



Blue Grosbeak, photo by John Mackay

# Conservation & Resource Management Plan for Fisher Farm

Wildlife Enhancement Collaborative  
Updated November 15, 2024



## **Background**

The Wildlife Enhancement Collaborative (WEC), formed in mid-2022 to enhance the wildlife features of Fisher Farm and Abersham Parks, includes members of Davidson Lands Conservancy, Davidson College, the Town of Davidson, Mecklenburg County, and the NC Wildlife Resources Commission. With 545 acres of mostly natural land, these parks provide the region with an invaluable natural and conservation resource.

The initial focus of the WEC is Fisher Farm. This 200-acre regional conservation gem offers visitors the chance to experience nature first hand. Partly overcome by invasive species and still bearing scars of European settlement and Fisher Farm's past agricultural use, the Park falls well short of its profound potential as a native, wildlife-rich ecosystem. With generous funding from a variety of supporters, DLC and local partners intend to restore the Park to its authentic state by removing invasive plant species and replacing them with pollinator and wildlife-enhancing natives.

Prior to the Park's establishment, Fisher Farm was a working farm - home to hayfields and vast pastures of fescue. European colonists introduced foreign plants and species to the area during their settlement, leading to an invasion of native ecologies and a drastic reduction in the property's biodiversity. What was originally a region of prairies and savannas rich in plant and animal life, Fisher Farm was transformed into nonnative fescues, Bermuda grasses, and woody invasive plants in the forested areas. The current lack of wildlife diversity can be attributed to the sterile monoculture of the nonnative grasses which offer little food and cover for insects, birds, small mammals, etc.

Across previously plowed regions similar to Fisher Farm, wildlife biologists and conservationists have worked to recreate early successional habitats critically important to ecological stability. Fortunately, many of Fisher Farm's existing fields can be converted using similar processes to reintroduce rich meadows of native grasses and forbs that once offered a much richer ecosystem for wildlife—one that included pollinating insects that have since diminished in population.

### **Wildlife Enhancement Collaborative Members**

Pam Hay, Co-Chair, DLC Board member

Andy Kane, Co-Chair

Hayden Boyd, Citizen Conservationist

Lauren Collver, Davidson College student

Cathy Denham, Professional Educator, milkweed specialist

Angie Grooms, Professional Conservationist

Brad Johnson, Davidson College professor, geologist, stream geomorphology

Jazlyn Moock, Davidson College student and DLC intern

Chris Paradise, Davidson College professor, entomologist

Christa Rogers, Mecklenburg County Natural Resources

Carly Schiano, DLC staff

Andrew Sileo, Davidson Town Arborist

Kevin Smith, Davidson College professor, ecology

Mark Stanback, retired, Davidson College, ornithologist

Susana Wadgyamar, Davidson College, plant ecologist

Charlotte Welsby, Davidson College student intern  
Leslie Willis, Town of Davidson, Park and Rec  
Beth Wytiaz, DLC Executive Director  
Dave Cable, DLC volunteer

### **WEC Advisors**

Gabriela Garrison, NC Wildlife Resources Commission  
John Isenhour, NC Wildlife Resources Commission  
Chris Matthews, Mecklenburg County Natural Resources

### **Research and Education as Priorities**

Both research and education are core to this effort. Davidson College, one of the finest liberal arts schools in the US, houses environmental and natural science professors,



programs, and course offerings which meld nicely with the re-wilding efforts at the Parks. Each upper class student in the Environmental Studies program is required to complete a capstone project, and the wide array of research opportunities of the WEC effort offers diverse capstone opportunities. The WEC strives to have research as a cornerstone of this effort.

Conservation education is also a core part of the mission of the WEC's efforts. The WEC strives to intentionally include educational offerings to the public and participating volunteers for each component of the long-term restoration effort. This will include interpretive on site signage, community engagement via volunteer opportunities, and outreach.

### **WEC Mission and Vision**

**Vision:** Permanently conserve and manage the Parks to *enhance* ecological diversity while balancing nature with human enjoyment and also inspiring, educating, and practicing sustainable uses of the land.

**Mission:** To establish and implement science-based management plans for Fisher Farm and Abersham Parks by assessing biological communities and user needs, by improving habitat for biodiversity, and by modeling ecological stewardship for the general public.

### **Time Horizon**

The WEC effort is a long term, inter-generational effort to better manage the Parks. The near term management focus is 2-3 years, but the WEC fully embraces the reality that decades will be required to substantially restore the land, and even then, the on-going management needs will be constant and never ending. This effort is not about a project with an ending goal, but more about a process to enhance and maintain the land for increased biodiversity and contribution to local and regional ecosystems.

### **Management Program Areas**

This plan is organized into the following management areas:

- I. Forests and Trees
- II. Meadows - Restoration and Maintenance
- III. Walking and Biking Trails
- IV. West Branch Stream Alteration by Mecklenburg County
- V. Citizen Science
- VI. Community Farm at Park Entrance
- VII. Legal Conservation of Abersham Park and Fisher Farm Parks

For each management area this plan attempts to set forth:

- Goal, what are we trying to accomplish short and long term
- Action steps with time lines
- Budget, sources and uses of capital
- The role of research for each

## **I. Forests and Trees**

### **Overall Goal**

Increase the diversity and cover of the forest by enhancement management, invasive plant removal, and strategic tree planting or natural reforestation.

### **Tree planting and reforestation**

During 2022 and 2023 landscape-grade several tree plant events took place along the walkway from the Fisher Farm parking lot and along the entrance road. There will be additional community tree planting at the Parks, with additional planting phases to be determined by the WEC.

Longer-term the WEC will evaluate the open areas at Fisher Farm and Abersham to determine targeted areas for planted or natural reforestation of native species. The focus of this effort is likely to be in the riparian area of the West Branch following restoration by Mecklenburg County Storm Water. Andrew Sileo will oversee the tree selection and make tree planting location recommendations.

### **Biodiversity of the Forest**

*Assessment of Biodiversity Fisher Farm, July 2023, Dr. Kevin G. Smith, Lauren Collver, Izzy Hernandez, Katieanne Peterson, Soren Timura, Carlos Vargas.*

In summer of 2023 Davidson College researchers began a biodiversity survey and assessment project at Fisher Farm as part of an ongoing relationship with Davidson Lands Conservancy and the Town of Davidson. The goal of these surveys was to provide data to inform management activities occurring at Fisher Farm. The focus area was a 20 acre forest plot, adjacent to the main parking lot at Fisher Farm. The research split the forest into seven sections in order to obtain ample information about the patch.

The research focused on documenting tree, shrub, and forest floor plant biodiversity to assess the current state of the habitat in this forest patch. Through data collection, analysis

and interpretation, we focused on general biodiversity, tree abundance and size, light levels and forest floor coverage, and the presence of non-native species.

## **Findings**

The project's findings indicate strong potential to support plant diversity and a diverse wildlife population in the forest patch at Fisher Farm. The study suggests several management actions (forest stand improvement and low-intensity prescribed fire) that will reduce tree density and open the forest canopy to increase light levels on the forest floor and stimulate a more diverse and abundant herbaceous plant community. This in turn would support a more diverse wildlife population by providing a wider range of browse and habitat resources. The benefits of forest stand improvement and prescribed fire for biodiversity management are documented in published literature. Overall, the study suggests these management strategies will provide ecosystem benefits to wildlife as well as aesthetic benefits to visitors at Fisher Farm.

## **Study Recommendations for Implementation**

- Address low sunlight levels in the understory and the high density of small trees throughout the forest patch, each of which portends the potential for decreased diversity.
- Decrease the density of small trees, specifically Ash and Elm by:
  - Low intensity burns. These would achieve two outcomes. First, they would help eliminate many small trees without harming mature trees, opening up the mid-story. Second, fire would reduce leaf litter and promote germination of the seed bank, further promoting forest floor diversity.
- Manual killing of small trees can be accomplished by cutting stems and treating stumps with an herbicide, through the hack-and-squirt or cut-and-paint methods. This would provide some of the same benefits as a prescribed burn, but would not reduce leaf litter.
- To address low sunlight levels, the study recommends thinning some abundant mature trees such as Sweetgum and Tulip Poplar following invasive plant management in order to increase light infiltration into the forest patch and result in increased herbaceous growth, if desired. Felling and/or killing these trees with relatively low wildlife value can also help support the wildlife population by reducing competition around high producing trees. Alternatively, killing a few large trees via hack and squirt and leaving the trees standing would provide the same benefits while also creating habitat for insects and cavity-nesting birds. Finally, thinning around large Oaks and some Hickory and Beech individuals can allow their hard mast-producing canopies to spread out and become more productive

## **Park User Survey**

Davidson College student Lauren Collver oversaw a park user survey from mid-July to mid-September to better understand preferences of visitors and the understanding and appreciation for biodiversity in the Park. The survey was originally implemented by the authors of the biodiversity report (listed above).

The majority of respondents visit Fisher Farm at least once a week, and visitors are attracted by the combination of access to recreational activities and the opportunity to experience a scenic and natural atmosphere.

Overall scenery and atmosphere were valued slightly higher than biodiversity of either plants or animal wildlife for respondents' experiences with Fisher Farm. While visitors did value biodiversity highly, this indicates that the general atmosphere is valued slightly more than the individual species and biological interactions that are present. In the management section of the survey, respondents gave a higher rating to management that would "enhance the diversity of trees, plants, and wildlife" than to management that would "remove invasive species." This suggests that visitors generally understand that biodiversity is valuable, but are not especially concerned about how invasive species impact biodiversity.

Overall, respondents only "somewhat" agreed that any form of management would enhance their enjoyment of the site. When specifically asked about their understanding, visitors did not indicate a strong understanding of the biodiversity of Fisher Farm, and indicated a slight interest in learning more about the biodiversity. These responses indicate an opportunity to educate visitors about the individual species, biological interactions, and biodiversity of Fisher Farm in order to improve public understanding of biodiversity and conservation and to increase engagement with and support for the work of conservation. They also suggest possible reservations regarding management activity, which is another area where outreach and education could improve visitor's understanding of how management activity contributes to their experience.

The written responses also provide helpful insights into visitors' values and concerns. There were about an equal number of responses from those concerned about management activity for biodiversity and those who were supportive of the current work they have observed and potential future management. Concern about management centered on desires to keep the park "natural" and specific concerns about how the park is being managed (concern about milkweed, meadows, etc.). These concerns echo common misconceptions about the historic use of land and the goals of conservation management, which indicates an opportunity to increase public understanding of conservation and the history of land use. Overall, the written responses provide positive feedback from visitors about their experiences at Fisher Farm and support for those managing the site for recreation as well as biodiversity.



*CSD students on a volunteer day to address invasive plants, Fisher Farm.*

### **Invasive Plant Removal – Increasing Diversity of the Forest**

Invasive plant eradication will be a long-term need and effort. Within the next several years, both contracted services and volunteer efforts will focus on removal of autumn olive, privet, multi-floral rose, English ivy, Japanese Honeysuckle, and other predominant

invasive plants from targeted forested areas. The contracted work will begin this fall with a focus on forest areas adjacent to and south of the path from the parking area, and the perimeter of the forest adjacent to the study area referenced above.

Volunteer groups, including a robust group from Wildlife Habitat Sponsor Williams Energy, have worked on invasive plant removal over the last year led by DLC, and these efforts will continue with all efforts being targeted by the WEC.

There have been two contracted events of invasive management. In October 2023, Native Roots focused on the forested areas south of the prairie restoration area. And on March 8, 2024, Native Roots team addressed invasive plants in the 75' deep edge of the forested area to the north of the field restoration area and along with the tongue hedgerow south of the milkweed area. They also focused on basal treatment of the callery (Bradford) pear trees in the blackberry patch / riparian area along the paved greenway (see map for detail).

This work will continue under the direction of the WEC.

### **History and Steps Forward**

1. Davidson College researchers began small-scale invasive species control in fall 2023, and this will be augmented by more intensive work by contractors, as described above.
2. A low-intensity prescribed burn of some of the research area of the forest is contemplated but not planned as of spring 2024. The focus of burn efforts will be on the fields planned for March 13, 2024.
3. Invasive species control and re-surveys of forest biodiversity will occur throughout 2024 and 2025 to assess the outcomes of the proposed management activities on forest biodiversity.
4. Continue our efforts with focus on the targeted areas either through contracts with Native Roots or via volunteer group efforts.

## **II. Meadows - Restoration and Maintenance**

### **Overall Goal**

Create sustainable native prairies in designated areas at Fisher Farm, and eventually extend this effort to Abersham Park. Continue to maintain naturally occurring milkweed protection areas in the park in designated areas and extend protection to other areas. Leverage the replanting of wildflowers, native grasses and common milkweed after the stream construction work to create new wildflower/milkweed meadow areas for the benefit of wildlife and for the enjoyment of the public.

### **Existing Milkweed Protection Areas**

#### **Milkweed Protection Background**

For the last decade, citizens of Davidson in partnership with the Town of Davidson have actively preserved naturally occurring Monarch butterfly habitat in Fisher and Abersham parks. Citizens and the Town of Davidson Natural Assets Manager have identified and marked meadow areas that have naturally occurring milkweed, the host plant of the

endangered Monarch butterfly. The Monarch meadow areas are protected from mowing by marking the meadows with large metal stakes and flags around the perimeter and alerting the mowers. In addition, the Town maintains maps of the protected areas.

Significant Monarch habitat has been protected in this way, enabling the Monarch butterfly to complete its life cycle. This form of meadow protection has also protected significant pollinator and bird habitat. Please see the current and proposed Milkweed Protection areas marked on the park maps. These areas are separate from the Meadow Restoration areas.

### **Milkweed Protection Area Mowing Plan**

Mowing at the correct time of year is essential both for the milkweed to flourish and to allow the Monarch to use the milkweed to lay eggs as they migrate through in spring and fall. The milkweed meadow areas need to follow a strict schedule of mowing to achieve this goal.

The Monarch Joint Venture and the Xerces Society produce this excellent resource to aid in mowing habitat at the right times to protect the Monarch and other pollinators. [Mowing and Management: Best Practices for Monarchs \(see Appendices\)](#)

**When to Mow:** The milkweed meadows should be mowed in the last week of February to encourage the growth of new milkweed.

**When NOT to mow:** It is best not to mow from March to November. However, if a summer mowing is necessary, mid-July is the only time. The meadows cannot be mowed from March until mid-July and then cannot be mowed from August through early November. These are the peak times when the Monarchs are migrating through our area and need the milkweed to lay their eggs. It is best to allow the milkweed fields to stand all winter to provide bird habitat and to allow the milkweed seeds to disperse. Common milkweed is a perennial, so this is not required.

Update: September 25, 2024, from Cathy Denham:

My report on the Monarch areas at Fisher is that I have been out this fall to see the two areas in Fisher that have milkweed. There is milkweed which will spread over the years in the focus field below the parking lot. There are two small areas that have had Monarch caterpillars on them this fall. Yay! There is also milkweed with Monarch caterpillars in the lower field designated as a protected milkweed area, and students have scattered more seed this fall. This area needs to be mowed this winter and perhaps burned. There is lots of goldenrod in the area that has been protected longer and it has numerous pollinators nectaring on this valuable wildflower.

I led a Monarch hike on Sunday attended by about 30 people, and several folks said they are so appreciative that the town is protecting more areas for Monarchs!

### **Meadow Restoration Background and Findings**



The WEC has been studying Fisher Farm’s meadows for the last year to determine a plan for native prairie establishment, including the best techniques and the priority areas for the work. The evolving science of meadow restoration make this a difficult task and suggest that varied and incremental approaches are likely to present the best path forward.

The basic findings of the WEC for meadow restoration are:

- Continue to protect and maintain naturally occurring milkweed areas that are marked in the park.
- Priority areas for restoration: 1. west of the FF parking lot; 2. downslope and SW of area 1, on the south side of the walking path.
- Both areas hold good promise for conversion per John Isenhour of the NC Wildlife Commission, and there was consensus on these being the best targeted areas for now. There are no current or planned activity conflicts per Leslie Willis, Davidson Park and Rec Director.
- The existing sapling trees in the upper area are not, in John’s opinion, worth keeping. The existing persimmons will be a maintenance challenge long term.



