs.

### *Introduction to Neotropical Migratory Birds*

One goal for the Burdette and Sarah Eagon property is to maintain habitat favorable to the neotropical migratory bird species that are known to be present in the area. Careful planning will be crucial in determining the best monitoring locations based on habitat preferences. From grassy openings to dense understory growth, the requirements of each species are already offered at the Eagon property. It is our intention to set the groundwork for future monitoring of these birds through contactless observation.

### *Introduction on American Redstart*

American Redstart (*Setophaga ruticilla*) is a neotropical migrant bird that is a part of the Parulidae family. Their habitat consists of areas near water that includes alder, willow thickets, thickets in treefall gaps within old-growth forest, fencerows, orchards, and mixed deciduous-coniferous woodlands. Redstarts favor interior woodlands over edges and prefer large tracts of habitats that measure at least 1,000 acres in area. They breed in moist, deciduous, second-growth woodlands with abundant shrubs, which can be found across much of the eastern and northern regions of the United States, as well as in southern portions of Canada. They spend the winter in low to mid-elevation forests in southern Florida and California, as well as in southern and western Mexico, Central America, northern South America, and the Caribbean (AllAboutBirds 2022).

The nest of the American redstart is usually supported by the main trunk and several vertical branches of a tree or shrub, making it well camouflaged by the foliage. Common nesting trees include maple, birch, ash, hawthorn, alder, eastern white cedar, cherry, balsam poplar, and willow (AllAboutBirds 2022).

The diet of the American redstart are mainly insects, but in late summer they also eat small berries and fruits such as barberries and serviceberries (AllAboutBirds 2022). These will be vegetative species to consider in future restorative actions, when promoting American redstart habitat.

### *Considerations*

- They are active during the day but can sometimes be seen at night during their migration periods (AllAboutBirds 2022).
- American redstart population numbers have declined across their range (with up to a 47% decline in the U.S.) between 1966 and 2014 (AllAboutBirds 2022).

***Introduction on Common Yellowthroat***

Common yellowthroat (*Geothlypis trichas*) is a small yellow and olive-colored warbler that belongs to the Parulidae family (Eckstein, Kreitinger 2013). Common yellowthroats can be found across North America. Their population remains stable, and they tend to indirectly benefit from other species that are the focus of conservation efforts (Jayaraman 2019). Their preferred habitat is thick, tangled vegetation on the edges of wetlands, pines, and prairies, which provides structural protection from predation (Eckstein and Kreitinger 2013). The dense, low-to-the-ground vegetation found in these areas also offer suitable habitat for building nests and foraging for food. This species has a wide arrange of food to forage on such as, invertebrates that they feed on in the understory and berries. To help digest food, as well as to add minerals to their diet, they commonly consume grit when foraging (Jayaraman 2019).

In the spring, males will arrive first to establish territories, soon after followed by the females. Males display a "black mask", or band of bard feathers across their face, which acts as an important signal to other males when competing for territory, or for a female. Females will signal when they are ready to mate by a series of chirps and a flutter of their wings. Many times, after a female already has mated, she will attempt to mate with other males in an act of polygynandry. Mating occurs in early to late May (Jayaraman 2019).

***Considerations***

- Although they are not a threatened species, habitat degradation and pesticide use are the contributing factors to why their numbers have declined in recent years (Jayaraman 2019) (Eckstein and Kreitinger 2013).

***Introduction on Eastern Towhee***

The eastern towhee *(Pipilo erythrophthalmus)* is a songbird species belonging to the New World Sparrows family (Audubon 2019). The native range of this species extends from southeast Canada to northeast United States. Eastern towhees usually migrate north during March and begin breeding at the end of May (Greenlaw 2020). During breeding season, they are commonly found in brushy areas. For nesting, they choose openings in bushes or underneath shrubs. Habitats preferred by the eastern towhee can range from tall-grass prairies to marshes, to mature forests (Krementz 2000). They are also commonly found in areas that contain dense amounts of brushy/forest edges, and disturbed areas such as old fields or shrubby highway ditches (Bay 1996). The main way this species forages is by scratching up leaf litter for insects, but they will occasionally forage for seeds and berries in shrubs and on low trees (AllAboutBirds 2022).

***Considerations***

- Parasitized by brown-headed cowbirds (Prather and Cruz 2002).
- Unfortunately, the population has declined about 49% between 1966 to 2015, according to the North American Breeding Bird Survey (AllAboutBirds 2022).

***Introduction on Eastern Wood-Peewee***

Eastern wood-peewee *(Contopus virens)* is a part of the family Tyrannidae, or better known as the Tyrant Flycatcher family. The native range for this species ranges from the eastern side of North America to the southernmost part of South America. They start to migrate north during May and normally begin breeding sometime in mid-June. The ideal habitat types are coniferous and deciduous forests; they are more commonly found near woodlots that contain shrubs and lichens. During the migratory phase, they normally stop in forest edges and clearings in primary and secondary forests. Considered a long-lived species, the eastern wood-peewee can live for up to 8.2 years in the wild (University of Michigan Museum of Zoology 2017). Like most birds of their statute, the easter wood-peewee primarily feeds on flying insects, and occasionally on berries and seeds (AllAboutBirds 2022).

***Considerations***

- Parasitized by brown-headed cowbirds (University of Michigan Museum of Zoology 2017).
- From 1966 to 2015 populations have declined about 51%, according to the North American Breeding Bird Survey. 94% of the total, breeding-aged population occupy the U.S. (AllAboutBirds 2022).

***Introduction on Rose-Breasted Grosbeak***

The rose-breasted grosbeak (*Pheucticus ludovicianus*) is a songbird belonging to the Cardinalidea family. While both sexes have large, blocky, triangular beaks, they vary in identifying characteristics due to the species' sexual dimorphism. Males bear a striking red chevron on their chest, with a white underside and black head and back. Females are a mottled brown with a tan underside and a white stripe above their eyes. Both sexes have white patches on their wings, as well as a pinkish beak (AllAboutBirds 2022).

The range of rose-breasted grosbeak is broad throughout North America. In the United States, they are most commonly seen as far west as Minnesota and Iowa, south into Illinois, and as far east as Atlantic coast; although they do not, in large numbers, cross the southern portion of the Appalachian Mountains. In terms of conservation status, they are not at this time considered a species of concern (eBird 2022).

Rose-breasted grosbeaks, like many songbirds, maintain a diet of seeds, insects, and fruit. As their habitat often overlaps with human-dominated land, they are also known to be around birdfeeders. Their natural habitat is deciduous forests, and their preferred cover type is that of late-successional composition in upland sites (AllAboutBirds 2022).

***Considerations***

- This species is a migratory species, and as such are not typically spotted in great abundance until the months of May, June, and July (NestWatch 2022).
- Being a part of the family Cardinalidea, have a call similar to that of the American Robin (*Turdus migratorius*) (AllAboutBirds 2022). To differentiate the two, Rose-Breasted Grosbeaks are quoted as having an "extra sweetness" to their song, as if they had some

"operatic training". They are also known to call with a quick, loud chirp that sounds like the "squeak of a sneaker" (AllAboutBirds 2022).

***Introduction on Veery***

The Veery (*Catharus fuscescens*) is a neotropical migrant bird belonging to the Thrushes family. In the summer, veeries migrate from their wintering grounds in Central and Southern Brazil, up to their breeding habitat along the northern edge of the United States and throughout southern Canada. This migration takes route through Central America and the southern United States, where the veery prefers forest edges and second-growth woodlands to forage and take cover in (AllAboutBirds 2022).

After completion of their migration to the breeding range, the male veery will commonly arrive at a well-suited site before any females arrive and will defend his territory from other birds for the first 3-4 days. After this period, the male veeries will transition to courtship flights with the females and begin the breeding season (AllAboutBirds 2022).

Ideal breeding habitat occurs in dense, deciduous woodlands near small bodies of water. Frequently, streams, swamps, and rivers are utilized by the veery, as they contain the dense understory growth that they require to nest in. Most of these nests are within 5 feet of the ground, so the importance of dense understory growth in these breeding areas is crucial to these birds (AllAboutBirds 2022).

***Considerations***

- Their population has decreased by 42% from 1966 to 2014 and is expected to continue declining (AllAboutBirds 2022).

***Introduction on Yellow Warbler***

The yellow warbler (*Setophaga petechia*) is a small, bright yellow bird found in Wisconsin from April to August. Their population is widespread, and their breeding range extends across most of the contiguous United States and Canada, and as far north as Alaska. In winter, they migrate to Mexico and South America. Due to their wide range, they can be found in a variety of habitat types, but they often prefer shrubby wetlands such as swamps, moist thickets, and alongside streams (Bull 1994). As insectivores, they benefit from these productive areas, feeding on caterpillars, mosquitoes, beetles, and wasps (AllAboutBirds 2022).

Males return earlier in the spring to claim territories and will occasionally engage in a circle flight behavior, during which they fly at other males or females to establish breeding territory and compete for mates (AllAboutBirds 2022). Yellow warblers' nest in upright, forking branches of small trees or shrubs like willows, alders, and dogwood. Females build their nest from bark, plant fibers, feathers, animal hair, and spiderwebs. They lay between 1 and 7 eggs that are typically white, light blue, or gray, with dark brown spots (Bull 1994).

Yellow warbler populations have been decreasing slowly, due to habitat fragmentation and degradation, although they are not currently considered threatened. They also face the threat of lowered breeding success due to the parasitic brown-headed cowbird, which lays its eggs in other species' nests. Yellow warblers tend to recognize the enemy eggs but will abandon the entire brood to rid the nest of the parasite, often burying every egg with more nesting material

(AllAboutBirds 2022). Yellow warblers have developed a warning call aimed specifically at the parasitic birds—a repetitive and aggressive "seet" (Learn 2020) (Lawson et al. 2020).

***Considerations***

- Yellow warbler populations have been decreasing slowly, due to habitat fragmentation and degradation, although they are not currently considered threatened.
- They also face the parasitic brown-headed cowbird, which lays its eggs in other species' nests. Yellow warblers tend to recognize enemy eggs but will abandon the entire brood to rid the nest of the parasite, often burying every egg with more nesting material (AllAboutBirds 2022).
- Yellow warblers have developed a warning call aimed specifically at the parasitic birds—a repetitive and aggressive "seet" (Learn 2020) (Lawson et al. 2020).
- They can arrive as early as April and begin migrating in July, typically gone by August (Tekiela 2021).
- Listen for the signature "sweet, sweet, sweet, I'm so sweet!" song and "chip" of the males early in the breeding season.

***Neotropical Migratory Birds Surveying Protocols***

<u>Neotropical Migratory Birds Timeline</u>

- The wildlife team visited the Eagon Property site on February 4, 2022, to determine best monitoring locations. Using the ideal vegetative cover types of each species, we placed monitoring points at each location that appeared to contain those elements. With these points determined, we met with the GIS team to implement a 50-meter buffer around each point, noted any significant overlap, then reduced our total number of monitoring location down to ten; all the while maintaining that each cover type was represented by a point.

<u>Monitoring Equipment Required</u>

- Map of the location site
    - Created by the GIS Team, with monitoring points pre-determined on preliminary site visit. Viewable on Avenza Maps mobile application.
- Cellphone or other device with GPS capabilities
- Data Collection Sheets
    - For tallying different observations, as well as other site-specific data.

<u>Neotropical Migratory Birds Monitoring Protocol</u>

Neotropical migratory birds will be surveyed by observation only using a presence/absence observation by either sight or sound. It will take place between the months of April and July, during ideal weather conditions (clear, sunny, low winds). Surveyors will collect observations using the point collection method, using pre-determined, fixed points within the

Eagon Property. Points were chosen based on habitat type of each species of interest, and each has a 50-meter diameter buffer of assumed observable distance. Surveyors will remain at each point for fifteen minutes and conduct observations via sight and sound. Observations will be recorded on a standardized field monitoring sheet.

***Introduction to Frogs***

Boreal chorus frogs (*Pseudacris maculata*), spring peepers (*Pseudacris crucifer*), and wood frogs (*Lithobates sylvaticus*) are three of twelve frog species commonly found in Wisconsin. These species were chosen because they are among the earliest to emerge in spring. They all utilize similar areas of wet, wooded, and densely vegetated habitat. They prefer ephemeral pools that are free from predators in which to lay their eggs. Despite habitat loss and degradation, population levels for all three species currently remain stable (WIDNR 2020).