*Cottontail rabbit, photo by John Mackay*



"PRAIRIE RESTORATION" Interpretive Trail sign #109-2023-04-0-0020, 10x20x27", ©2023 Prairie Design, Inc. 1x10x20x27-001-100 at Vista www.prairiedesign.com

- The conversion approach may vary between the two areas – John referenced more of a wholesale approach on the upper, larger area, and a more targeted or surgical approach on the bottom area.

Interpretation of those comments suggest wholesale total kill on the upper land and possibly a lighter touch to eradication on the lower area given the higher % of native grasses present. John implied that there may be more success tapping the native seed bank on the lower field while planting / drilling will be required or is best on the upper

field.

- Overall approach and timing:
  1. Chris Paradise and his ecology classes assessed and quantified arthropod populations in September. This survey will provide a baseline to measure changes in counts and biodiversity over time. **(Note: the Arthropod Survey is described in the addenda to this report, and the results will be provided and updated as they become available.)**
  2. In mid-October both field target field areas were mowed.
  3. On December 13, 2023 both field areas were treated with herbicide by Eli Beverly. The specifics of the application are presented in the following chart.
  4. In the fall 2024, establish another control site at Fisher Farm for comparison purposes.

**PESTICIDE REPORT—December 13, 2023 - ELI BEVERLY AND ASSOCIATES** NC Ground Pesticide Applicator lic. # 026-32878

*Client: Town of Davidson Parks and Recreation Dept.*

<b>TRACT LOCATION /COUNTY</b>	<b>APPLICATION DATE/TARGET</b>	<b>ACRES</b>	<b>CHEMICAL(S)</b>	<b>SOLUTION STRENGTH /RATE</b>	<b>APPLICATION METHOD</b>	<b>SPRAY MIX EXPENDED</b>	<b>TOTAL CHEMICAL EXPENDED</b>
Fisher Farm Park, Mecklenburg County (upper field)	12-13-23 fescue	~3.3	Ranger Pro® (41% glyphosate), Prime Source MSO Select® (methylated seed oil surfactant)	Glyphosate 3 quarts/ac, MSO 1.5 pints/ac	Foliar broadcast spray @ 19.7 gallons per acre	59 gallons	Glyphosate 8.97 quarts; surfactant 4.5 pints
Fisher Farm Park, Mecklenburg County (lower field)	12-13-23 fescue	~1.1	Ranger Pro® (41% glyphosate), Prime Source MSO Select® (methylated seed oil surfactant)	Glyphosate 3 quarts/ac, MSO 1.5 pints/ac	Foliar broadcast spray @ 19.7 gallons per acre (planned*)	32 gallons*	Glyphosate 4.84 quarts, surfactant 2.43 pints

*\*pressure regulator malfunction on lower field--higher pressure expended more spray than planned for on ~50% of area before correction*

Maximum use rates for herbicides: Ranger Pro® (41% glyphosate formulation)--10.6 quarts/ac/year

5. On March 13, 2024 a controlled burn is conducted on the prairie sites led by Eli Beverly. Eli’s contract and the burn plan are contained in the addenda.
6. The firebreaks were established prior to the burn via a light tilling. These areas are to be seeded with millet and strawed to prevent erosion.
7. The milkweed area shown on the addenda map “Northern Milkweed Management Area” shows an expanded management area. This area was mowed by public works at 10-12” the week of March 11, 2024.
8. Following assessment of the restoration fields, we will consider in summer of 2024 two additional wholesale herbicide treatments to each area (again, possibly a lighter touch on the lower area dependent on results). *John adds: I think we should meet in late May to evaluate seed bank response and make final decisions about how to approach the upper portion of the project.*

9. Consider light broadcast seeding of buckwheat or millet for soil stabilization. Gabriela favored buckwheat.
10. Plant via drill sites April 15, 2025 or wait until fall 2025, with possible reliance on the native bank in the lower area.

Co-Chair Andy Kane has suggested that possibly the best approach is to follow the first 4 steps and get John Isenhour and Gabriela Garrison back out to assess the site to determine the best path forward.

Gabriela offered that Weymouth Woods might be a good demonstration area for consideration in planning and installing educational signage. Also Christa Rogers could be helpful as contact for the Mecklenburg County project at Latta regarding signage.

John asked about the College's capacity to exploit drone technology to assist in the project. Chris indicated that was possible.

Increasing the biodiversity of insects at Fisher Farm will undoubtedly have positive effects on the avifauna there. There are currently many species of migrant and resident birds at Fisher Farm, but increasing insect diversity will probably attract additional species as well as increasing the habitat quality for the birds that currently use the area.



*Controlled burn at Fisher Farm, March 8, 2024*



*Passion flower, photo by John Mackay*

Dr. Mark Stanback currently monitors 34 nest boxes at Fisher Farm for bluebirds and tree swallows. These birds should not be negatively affected by any of the manipulations involved with the planned habitat improvement.

Dr. Stanback is also conducting a study of the diversity and abundance of mason bees (Genus *Osmia*) and other species that use holes in wood for breeding. He installed 20 sets of bee blocks at Fisher Farm in early 2022 and has been monitoring their use since then. Hopefully by having data from before, during, and after the manipulations, we can better understand how the pollinator fauna responds to the manipulations.

### **Steps Forward**

1. Follow the above Milkweed Protection area mowing plan for the designated Milkweed Protection areas. See mowing schedule above. Use the stream bank

replanting after the stream construction to maximize planting of native grasses, meadow flowers and common milkweed, the host plant of the endangered Monarch butterfly.

2. Following advancement of the prairie restoration, we are working to install permanent signage explaining the project, plants and biodiversity benefits. Signs for the prairie and the milkweed areas have been ordered and will be installed in April or May.
3. Early summer, meet on site with John Isenhour, Gabriela Garrison and group to evaluate seed bank response and decide if two additional summer herbicide treatments to each area are appropriate.
4. At that time, consider light broadcast seeding of buckwheat or millet for soil stabilization.
5. Consider planting by drill later in the fall with possible reliance on the native bank in the lower area.

### **UPDATE - Prairie Restoration at Fisher Farm – May 23, 2024**

Purpose: Evaluate the effectiveness of the herbicide treatment and burn of the fields  
Participants: Leslie Willis, Eli Beverly, John Isenhour, Gabriela Garrison, Pam Hay, Andy Kane, Dave Cable

#### **Observations**

The upper field has not seen much native seed release and is in need of a wholesale herbicide treatment shortly following an immediate mowing to about 6-8". The herbicide treatment should be applied in the coming weeks. Plant species note in the upper field:

Carolina Horsenettle  
Flat Stem Clubrush  
Pokeweed  
Blackberry  
Common Plantain  
Johnson grass (lots of it!)  
Some Bermuda grass  
Dog Fennel  
Some Queens Anne's Lace  
Goldenrod  
Purpletop vervain  
Spreading Dogbane  
Common Milkweed  
Weeping Love grass



The lower field looks better overall, and the group consensus was to treat this surgically following targeted mowing ideally with a zero turn mower. Some species noted with greater abundance in the lower field:

Eastern Gama grass  
Johnson grass  
Beaked panic grass  
Narrow leaf plantain

Butterfly weed  
Cornflower  
Golden crownbeard

**Eli offered the following post visit:**

*Good to see everybody yesterday. Thanks for making the effort to include me; my apologies for you having to do so in the first place, but it worked out. I have a couple points to make so that we're all on the same page:*

1) *Before Gabriella, John, Andy and I left, I pointed out the limitations of my boom spray rig and the need to do the herbicide application before the vegetation reached much more than a foot high after mowing. Those of us still there agreed that it would necessarily move up the schedule of the first spraying due to that, so if it's mowed at 6-8" high in the next few days, we'll need to plan for the herbicide within a couple weeks after that but when there's some new growth. With soil moisture as it is at the moment, I doubt that we'll have to wait long to get the requisite growth response. Please let me know when the mowing takes place.*

*To save me a trip up there from Albemarle to see what's going on, I'd request that someone make a recon trip about a week after the mowing, and again a few days after that one to let me know when to do the*

*application. Spraying will, of course, be weather-dependent; a 30% chance of rain is worth the gamble, but more than that will cause a delay. The glyphosate mixture is generally rain-fast in a couple hours, but the more time before rain, the better. I'd probably time the application for after the dew evaporates, with little to no sustained wind and no inversion conditions, so will probably be late morning at the earliest.*

2) *We will need contracts executed and any/all permissions acquired well in advance, so I'd suggest you start communicating that to the Town ASAP. By now, I should hope the machinery of contract administration would be well lubricated and ready to churn out the necessary documents without difficulty or delay.*

*Thanks, all. EB*



**John Isenhour followed the meeting with this note:**

*Good to see everyone yesterday as well as look at the progress Eli and the other partners have made. I appreciate Eli's e-mail on Friday clarifying the need to get spraying done sooner than later after mowing and making sure contract details are squared away so this can happen. Unfortunately, we live in a world full of non-native invasive species. I know it seems daunting, but with steady efforts I feel certain it will move in a positive direction.*

*Here are the basics for you to fill in from your notes.*

**Upper field:**



- Mow at a height of 8 to 10 inches ASAP to limit seeding of Johnson Grass.
- Avoid some of the common milkweed if practical, but weed control is primary goal.
- Once vegetation begins to regrow, treat with a broad spectrum herbicide to kill both grasses and broadleaf species in order to control undesirable species. Once again we are faced with a large coverage of persistent non-natives and I do not feel that selective application is a viable option at this time, other than some of the common milkweed if

*enough volunteers are willing to treat the non-natives around the milkweed.*

- Follow-up treatment later in the summer, not to exceed 10.6 quarts of 41% glyphosate product per acre.



### **Lower Field:**

- Mark as many beneficial species as practice including butterfly milkweed, eastern gama grass, and others noted during our visit.
- Mow the remainder of the area with a zero turn at a height of 6 to 8 inches. Primary goals for this mowing is to reduce seed production of undesirables, release desirables, and set back growth of undesirables to make herbicide application more efficient.
- Use selective herbicide application, both formulations and application methods to reduce coverage of undesirables and release desirable natives. Specifically target Johnson grass, Bermuda grass, and narrow-leaved plantain.
- Repeat mowing when undesirable regrowth requires.

*Please chime in if this is not an accurate schedule of what we talked about, or if there are critical species missing from the list of key desirables and non-desirables. I know this is a labor intensive process. This is why these habitat types are in decline, along with the fauna that depends on these habitat types. The things that just used to happen in our typical land use regime we have very effectively replaced with non-native species (read Bermuda grass, Johnson grass, sericea, tall fescue, autumn olive, Russian olive, privet) searching for a magic bullet to solve one “problem” or another.*

*I don't often share my emotional thoughts about the work we do, but as I get older and am faced with what seems like an ocean of non-natives I sometimes need to justify our work. The old proverb states “To plant a tree is to believe in tomorrow.” There is some truth to this, but that does not seem to relate to early succession or native herbaceous plants. As we waded through chest deep Johnson grass we each perked up a bit when we saw our butterfly of choice. A quick search returned a statement that might not be scientifically accurate (sorry Gabriela) but explains the emotion and nervous*

*excitement I face with each project I have been involved with, especially when managing the seed bank. "There is nothing in a caterpillar that tells you it's going to be a butterfly." R. Buckminster Fuller. It can certainly be a daunting task, but there are good things happening at Fisher Farm, and whether it is based on faith or Faith we are willing to be involved and play a part to see what will emerge.*

*To step back the real world, keep up the good work and look for those things that show the benefits of your work.*

**John Isenhour**

**Forward steps as of May 24, 2024 based on consensus of the experts:**

1. In the lower field, immediately assess the native plant groupings and clearly field mark them with flagging (scheduled for May 28) as no-mow areas.
2. Cut and treat trees (persimmons) present in both fields (May 28)
3. Wholesale mow the upper field to 6" to 8" as soon as possible (1 week or so max)
4. Surgically mow the lower field non-native areas with a zero turn mower at a height of 6 to 8 inches. Primary goals for this mowing is to reduce seed production of undesirables, release desirables, and set back growth of undesirables to make herbicide application more efficient.
5. Spray the upper field about 2 weeks after it is mowed
6. In the lower field use selective herbicide application, both formulations and application methods to reduce coverage of undesirables and release desirable natives. Specifically target Johnson grass, Bermuda grass, and narrow-leaved plantain.
7. Assess the conditions in late summer and most likely treat the upper again in August or September and spot treat the lower field.

**UPDATE as of June 22, 2024- Marked Save Areas, Mow, and Field Treatment - May 28-June 20, 2024**



Purpose: Follow up herbicide treatment on the prairie as referenced above

Participants: Eli Beverly, Leslie Willis, Carly Schiano, Andy Kane, and Dave Cable

On May 28, Andy and Dave worked on the fields to remove and treat the persimmon volunteers and to identify and rope off areas of natives that responded to the seed release. The upper field save from mowing areas were limited to two

milkweed areas about mid-way down the hill and abutting the northerly forest. The lower field's response was much more positive and the key areas of natives were clearly marked. Dave later weed whacked around the save areas and reviewed them with Dave Showalter who mowed the fields on June 5, 2024.

On June 20, 2024, Eli treated both fields with 5% glyphosate solution following public announcement of the treatment plan and site posting. The day was sunny, 90 degrees and

light breeze. Application went really well. Eli was able to cover all areas excepting the save areas where seed release was successful.

Next steps: Check field on July 15 for assessment of treatment effectiveness, and spot spray as needed. Reassess the response late summer or early fall.



**PESTICIDE REPORT—June 20, 2024 ELI BEVERLY AND ASSOCIATES** NC Ground Pesticide Applicator lic. # 026-32878

Client: Town of Davidson Parks and Recreation Dept.

TRACT LOCATION/COUNTY	APPLICATION DATE/TARGET	ACRES	CHEMICAL(S)	SOLUTION STRENGTH /RATE	APPLICATION METHOD	SPRAY MIX EXPENDED	TOTAL CHEMICAL EXPENDED
Fisher Farm Park, Mecklenburg County (upper field)	6-20-24 fescue, Johnson grass, plantain, other grasses and forbs	~3.0	Ranger Pro® (41% glyphosate), Prime Source MSO Select® (methylated seed oil surfactant)	Glyphosate 4 quarts/ac, MSO 1.5 pints/ac	Foliar broadcast spray @ ~19.5 gallons per acre	56 gallons	Glyphosate 2.8 gallons; surfactant 0.525 gallons
Fisher Farm Park, Mecklenburg County (lower field)	6-20-24 fescue, Johnson grass, plantain, other grasses and forbs	~1.0	Ranger Pro® (41% glyphosate), Prime Source MSO Select® (methylated seed oil surfactant)	Glyphosate 4 quarts/ac, MSO 1.5 pints/ac	Foliar broadcast spray @ ~19.5 gallons per acre	19 gallons	Glyphosate 0.95 gallons, surfactant 1.5 pints

Maximum use rates for herbicides: Ranger Pro® (41% glyphosate formulation)--10.6 quarts/ac/year



## UPDATE – October 2024 – Site Visits and Discussion

The fields were revisited by the team on October 1 and 10, 2024 to assess the status of the seed release, the effectiveness of the work to date and to determine the next steps. Below is a summary of the site visits, **while detailed notes from each visit can be found in the Addenda.**

October 10 - Present: Gabriela Garrison, Pam Hay, Eli Beverly, Kevin Smith, Dave Cable

The topic for this meeting was determination of the specific steps forward on the prairie project.

Here is a recap of the work completed to date (sent to the group before the meeting):

- October 2023 – both field areas mowed
- 12/13/2023 – herbicide treatment by Eli
- 3/13/2024 – controlled burn by Eli
- 5/23/2024 – on-site evaluation by the team
- 5/28/2024 – Andy and Dave removed and treated persimmons, selective weed whacking, isolated and marked milkweed and key native plant areas in fields
- 6/5/2024 – fields mowed by David with care to avoid native plant release areas
- 6/20/2024 – herbicide treatment by Eli avoiding native plant release areas
- 10/1/2024 & 10/10/2024 – on-site evaluations by team

Eli: the native seeds are on their way to release but only limited success to date. The Johnson grass remains dense and was noted to be ready to seed at the last site visit, which prompted the recommendation to mow immediately at our Oct 1 on-site meeting. Eli noted that the timeliness on herbicide applications is very important.

Gabriela: She deferred to John and Eli on herbicide treatment details and timing. In the lower field, the seed release results are probably worth saving and working with using spot spraying. The upper field holds little hope for native release and she feels removal of all vegetation is probably wise, following John and Eli's suggestions for treatment.

Eli's suggestions on herbicide treatment which he summarized in the meeting are as follows:

*"Here is a short list of herbicides that I'm proposing for use at Fisher Farm, with labels. In general, they are not soil-active, and have relatively short half-lives in the environment; the exception may be Milestone® (aminopyralid), with slight soil activity, so we'll want to be judicious about including it prior to planting.*

- *Poast® (sethoxydim): grass-specific; maximum use rate 7.5 pts/ac/year. Label suggests a two-step process for control in rhizome Johnson grass, with the first being 1.5 pts/ac followed by a second application @ 1.0 pt/ac no less than 14 days later. This would be my recommendation, with at least the first being in a tank mix with triclopyr ester (next in list). Reported half-life in soil ranges from 5 to 50 days, but it is not soil-active.*

- *triclopyr ester (Garlon 4®, Triclopyr 4®, others): broadleaf-specific with a few exceptions in turfgrasses; maximum use rate (pastures) 2 quarts/ac/year. Volatilizes readily above 80-85 degrees F., but shouldn't be problematic since there won't be any forest canopy to damage (although nearby broadleaf plants may be damaged if there isn't sufficient air mixing from breezes). Reported half-life in soil ranges from 8 to 46 days or more depending on soil type and climatic conditions. Not soil-active.*
- *Milestone® (aminopyralid): mostly active on legumes and asters, but tends to enhance herbicidal activity of other products. Maximum use rate 7 oz./ac/year. Primarily foliar active but with slight soil activity. Average half-life in soil 103.5 days (EPA figure; ranges from 31.5 to 533 days in 5 different soils). LIKELY WE WOULD ONLY USE THIS TO HELP MANAGE CLOVER, SICKLEPOD OR OTHER LEGUMINOUS SPECIES THAT ARE MORE DIFFICULT TO MANAGE WITH TRICLOPYR.*
- *Crop oil or methylated seed oil: adjuvant/surfactant.*

*I'll have to make sure that we can tank-mix Poast® and triclopyr ester without any problem. I feel like we can but will need to do a "jar test" to check for compatibility. Worst case, we make two separate applications.*

*We could substitute 2,4-D or one of its variants for triclopyr and expect similar results. Half-life in soil is around 7-10 days but has had some bad press over the years (component of "Agent Orange", possible groundwater contamination under certain circumstances, possible carcinogenicity and teratogenicity), so I tend to shy away from using it. However, it's an effective and relatively safe chemical in general, and has been around for over 50 years.*

*Another alternative to triclopyr ester would be the amine or choline versions of triclopyr, but they are slightly less effective compared to the ester, I and many of my colleagues believe. In contrast to the ester, though, they don't have the volatility issues and so can be used at temps in the upper 80s-low 90s with essentially no vapor formation".*

Kevin: Just to be clear, we failed on the upper field given the lack of native seed release. The Johnson grass needs to be eradicated as much as possible, and the milkweed is probably not worth working around – just save the seed pods.

Eli: we will need to drill-plant the upper field.

Gabriela: burns are good too for managing disturbance in established prairies but probably not a good option in our situation. We need to focus on killing the vegetation and not burning. Kevin agreed, and noting that the question is what is our strategy.

Here is the timing and task listing endorsed by the group for the upper field:

- April 1 – closely monitor the field, note and report what's coming up, overall conditions.



- May 1 – take photos and monitor every week, cruise the field and report findings
- May 15-30 – Herbicide treatment, see Eli’s note above, specific to address noted vegetation.
- Fall 2025 – target to plant seeds in upper field.



Tasks for the lower field recognizing this area is better botanically, and therefore a more surgical approach is warranted:

- Backpack spray using key herbicides with timing similar to treatment of the upper field
- The group agreed that contracting this work is important given the limitations of volunteers

### Educational Signage

Signage was installed in early October at the upper prairie area and near the lower milkweed field, both signs positioned along the greenway trail.

## III. Walking and Bike Trails

### Goal

Enhance and manage the trail systems to limit impact on the ecosystems, while providing strong pedestrian access and adequate access and use by non-motorized bikers.

### Trail Systems

A map of the trails at Fisher and Abersham can be found in the Appendix of this report. The chart below presents a summary of the trail distances.

A fairly detailed assessment of the walking trail system has been completed.

Two maps in the appendices delineate the current trails (orange lines), proposed trail reroutes (orange dashed lines), and proposed trail decommissioning (red lines). One map overlays these lines on an aerial background, while the other overlays them in relation to contour lines. I have designated five different project areas as A, B, C, D, and E. Please note that the proposed realignments have not been physically verified ("ground truthed") and are based solely on contour data.

De-berming is a crucial maintenance technique for preserving a sustainable trail tread. It involves removing leaves and deposited sediment (berms) from the outer edge of the trail tread, allowing

Trail Use	Fisher Farm (Miles)	Abersham (Miles)	Total (Fisher Farm and Abersham) (Miles)
Existing Greenways (Along River)	1.11	0.82	1.93
Walking Trails	1.12	1.80	2.92
Biking Trails	6.24	7.04	13.28

water to flow across the trail rather than down it. Below are two video references demonstrating “de-berming”:

<https://www.youtube.com/watch?v=C3yqzkwQSWY>

<https://www.youtube.com/watch?v=xy1y308R2x4>

#### Project Area A:

In this section of the trail, there are included two proposed realignments and decommissioning. The first realignment should reroute around the large fallen tree that has damaged the trail tread, taking a path above the tree. The second realignment eliminates the fall line alignment, addressing the current water damage issue and ensuring long-term sustainability. It's advisable to enlist a professional builder with machinery for these realignments. Volunteers can carry out the enjoyable task of decommissioning the former trails.

As a reminder, fall line trails run downhill perpendicular to the contour, making them unsustainable with high erosion rates. On the other hand, trails following contour lines are more sustainable and facilitate proper water runoff. Refer to the example below:

#### Trail:

Approximate Realignment Length: 1500'

Approximate Price per Foot: \$10 per foot

Approximate Price: \$15,000

#### Project Area B:

In this section of trail, there are two realignments and three de-commissionings. Additionally, a bridge needs to be constructed across the intermittent stream. Once again, I recommend eliminating fall line alignments and instead constructing sustainable trail tread following contour alignments.

#### Trail:

Approximate Realignment Length: 900'

Approximate Price per Foot: \$10 per foot

Approximate Price: \$9,000

The cost of bridges can vary significantly depending on permitting and drawings, but as all the bridges on Fisher Farm appear to be outside of the FEMA floodplain.

#### Project Area C:

In this section, I have included one realignment and decommissioning. Creating a sustainable trail alignment through the kudzu patch appears to be the best solution, avoiding the need for constructing stairs. Additionally, this area requires the redecking of a bridge and the construction of a boardwalk.

#### Trail:

Approximate Realignment Length: 315'

Approximate Price per Foot: \$10 per foot  
Approximate Price: \$3,150

#### Project Area D:

Overall, this section of the trail is in decent condition. De-berming is critical on this section..

#### Project Area E:

In this section, I have included one realignment and decommissioning plan, which would eliminate the fall line trail serving as access to the service road.

#### Trail:

Approximate Realignment Length: 100'  
Approximate Price per Foot: \$10 per foot  
Approximate Price: \$1,000

### Work to date

A group of trail masters have been recruited and trained with the assistance of Will Ruark and the Carolina Thread Trail Master program. In addition, a de-berming work day was held December 8, 2023 with the CSD students.

### Steps Forward

1. Identify more specifically needed trail enhancements or trails that should be closed, and categorize those trails needing professional contracted service repair work vs those well suited for repair or closure by volunteer groups.
2. Coordinate Eagle Scout projects with the Town of Davidson (Gina Carmen on point).
3. Solidify a group of volunteer leaders who are willing to be fully trained in trail management, enhancement, building, and closure. Note: very helpful volunteer trainers who are willing to help are Larry Humbert and Dave Edwards).
4. Continue to host volunteer events to work on the trails.
5. Raise capital for contracted trail repair, and coordinate volunteer groups for other repairs or closures.

October 2024 Update – Girl Scout Troop 2303 designed and built a new pedestrian bridge to provide for re-



routing the trail and closure of a highly eroded section of trail. The new bridge, pictured here, is located on the main walking trail about ¼ mile north of the Fisher Farm parking lot.



## IV. West Branch Stream Alteration by Mecklenburg County

This fall (2023) Mecklenburg County Storm Water Services will begin the Rocky River West Branch Phase 1 Watershed & Stream Improvement project which stretches along the entire length of Abersham and Fisher Farm Parks. This controversial project, costing over \$8,000,000, will remove all vegetation in the corridor for about 100 feet from both stream banks. The project will last several years and is designed to reduce erosion and improve water quality and aquatic life.

Building on the citizen advisory group active during the project's planning stages, the WEC will serve as an on-going advisory group to the County's work and will be focused on making suggestions during the project to lighten the environmental impacts on the Parks. The WEC is also partnering with Davidson College's efforts to study the project's impacts on the West Branch, both short and long term, through research and the Citizen Science program.

The timeline for the stream work is as follows (as of March 20, 2024):

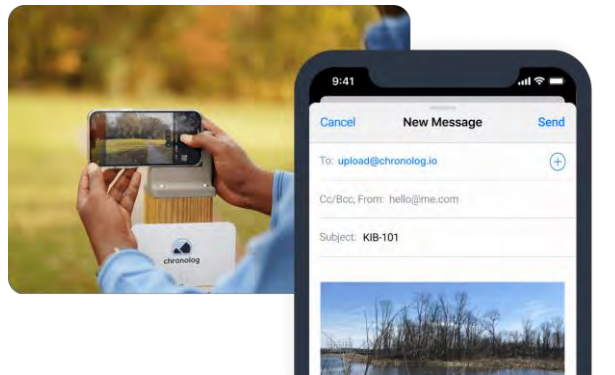
- Phase two earth work, Abersham section, to be completed by September, 2024
- Phase III (Fisher Farm section) work will be bid in July 2024
- Work to begin on Phase III section around October or November 2024.
- Plantings installed on Phase II Winter 2024 -2025.

Andrew Sileo has agreed to oversee the planting of trees in the restoration corridor, and was in touch with Tim Trautman with Mecklenburg County Storm Water in mid-June 2024 to review the planting list and plan.

Dr. Chris Paradise is overseeing macroinvertebrate sampling in the sections of the West Branch, both below and within the restoration area. On June 26, 2024 Chris reported to the WEC encouraging sample results in both areas of the West Branch. This data and analysis will be summarized in this plan when completed.

## V. Citizen Science Program

In conjunction with the Mecklenburg County's West Branch restoration efforts, Davidson College and DLC are leading a citizen science program designed to assess through time the West Branch corridor and the dynamics of the stream. The initial stages of this program include two components: 1. installing Chronolog photo stations in strategic locations along the stream to create time series photographs of the stream and its environs; and 2. Engaging and leading citizens to describe and photograph the stream bed and log and debris snags.





This program will help better understand the dynamics of the stream and relationships among aquatic life, storm events, and stream debris. The focus of the program will be to document the accumulation and movement of debris in the river.

Five photo locations have been established. Those sites were cleared and prepared by volunteers in October 2023.

The Chronolog posts, signage and related equipment were installed in December, 2023 and are being used by visitors to Fisher Farm to collect photos to create a time lapse.

Citizen science volunteers have been recruited and trained and are currently collecting data. The data collection and analysis is being expanded to include turbidity measurements, with a particular focus on sampling during rain events (as of June 2024).

## **VI. Community Farm at Park Entrance (10 acre)**

The town has decided to lease 10 acres of land at the far eastern edge of Fisher Farm to the Carolina Farm Trust to establish a community farm. The details of the plan are yet undetermined. The proposed agricultural use of Fisher Farm requires amendment of the conservation easement encumbering the land. Amendment of the easement is difficult given the review requirements by the NC Council of State given that the easement is held by a public agency (Mecklenburg County).

The WEC plans to monitor the farm plan and execution to help with guidance to limit degradation of the Farm's ecosystems. Other than review and monitoring, the WEC has no anticipated involvement with the farm.

## **VII. Legal Conservation of Abersham & Fisher Farm Parks**

Abersham Park is owned by Mecklenburg County and is not protected by a conservation easement. Fisher Farm is owned by the Town of Davidson and is protected by a permanent conservation easement held by Mecklenburg County. The Fisher Farm easement is stewarded by DLC under an agreement with the County.

Davidson formally requested conservation of Abersham Park in December 2022. That formal request followed a lengthy and involved citizen review process during 2022 and 2023 of the West Branch stream restoration project proposed by Mecklenburg County. The stream project required approval by the Town of Davidson and the Town's granting of a right-of-way easement. During that process the citizenry spoke clearly about the need for protection of Abersham Park, with particular concern for the existing development infrastructure on the property. Responding to overwhelming local concern, the Davidson Board of Commissioners requested the County conserve Abersham Park.

The Town has also asked the County to assign the Fisher Farm conservation easement of the DLC given its deep involvement with the property and its legal structure designed to steward and protect conservation easement terms in perpetuity.

The Appendices include a case statement about conservation of Abersham Park, as well as the Davidson's Town Board's request to the County. Formal conservation of Abersham is an integral part of the long-term management of the Park.

Dave presented to the Mecklenburg County Environmental Stewardship Committee on the topic of conservation easements, and met individually with both Commissioners Elaine Powell and Mark Jerrell. Further up discussions are planned for the spring including a work group to study the issues of conserving county properties, including Abersham Park. The trend as of June 2024 is to consider deed restrictions on some county park land. This is in the early and formative stages of consideration.