Frogs are typically most active in the late afternoon and evening, so the best time to survey for these species is around dusk, and preferably after dark (WIDNR 2020). Because of their preference for vegetated seeps where they are easily hidden from sight, listening for their distinct calls will be the main way we are able to tell they are present (WIDNR 2020). Determining whether these frogs are present and utilizing the site will help us ensure that the implementation of our management plan does not cause an impactful disturbance to the riparian area of the property.

***Introduction on Boreal Chorus Frog***

Boreal chorus frogs (*Pseudacris maculata*) are pale green to tan-colored frogs that are found commonly throughout most of Wisconsin. They live in wetland areas and can be found in marshes, wet prairies and forests, and moist fields (WIDNR 2020). When breeding, they prefer ephemeral, vegetative ponds such as flooded fields and roadside ditches, so that their offspring are not exposed to predators like fish. Tadpoles eat aquatic algae and soft vegetation, and adult frogs eat insects and small invertebrates. (FrogWatch 2021).

They breed in spring, as early as March, and males can often be heard calling to attract females throughout the day. They lay masses of eggs into submerged vegetation, which then hatch within a few weeks. The boreal chorus frog is a relatively short-lived species; the tadpoles complete their metamorphosis by summer, and the frogs are mature by one to two years old. It is rare that they live beyond three years (FrogWatch 2021).

***Considerations***

- Boreal chorus frogs are much more likely to be seen than heard.
    - Their call sounds like running a fingernail over a fine-toothed comb (WIDNR 2020).
- They are most active in the late afternoon/evening (WIDNR 2020).

### *Introduction on Spring Peeper*

The spring peeper (*Pseudacris crucifer*) is a small tree frog belonging to the family Hylidae (Britannica 2020). Best known as a species indicative to the spring season, the spring peeper is often heard, rather than seen. Their range extends across much of the eastern half of North America, spanning from southeast Canada to northern Florida (National Wildlife Federation 2022). Ideal habitat for spring peepers consists of wet, vegetated areas near ponds and wetlands. This could range from a grassy lowland to the moist understory of a forested area. Spring peepers hibernate in the mud near these wet areas and are considered common and widespread throughout their range (National Wildlife Federation 2022).

Adult spring peepers have a diet that consists of insects, other arthropods, mites, and spiders (Virginia Herpetological Society 2022). Conversely, the diet of the spring peeper tadpole is primarily algae and aquatic microorganisms (National Wildlife Federation 2022).

### *Considerations*

- The spring peeper is seldom seen, and it is more likely that observations will occur by sound, rather than by sight (National Wildlife Federation 2022).

### *Introduction on Wood Frog*

The wood frog (*Lithobates sylvaticus*), a species belonging to the Ranidae family, is the most widespread amphibian species in North America. It is more commonly found in boreal regions, but its range extends from the arctic regions in Canada and Alaska, down to the Midwest, northeast United States, and southern regions of the Appalachian Mountains (Virginia Herpetological Society 2022). Wood frogs live in the moist understory of woodlands, sometimes far from water sources. During winter, they take shelter in leaf litter (National Wildlife Federation 2022). Wood frog hibernation is unique in that, unlike other species that take shelter underground, they have the ability to limit their bodily functions to a point that they stop breathing altogether, and coat themselves in a substance much like antifreeze, preventing them from succumbing to the harsh winter elements (National Wildlife Federation 2022).

Wood frogs are one of the first frogs to begin the breeding season, usually in early March. During the breeding season, males make what sounds like “quack”-like calls throughout the day and night. Ideal breeding habitat consists of ephemeral woodland pools, ponds, or cut-off sections of streams (Virginia Herpetological Society 2022). Females lay egg masses attached to below-water vegetation, which consist of 1,000 to 3,000 eggs. These masses hatch between 9 to 30 days later (National Wildlife Federation 2022). Tadpoles undergo metamorphosis 40 to 90 days after hatching and reach maturity, on average, 2 years after metamorphosis (Savannah River Ecology Laboratory University of Georgia 2022).

A wood frog’s diet consists of arachnids, worms, slugs, and snails. Tadpoles are mostly herbivorous and eat algae and decaying plant matter (National Wildlife Federation 2022).

### *Considerations*

- Wood frogs live in a wide range of habitats, so it is very possible that they may be spotted far from our monitoring sites.

### *Frog Surveying Protocols*

Frog Timeline

- The wildlife team visited the Eagon Property site on February 4, 2022, to determine best monitoring locations. Sites were chosen to overlap with the presence of multiple seeps throughout the property, as well as a roadside ditch that displayed likely characteristics of frog habitat. For ease of access, each monitoring point was moved 75 feet upland from the location of the seeps.

Monitoring Equipment Required

- Map of the location site (Appendix A)
    - Created by GIS Team, with monitoring points pre-determined on preliminary site visit. Viewable on Avenza Maps mobile application.
- Cellphone or other device with GPS capabilities
- Data Collection Sheets (Appendix B)
    - For tallying the number of observations, as well as other site-specific data.

Frog Monitoring Protocol

Frogs will be monitored by observation only, by either sight or sound. Surveyors will collect observations from pre-determined, fixed points within the Eagon Property following the Wisconsin Frog and Toad Survey Manual. Surveyors will visit each monitoring location cautiously, so as not to cause a disturbance. Surveyors will then wait until frogs begin calling and remain for 5 minutes, during which calls will be recorded on field data sheets, which can be found in the Wisconsin Frog and Toad Survey manual. Wind and sky conditions, as well as calls will be recorded by code. We will measure the calls into 3 indexes:

- Index 1: the individuals can be counted and there are spaces between the calls.
- Index 2: individuals can be distinguished but there is some overlapping of calls.
- Index 3: calls are constant, continuous, and overlapping. Individuals cannot be distinguished

Peak survey dates for all three species are between April 8$^{th}$ and April 30$^{th}$, when the water has warmed to 50 degrees Fahrenheit. Monitoring should be conducted in the early evening, and when weather conditions are favorable; there should be little wind and no steady rain. If the wind is over 12 mph, or if it begins raining steadily, the survey should be completed on a different day. Humidity, drizzle, stable air temperature, and wind speed of 7 mph or less are preferred conditions.

### *Introduction to Surveying of American Woodcock*

The American woodcock prefers of many types of habitats, such as young forests, shrubland, and open areas for singing grounds. The most common cover type that woodcocks prefer is an aspen-birch matrix, which has declined by 36% in Central Wisconsin (Zimmer 2013). Woodcocks are unique in that they require singing grounds and roost areas, which must contain openings near brushy cover. This is so that they can perform their flight displays at dawn

and dusk (McAuley 2020). To create this type of habitat we must periodically burn or apply herbicide to the area, to set back succession (Zimmer 2013). There are currently areas on the property suitable for woodcock, one of which being the grassland area in the southeast corner of the property. With plans to create new sites on the property, there will be increased opportunities both for woodcock breeding, as well as for woodcock monitoring.

### *Introduction on American Woodcock*

The American woodcock (*Scolopax minor)* is a small, plump shorebird belonging to the family Scolopacidae (American Woodcock Society 2020). They have short legs, a short neck, and a long, straight bill. Males can be distinguished from females by their spring mating displays. All American woodcock, regardless of sex, have an excellent camouflage of brown, mottled feathers that match exceptionally well with the leaf litter. From the underside of their neck to their belly, they are cinnamon-colored with a grey collar around their neck. Woodcocks also have characteristically large eyes that are positioned near the back of their skull, to easily spot predators while they are foraging for food (Wood 2019).

The range of the American woodcock stretches from the eastern United States to southern Canada. In the western part of their range, they rely on moist soil along shrubby, deciduous, riversides. They spend winters in the southern half of the United States, in Gulf states such as Texas. The American woodcock population is seeing a decreasing tread due to a combination of not having enough suitable habitat, and an increase in pesticides in their diet (Wood 2019).

American woodcocks rely on many different invertebrates for their source of food. Their long, flat bills are specially adapted to forage for earthworms; the upper mandible of their bill is flexible, which allows them to easily extract the worms out of the ground (Wood 2019). Woodcocks need early successional forests to be successful. They require multiple components to their habitat, including different areas for feeding, roosting, singing, and brood rearing (Wildlife Management Institute 2007).

### *Considerations*

- Woodcocks are seen in Wisconsin from early spring to late fall, with survey data being collected early in the season at dawn and dusk, when males are performing their courtship displays (Wildlife Management Institute 2007).
- To ensure a stable Woodcock population, you must maintain their ideal habitat of an early successional forest cover type (Wildlife Management Institute 2007).

### *Woodcock Surveying Protocols*

<u>Woodcock Timeline</u>

- The wildlife team visited the Eagon Property site on February 4, 2022, to determine best monitoring locations.

Monitoring Equipment Required

- Map of the location site (Appendix #)
    - Created by GIS Team, with monitoring points pre-determined on preliminary site visit. Viewable on Avenza Maps mobile application.
- Cellphone or other device with GPS capabilities
- Data Collection Sheets (Appendix #)
- For tallying number of observations, as well as other site-specific data.

Woodcock Monitoring Protocol

Woodcocks will be monitored by observation only, by either sight or sound. Once surveyors arrive on site, prior to monitoring activities, a record will be taken of weather conditions, temperature, date, time, and time of sunset. A record will be kept of the time at which monitoring begins, and the time at which it ends. Surveys will be conducted during evenings between 22-58 minutes after sunset. Surveyors will record observations of woodcock mating for 5 minutes per site.

**Plant Monitoring**

*Introduction*

Vegetation inventory for this property focused on the forest overstory, understory, spring ephemerals, and invasive species. To aid volunteers in completing the inventory, a plant identification guide was created that included the main species of interest for this site. Baseline data will be collected during the restoration process to assist in determining how site conditions have changed and to determine restoration techniques were successful. In short, we are creating a user-friendly monitoring program to serve as a baseline for comparison throughout time.

Flume Creek, a Class 1 trout stream, is located on the northwest boundary of the property. The site is a diverse mosaic of cover types that includes central hardwoods, savannas, uplands, lowlands, and a riparian zone. The uplands are dominated by the red oak group (*Quercus spp.*), white pine (*Pinus strobus*), and red maple (*Acer rubrum*). The lowlands had similar species with balsam fir (*Abies balsamea*) increasing in abundance as well as shrub carr composed of tag alder (*Alnus serrulata*). Some of the undesirable species on site were buckthorn (*Rhamnus cathartica*), poison ivy (*Toxicodendron radicans*), prickly ash (*Zanthoxylum americanum*), honeysuckle (*Lonicera spp.*), and spotted knapweed (*Centaurea spp.*). Overall, this site had high levels of diversity and included additional species beyond those already listed.

There are a range of factors impacting species composition at the Eagon property. Deer browse has a dramatic selective pressure and in turn affects what species can establish and regenerate. Invasive species are beginning to be present on the site, at relatively low levels, and are likely to be spread by both human and wildlife transport. Additionally, wind-damage is present on this site and many adjacent properties from significant windstorms in 2019, 2020 and

2021. These natural occurrences have a dramatic impact on a site by removing portions of the overstory.

Due to limited initial vegetation data for this property, a baseline is being established early in the project to assist in monitoring of restoration success. When there is an overall decrease in invasive species, an increase in ephemeral species, and a management plan that increases periodical disturbance then our restoration on this site will be considered a success. Adding to those other parameters success would be determined by an increase in regeneration of native woody and non-woody vegetation. The task of future data collection will be put on the students at the University of Wisconsin, Stevens Point. Every 5-8 years the site will be inventoried and compared to the initial data collected in 2022.

Timeline

Year 1: Conduct initial overstory, understory, spring ephemeral, and invasive species inventory for the Eagon property

Year 5: Reconduct surveys for overstory, understory, spring ephemeral, and invasive species

Year 10: Final survey of overstory, understory, spring ephemeral, and invasive species

***Re-assess stand goals, objectives, and resources available for monitoring and management**

Protocols

Inventory teams will be conducting randomized point sampling to collect several different data sets which include overstory data, understory data, spring ephemerals, grasses, invasive species, and then listing new planted species by groups. Groups will enter the data into excel and then analyze to determine if preferred species for wildlife are present. In the event of any vegetation classes not yet present due to seasonal constraints, repeat trips to sample points as necessary until all relevant data has been collected.

20 plots at ($1/10^{th}$ acre: 37.2ft.) size will be conducted to inventory the overstory, measuring basal area, trees per acre, as well as listing the number of overstory species present, and then conduct inventory for understory species such as shrubs we will use $1/500^{th}$ plot size (5.26ft radius). The understory plots will be conducted in the same location as the overstory to minimize time spent in the field.

We will monitor spring ephemerals as well as invasive species. Inventory teams will use small PVC quadrats to count and list spring ephemerals and grasses. Additionally invasive species will be listed and counted if present.

Methods

- Use Avenza maps for navigation to plots (20)
- Use tape measure/Prism to measure out radius of plot
- Use D-tape to measure to nearest 2-inch class (ex: 11.6”-13.5” =2inch)
- Identify tree species and record
- List trees of ecological value (Habitat value)
- Identify shrubs to nearest $1/500^{th}$ plot (5.26 ft.)

- Identify and list spring ephemerals, and graminoids using PVC 1X1 square to take represented sample of cover type
- Enter all recorded data into Excel

Materials for plot survey

- D Tape
- Measuring Tape
- Data Collection Sheets
- Plant square
- Plant ID booklet
- Avenza Maps
- Garmin Glo
- IPad
- Habitat plant book

**Historical/ Cultural Team**

The purpose of the culture and historical team is to obtain information and to share it to educate students on the site and the surrounding township of Alban.

**Goals:**

- Develop a preservation plan for the on-site historical structures, with policies and regulations to prevent damage to the structures from restoration work or educational programs
- Plot the historical structures on the site map
- Create and map a trail through the site that connects the historical structures, the campsite, and sites of natural interest
- Develop an interpretive trail guide which can be used by visitors for a self-guided interpretive experience through the site. The guide will be accessible electronically via a QR code as well as available on-site in print
- Develop a lesson plan for a program to educate students about the local history and the historical structures found on the site
- Develop lesson plans for programs that will involve students in the restoration and monitoring work conducted at the site.

**Background Information: History**

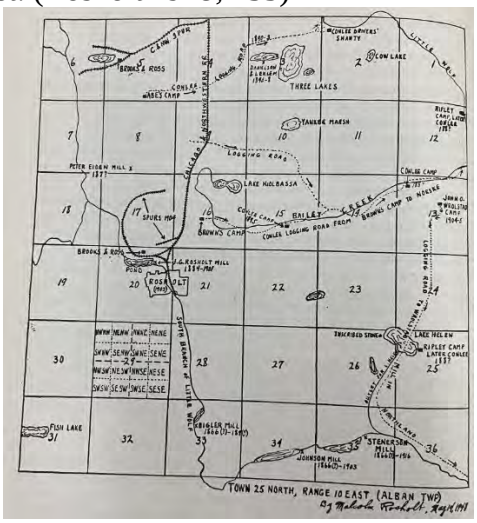
This 14-acre plot of land was once a lively town with a mill, post office, and a dam centered around Flume Creek. The township of Alban was named after James S. Alban, who was one of the first white settlers to establish himself and his family in the area (Rosholt, 219). He gained local fame by playing a key role in the discovery of Devil's Lake in 1839, becoming Portage County's first district attorney in 1847, and by creating the *Plover Herald* in 1856. After the start of the American Civil War, James S. Alban was made Colonel of the 18th Infantry Regiment of Wisconsin Volunteers, nicknamed "the Pinery Boys," and led them to the Battle of Shiloh in 1862, where he was mortally wounded. Col. Alban's body was returned to the Plover Cemetery, where his gravestone can still be seen today.

Alban grew to become an established town along Flume Creek, complete with a mill, post office, dam, and several small farms. The small town's distance from larger waterways put Alban far from railroads and the area remained covered in a heavy growth of timber much later than areas with larger waterways (Rosholt, 219). The availability of timber in the area made Alban popular with logging companies. Between 1875 and 1900, Alban had many logging operations, with the help of Jack Harper-- a top woodsman from Fond du Lac, Wisconsin (Rosholt, 225). The township of Alban was a rocky area with boulders arranged through the landscape, but even with that, Jack Hunter persisted and shared his ideas about the river being straight enough to float a log. He brought in ox teams and removed large rocks from the creek, placing them on one side of the property, where they can still be seen near the dam. Lumber companies used the area for timber and clear-cut areas so the township of Alban could continue to grow.

On January 29, 1873, a post office was established in Town 25 (Alban). The post office was operated by Ole (Olsen) Wrolstad from his home next to his sawmill. Settlers would walk to Wrolstad's home to collect their mail, oftentimes collecting mail for neighbors as well. The post office was moved into a store called Wogsland's store, which was the location of previous town

board meetings (Rosholt, 346). The post office was moved to the home of Charles C. Gilbert who served as postmaster and later built and operated a store on his property. The post office was discontinued in 1905. (Rosholt *1948*, 223)

In 1878, tax rolls confirmed three separate mill owners, all located on the South Branch of the Little Wolf. All three mills were located on the right side of the three-mile stretch of the river and were built around 1867. The farthest upstream belonged to Hans O. Lee and Ole Iverson, later to be taken over by James Bigler. Second downstream belonged to Ole O. Wrolstad in section 34, later being taken over by Hans Johnson. Less than a mile downstream, William W. Sherwin also owned a mill, which was later taken over by the Fleming and Bancroft families of Amherst. (Rosholt *1948*, 153)




* Photo from Town 25 North by Malcolm Rosholt, 152

**Photos from the Central Wisconsin Environmental Station in Amherst Junction, Wisconsin.
On May 19, 1971, the property was purchased by Mr. And Mrs. Burdette Eagon for $3,400.

**Background Information: Environmental**

Throughout its history, the property that is now the Burdette and Sarah Eagon Nature Education Preserve has been inhabited by a diverse population of wildlife, birds, fish, and plants. Present-day management techniques are being implemented to ensure that, with the help of students, community members and volunteers alike, they are able to preserve these desirable species and help them to flourish here for many years to come.

The Eagon property is also home to a diverse plant population that allows these animal communities to inhabit the area. Central hardwoods, savannas, uplands, lowlands, and riparian sites are the predominant habitat types within the property. The uplands are currently dominated by the red oak group (*Quercus spp*.), white pine (*Pinus strobus*), and red maple (*Acer rubrum*). The lowlands contain similar species with balsam fir increasing in abundance as well as shrub carr composed mainly of tag alder. Some of the undesirable species on site are buckthorn (*Rhamnus*), poison ivy (*Toxicodendron radicans*), prickly ash (*Zanthoxylum americanum*), honeysuckle (*Lonicera*), and spotted knapweed (*Centaurea stoebe*). This property has an

inholding that contains a residence and a trail leading to the remnants of an old dam. The included protocols are designed to collect baseline data to assist in detecting change on the property over time. The initial monitoring will be conducted by University of Wisconsin, Stevens Point, and CWES students.

**Principles and Protocols for Preservation:**

Identifying, retaining, and preserving historical structural systems and features visible to the public are important tasks when introducing the public to previous historic characteristics. This can include any materials that comprise the historical site, including foundation walls and potential cast-iron or sheet metal. Altering physical features of the historical site has the potential to diminish historical characteristics.

Possible recommendations for these historical sites can include stabilizing deteriorating or damaged structural systems prior to the restoration process. Deterioration of the historic sites may occur with a failure to stabilize damaged structures.

**Map/proposed trail:**

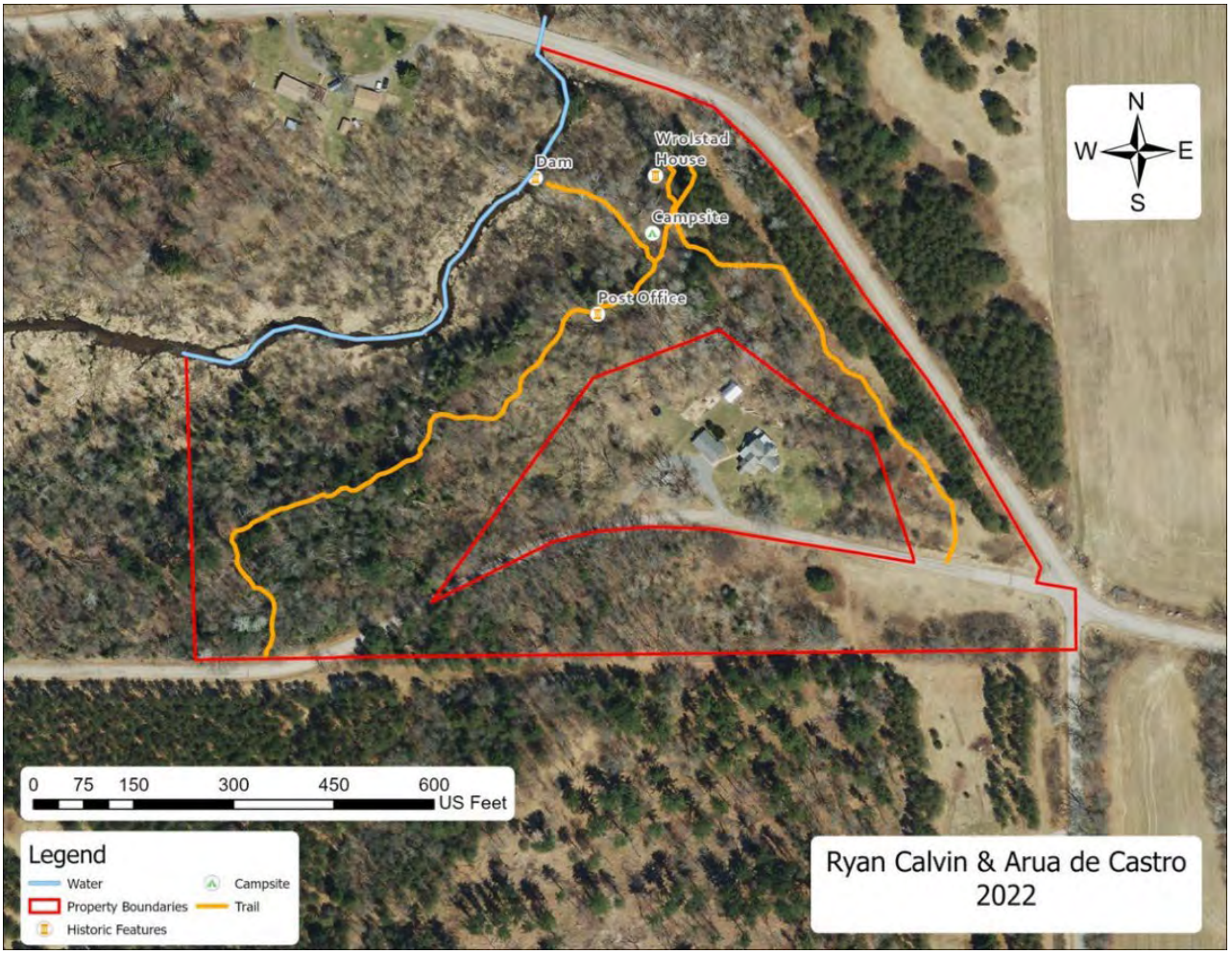



**Figure 2: Eagon Property Historic Features and Trail**

**General Regulations:**

No excessive noise. Be courteous. Clean up after yourself and collect your trash, no dumping of waste or recycling material on site. No glass containers allowed. Service animals must be leashed.
No person may possess or consume alcohol or drugs on site.
Allowed activities may include:
Hiking, fishing, outdoor education, wild edibles while under supervision, and wildlife viewing.

**Wild Animal Regulations:**
No feeding, no trapping, no baiting, no hunting, and only photos with observations of animals is permitted.

**Water Regulations:**
No charcoal grilling or making fires next to Flume Creek or any body of water within the site.

**Landscape and Area Regulations:**
No damaging of property including historic landmarks, trees, and other flora. No person may transplant, relocate, stock, or release any plant or animal, domesticated or wild.

**Vehicle Regulations:**
Park in designated parking spaces, no vehicles allowed on paths, and no drones without permission and following UWSP drone use policy.