# **Appendices**

## Relevant Maps

Monarch Joint Venture - Mowing and Management

Arthropod Survey of Fisher Farm Park

Controlled Burn Plan and Contract

Assessment of Biodiversity Fisher Farm, June 2023

Site Visit Reports – Prairie Restoration Team, including John Isenhour, NC Wildlife Resources Commission and others; Update

Field reports on Prairie work

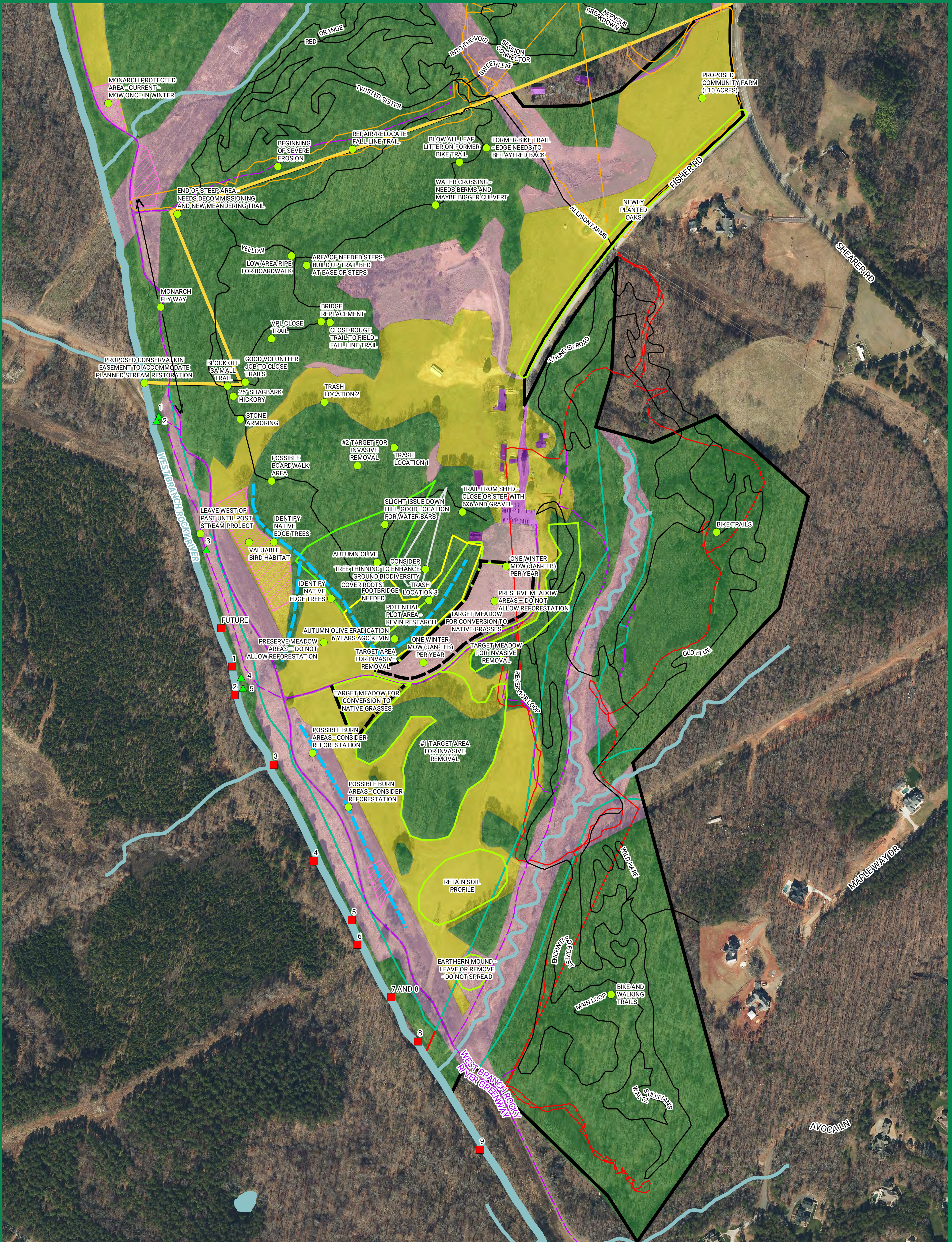
Case for Conservation of Abersham

Town of Davidson Resolution

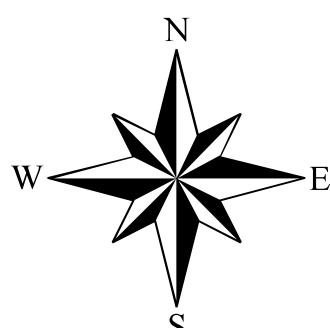
# Fisher Farm Park – Management Plan

## MASTER Overall Map

March 2024



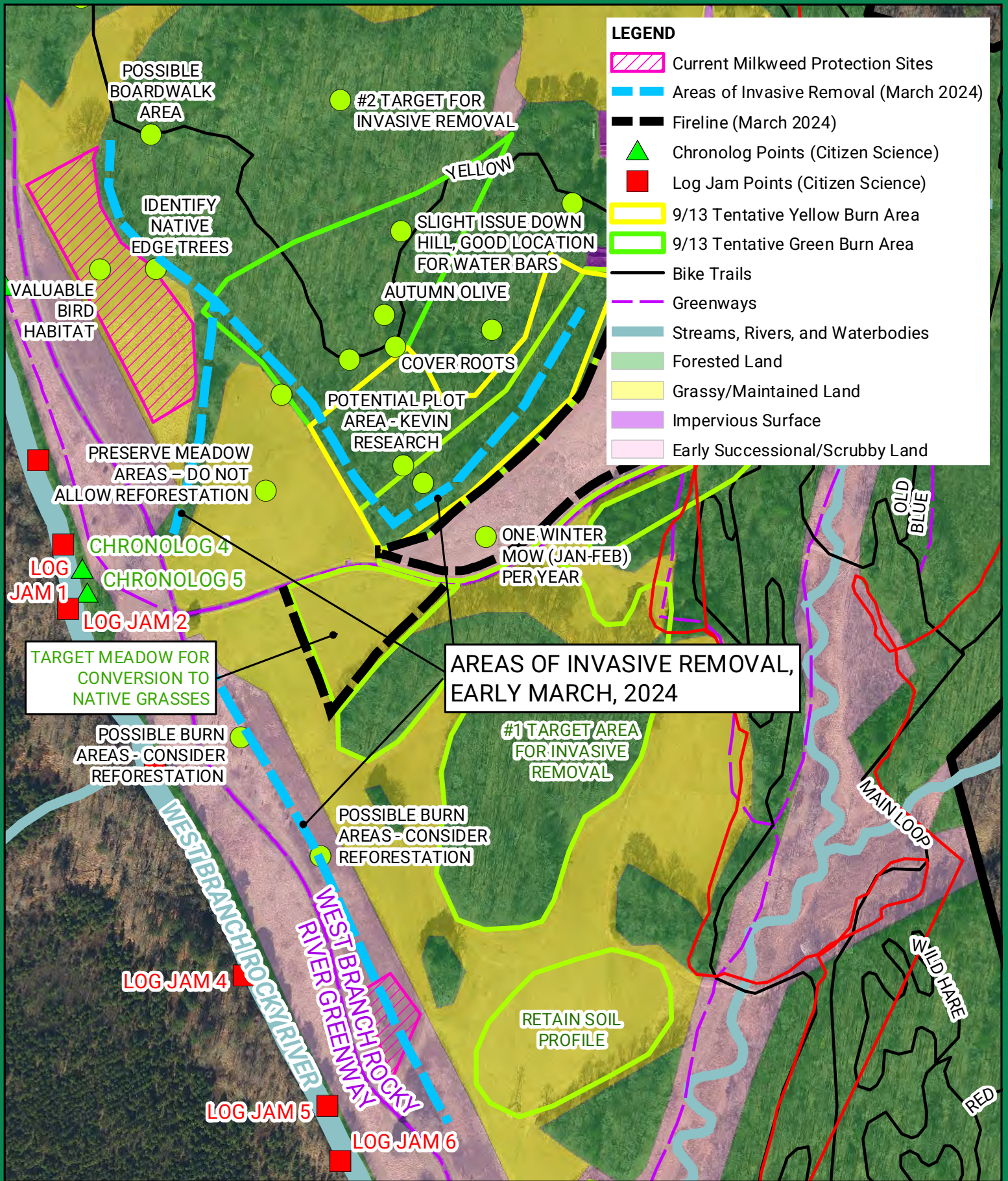
Contact:  
Dave Cable  
704-577-2004



0 200 400 Feet  
1" = 200'

### LEGEND

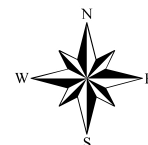
- Fisher Farm Park - 200.4 acres
- Excluded Area per Amendment - 18.86 Acres
- Conservation Easement Area - 181.54 Acres
- Chronolog Points (Citizen Science)
- Log Jam Points (Citizen Science)
- Burn Area (Avoid)
- 9/13 Tentative Green Burn Area
- 9/13 Tentative Yellow Burn Area
- Notes (Points)
- Notes (Polygons)
- Abersham Park (Unprotected)
- Current Milkweed Protection Sites
- Potential Milkweed Protection Sites
- Bike Trails
- Abersham Emergency Access
- Greenways
- Fisher Farm Emergency Access
- Streams, Rivers, and Waterbodies
- Forested Land
- Grassy/Maintained Land
- Impervious Surface
- Early Successional/Scrubby Land
- Areas of Invasive Removal (March 2024)
- Fireline (March 2024)



Contact:  
Dave Cable  
704-577-2004

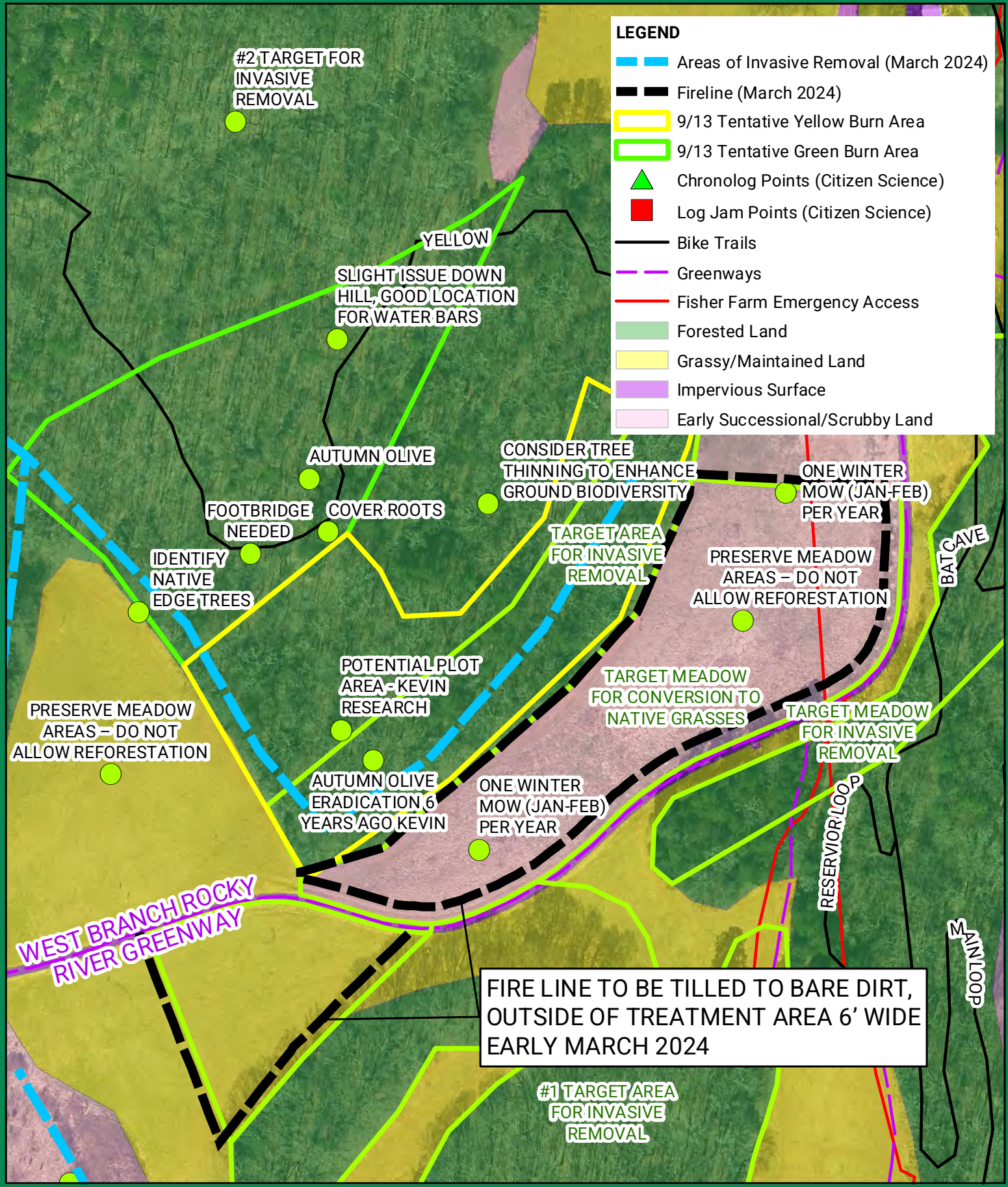


Fisher Farm  
Targeted Invasive Removal  
Mecklenburg County, North Carolina  
March 2024



0 250 Feet

1" = 250'



**LEGEND**

- Areas of Invasive Removal (March 2024)
- Fireline (March 2024)
- 9/13 Tentative Yellow Burn Area
- 9/13 Tentative Green Burn Area
- ▲ Chronolog Points (Citizen Science)
- Log Jam Points (Citizen Science)
- Bike Trails
- Greenways
- Fisher Farm Emergency Access
- Forested Land
- Grassy/Maintained Land
- Impervious Surface
- Early Successional/Scrubby Land

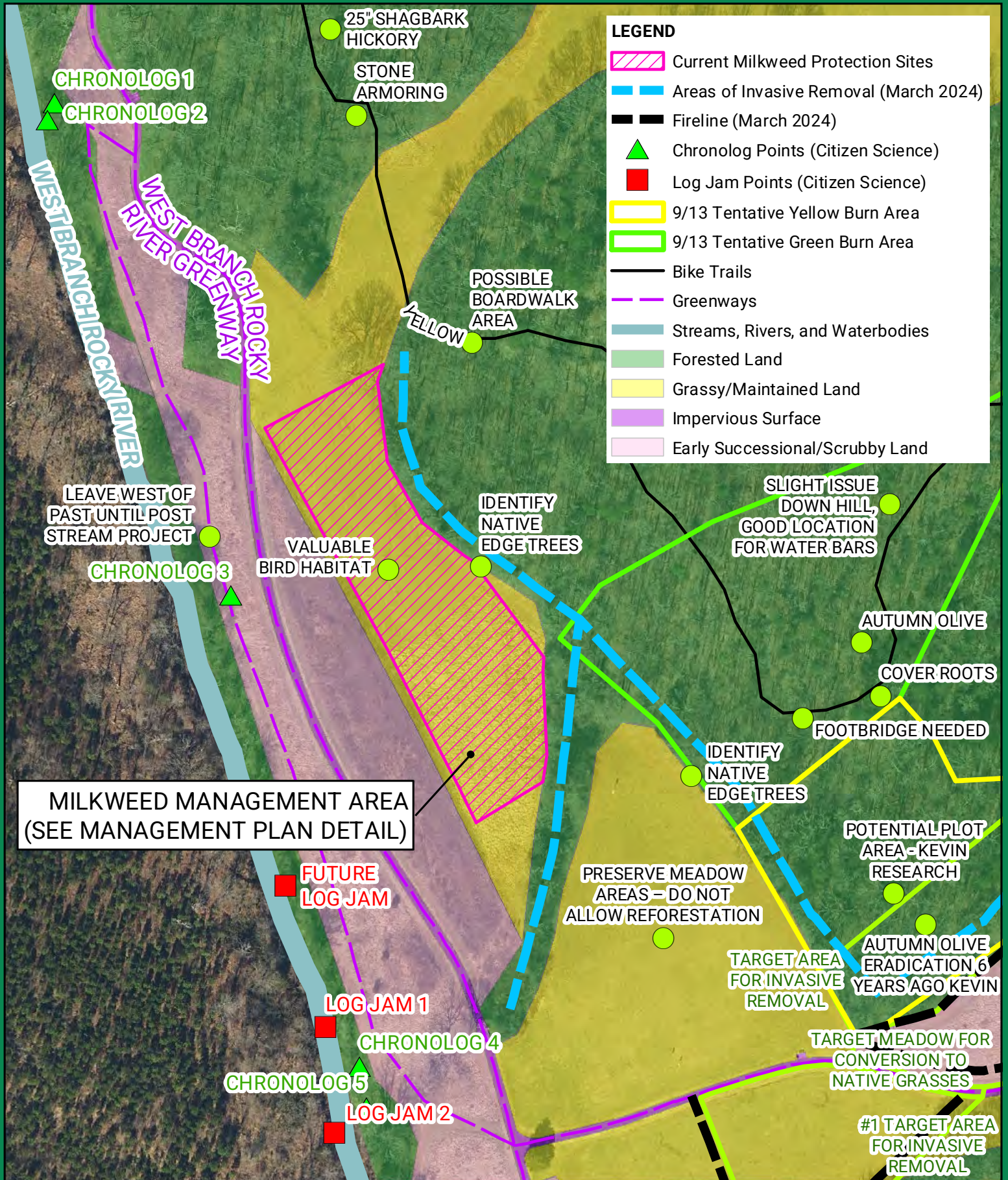
**FIRE LINE TO BE TILLED TO BARE DIRT, OUTSIDE OF TREATMENT AREA 6' WIDE EARLY MARCH 2024**

Contact:  
Dave Cable  
704-577-2004



**Fisher Farm  
Fire Line**  
Mecklenburg County, North Carolina  
March 2024

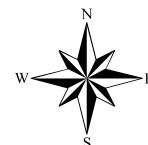
0 150 Feet  
1" = 150'



Contact:  
Dave Cable  
704-577-2004



Fisher Farm  
Northern Milkweed Management Area  
Mecklenburg County, North Carolina  
March 2024



0 150 Feet  
1" = 150'



# MONARCH JOINT VENTURE

Partnering across the U.S. to conserve the monarch migration

[www.monarchjointventure.org](http://www.monarchjointventure.org)

## Monarch Joint Venture

The Monarch Joint Venture (MJV) is a partnership of federal and state agencies, non-governmental organizations, businesses and academic programs working together to protect the monarch migration across the United States.

Our mission is to protect monarchs and their migration by collaborating with partners to deliver habitat conservation, education, and science across the United States.

Our vision is thriving monarch populations that sustain the monarch migration into perpetuity and serve as a flagship for the conservation of other plants and animals.

## Contact us

Website:  
[www.monarchjointventure.org](http://www.monarchjointventure.org)

Email:  
[assistant@monarchjointventure.org](mailto:assistant@monarchjointventure.org)

Phone:  
(651) 222-7631

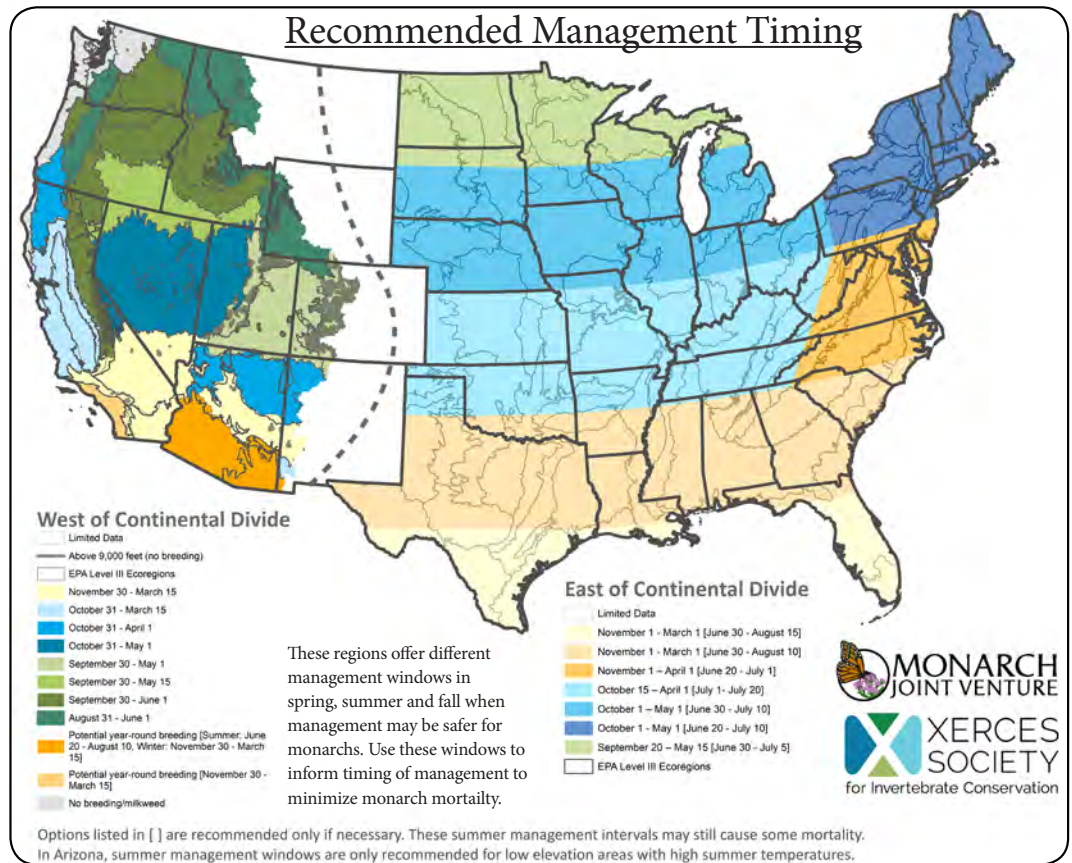
Mailing Address:  
2233 University Ave W.  
Suite 426  
Saint Paul, MN 55114

Find additional contact information on our website.

Photo credits: Wendy Caldwell,  
Karen Oberhauser

## Mowing and Management: Best Practices for Monarchs

Understanding when monarchs are present allows land managers to time management practices like burning, mowing, grazing, or targeted pesticide application when they are least likely to harm monarchs. Monarchs can be harmed when eggs and caterpillars on milkweed plants or adult monarchs seeking nectar from flowers are present during management, or when habitat is removed at critical points in their life cycle. The following recommendations are intended to reduce harm to monarchs based on breeding and migration activity (see *How was this map made?* below). Use the management windows below in conjunction with recommendations for other species to inform the timing of management in your area.

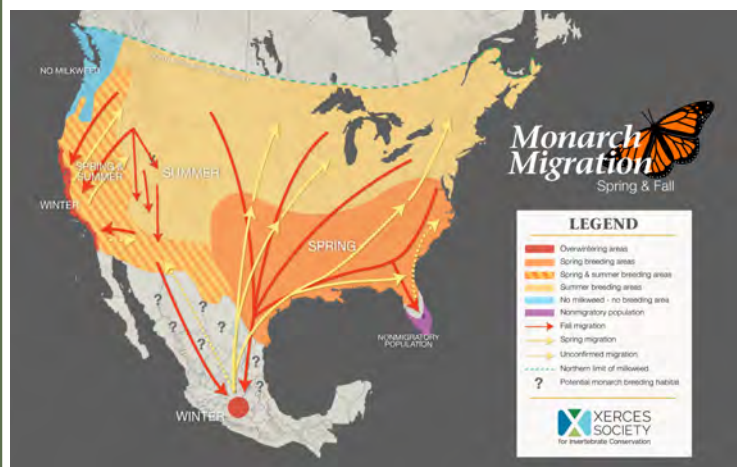


These regions offer different management windows in spring, summer and fall when management may be safer for monarchs. Use these windows to inform timing of management to minimize monarch mortality.



## Considerations when using these recommendations

- Monarch breeding and migrating activity can vary from year to year. Verify monarch presence or absence using real-time observations on Journey North (<https://journeynorth.org/monarchs>) or Western Monarch Milkweed Mapper ([www.monarchmilkweedmapper.org](http://www.monarchmilkweedmapper.org)), or survey for monarch eggs and larvae. This is especially important near the beginning/end of a management window or in unusual weather years.
- We have more to learn about breeding in MT, WY, CO, and NM. These states may be very important for monarch production. We will create recommendations for these states as more data become available.
- Year-round monarch breeding can occur in areas with mild winter climates on non-native milkweeds. See the Monarch Joint Venture handout “Potential Risks of Growing Exotic Milkweeds for Monarchs” to learn more.
- In southern Arizona, monarchs have been occasionally documented breeding year-round on native milkweed species such as rush milkweed (*A. subulata*), and management actions in winter months may still cause harm.
- If you must manage while monarchs are present, try to minimize disturbance to milkweed and blooming flowers. For example, limit to one mow, mow only where necessary (e.g., exclude ditches and back slopes), avoid milkweed and blooming plants during management, and manage only a portion of an area if possible.



## When are monarchs present in your area?

Each spring, monarchs disperse from overwintering grounds in Mexico and the California coast to spread across the U.S. and southern Canada in search of milkweed plants (*Asclepias* spp.) on which to lay their eggs. On both sides of the continental divide, monarchs breed and lay eggs from spring to fall, ending when the migratory adults migrate to their overwintering grounds. However, different regions have different windows during which breeding activity is observed. The migration map pictured here depicts the progression of the spring migration in the eastern and western U.S. The fall migratory generation, as illustrated in red on the map, completes the migration to the overwintering grounds, spends the winter there, and begins the return journey in the spring.

## Best mowing practices for monarchs

Mowing can be an effective management tool to control woody and weedy species and manage undesirable species from setting seed. Mowing also may stimulate the growth of desirable nectar plants. However, mowing too often or during certain times of the year may result in higher mortality for wildlife, including monarchs and other pollinators. Monarch eggs, larvae, pupae and even adults may be killed directly by the mower, and mowing can remove critical habitat for monarchs and other species. To limit monarch mortality, use the following recommendations:

- Avoid mowing the entire habitat. Leaving refuge areas for wildlife will allow for recolonization of the mowed site. Leave areas that may be good nesting or overwintering sites (leaf litter, dead stems, other ground cover) for pollinators or other wildlife. Marking habitat areas may prevent accidental mowing, and signage helps communicate why an area is not mowed.
- Avoid mowing monarch habitat when monarchs are present (see Recommended Management Timing map above). Mowing milkweed mid-summer in areas where there is a lull in monarch activity, such as the Southern Great Plains, may promote milkweed growth and late summer or early fall breeding (Baum and Mueller 2015; Fischer et al. 2015). Always survey for monarchs before conducting mid-season mowing.
- Mow after native plants finish blooming and dispersing seed.
- Mow once or twice per year. Consider mowing within an integrated vegetation management framework on just the areas of heaviest weed infestation. Mowing too frequently disrupts growth and the ability of flowering plants to compete with grass. During the first year of some restoration projects (e.g., prairies), more frequent mowing may help with weed control. Many DOTs have adopted deferred mowing programs to benefit monarchs and other species.
- Use a minimum cutting height of 10-12 inches (shorter may be needed for early establishment mowing). This effectively removes seed producing parts of most invasive plants and minimizes wildlife impact.
- Use a flushing bar and cut at reduced speeds to allow wildlife to escape prior to mowing.



Right: Look for signs of monarch presence such as small chewed holes from first instar caterpillars and frass from fifth instars.

Wendy Caldwell

## How was this map made?

Data used to create management windows during the monarch breeding season were provided by the Monarch Larva Monitoring Project from 1997-2014, ([www.mlmp.org](http://www.mlmp.org)) and Journey North (<https://journeynorth.org/monarchs>) for the East, and Xerces Western Monarch Milkweed Mapper, ([www.monarchmilkweedmapper.org](http://www.monarchmilkweedmapper.org)) for the West. Peak migration estimates from Monarch Watch ([www.monarchwatch.org](http://www.monarchwatch.org)) and Xerces Western Monarch Milkweed Mapper were used to generate recommendations for management during fall migration. Expert opinion by field biologists and scientists was also used to inform management windows. In the West, management windows were customized by EPA Level III ecoregion, and in the East they are separated by latitude with ecoregions visible. Based on the availability of data, some ecoregions in the West were combined into the same window and one ecoregion in southern California (the Sonoran Desert 10.2.2) was split into two management windows.

## Resources

For additional guidance on managing monarch habitat and surveying for monarchs, visit the Monarch Joint Venture ([www.monarchjointventure.org](http://www.monarchjointventure.org)) and the Xerces Society ([www.xerces.org](http://www.xerces.org)) websites.

Information on this handout is adapted from the Managing Monarchs in the West: Best Management Practices for Conserving the Butterfly and its Habitat: ([www.xerces.org/managing-monarchs-in-the-west/](http://www.xerces.org/managing-monarchs-in-the-west/)).

## References

- Baum, K. A., and E. Mueller. 2015. Grassland and roadside management practices affect milkweed abundance and opportunities for monarch recruitment, pp 197–202. In K. S. Oberhauser, K. R. Nail, and S. M. Altizer, (eds.), *Monarchs in a changing world: Biology and conservation of an iconic butterfly*. Cornell University Press, Ithaca, New York
- Fischer, S. J., E. H. Williams, L. P. Brower, and P. A. Palmiotto. 2015. Enhancing monarch butterfly reproduction by mowing fields of common milkweed. *Am. Midl. Nat.* 173: 229–240.
- Hopwood, J., S. H. Black, E. Lee-Mader, A. Charlap, R. Preston, K. Mozumder, and S. Fleury. 2015. "Literature Review: Pollinator Habitat Enhancement and Best Management Practices in Highway Rights-of-Way." Prepared by The Xerces Society for Invertebrate Conservation in collaboration with ICF International. 68 pp. Washington, D.C.: Federal Highway Administration.



## Exercise 4: Arthropod Survey of Fisher Farm Park

### Introduction

There are two large parks a ten minute drive from Davidson College. Abersham Park, with 345 acres, is owned by Mecklenburg County. This land was approved for residential development in the early 2000's, and during the 2008 recession the developer went bankrupt. The land was purchased in 2010 by the County and is now cooperatively managed by the Town of Davidson and Mecklenburg County Parks & Recreation. It is not protected from future development. Fisher Farm, adjacent to and south of Abersham, covers 200 acres and is owned by the Town of Davidson. Mecklenburg County holds a conservation easement on Fisher Farm; the conservation easement was required by the County as a condition of their partial funding for the Town's purchase of Fisher Farm. This protects the land from future development. The Davidson Lands Conservancy monitors and stewards the conservation easement.

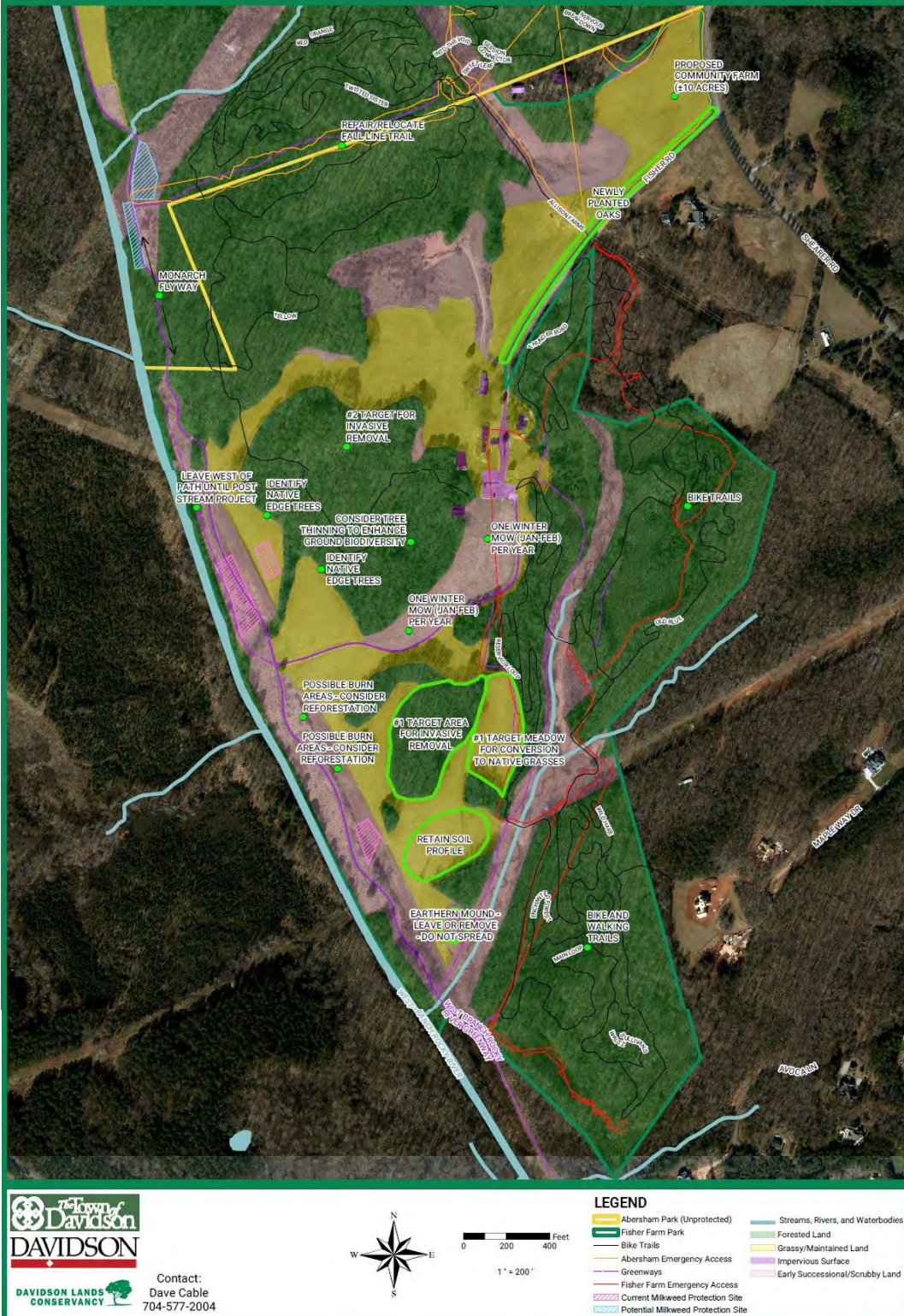
Together, Abersham and Fisher Farm Parks provide a regionally significant 545-acre park and nature preserve. The land is largely undeveloped excepting bike and hiking trails, limited access roads, parking areas, and a picnic shelter at Abersham. The land in its relative natural state is vital to and heavily used by the community, nature lovers, walkers, bikers, and bird watchers. DLC works in partnership with the Town of Davidson to monitor and steward the conservation easement on Fisher Farm and manage the Park for maximum benefit to the public and nature. DLC is also working closely with the Town of Davidson, staff of the North Carolina Wildlife Commission, and faculty members of the Biology Department on a long-term plan to rewild parts of Fisher Farm. Rewilding is a relatively progressive approach to conservation that focuses on natural processes, promoting growth of species native to the area, and repairing damaged or negatively affected ecosystems. The goals are often creating more biodiverse habitats, restoring ecosystem functions and services, and conserving endangered or threatened species.