**Concepts for education/interpretive programs and materials:**

Educational Programs:

- Frog Surveys
  - Description: Participants will learn more about frogs and help to conduct an evening frog survey, just like the ecologists who are working to restore and monitor this property. Participants will be able to share their data with FrogWatch USA, a national citizen science program, and learn how they can continue to contribute to frog conservation
  - Learning Outcomes:
    - Students will identify at least three different frog species based on their call
    - Students will demonstrate proper data collection, following the FrogWatch USA procedures
    - Students will hypothesize how their data will be useful for local as well as national conservation efforts
- Tree Planting
  - Description: students will learn the importance of habitat management and assist in ongoing management efforts through tree planting
  - Learning Outcomes:
    - Students will demonstrate appropriate tree planting technique

        - Students will discuss the ways in which the trees being planted will help to support other species in the ecosystem
        - Students will hypothesize how the planted landscape will change over the course of time and what subsequent management might become necessary
- Historical Tour
    - Description: Students will explore the remnants of historical structures found on the Eagon property and consider how both life and the landscape would have been different in past centuries
    - Learning Outcomes:
        - Students will explain the importance each of the historical buildings would have had when in use
        - Students will illustrate one of the three buildings, using the remaining structure to imagine what it looked like when it was in use
        - Students will compare and differentiate the roles of these types of buildings/structures (a dam, a mill, and a post office) in the 19th Century and in modern times
- Lumberjack Programs
    - CWES has pre-existing programs that focus on logging history. These programs could potentially be adapted to be run here.

**Interpretation:**

We plan to create a self-guided tour that will take visitors along our trail to the three historical structures as well as sites of restoration work and ecological monitoring. Visitors will be able to access a digital guide via a QR code on the entrance sign. We may also have paper copies available at the entrance. The guide will contain a map of the trail with significant spots marked and numbered. Each number will correspond with a brief description of the site and its importance.

The trail guide will be a trifold brochure, similar to the guide found here http://www.nl-nhcc.com/trails/trailpdfs/Clark_Brochure_Map.pdf. The brochure will contain a map with labeled points of interest. Each point on the map will have a corresponding blurb in the guide, providing a brief point of interpretive information.

**Geospatial Team**

Introduction:

The geospatial team's goal is to collect, analyze, and archive data collected for this project. Placing the data into georeferenced maps for management, monitoring, and educational purposes. Field data collection was done using the Avenza Maps application. All data collected by the monitoring and restoration team were sent to the GIS team in the form of a .kml file, and then processed. ArcGIS Pro software was used to analyze and overlay data on georeferenced maps. All the data collected in this project is stored in separate personal geodatabases, one for each project team in each class.

The maps created by the GIS team used the Wisconsin NAD 1983 HARN Transverse Mercator coordinate system. This ensures cohesion and accuracy across the different data collected and maps the team has created. Wisconsin Transverse Mercator projection was also chosen because of its accuracy for the state of Wisconsin, and its versatility.

Data Sources:

- Other sources
    - Eagon Map Package
        - Demchik, M. 2019
        - Units- Feet
        - Datum- NAD 1983 HARN Wisconsin
        - Projection- Transverse Mercator
        - Layers
    - Wisconsin Leaf-Off Digital Orthography[1]
        - WIDNR. 2019
        - Units- Feet
        - Datum- NAD 1983 HARN Wisconsin
        - Projection- Transverse Mercator
- Field Collected Data
    - Neotropical Bird Survey data collected (date), using point count technique and Avenza by Ecological Monitoring Upland Team
    - Cover Type data collected by Geospatial Team, in addition to the 20 random points surveyed by Ecological Monitoring Plant Communities Team
    - Woodcock Survey Data collected (date), using point count techniques by Ecological Monitoring Wildlife Team
    - Frog Survey Data collected (date), using point count techniques and Avenza by Ecological Monitoring Wildlife Team
    - Riparian Area Invasive Mapping Data collected 2/25/2022, using vegetation surveys by Ecological Restoration Riparian Team.
    - Riparian Planting Locations collected (date), using Avenza Maps by Ecological Restoration Riparian Team
    - Historical and Cultural Sites Data collected 2/19/2022, using Avenza Maps by the Ecological Monitoring and Ecological Restoration Historical Team
    - Aspen Stand data collected 2/25/2022, using Avenza maps by the Ecological Monitoring Upland Team.
    - Trail Data collected 2/25/2022, using Avenza Maps by the Ecological Monitoring and Ecological Restoration, Geospatial and Historical Teams

- Created Layouts and Layers Utilized

    - Aspen Pockets (Fig. 1)
        - Water from Demchik, 2019
        - Property Boundaries from Demchik, 2019
        - Aspen Pockets from Cavil R., and de Castro A., 2022

    - Historical Structures and Trail Map (Fig 2.)
        - Water from Demchik, 2019
        - Property Boundaries from Demchik, 2019
        - Trail from Cavil R., and de Castro A., 2022
        - Historic Features from Cavil R., and de Castro A., 2022
        - Campsite from Cavil R., and de Castro A., 2022

    - Neotropical Bird Survey (Fig.3)
        - Water from Demchik, 2019
        - Property Boundaries from Demchik, 2019
        - Neotropical Bird Survey Points from Cavil R., and de Castro A., 2022
        - Neotropical Bird Survey Buffers from Cavil R., and de Castro A., 2022

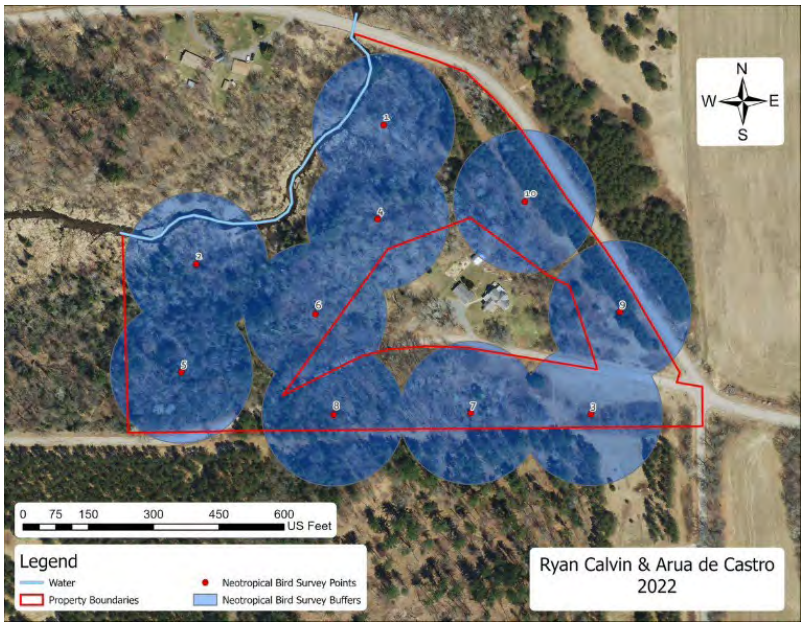



**Figure 3. Neotropical Bird Survey Points and Buffers**

    - Water Seeps for Herps (Fig.4)
        - Water from Demchik, 2019
        - Property Boundaries
        - Eagon Seeps from Cavil R., and de Castro A., 2022

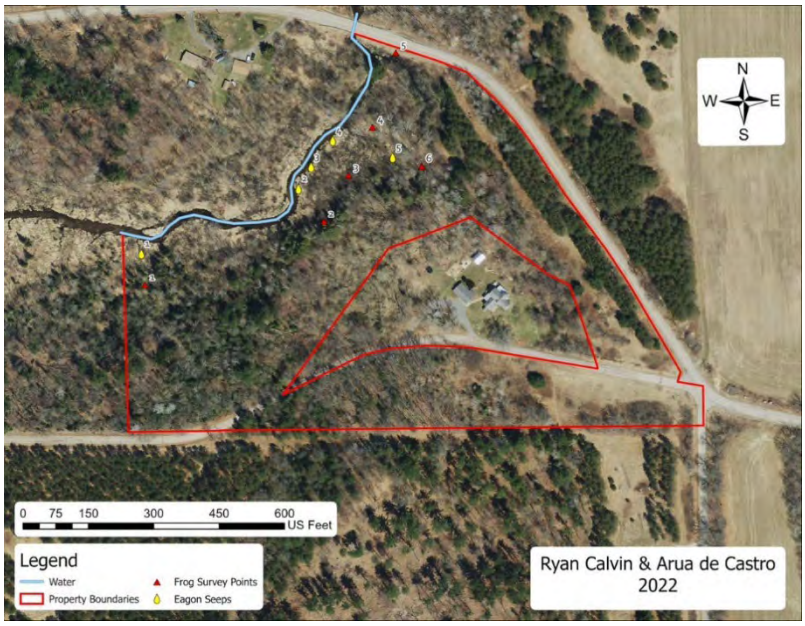



**Figure 4. Locations of Water Seeps**

- Vegetation Survey Points (Fig.5)
  - Water Property Boundaries from Demchik 2019
  - Vegetation Survey Points from Demchik 2019
  - Riparian from Cavil R., and de Castro A., 2022
  - Upland from Cavil R., and de Castro A., 2022

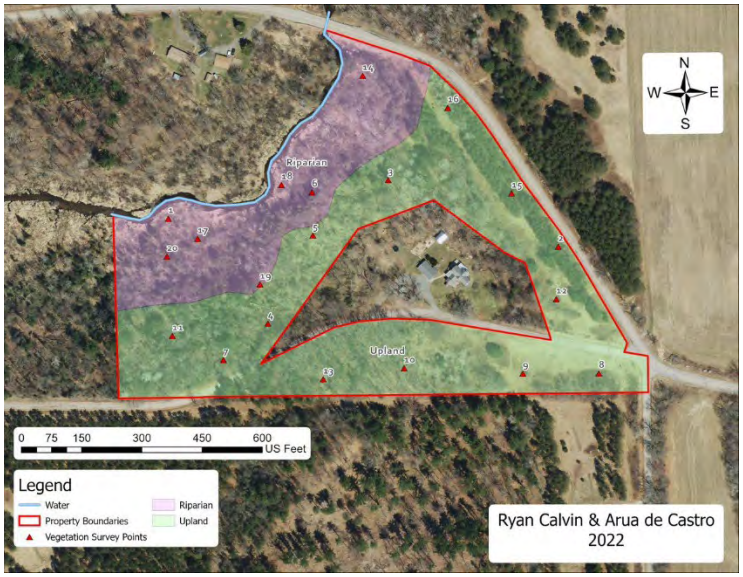



**Figure 5. Vegetation Survey Points**

- Cover Type Map (Fig.6)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Box Elder Openings from Cavil R., and de Castro A., 2022
    - Conifers & Hardwoods from Cavil R., and de Castro A., 2022
    - Forested Wetland from Cavil R., and de Castro A., 2022
    - Mixed Hardwoods & Grassland from Cavil R., and de Castro A., 2022
    - Red Pine & Right of Way from Cavil R., and de Castro A., 2022
    - Tag Alder from Cavil R., and de Castro A., 2022

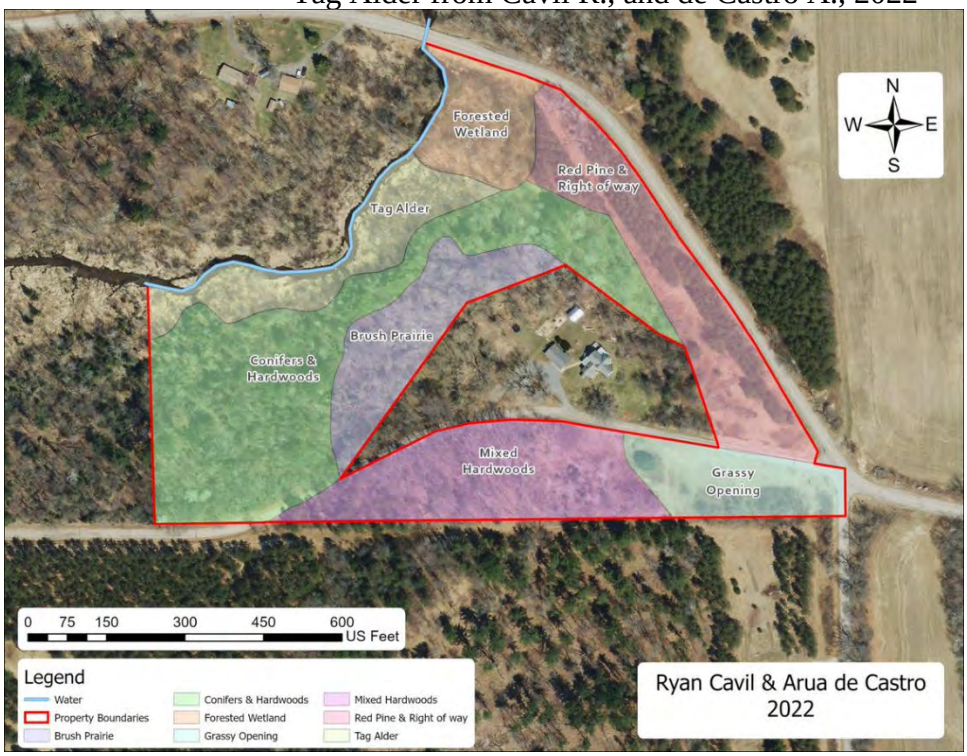



**Figure 6. Current Cover Type**

- Overall Map of Eagon Property (Fig.7)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Campsite from Cavil R., and de Castro A., 2022
    - Trail from Cavil R., and de Castro A., 2022