The Vision of DLC's rewilding efforts at Abersham and Fisher Farm Parks is to "Permanently conserve and manage the Parks to enhance ecological diversity while balancing nature with human enjoyment and also inspiring, educating, and practicing sustainable uses of the land." They wish to establish and implement science-based management plans for Fisher Farm and Abersham Park by assessing biological communities and user needs, by improving habitat for biodiversity, and by modeling ecological stewardship for the general public.

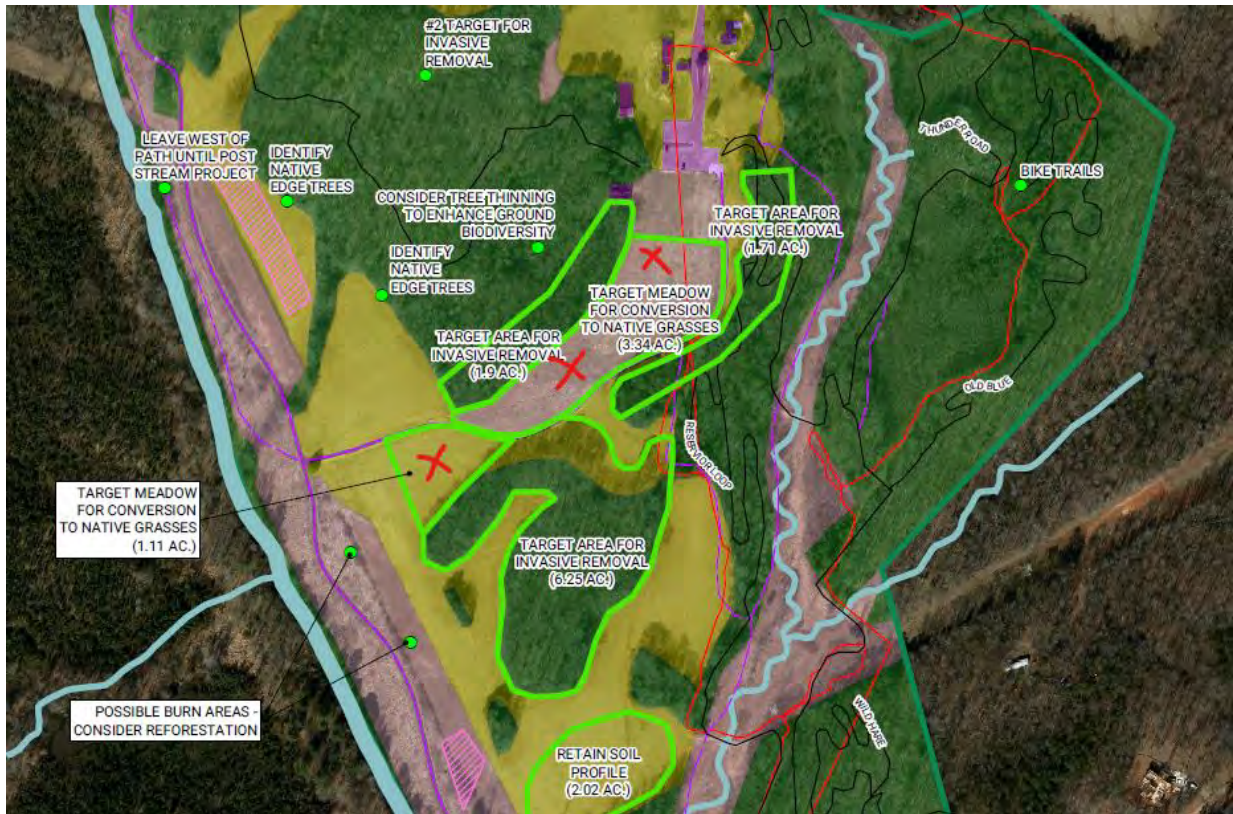
DLC and its Rewilding Committee, which consists of the aforementioned partners, is in the process of creating a master plan with maps and goals. One project with which they plan to begin is rewilding two of the fields in Fisher Farm Park (see map). They have asked us to collect baseline data on the arthropod community (insects and spiders, mainly) in these fields. We will sample in those fields two to three times this fall to collect such baseline data. While it will be difficult for us to identify all organisms to the species, we should be able to provide a rough estimate of number of species and their distribution across families and orders.



**Fisher Farm Park Wildlife Enhancement Collaborative**  
**Fisher Farm Park**  
**April 2023**



Map of Fisher Farm Park. The parking lot can be seen in pink, just south of the fluorescent yellow-green of Fisher Road. Just south of the parking lot tannish early successional/scrubby land area, and south of that is a grassy/maintained land. Those are the two target rewilding areas in which we will sample.



Close up of Fisher Farm Park with restoration and rewilding target areas highlighted. The red “x”s mark the target meadows for rewilding that we will sample.

### Learning Outcomes

- Demonstrate ability to collect and coarsely identify field insects and spiders.
- Become proficient in collection of insect and spider community data in fields.

### Sampling approach

We will use three different methods to document the presence of arthropod species in these two fields: sweep netting, pitfall traps, and macrophotography.

**Sweep netting:** A sweep net is a net that has a canvas, rather than a thin mesh, net. To use a sweep net, swing it in a 180° arc such that the net rim strikes the top 15 cms or so of the vegetation. Don't go too deep into the vegetation or else you risk ripping the net or getting it caught up in thick vegetation. Hold the net slightly less than vertical so the bottom edge strikes the plants before the top edge. This facilitates capturing insects. Each 180° arc counts as one sweep. Take one sweep from right to left, walk one step, and take another sweep, left to right. A sample consists of **five sweeps**. Any more than that and you may have too large of a sample to handle efficiently.

After taking the five sweeps, quickly pull the net through the air above the vegetation to force all insects into the bottom of the net. Constrict the net bag at about the mid-point to trap the insects at the bottom. Depending upon the goal, we may slowly invert the net while releasing your grasp on the bag, allowing the insects to drop onto a tray. Once dropped, you and your partners can count the numbers of

key species or types of species. Many slow-moving insects, such as weevil larvae, aphids, and caterpillars can be counted easily, although fast flying insects may escape quickly. Alternatively, we may place the bottom of the net into a cooler filled with ice to slow the insect down prior to dumping onto the tray. We can also transfer the contents into a Ziploc bag and place it in the cooler until we're ready to inspect. Once transferred to a tray, they will warm and fly away quickly, so counting and identifying must be done immediately.

We will collect sweeps in several different areas of the field, avoiding dense and tall vegetation that exists in parts of the upper field. The number of samples will depend upon time. Record your data, in whatever form it is in, numbers or number of species or identities of different specimens.

**Pitfall traps:** A pitfall trap is a simple device used to catch small insects and other invertebrates that spend most of their time on the ground. Pitfall traps catch ground-dwelling invertebrates, including ground beetles, ants, earwigs, woodlice, millipedes, centipedes, springtails, and spiders that hunt on the ground. You may also encounter worms, slugs and snails.

In our case, the pitfall trap will be a plastic solo cup buried so that its rim is level with the surface of the ground. It is critical that cups are flush with the ground, as even a millimeter lip can prevent animals from falling in.

We will also install a miniature fence or diverter that will effectively widen our sampling area – a crawling insect that hits the fence may turn in the direction of the cup and drop in. There will be a small amount of 40% ethanol and a couple drops of soap in the bottom of each cup. Any insects that cannot escape by climbing, jumping, or flying out will remain trapped until you release them. We will also add a cover that will slow down evaporation of the alcohol and prevent rain from getting into the trap.

Ideally, we will set up traps Monday afternoon for the Tuesday lab section to inspect, and then reset the traps Tuesday for the Wednesday lab to inspect. After that, traps will be brought back to the lab. They will be reset the Monday prior to the next Tuesday we are scheduled to go to Fisher Farm Park. Our samples can be inspected in the field and also, because they are preserved and dead, we can return the samples to the lab.

**Macrophotography:** Taking good insect photographs is not easy. You may already know this if you have ever attempted to photograph a butterfly, dragonfly, or bee. In fact, just locating and getting close enough to insects can be challenging. And then if you get within a close distance, insects have a habit of flying or scurrying away before you can trigger the shutter.

Additionally, insects are often secretive, hiding amongst vegetation or resting in places where it is difficult to get a clean shot, although we will be out in the field when many are most active, during the middle of the afternoon. But then the light can be harsh, affecting the quality of the images. Working at high magnification results in any motion (by the subject or photographer) appearing greatly exaggerated, while depth-of-field is narrow. However, I have had good success with the camera rigs I have in my lab – the macrolenses I use are designed to take sharp images of small objects that are over 1 meter away. Perfect for insects that may take flight if you get too close.

For this method, a pair of students will slowly walk a 50 meter transect, looking for large, charismatic, or colorful insects such as butterflies, bees, wasps, dragonflies, and the like within 1 meter of either side of the path. One student will take pictures while the other, behind the first, takes notes.

Walk slowly and look sharp. Ideally, you want to spot insects before they see you, but during the day it is highly likely that you will disturb insects as you walk by, especially if you are not patient and/or moving to fast. Maximize your chances of getting close to insects by keeping your movements very slow and deliberate. Proceed towards the direction of the sun, so that your shadow falls behind you, not over the insects, which can alert them to danger.

Insects react to sudden movement, lighting changes, or vibrations, so if you move your hand to the lens barrel to adjust focus, do so slowly. Insects may remain motionless and relatively easy to photograph for several minutes, or only pause for a few brief moments before taking off again. If the insect begins moving, stay still and wait for it to settle again before resuming your approach. Even if you do not disturb the insect, they might fly away due to being disturbed by another insect, or they have finished whatever activity in which they were engaged. You will miss many, but if you call out to your partner what you thought it was, we can at least record that.

### **Materials**

sweep nets	pitfall traps, mini-fences & covers	flagged stakes
40% ethanol	vials for pitfall trap samples	dish soap
sharpies and label tape	measuring tapes	plastic trays
clipboards & data sheets	insect and spider identification guides	coolers w/ ice
collection jars w/ insect anesthetic	DSLR cameras w/ macrolenses	1 gallon Ziploc bags

### **Compilation of data**

There will be a google sheet linked from Moodle where you will input your data. There will be one tab for each of the three methods.

**PRESCRIBED FIRE PLAN**

 Tract: \_\_\_\_\_  
 \_\_\_\_\_

 Date: \_\_\_\_\_  
 NCFS District: \_\_\_\_\_  
 County: \_\_\_\_\_

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

**PART 1: GENERAL INFORMATION**

Landowner: _____ Address: _____ _____ _____ Phone: _____ Agent: _____ Agent Phone: _____	<b>Estimates</b> Acres to Burn: _____ Bladed Line (miles): _____ Plowed Line (miles): _____ Hand Line (feet): _____ Other: _____ Other: _____	<b>Purpose of Burn</b> <input type="checkbox"/> Site Preparation <input type="checkbox"/> Silviculture <input type="checkbox"/> Hazard Reduction <input type="checkbox"/> Wildlife Habitat <input type="checkbox"/> Other: _____ _____
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**PART 2: PRE-BURN PLANNING**

Specific Objectives: \_\_\_\_\_

Overstory Species: \_\_\_\_\_ Avg. Hgt. (ft.): \_\_\_\_\_ Avg. DBH(in.): \_\_\_\_\_

Age of Dominant Species: \_\_\_\_\_ Understory Species: \_\_\_\_\_

Fine Fuels: \_\_\_\_\_ Litter Depth (in.): \_\_\_\_\_ Fuel Type(Model): \_\_\_\_\_

% Slope: _____ Aspect: _____ Elevation (ft): _____ Soil: _____	Continuous	Patchy
<b>For In-Stand Burning:</b> Basal Area (ft <sup>2</sup> /acre): _____ Ht. to Live Crown (ft.): _____ Allowable Scorch Height (ft.): _____	Mineral	Organic

**Smoke Management:**

Direction to Smoke Sensitive Area (SSA)	<b>N</b>	<b>NE</b>	<b>E</b>	<b>SE</b>	<b>S</b>	<b>SW</b>	<b>W</b>	<b>NW</b>
Distance to SSA (miles)								

**Tonnage:** Estimated Acres \_\_\_\_\_ X Estimated Available Tons/Acre \_\_\_\_\_ = \_\_\_\_\_ Estimated Total Tons to be Burned

**Acceptable Range of Weather Parameters:**

Temp. (°F): \_\_\_\_\_ to \_\_\_\_\_ RH(%): \_\_\_\_\_ to \_\_\_\_\_ NWS 20' Wind Speed (MPH): \_\_\_\_\_ to \_\_\_\_\_

Wind Direction (Surface):  N  NE  E  SE  S  SW  W  NW

Mix Height (ft.): \_\_\_\_\_ to \_\_\_\_\_ Wind Direction (Transport):  N  NE  E  SE  S  SW  W  NW

Night-time Smoke Dispersion (minimum): \_\_\_\_\_ Acceptable Burn Categories:  1\*  2  3  4  5

KBDI: \_\_\_\_\_ to \_\_\_\_\_ Fine Fuel Moisture (%): \_\_\_\_\_ to \_\_\_\_\_

\*Tracts may be burned outside of VIS parameters by using Atmospheric Dispersion Modeling (ADM). ADM may only be used by those certified as an Atmospheric Dispersion Modeler by the NCFS. Model run data must be submitted to NCFS prior to ignition. Refer to the Smoke Management Program for details.