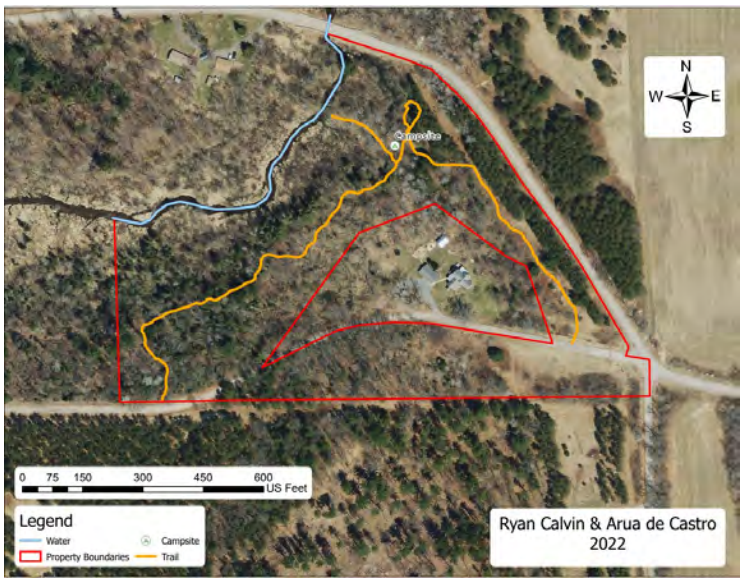



**Figure 7. Current Map of Eagon Property**

- Brush Piles Map (Fig. 8)
  - Water, Demchik 2019
  - Property Boundaries, Demchik 2019
  - Brush Piles- Ecological Restoration Upland Team

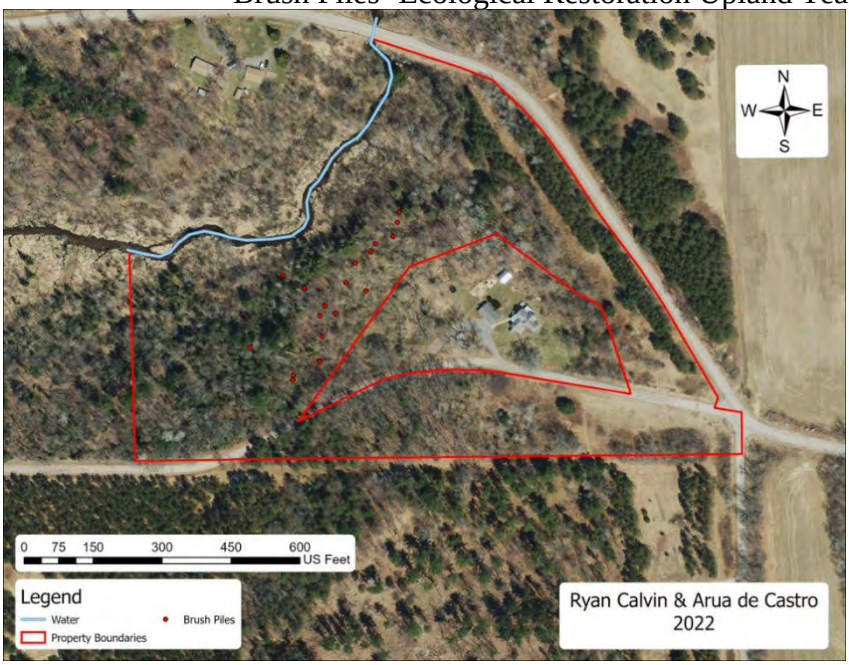



**Figure 8. Brush Pile Locations**

- Woodcock Survey Points (Fig. 9)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Woodcock Survey Points from Cavil R., and de Castro A., 2022

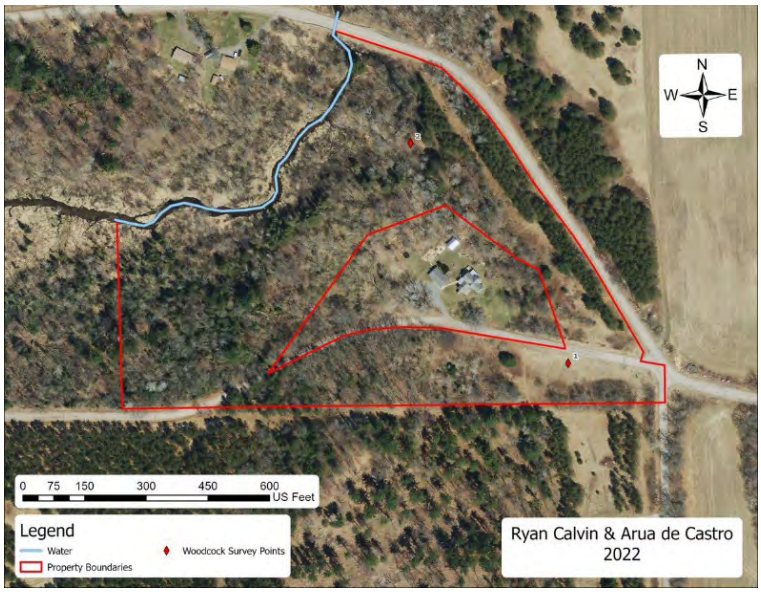



**Figure 9. Woodcock Survey Points**

- Frog Survey Points (Fig. 10)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Frog Survey Points from Cavil R., and de Castro A., 2022
    - Eagon Seeps from Cavil R., and de Castro A., 2022

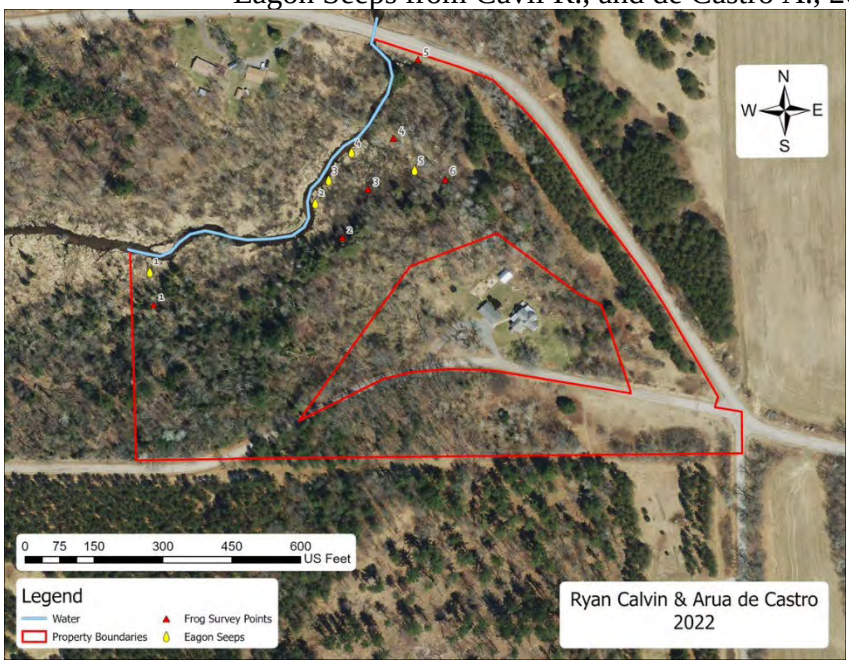



**Figure 10. Frog Survey Points**

- Eagon Soils Map (Fig.11)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Mb- Markey muck, shallow from Cavil R., and de Castro A., 2022
    - Ph- Plainfield and Kranski soils from Cavil R., and de Castro A., 2022
    - Rfb- Richford loamy sand, 2-6% slopes from Cavil R., and de Castro A., 2022
    - Rrb- Rosholt sandy loam, 2-6% slopes from Cavil R., and de Castro A., 2022
    - RrC2- Rosholt sandy loam, 6-15% slopes from Cavil R., and de Castro A., 2022
    - RuD- Rosholt complex, 12-20% slopes from Cavil R., and de Castro A., 2022

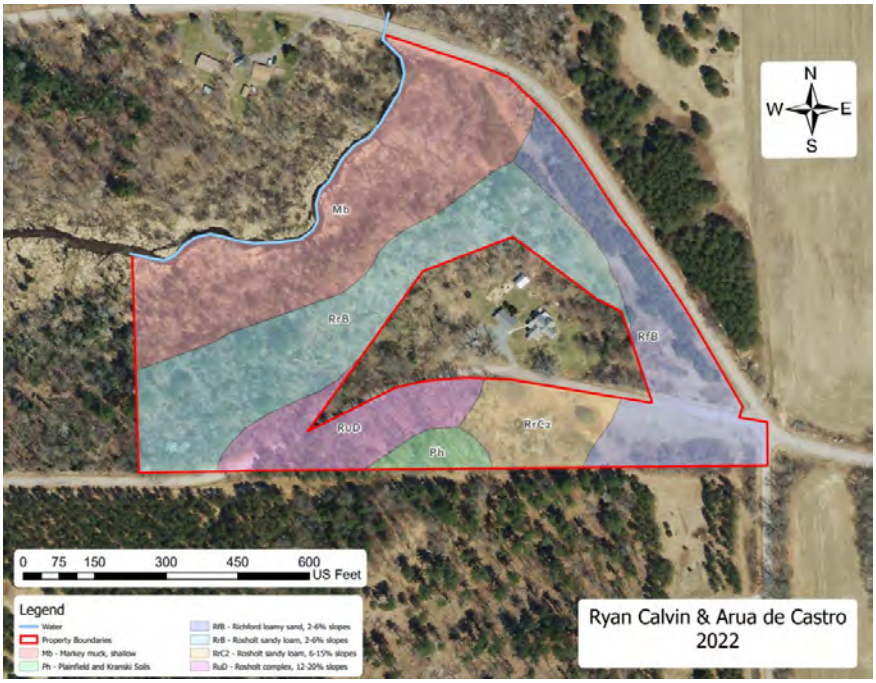



**Figure 11. Soil types found on the Eagon property**

- Future Stand Cover Type (Fig.12)
    - Water from Demchik, 2019
    - Property Boundaries from Demchik, 2019
    - Brush Prairie from Cavil R., and de Castro A., 2022
    - Conifers & Hardwoods from Cavil R., and de Castro A., 2022
    - Forested Wetland from Cavil R., and de Castro A., 2022
    - Grassy Opening from Cavil R., and de Castro A., 2022
    - Mixed Hardwoods from Cavil R., and de Castro A., 2022

- Red Pine & Right of Way from Cavil R., and de Castro A., 2022
- Tag Alder from Cavil R., and de Castro A.

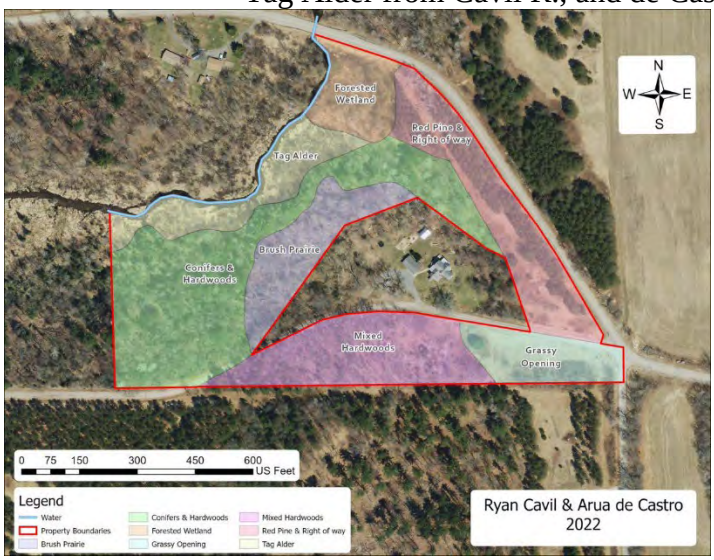



**Figure 12. Future Stand Cover Types**

Process

The files utilized consisted of data from Dr. Demchik (2019) and an orthographic photo from the Wisconsin DNR GIS database[1] that is accessible to the public. Soils map data were acquired from NRCS[2]. Layers that were utilized from Demchik's Eagon map package include Lidar Clip, Eagon, March 15 Restriction, Portage County Roads, Vegetation Survey, Water, and Wetland Clip. Some data was collected from Demchik, while other data was collected by members of the class using Avenza. Any data that was collected from Avenza was exported to the Geospatial team in the form of a .kml file. This .kml file was then converted into a feature class and layer file. Converted feature classes and layer files were inserted into the original base map. Data was saved into the respective geodatabases named after each team.

- Geodatabase Contents
  - Historic.gdb
    - Campsite
    - Historic_Features
    - Property_Boundaries
    - Trail
    - Water
  - Plant_Monitoring.gdb
    - Cover_Type
    - Property_Boundaries
    - Riparian_Upland_Interface
    - Vegetation_Survey_Points
    - Water

- Riparian_Restoration.gdb
    - Cover_Type
    - Eagon_Seeps
    - Property_Boundaries
    - Riparian_Upland_Interface
    - Water
- Upland_Restoration.gdb
    - Aspen_Pockets
    - Brush_Piles
    - Cover_Type
    - Property_Boundaries
    - Riparian_Upland_Interface
    - Water
- Wildlife_Monitoring.gdb
    - Eagon_seeps
    - Frog_Survey_Points
    - Neotropical_Bird_Survey_Buffers
    - Neotropical_Bird_Survey_Points
    - Property_Boundaries
    - Water
    - Woodcock_Survey_Points
- Eagon_Base_Map.gdb
    - Aspen_Pockets
    - Brush_Piles
    - Campsite
    - Cover_Type
    - Eagon_Seeps
    - Eagon_Stands
    - Frog_Survey_Points
    - Historic_Features
    - March_15_Restriction
    - Neotropical_Bird_Survey
    - Neotropical_Bird_Survey_Buffer
    - Property_Boundaries
    - Riparian_Upland_Interface
    - Soils_Map
    - Trail
    - Vegetation_Survey
    - Water
    - WisconsinLeafOffDigitalOrtho
    - Woodcock_Survey_Points

- Map Specific Processes
    - An overall PDF map of the entire Eagon property (Fig. 7) was created by utilizing Demchik's map package and digitizing to fix any topology errors in the original map package. This map was created for use by the various teams and any visitors to the site.
    - A PDF map of historically notable features and trail (Fig. 2) was created using field collected data from the GIS and Historical teams. Data was uploaded into the map layout from Avenza. Trail data was collected using the "Record GPS Tracks" tool. These GPS tracks were then digitized to display the final trail layout.
    - A PDF map of neotropical bird survey points (Fig. 3) was created for the Wildlife team. 50-meter buffer zones were created around each survey point to show the areas being captured by the team.
    - A PDF map of woodcock singing survey points (Fig. 9) was created for the Wildlife team. Data was collected by the Wildlife team using Avenza.
    - A PDF map of water seeps (Fig. 4) was created using data collected by the Riparian team in Avenza.
    - A PDF map of vegetation survey points was created using the original map package and the data management tool (Fig. 5), "Create random points". 20 random points were created within the property boundaries.
    - A PDF map of cover types was created by utilizing data from Geospatial and Plant Communities Teams (Fig. 6). Digitizing cover type boundaries was completed by using the WIDNR orthographic photo[1].
    - A PDF map of future projected conditions was made by utilizing the objectives from each team and inputting their parameters into the original base map (Fig. 13). The map was created to help visualize what the different teams have envisioned for the site.
    - A PDF map of Aspen stand locations (Fig. 1) was created using data from the Upland team. Data was collected in Avenza and will be used to manage the stands for different age groups.
    - A PDF map of brush pile locations (Fig. 8) was created using data from the Upland team. Data was collected using Avenza.

**Appendix A**

**Appendix B -** Upland

**Appendix C** – Historical/ Cultural

**Sept. 28, 1852**- the subdivision of modern Alban begins (Our county, Our Story p.219)

**Oct. 16, 1852-** the subdivision of modern Alban completed by Wm. P. Huntington, deputy surveyor (Our County, Our Story p.219)

**Late 1860s:** the first wedding takes place in Eastern Alban- double wedding of **Dorthe Margrete Klincke** to **Hans Peter Anderson** together with **Johanne Nilsdatter Fjeldbo** and **Jens Lorentson** took place in the late l860s at the **Hans Klincke** home in east Alban — the first wedding

**1866:** Ole O. Wrolstad purchases land on the "Sam Loken place" of the Alban township, then known as "Town 25 North" and builds a sawmill. (Rosholt, 153)

**January 29, 1873,** the post office was established and operated by Ole Olson Wrolstad in his house near the sawmill (Rosholt, Town 25 North pg 233)

**December 1876:** Andrew A. Brekke purchases 7,774 feet of sawed lumber for $23.32 (Rosholt, Town 25 North pg 153)

**1877:** Peder Blak (Jens P. Hanson Sr.) purchases 1,899 feet of sawed lumber for $5.69 (Rosholt, Town 25 North pg 153)

**March 1878:** Adam Pederson purchases 662 feet of sawed planking for $4.73 (Rosholt, Town 25 North pg 154)

**April 2, 1878:** The first town meeting and election of officers of Alban was held at School District No. 5, a log schoolhouse which stood less than a half a mile south of Alban Corners (SE-SE, Sec 21). The first elected officials are as follows: Andrew A. Brekke was elected chairman; Anton Kirsling and Jens Rasmussen, supervisors; Martin 0. Wrolstad, clerk; Ole J. Aass (later Oas), assessor; J. P. Hanson, Jr., treasurer; C. C. Gilbert, J. H. Bigler, Simen Stenerson, and Andrew Brekke, justices of the peace; and A. Rasmussen, A. J. Aass and J. Mortenson, constables. (Our Town Our Story, 223)

**April 19, 1879:** Wrolstad provides processed lumber to the town of Alban for a debit of $6.15

**May 23, 1879:** Ole O. Wogsland has 152 feet of siding done for $1.16 (Rosholt, Town 25 North pg 154)

**November 15, 1878:** Per Dobbe purchases 654 feet of sawed lumber for $2.61 (Rosholt, Town 25 North pg 154)

**March 4, 1879:** Rev. Nils B. Berge is debited with 200 feet of sawed lumber for fencing (standard 1” x 6” x 16’) costing $.60

**October 8, 1880:** Charles Christian Gilbert is appointed postmaster and the post office at Wrolstad’s mill was moved up to a store of what is still Frank Knitter’s house, one of the oldest frame houses in Alban (Chapter XVI****source)

**October 1881:** Ole Olson Wrolstad passes his sawmill on to his son, George, who successfully runs it for more than a decade (Town 25 North 153)

**1890s**: George Wrolstad sells the sawmill to Hans Johnson (Town 25 North 153)

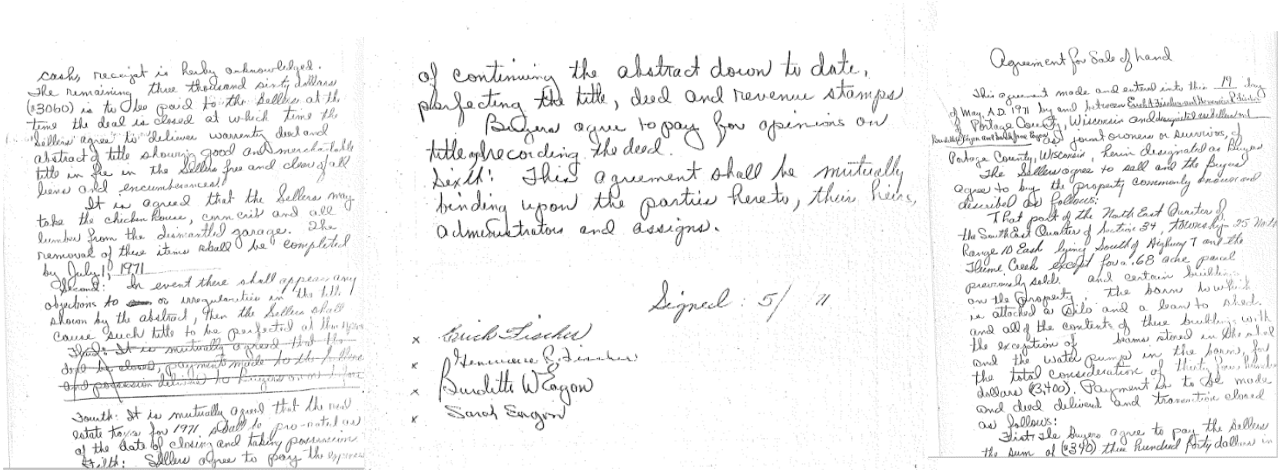
**1895:** Survey maps indicate that, Carl. O Wrolstad owned the property and the sawmill
Hans Johnson (Dec 23, 1837-26 July 1916) “...was heavily interested in the logging business at one time, logging extensively on the Wolf and owned and operated a sawmill in the town of Alban for a number of years...”

**1898:** Martin O. Wrolstad (Feb 2, 1856-, 2nd generation Norwegian, son of Ole and Osele (Snaoss) Wrolstad), establishes a general merchandise store in Peru, just a few miles south of Alban and acted in the capacity of postmaster until selling the business to his nephew 1 year later. (History of Portage County, pg 710)

**October 22, 1903: "**Saw Mill Burned: Hans Johnson meets with loss in the town of Alban"
"The saw mill, planing mill, lumber yard, store building and one dwelling house belonging to Hans Johnson in the town of Alban were burned at an early hour this morning, Details of the fire are meagre, and it is not known how it started, but is said that all of the above mentioned property was swept away."

**1915:** surveyors map indicates the property belonged to Ike Anderson (Aslak Fjeldbo) and was home to the "Grist Mill."

**May 19, 1971**-Burdette and Sarah Jane Eagon purchase the property from Erich A. Fischer and Genevieve R. Fischer:



cash, receipt is hereby acknowledged. The remaining three thousand sixty dollars ($3060) is to be paid to the Sellers at the time the deal is closed at which time the Sellers agree to deliver warranty deed and abstract of title showing good and merchantable title in fee in the Sellers free and clear of all liens and encumbrances.

It is agreed that the Sellers may take the chicken house, corn crib and all lumber from the dismantled garage. The removal of these items shall be completed by July 1, 1971.

Second: In event there shall appear any objections to or irregularities in the title shown by the abstract, then the Sellers shall cause such title to be perfected at their expense. ~~Third: It is mutually agreed that the deed be closed, payments made to the Sellers and possession delivered to Buyers on or before~~

Fourth: It is mutually agreed that the real estate taxes for 1971 shall be pro-rated as of the date of closing and taking possession.

Fifth: Sellers agree to pay the expense of continuing the abstract down to date, perfecting the title, deed and revenue stamps.

Buyers agree to pay for opinions on title and recording the deed.

Sixth: This agreement shall be mutually binding upon the parties hereto, their heirs, administrators and assigns.