Other Weather Considerations: \_\_\_\_\_  
 \_\_\_\_\_

**Special Situations or Instructions:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Prepared By: \_\_\_\_\_ Title: \_\_\_\_\_ Certified Burner # \_\_\_\_\_ Date: \_\_\_\_\_

**PART 3: PREPARATION FOR BURN**

Resources needed: \_\_\_\_\_

<b>Prior to ignition on day of burn, Burn Manager must confirm the following;</b>							
NCFS Notified	Y N N/A	NFDRS Values Acceptable	Y N N/A	Area checked for new SSAs	Y N N/A	Adjacent landowners notified	Y N N/A
County 911 Center Notified	Y N N/A	Fire Line Installed & Cleaned	Y N N/A	Point Forecast Evaluated	Y N N/A	Crew Briefed	Y N N/A
Known T&E Species, Cultural, Historic Resources Protected	Y N N/A	Burning Permit Obtained	Y N N/A	On-Site Weather within Parameters	Y N N/A	Other: _____	Y N N/A
Burn Manager: _____ Title: _____				Certified Burner # _____ Date: _____			

**PART 4: BURN EXECUTION**

Base Line Location: \_\_\_\_\_

Base Line Width: \_\_\_\_\_ or # of Fire Lines: \_\_\_\_\_

Firing Technique: \_\_\_\_\_ Aerial Ignition Spacing (Ch., Ft.): \_\_\_\_\_

Test Fire Behavior: \_\_\_\_\_

Ignition Started: Date: \_\_\_\_\_ Time: \_\_\_\_\_

Ignition Completed: Date: \_\_\_\_\_ Time: \_\_\_\_\_

Active Burning Completed: Date: \_\_\_\_\_ Time: \_\_\_\_\_

On-Site Weather Readings, etc.				
Time of Readings:				
Temp. (°F)				
RH (%)				
Wind Direction				
Wind Speed (MPH)				
Calculated FFM				
Trans. Wind Direction				
KBDI Value				

**PART 5: MOP-UP**

Critical Areas/Special Instructions: \_\_\_\_\_

Distance Inside Line to be Mopped Up (ft.): \_\_\_\_\_ Applicable BMPs Used: **Y N N/A** Tract in FPG Compliance: **Y N**

Fire line to Rehabilitate (ft.): \_\_\_\_\_

Follow Up Checks: Date: \_\_\_\_\_ Time: \_\_\_\_\_ By Whom: \_\_\_\_\_

Follow Up Checks: Date: \_\_\_\_\_ Time: \_\_\_\_\_ By Whom: \_\_\_\_\_

**PART 6: POST BURN EVALUATION**

Acres Actually Burned: \_\_\_\_\_

**Burn Objectives**

Met

Partially Met

Unsatisfactory

Fire Effects	
Scorch Height (ft.)	
Crop Tree Mortality (%)	
Soil Exposure (%)	
Slash Removed (%)	
Fire Line Rehab Satisfactory	Y N N/A

**Emissions:** Acres Burned \_\_\_\_\_ X Tons/ Acre Burned \_\_\_\_\_ = \_\_\_\_\_ Total Tons Burned

Observations/Damage/Recommendations for Follow Up: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Evaluated By: \_\_\_\_\_ Date: \_\_\_\_\_

**Estimated Forest Fuel Loading**

Fuel Type	Estimated Available Tons Per Acre*		
	Low	Medium	High
Pine litter	3	6	12
Hardwood Litter	3	5	7
Mixed litter	4	6	8
Brush < 2 ft.	4	7	10
Brush 2 - 4 ft.	6	8	15
Brush > 4 ft.	10	20	30
Light (thin) slash	5	10	20
Medium (chopped) slash	10	20	40
Heavy (clearcut harvest) slash	30	40	60
Short grass ( Wire grass)	2	5	7
Tall grass (Broomsedge/Marsh)	3	6	8

\*This information is based on results of actual sample measurements and has represented accurately the fuel availability based on the selected loading range. Research studies and surveys that provide more accurate site-specific information concerning tonnage or fuel availability can be used.

**Smoke Management Allowable Tonnage Table**

Burn Category	1 <sup>1</sup>	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
Burn Type	Under story	Open	Under story	Open	Under story	Open	Under story	Open	Under story	Open	Understory	Open	Under story	Open	Under story	Open	Under story
Night Smoke Dispersion	Any	Poor to Very Poor	Poor to Very Poor	Good to Fair	Good to Fair	Poor to Very Poor	Poor to Very Poor	Good to Fair	Good to Fair	Poor to Very Poor	Poor to Very Poor	Good to Fair	Good to Fair	Poor to Very Poor	Poor to Very Poor	Good to Fair	Good to Fair
Time of Burn	Day Only	Day Only	Day Only	Day or Night	Day or Night	Day Only	Day Only	Day or Night	Day or Night	Day Only	Day Only	Day or Night	Day or Night	Day Only	Day Only	Day or Night	Day or Night
Miles to SSA																	
0<1/2	0	0	0	0	0	0	0	0	0	0	0	0	1030	0	0	0	1350
1/2 <5	50	360	720	720	1080	450	900	900	1350	720	1440	1440	2160	900	1800	1800	2700
5<10	100	720	1440	1440	2160	900	1800	1800	2700	1400	2880	2880	4320	1800	3600	3600	5400
10<20	150	1080	2160	2160	3024	1350	2700	2700	4150	2160	4320	4320	6480	2700	5400	5400	8100
20<30	150	1200	2400	2400	3600	1600	3200	3200	4800	2500	5000	5000	7500	3000	6000	6000	9000
30+	200	1440	2880	2880	4320	1800	3600	3600	5400	2880	5760	5760	8640	3600	7200	7200	10800

**PART 7: CONTINGENCY PLANS**

<b>If the fire escapes beyond the suppression capabilities of the burning crew, or smoke dispersion is not occurring as planned, then the following contingency plan will be implemented:</b>			
<b>Command:</b>	Who will declare an escaped fire & who will direct suppression efforts until additional resources arrive, if needed?		
<b>Trigger Points</b>	What trigger points will initiate implementation of your contingency plan?		
<b>Notifications:</b> (list of who to notify, contact info and by whom)			
			By
			By
			By
<b>Additional Resources Needed &amp; Acceptable Response Times</b>		(who/what are they; how will you contact them?)	
<b>Other Information:</b>			

<sup>1</sup> Predicted minimum mixing height of 1,640 feet AND minimum transport wind speed of 9 MPH.

## Fireline preparation for Fisher Farm project

Three options for fireline management for Fisher Farm come to mind, each of which will be discussed in detail below with associated cost estimates for each were Eli Beverly and Associates to do the burn. In options 1 and 2, quicker installation will allow greater flexibility for selecting a burn day, although with the short fuels and relatively lightly-developed areas within 0.5 miles, there is likely a good bit of latitude on wind direction.

1. Disked or tilled firelines: Bare dirt is the most reliable containment type and is the “industry standard”. This would entail using a tractor-mounted disk harrow or PTO-driven tiller to disturb the vegetation and soil to produce a nonflammable surface to hold the fire. In general, the wider, the better: pick-up type (3-pt. hitch-mounted) harrows can be as narrow as 4-5 feet, and are commonly available in 6-8 foot widths for larger tractors. Tillers should be available in 4, 5, and 6 foot widths. With either system, a double-width pass (or multiple double-width passes in the case of a disk harrow, to cut through sod and into mineral soil) will do the same job as a wider tool. With the fuels at Fisher Farm, a 6-foot fireline will probably be sufficient, but wider is better, up to 8-9 feet in width. As a point of reference, Sunbelt Rentals’ website shows 35-39 hp tractor rental for less than \$400/day; 5’ rotary tiller attachment is less than \$100/day, although the specs don’t indicate the tractor horsepower necessary to drive the attachment. (Delivery is likely not factored in to those prices.) This assumes that the Town of Davidson doesn’t have available equipment to do the job. If it does, obviously the cost should be greatly reduced.

Advantage: leaves topsoil and vegetation in place and allows easy revegetation; easy for operators of almost any skill level to install. Disadvantage: requires equipment that the Town may not have, thus incurring further cost of rental.

For burning with a minimum 6’ width fireline of mineral soil, my estimate for burning the two areas would be \$150-175/ac based on ~4.5 acres.

2. Skid-steer loader preparation: A skid-steer with a loader bucket could install a bare-dirt fireline by scraping off the vegetation layer and exposing mineral soil. Likely the Town has this piece of equipment. Care must be taken not to cut too deeply into the soil so as to avoid having a trench-like effect, so the operator needs to be experienced. Same width guidelines apply as for option 1 above.

Advantage: probably the Town already has the equipment and operator(s), so no rental costs. Disadvantage: accumulated vegetation/soil mix has to be removed, likely into spoil piles, although with extra effort most could be replaced back on the skimmed lines after the burn.

EB&A estimate for burning with a minimum 6’ fireline of mineral soil: \$150-175/acre based on ~4.5 acres.

3. Wet line: A wet line is, just as the term implies, a fireline that uses water to wet the fuel to make it fireproof, generally only a couple feet in width (depending on fuel height). It can



require a considerable amount of water, and still needs to be monitored closely to ensure that the water doesn't evaporate or soak into the ground too quickly. Typically a wet line is prepared only a few feet at a time so the fire is "babied" along and personnel can easily watch the area behind them that has already been fired. It requires close coordination between suppression personnel and firing personnel. Typically wet lines are used only for short distances for these reasons, and they tie up personnel assets more so than dirt lines. However, in sensitive areas where soil disturbance may not be allowed, it is a viable alternative.

Advantage: no specialized equipment needed other than water sprayers; no soil disturbance.  
Disadvantage: requires large amounts of water, depending on equipment used; labor- and time-intensive; higher potential for fire escape.

EB&A estimate for burning at Fisher Farm using wet lines: \$225-275/ac based on ~4.5 acres.

My preference is either option 1 or option 2 above, in the event you select me as the burn contractor.

Date: 24 February 2024

*Prepared by Eli Beverly, Eli Beverly and Associates, Albemarle, NC. NC certified prescribed burner #279.*

## **Exhibit “A”**

Prescribed burn for Town of Davidson ("Owner"), at Fisher Farm Park, Davidson, NC conducted by Eli Beverly and Associates ("Contractor"). Area to be burned: ~4.5 acres.

### **Contractor description of services**

1. Prepare burn plan and file with N.C. Forest Service prior to burn. Notify landowner, N.C. Forest Service, Mecklenburg County Fire Marshal's office and other authorities deemed appropriate prior to conducting burn.
2. Arrange for and/or provide warning signs, emergency flashers, personnel or other precautions along public road(s) to notify oncoming traffic of prescribed burn as needed.
3. Provide adequate trained personnel and equipment necessary (NOT to include crawler tractor) to conduct burn with minimal risk to surrounding property. Equipment may include but not be limited to 4-wheel-drive pickup with slip-on pumper unit, 4WD utility vehicle with slip-on pumper unit and/or ATV with light-duty electric sprayer, backpack fire pump, hand tools, drip torches, and communications radios.
4. Obtain fire weather forecast prior to burn and monitor on-site conditions prior to burn.
5. Eli Beverly and Associates reserves the right to call off any contracted burning due to weather, season or other intangible factors, and will notify landowner promptly in event of same.
6. Fires escaping onto adjacent properties will be reported to Mecklenburg County 9-1-1 and/or North Carolina Forest Service immediately for suppression action.
7. Provide routine post-burn mop-up and evaluation.
8. Contractor will invoice landowner within 10 days of completion of burning or of cessation of burning activities in event of partial completion.

**Owner and/or partners have accepted responsibility for preparing bare dirt containment lines (“firelines”) of 6 foot minimum width around burn areas, and for notifying adjacent landowners and interested parties of prescribed burn.**

## **Fisher Farm Biodiversity Report December 2023**

*A follow-up report to the Summer 2023 Assessment of Biodiversity at Fisher Farm.*

**Lauren Collver, Davidson College Biology 2025**  
**Lab of Dr. Kevin G. Smith, Davidson College Biology**

A summary of the completed management activity of Fall 2023 and recommendations for continued management in the Davidson Lands Conservancy-managed Fisher Farm's approximately 18 acre forest stand.

### **Contents:**

1. Introduction
2. Invasive Species Removal
3. Forest Stand Improvement
4. Prescribed Burn Recommendations
5. Literature Cited

### **Introduction**

This report serves as a follow-up to the Summer 2023 report "[Assessment of Biodiversity at Fisher Farm](#)" by Kevin G. Smith and his lab students at Davidson College. The findings and recommendations of that report are based on comprehensive biodiversity surveys conducted over the summer of 2023 and a wide review of relevant literature. That report is still the most comprehensive resource regarding the biodiversity at Fisher Farm and current management recommendations. This report focuses on summarizing the work done by student Lauren Collver in the fall of 2023 and adds additional context and recommendations.

## **Invasive Species Removal** **Completed Management:**

During October and November of 2023, approximately 40 hours of manual work were conducted by Lauren Collver with the sole purpose of controlling invasive shrub species in the southern section of Fisher Farm's 18 acre forest stand. Main target species were autumn olive (*Elaeagnus umbellata*), winter honeysuckle (*Lonicera fragrantissima*), and Chinese privet (*Ligustrum sinense*). Additional species that were removed if encountered included trifoliolate orange (*Citrus trifoliata*), multiflora rose (*Rosa multiflora*), and winged Euonymus (*Euonymus alatus*).

The majority of the manual removal was accomplished by a cut-and-paint method using a recommended herbicide mixture of Garlon 3A (Triclopyr) and Arsenal (Imazapyr). Some foliar application was utilized near the completion of the project in order to effectively reduce large spreads of small individuals and specifically to target winter honeysuckle.

The invasive species removal work was focused on the lower (southwestern) region of the forest plot, which was determined based on density levels and recommendations outlined in the [Summer 2023 biodiversity report](#) as well as a necessary balance of work and time constraints. The area managed during this phase of work makes up approximately 6 acres.

In the area where management was conducted, large thickets of autumn olive and winter honeysuckle were removed creating a visible improvement in density and sunlight availability to the forest floor. Where dense thickets were not present, small patches and individuals were also killed in order to reduce the potential for the establishment of future high density areas.



*Figure 1: The approximately 6 acres in which removal was conducted.*

**Recommendations:**

Removal work is expected to have a significant impact on reducing the extent to which target species dominate and out-compete other species on a short-term scale. Where removal did not occur, dense thickets of invasive shrubs remain in patches throughout and potentially continue to out-compete native shrubs and herbaceous species via dense shading of the forest floor. Should continued support of diverse native species' ability to compete with the dominant invasive species be desired, efforts should be made to continually implement control methods both in the area where management has already occurred and throughout the plot. Invasive species such as autumn olive and winter honeysuckle are well established in the area and thus, as stated in the Summer 2023 report, permanent removal and eradication of these species is highly unrealistic. Despite this, maintenance of invasive shrubs at low densities is possible with continued management.

One possible avenue for continued removal work, both in the studied forest patch and throughout Fisher Farm, could be volunteer work. While handling herbicides may be a risk in terms of safety and environmental responsibility, there may be some individuals capable of helping to pull out small plants and cut and treat larger ones. Autumn olive is especially abundant along the walking trail that runs through the forest patch and is easily accessible in those areas without having to walk through the more uneven and steep areas of the forest.

**Autumn Olive Response to Fire:**

Most likely, autumn olive cannot be controlled by a single prescribed burn. Evidence suggests that autumn olive responds to fire by resprouting, potentially in a vigorous manner. Prescribed burning can be effective if used in conjunction with herbicide treatment, or if multiple burns are conducted. Burning could be effective to reduce large autumn olive shrubs as long as follow-up treatment occurs. Resprouts post-fire could be treated with herbicide or with subsequent burns.

## **Forest Stand Improvement Recommendations**

As presented in the Summer 2023 report, understory sunlight levels in the forest patch are very low. Each area of the plot has less than 5% available sunlight reaching below the canopy. Increasing these light levels by reducing the tree canopy density could contribute to a more diverse understory and forest floor ecosystem. This approach should include killing and/or removing select trees based on light levels and tree density in the area.



*Figure 2: Areas of recommended forest stand management*

### Section 1:

- This area has the lowest sunlight levels and a very dense midstory. It is likely much of the midstory will be killed via the recommended prescribed burn. Following this burn, selective thinning of canopy trees that are currently growing in patches could support the growth and canopy release of favored canopy trees. For example, some patches are found in this area where canopy sized hickories or oaks grow in close proximity to canopy sized sweetgums. Killing select sweetgums and either allowing them to remain as snags to provide wildlife habitat or removing them completely could support the growth of nearby hickories or oaks.

#### Sections 2 and 3:

- These sections represent a ridge in the center of the plot where mature trees are abundant.
- In the southwestern region of this ridge (Section 2), there is a highly dense midstory where thinning of some smaller trees in the midstory could improve light levels and support a diverse understory. This area has few mature canopy trees in general, and so thinning to reduce competition and to select a few trees to become the future canopy could help ensure a diverse canopy in the future. Additionally, thinning trees growing in close proximity to large mature oaks in this region could allow for canopy release of select oaks and lead to a larger and more acorn productive canopy to increase food availability in the plot.
- In the northeastern region of this ridge (Section 3), the midstory is not as dense but mature trees would still benefit from thinning to increase sunlight levels in this area.

#### Section 4:

- This section represents a ridge between two large ravines. The ravines themselves are difficult to navigate and would make management difficult, so focusing on the more accessible upland region is recommended. This area has one of the lowest sunlight levels in the plot and notably very high coverage of vines on the forest floor.

#### Other sections:

- Canopy thinning could be applied throughout the forest patch, but the sections highlighted here are specifically chosen based on their sunlight levels, density of midstory and canopy, presence of large mature trees, and overall physical accessibility. Forest management should aim to create diverse habitat rather than managing each area in the same way, and so leaving some areas alone while managing those that would benefit most from it could support a more diverse range of habitat while allowing for flexibility in the time and scale of management activity.