Signed: 5/ 71

× Erich Fischer
× Genevieve R. Fischer
× Burdette W. Eagon
× Sarah Eagon

Agreement for Sale of Land

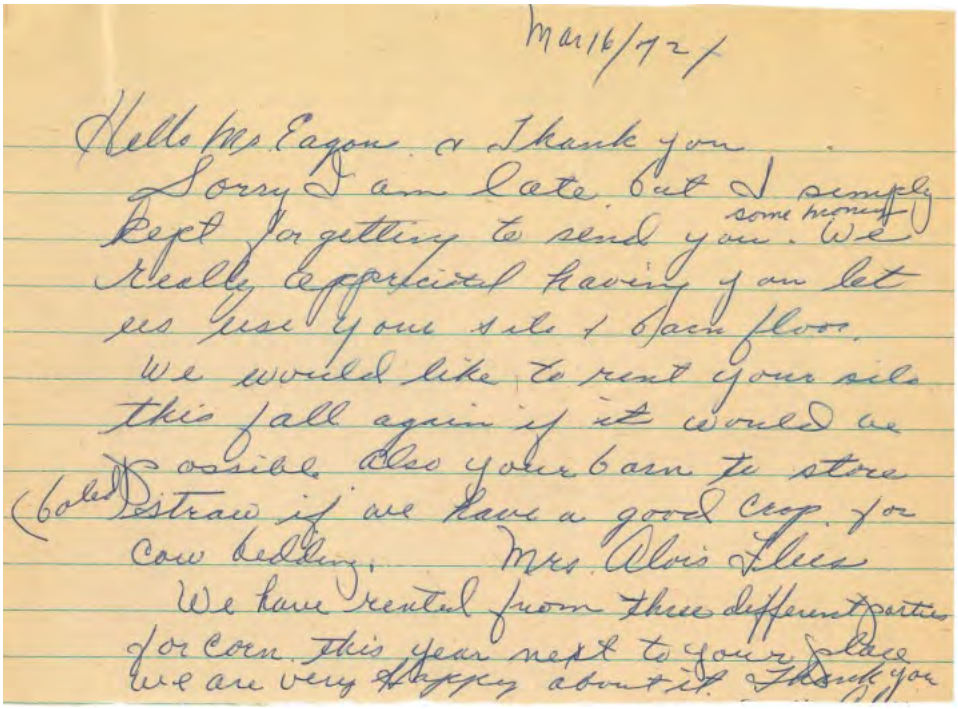
This agreement made and entered into this 19 day of May, A.D. 1971 by and between Erich A. Fischer and Genevieve R. Fischer of Portage County, Wisconsin and designated as Sellers and Burdette W. Eagon and Sarah Jane Eagon, as joint owners or survivors, of Portage County, Wisconsin, herein designated as Buyers.

The Sellers agree to sell and the Buyers agree to buy the property commonly known and described as follows:

That part of the North East Quarter of the South East Quarter of Section 34, township 25 North Range 10 East lying South of Highway 7 and the Flume Creek except for a .68 acre parcel previously sold, and certain buildings on the property, the barn to which is attached a silo and a lean to shed, and all of the contents of these buildings with the exception of barns stored in the barn, and the water pump in the barn, for the total consideration of thirty four hundred dollars ($3,400). Payment is to be made and deed delivered and transaction closed as follows:

First: The Buyers agree to pay the Sellers the sum of ($340) three hundred forty dollars in

**March 16, 1972**- Letter from Aloise Flees to Mr. & Mrs. Burdette Eagon:
"Hello Mr. Eagon and thank you. Sorry I am late but I simply kept for getting to send you some honey. We really appreciate having you let us use your silo and barn floor. We would like to rent your silo this fall again if it would be possible also your barn to store bales of straw if we have a good crop for cow bedding. Mrs. Aloise Flees. We have rented from three different parties for corn. This year next to your place we are very happy about it. Thank you, Aloise."



Mar 16/72

Hello Ms Eagon & Thank you.
Sorry I am late but I simply
kept forgetting to send you some money. We
really appreciated having you let
us use your silo & barn floor.
We would like to rent your silo
this fall again if it would be
possible. Also your barn to store
(bolted) straw if we have a good crop for
cow bedding. Mrs. Alois Flies
We have rented from three different parties
for corn this year next to your place
we are very happy about it. Thank you

The Eagon's owned the parcel for about 50 years. The family planted 3,000 to 4,000 red pines on the property, Eagon said. "Sarah and I were interested in new exploratory things to keep the kids busy and interested in nature. We tromped around looking at flowers and trees."
The parcel has historical significance. A sawmill powered by a water wheel on Flume Creek operated there in 1876. It included a boarding house, and in 1893, the Alban Post Office was established there. It burned down in 1903. The Eagon children enjoyed exploring the remains of the foundation and vicinity, he said. More recently, he and son Tom harvested wood for heating. (Eagon Land Donation - University Communications and Marketing | UWSP)

**Site Page**

Krol, Owen. 2015. *Clark Pond Interpretive Trail.* New London Conservation Commission. Available online at http://www.nl-nhcc.com/trails/trailpdfs/Clark_Brochure_Map.pdf; last accessed Feb. 22, 2022.

United States Department of Agriculture. Wisconsin State Legislature. Obtained: Feb. 10, 2022. https://docs.legis.wisconsin.gov/code/admin_code/nr/001/45/12

Rosholt, Malcolm. "Our County, Our Story; Portage County, Wisconsin." UWDC Search - UW-Madison Libraries. Portage County Board of Supervisors. Accessed February 18, 2022. http://digital.library.wisc.edu/1711.dl/WI.RosholtPort.

Rosholt, Malcolm L. Town 25 North: A Short History of Alban Township and Village of Rosholt, Portage County, Wisconsin. M. Rosholt, 1948.

**Appendix D** – Wetlands/ Riparian

**Appendix E** – Wildlife

CITI PROGRAM

Completion Date 11-Feb-2022
Expiration Date 10-Feb-2025
Record ID 47060016

This is to certify that:

**Tou Vue**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wed486e9a-6278-438f-810d-c9230a299110-47060016

CITI PROGRAM

Completion Date 07-Feb-2022
Expiration Date 06-Feb-2025
Record ID 47282348

This is to certify that:

**Tou Vue**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

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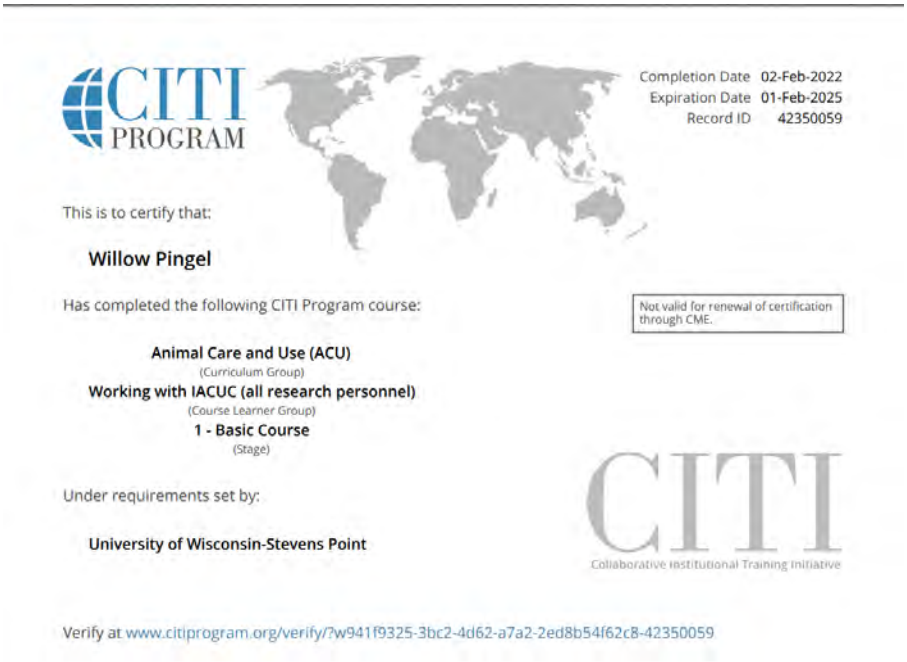


CITI PROGRAM

Completion Date 02-Feb-2022
Expiration Date 01-Feb-2025
Record ID 42350059

This is to certify that:

**Willow Pingel**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

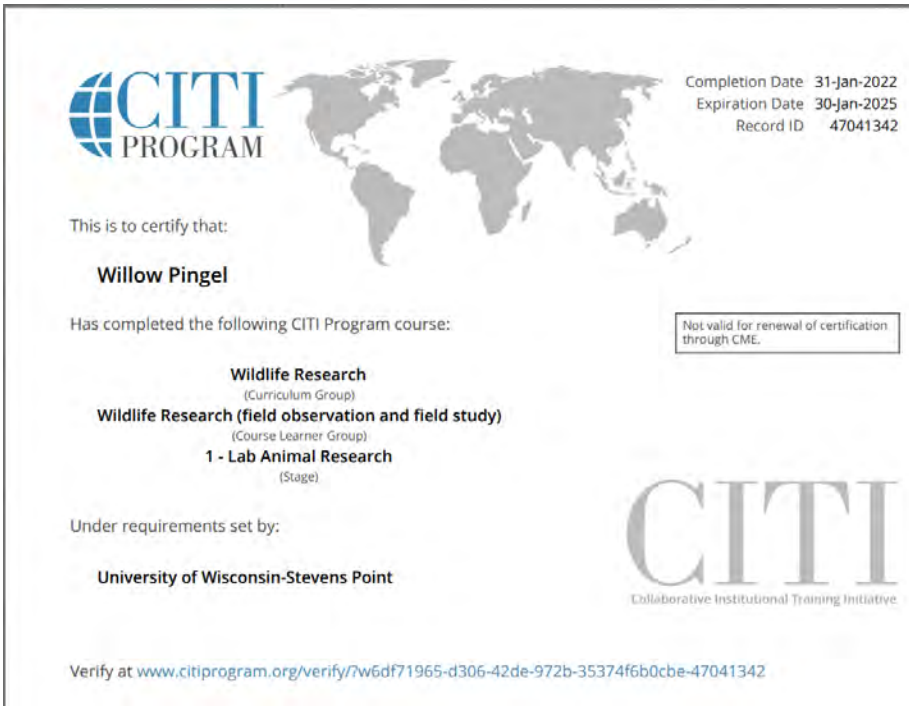
**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w941f9325-3bc2-4d62-a7a2-2ed8b54f62c8-42350059



CITI PROGRAM

Completion Date 31-Jan-2022
Expiration Date 30-Jan-2025
Record ID 47041342

This is to certify that:

**Willow Pingel**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

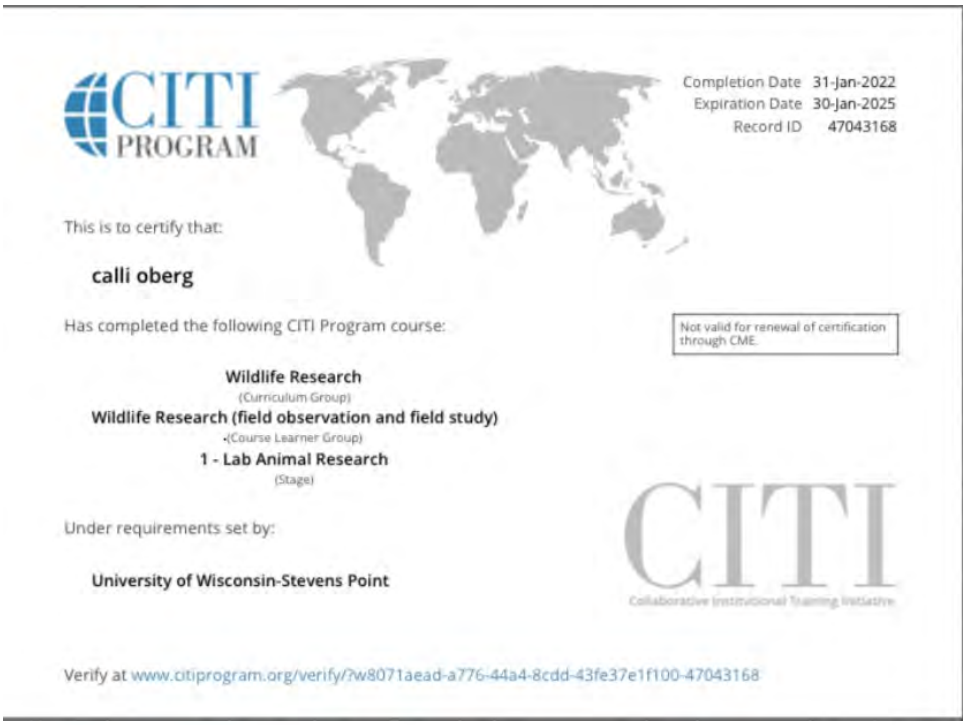
**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w6df71965-d306-42de-972b-35374f6b0cbe-47041342



CITI PROGRAM

Completion Date 31-Jan-2022
Expiration Date 30-Jan-2025
Record ID 47043168

This is to certify that:

**calli oberg**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w8071aead-a776-44a4-8cdd-43fe37e1f100-47043168

CITI PROGRAM

Completion Date 31-Jan-2022
Expiration Date 30-Jan-2025
Record ID 47094475

This is to certify that:

**calli oberg**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w59d64ef1-e4a2-432d-9d8f-c16990bbfd5f-47094475

CITI PROGRAM

Completion Date 30-Jan-2022
Expiration Date 29-Jan-2025
Record ID 47026266

This is to certify that:

**Forrest Lampert**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w9678c8f8-1dab-4a58-a0c6-4e6a0044d309-47026266

---

CITI PROGRAM

Completion Date 30-Jan-2022
Expiration Date 29-Jan-2025
Record ID 47026268

This is to certify that:

**Forrest Lampert**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w40914ecd-d8fd-4f5a-8a19-3f925d296566-47026268

CITI PROGRAM

Completion Date 04-Feb-2022
Expiration Date 03-Feb-2025
Record ID 47155579

This is to certify that:

**Erin Richards**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w5ba97500-fdea-4bca-b700-b68bf600fcd0-47155579

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CITI PROGRAM

Completion Date 14-Feb-2022
Expiration Date 13-Feb-2025
Record ID 47155580

This is to certify that:

**Erin Richards**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

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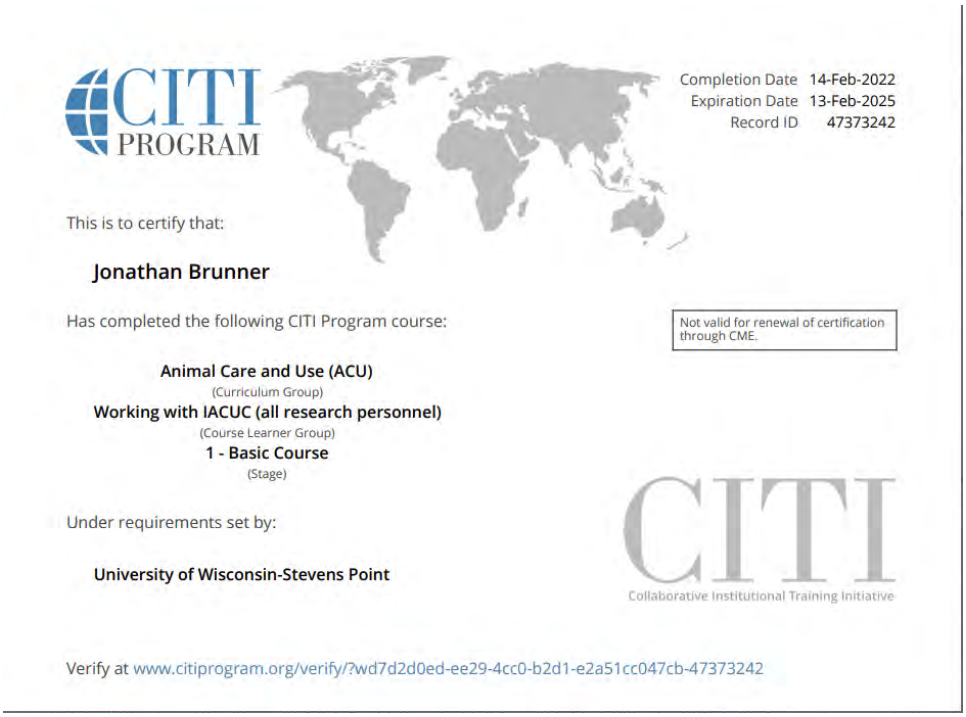


CITI PROGRAM

Completion Date 14-Feb-2022
Expiration Date 13-Feb-2025
Record ID 47373242

This is to certify that:

**Jonathan Brunner**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Animal Care and Use (ACU)**
(Curriculum Group)
**Working with IACUC (all research personnel)**
(Course Learner Group)
**1 - Basic Course**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wd7d2d0ed-ee29-4cc0-b2d1-e2a51cc047cb-47373242

CITI PROGRAM

Completion Date 14-Feb-2022
Expiration Date 13-Feb-2025
Record ID 47373243

This is to certify that:

**Jonathan Brunner**

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

**Wildlife Research**
(Curriculum Group)
**Wildlife Research (field observation and field study)**
(Course Learner Group)
**1 - Lab Animal Research**
(Stage)

Under requirements set by:

**University of Wisconsin-Stevens Point**

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w43584601-1431-46b7-aa15-cca7cf4b84ad-47373243

## Wildlife Team Certifications

**Neotropical Migratory Bird Surveying Field Sheet**

Name of Surveyor:

Species of Interest:

Date:

Time:

Site Number/GPS Coordinates:

Weather Conditions:

Temperature:

Wind Speed:

| Observations by Sound/Call | Observations by Sight |
|---|---|
| | |
| | |

**Please provide names, addresses, and phone numbers of all observers**
Place asterisk by name of cooperator who should receive materials next spring

**Route Number:** _____
**Year:** _____
**County:** _____

Name: _____ _____ _____ _____
Address: _____ _____ _____ _____
_____ _____ _____ _____
Phone: _____ _____ _____ _____
Email: _____ _____ _____ _____

---

**Enter sky and wind codes on front of data sheet:**

| Wind Code | Wind Speed (miles per hour) | Indicators of Wind Speed |
|---|---|---|
| 0 | less than 1 | Smoke rises vertically |
| 1 | 1-3 | Wind direction shown by smoke drift |
| 2 | 4-7 | Wind felt on face; leaves rustle |
| 3 | 8-12 | Leaves and small twigs in constant motion; wind extends light flag |
| 4 | 13-18 | Wind raises dust and loose paper; small branches moved |

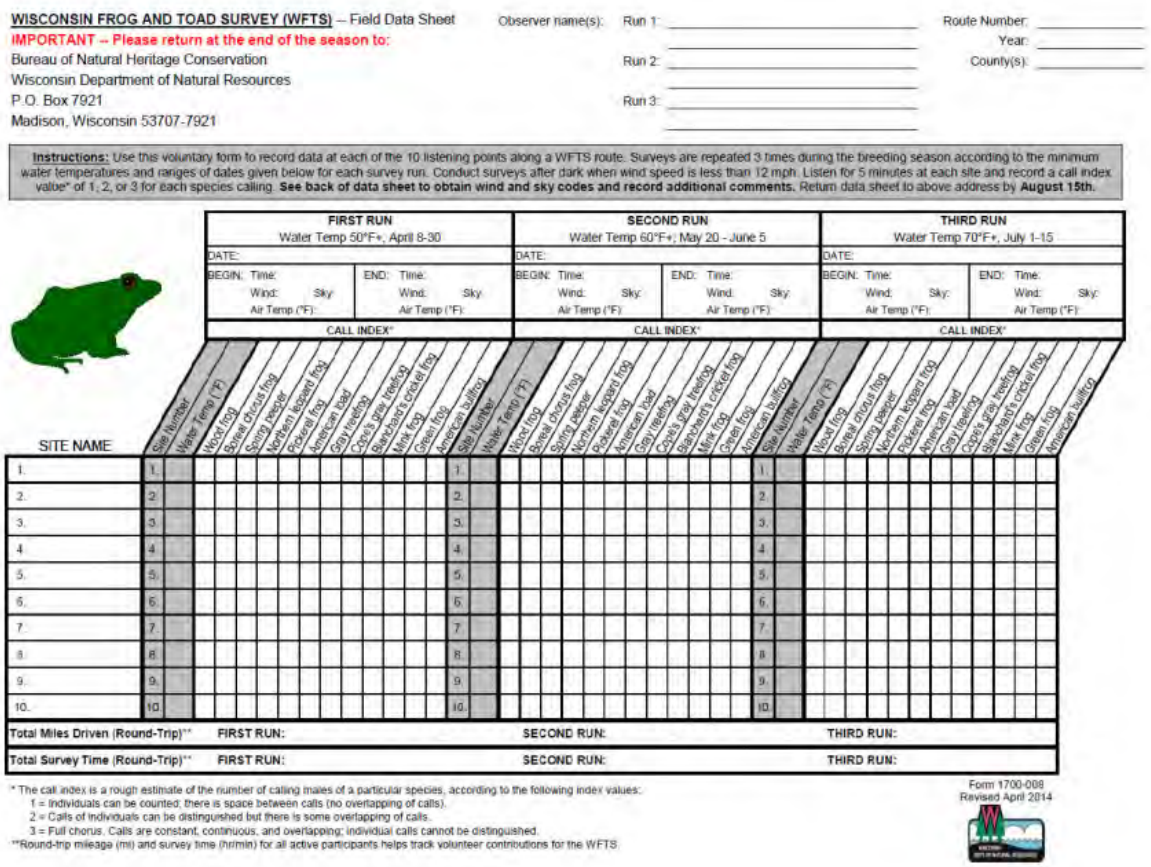
| Sky Code | Sky Condition |
|---|---|
| 0 | Clear or a few clouds |
| 1 | Partly cloudy or variable |
| 2 | Cloudy (broken) or overcast |
| 4 | Fog |
| 5 | Drizzle |
| 6 | Showers |

---

**Comments (difficulties, background noise levels, uncertain calls, habitat changes since previous run or previous year, etc.):**
***IMPORTANT: Documentation required for all records of the Blanchard's cricket frog and any species outside known range -- see instructional materials for details***

| Site | Run 1 | Run 2 | Run 3 |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Miscellaneous comments:



WISCONSIN FROG AND TOAD SURVEY (WFTS) – Field Data Sheet

IMPORTANT – Please return at the end of the season to:
Bureau of Natural Heritage Conservation
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707-7921

Observer name(s): Run 1: Run 2: Run 3:

Route Number:
Year:
County(s):

**Instructions:** Use this voluntary form to record data at each of the 10 listening points along a WFTS route. Surveys are repeated 3 times during the breeding season according to the minimum water temperatures and ranges of dates given below for each survey run. Conduct surveys after dark when wind speed is less than 12 mph. Listen for 5 minutes at each site and record a call index value* of 1, 2, or 3 for each species calling. **See back of data sheet to obtain wind and sky codes and record additional comments.** Return data sheet to above address by **August 15th.**

| | FIRST RUN<br>Water Temp 50°F+, April 8-30 | SECOND RUN<br>Water Temp 60°F+; May 20 - June 5 | THIRD RUN<br>Water Temp 70°F+, July 1-15 |
|---|---|---|---|
| DATE: | | | |
| BEGIN: Time: Wind: Sky: Air Temp (°F): | | | |
| END: Time: Wind: Sky: Air Temp (°F): | | | |
| CALL INDEX* | | | |

| SITE NAME | Site Number | Water Temp (°F) | Wood frog | Boreal chorus frog | Spring peeper | Northern leopard frog | Pickerel frog | American toad | Gray treefrog | Cope's gray treefrog | Blanchard's cricket frog | Mink frog | Green frog | American bullfrog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 1. | | | | | | | | | | | | | |
| 2. | 2. | | | | | | | | | | | | | |
| 3. | 3. | | | | | | | | | | | | | |
| 4. | 4. | | | | | | | | | | | | | |
| 5. | 5. | | | | | | | | | | | | | |
| 6. | 6. | | | | | | | | | | | | | |
| 7. | 7. | | | | | | | | | | | | | |
| 8. | 8. | | | | | | | | | | | | | |
| 9. | 9. | | | | | | | | | | | | | |
| 10. | 10. | | | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Total Miles Driven (Round-Trip)** | FIRST RUN: | SECOND RUN: | THIRD RUN: |
| Total Survey Time (Round-Trip)** | FIRST RUN: | SECOND RUN: | THIRD RUN: |

* The call index is a rough estimate of the number of calling males of a particular species, according to the following index values:
1 = Individuals can be counted; there is space between calls (no overlapping of calls).
2 = Calls of individuals can be distinguished but there is some overlapping of calls.
3 = Full chorus. Calls are constant, continuous, and overlapping; individual calls cannot be distinguished.
**Round-trip mileage (mi) and survey time (hr/min) for all active participants helps track volunteer contributions for the WFTS.

Form 1700-008
Revised April 2014

**Frog Surveying Field Sheets, Courtesy of the Wisconsin Frog and Toad Survey, WIDNR**

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**Appendix F** – Plants

**Appendix G** – FOR 434 Implementation Liaison

**Appendix H –** Geospatial

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