## **Prescribed Burn**

Overall, a prescribed burn is highly desirable and would result in significant changes to both support biodiversity and reduce tree litter loads. There are options in terms of location and scale of a burn. One option is to implement an experimental approach by burning about 50% of the area, which would create the opportunity for future research on the effects of a burn and could create an opportunity to demonstrate the benefits of prescribed burning to the park visitors. Alternatively, a larger area and potentially the full area could be burned to achieve full management without having to establish fire break within the forest. One potential challenge for a full-area burn is the physical topography of the area, which consists of many steep hills that could make directing the fire difficult. The eastern edge of the forest patch has high priority for management with a burn due to high densities of small diameter ash and elm trees.

A burn would help to decrease density of small trees, which would both support diversity of the future canopy and increase light levels on the forest floor. Additionally, it would reduce tree litter which will both reduce the risk of high intensity wildfire and support understory growth by exposing the seedbank. It could lead to an increase in invasive species but overall herbaceous cover would increase while it is currently suppressed by low light levels and high tree density. Overall, a prescribed burn can perform a variety of functions for the forest ecosystem in a more efficient and effective manner than people.



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## ◊ North Carolina Wildlife Resources Commission ◊

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Cameron Ingram, Executive Director

**Town of Davidson  
Fisher Farm Tract  
Site Visit Follow-up**

John Isenhour, Wildlife Conservation Biologists  
NC Wildlife Resources Commission  
February 22nd, 2022

It was a pleasure to visit the Fisher Farm property on February 11<sup>th</sup>, 2022. The group of folks that attended our site visit offer various interests, points of view and ideas about “rewilding” portions of this tract. Each of these viewpoints has value in this process and additional conversations will be required to develop a plan that fosters public support from ecologic, esthetic and financial standpoints. As this discussion proceeds keep in mind that this process is “not an all or nothing” decision, and multiple approaches can be taken on this tract to evaluate responses and outcomes. It is critical to remember that managing this property for plant diversity will not be a simple or quick process. Maintaining early succession vegetation is an ongoing process which will require periodic disturbance to keep the selected areas from transitioning to a forest or being overtaken by non-native species.

The following items are methods which may be considered and discussed as plans are made. Some methods will be a better fit for certain areas of the property than others. The Xerces Society organic site preparation booklet provides clear and accurate information which should be reviewed when selecting organic site prep methods. As more specific decisions are made more specific prescriptions can be provided if desired. As questions arise, I will be glad to continue to be a source for guidance and assist however I can.

**Heavy Tillage / "Soil Inversion":** Using heavy tillage to control undesirable introduced species may be an option in certain situations. This will require a moldboard or turning plow. Care must be taken to implement this practice only on appropriate slopes and along the contour. Practice layout and use of cover crops must be taken into account to address erosion concern. The area plowed will likely need to be smoothed with a disk to break up large clumps of soil. Once smoothed broadcast a cover crop which is appropriate for season. In the fall rye grain (NOT RYE GRASS), wheat or triticale can be sown to stabilize soil. In the spring and summer brown top millet is a good option for a quick establishing cover. As the cover crop establishes the area should be evaluated to identify weeds that may be problematic in the future. If weeds are identified the area should be plowed, smoothed and a cover crop sown again before the weeds mature and set seed.

Once limited weed competition is found to be germinating the area can be allowed to colonize with volunteer species, or native seed can be planted here. Species which should be considered to plant here include little bluestem, yellow Indiangrass, tridens purpletop, panicum anceps, spotted bee balm, swamp sunflower, bidens tickseed, butterfly milkweed, common milkweed, sensitive pea, black-eyed Susan, dogbane and beggar's lice. Seeds for these species can be purchased, or hand collected locally. These species should be broadcast and pressed into the soil with a light cover crop in the fall or early spring.

**Repeated Shallow Tillage:** Much like heavy tillage, lighter soil disturbance may provide some weed control when implemented repeatedly. A disk or rototiller can be used to implement this preparation method. Erosion control must be considered when selecting areas to implement this practice. Expect some increase in weed pressure in the beginning of this process as weed seeds are exposed. Cover crops will be needed between tillage events. The area should be scouted to determine weed pressure and schedule the next tillage event before weeds mature and set seed.

Once limited weed competition is found to be germinating the area can be allowed to colonize with volunteer species, or native seed can be planted here. Species which should be considered to plant here include little bluestem, yellow Indiangrass, tridens purpletop, panicum anceps, spotted bee balm, swamp sunflower, bidens tickseed, butterfly milkweed, common milkweed, sensitive pea, black-eyed Susan, dogbane and beggar's lice. Seeds for these species can be purchased, or hand collected locally. These species should be broadcast and pressed into the soil with a light cover crop in the fall or early spring.

**Smother Crops:** This method may prove to be difficult to implement as a standalone site preparation technique in these fields. Well established weeds and heavy weed load in seed bank, as well as low soil fertility will limit the vigor and viability of the smother crop. This method may be better incorporated late in site preparation regimes where tillage is the primary weed control strategy. Rye grain can be used as a cool season smother crop and will add organic matter on sites which have been heavily tilled. Buckwheat can be used as a warm season smother crop. Soil samples should be taken and soil amended as recommended to get suitable growth of the smother crop. Where smother crops are utilized, they should be terminated with a roller crimper or mower to preserve thatch on soil surface. A roller crimper is most desirable.

Once the smother crop is terminated a no-till drill can be used to plant a more desirable native plant community including: little bluestem, yellow Indiangrass, tridens purpletop, panicum anceps, spotted bee balm, swamp sunflower, bidens tickseed, butterfly milkweed, common milkweed, sensitive pea, black-eyed Susan, dogbane and beggar's lice. Seeds for these species can be purchased, or hand collected locally.

**Solarization:** There was some concern about the impact that deer will have on the plastic required for solarization. If this is a desired option to try as part of this project, there may be options for simple exclusion structures which could be used on a trial basis. Due to the compacted nature of the open fields at this site it may be best if some tillage occurs prior to solarization to both expose weed seed and reduce soil compaction a bit. One option would be late summer tillage to loosen soil, fall cover crop

including daikon tillage radish to improve soil structure, spring mow to terminate cover crop, solarize area throughout the summer to reduce weed pressure, no till drill native seed mix in the solarized area. Other option would be two years of solarization prior to planting.

**Herbicide to Fallow:** Herbicide can be applied to control undesirable plant species and release the fallow seed bank. This may be a challenge on this tract, as there are several species of both cool season and warm season weeds growing here. A cool season treatment will control fescue which is problematic in some areas, but will not impact warm season species such as Bermudagrass, sericea lespedeza and Johnsongrass. A warm season treatment will kill these species but will spare few desirable species. Also, sericea can persist for a long period of time in the seed bank and will likely be released by these treatments.

**Herbicide to Natives:** Multiple herbicide applications will be needed to kill the current population of undesirable herbaceous species and the control weeds that may germinate from the seed bank. These repeated treatments will impact the seed bank warranting replanting of desirable species. To limit herbicide application this treatment may be incorporated alongside a tillage regime with herbicide used as a “final clean-up” of a site prior to planting. Either an initial tillage or mechanical sub-soiling will be beneficial to reduce compaction. During tillage and herbicide application treatments cover crops should be utilized to prevent erosion and maintain soil biology.

Once the undesirable species are under control a no-till drill can be used to plant a more desirable native plant community including: little bluestem, yellow Indiangrass, tridens purpletop, panicum anceps, spotted bee balm, swamp sunflower, bidens tickseed, butterfly milkweed, common milkweed, sensitive pea, black-eyed Susan, dogbane and beggar’s lice. Seeds for these species can be purchased, or hand collected locally.

**Small Scale Plantings:** To get the ball rolling and build interest in the larger project small native “gardens” can be planted in strategic locations along the greenway. Small scale projects allow for intensive site preparation and weed control with a more manageable amount of work. Initial tillage, soil amendment, potted plant materials, weed barrier, watering and mulching should all be incorporated into these projects to ensure they are successful and attractive to build public support for the larger scale project. Small scale projects allow for a diverse number of plants to be established, including those that do not establish well by seed. Signage can be beneficial to educate the public to the importance of natives plants and pollinators.

It may be possible to partner with a local Cooperative Extension Master Gardeners program or a high school horticulture class to get plants grown for these plantings. While most desirable plants can be purchased commercially, partnering with either of these groups will expand the knowledge of native plants and their benefit in landscaping projects.

**Continual Follow-up:** “Nothing Succeeds Like Succession”. This statement explains one of the big challenges with maintaining early succession vegetation. Trees and shrubs are constantly trying to colonize early succession areas. It takes a lot of effort to keep these woody species at bay over time. Likewise, we are faced with many species of non-native herbaceous species that can spread

aggressively, diminishing the benefit of our restoration efforts. To quickly control these invasions, we must stay ever vigilant and strike quickly to catch these undesirables before they become well established.

Periodic disturbance will be required favor herbaceous species and further control undesirable woody species. Mowing, disking or burning are typically used on larger scale projects. Even with this periodic disturbance additional weed control will be needed through mechanical or chemical means. Shovels, hoes, weed wrenches or targeted herbicide applications are all options to address these problematic plants.

**Native Shrub Establishment:** Like small scale plantings establishing native shrubs and small trees may be an option to consider in the near-term. Shrubs will require less site preparation to establish than herbaceous species, since there are more weed control options after planting. The benefit of shrubs is often overlooked, but adding shrub diversity can enhance nectar, host plant and soft mast available.

Species of similar growth habits should be planted in clusters to improve establishment success and add “thickety” structure. Weedy growth should be controlled with weed mat, mulching and cutting back until shrubs are well established. Fencing or other exclusion structure will be needed to limit deer browsing on young shrubs. Extra care will be needed to water the shrubs during droughty periods for the first couple years after planting.

The above recommendations provide options to “rewild” the Fisher Farm property. There are many options and levels of management which can enhance plant diversity and habitat quality. Each of these options have benefits and challenges to be considered as decisions are made for the tract. This is not meant to provide extremely detailed options, but rather more general options that could be implemented on the property. Since several of these options depend on response of the seed bank there may be the need to modify plans “mid-stream” to address unexpected responses. More details can be provided as management decisions are made or questions arise. Care should be taken to ensure that plans meet the town’s objectives and limitations during both the establishment and maintenance periods. Volunteers that pledge support to the project should understand this project is not a sprint, but a marathon. Please feel free to contact me if I can be of any assistance moving forward. John Isenhour, 704-213-4825, [john.isenhour@ncwildlife.org](mailto:john.isenhour@ncwildlife.org).



**WILDLIFE ENHANCEMENT COLLABORATIVE**  
**October 1, 2024 Field Visit – Fisher Farm Prairie Restoration Site**  
**Draft Notes**

Present: Beth Wytiaz, Cathy Denham, Eli Beverly, Pam Hay, Andy Kane, and Dave Cable. Kevin Smith, John Isenhour, Gabriela Garrison, and Chris Paradise were unable to join us.

Purpose: Assess the current field conditions and plan and discuss next steps.

Observations: Johnson grass remains prevalent, particularly on the mid-section and southern flank of the upper field. It is less dense on the lower field. Some of the observed plants, other than Johnson grass: cutleaf groundcherry, pokeweed, hornbeam copperleaf, red morning glory, Carolina horse nettle, butterfly weed, gamma grass in the lower field.

Steps forward for discussion:

1. The Johnson grass is about to go to seed and the group agreed that it should be immediately mowed without regard for the natives, excepting the two milkweed patches on the north side of the upper field. (Dave contacted Leslie Willis immediately following the field visit to request mowing with an 8" cut. The mower should be washed before and after the cut. Result: the town bushhog is broken but the hope is that parts will arrive this week and the mowing will be completed.)
2. Eli strongly suggested that we need a project officer or more streamlined process to make decisions quickly and effectively. As an example, Eli suggested that if Poast could have been applied weeks ago when discussed that it might have helped with the Johnson grass. (Here is Eli's previous message: *As I mentioned to a couple of you, treatment with Poast® would be best accomplished on the JG before it's too tall for me to broadcast spray (8-12" high). I fear if we wait until our meeting on the 17<sup>th</sup> to make the call we'll need to mow again and wait--again--for regrowth, which is slowing down now with shorter day length, and may push us too far into the fall to get an effective follow-up Poast treatment® as part of the two-step rhizome JG treatment protocol.*) DLC and the WEC chairs will consider a smaller group to monitor the property more frequently and allow for more nimble decision making.
3. Eli suggested we lightly till the fire breaks (6' or so wide) and plant certified wheat in October or November in anticipation of a late winter burn.
4. We need to huddle with Gabriela and John and discuss the best management strategy to address the Johnson grass. Do we kill the site completely and plant, or do we stick with the recent approach for another year with the hope we can begin to rid enough to the Johnson grass to allow sufficient native seed release?

Below are photos taken during the visit. Many thanks to each of you.

Dave



















































**DLC WEC PRAIRIE SUBCOMMITTEE MEETING  
THURSDAY, OCTOBER 10, 2024  
2:00 PM, VIRTUAL**

**DRAFT MINUTES**

Present: Gabriela Garrison, Pam Hay, Eli Beverly, Kevin Smith, Dave Cable

The topic for this meeting was determination of the specific steps forward on the prairie project.

Here is a recap of the work completed to date (sent to the group before the meeting):

- October 2023 – both field areas mowed
- 12/13/2023 – herbicide treatment by Eli
- 3/13/2024 – controlled burn by Eli
- 5/23/2024 – on-site evaluation by the team
- 5/28/2024 – Andy and Dave removed and treated persimmons, selective weed whacking, isolated and marked milkweed and key native plant areas in fields
- 6/5/2024 – fields mowed by David with care to avoid native plant release areas
- 6/20/2024 – herbicide treatment by Eli avoiding native plant release areas
- 10/1/2024 – on-site evaluation by team

Eli: the native seeds are on their way to release but only limited success to date. The Johnson grass remains dense and was noted to be ready to seed at the last site visit, which prompted the recommendation to mow immediately at our Oct 1 on-site meeting. Eli noted that the timeliness on herbicide applications is very important.

Gabriela: She deferred to John and Eli on herbicide treatment details and timing. In the lower field, the seed release results are probably worth saving and working with using spot spraying. The upper field holds little hope for native release and she feels removal of all vegetation is probably wise, following John and Eli's suggestions for treatment.

Eli's suggestions on herbicide treatment which he summarized in the meeting are as follows:  
*"Here is a short list of herbicides that I'm proposing for use at Fisher Farm, with labels. In general, they are not soil-active, and have relatively short half-lives in the environment; the exception may be Milestone® (aminopyralid), with slight soil activity, so we'll want to be judicious about including it prior to planting.*

- *Poast® (sethoxydim): grass-specific; maximum use rate 7.5 pts/ac/year. Label suggests a two-step process for control in rhizome Johnson grass, with the first being 1.5 pts/ac followed by a second application @ 1.0 pt/ac no less than 14 days later. This would be my*

recommendation, with at least the first being in a tank mix with triclopyr ester (next in list). Reported half-life in soil ranges from 5 to 50 days, but it is not soil-active.

- triclopyr ester (Garlon 4®, Triclopyr 4®, others): broadleaf-specific with a few exceptions in turfgrasses; maximum use rate (pastures) 2 quarts/ac/year. Volatilizes readily above 80-85 degrees F., but shouldn't be problematic since there won't be any forest canopy to damage (although nearby broadleaf plants may be damaged if there isn't sufficient air mixing from breezes). Reported half-life in soil ranges from 8 to 46 days or more depending on soil type and climatic conditions. Not soil-active.
- Milestone® (aminopyralid): mostly active on legumes and asters, but tends to enhance herbicidal activity of other products. Maximum use rate 7 oz./ac/year. Primarily foliar active but with slight soil activity. Average half-life in soil 103.5 days (EPA figure; ranges from 31.5 to 533 days in 5 different soils). **LIKELY WE WOULD ONLY USE THIS TO HELP MANAGE CLOVER, SICKLEPOD OR OTHER LEGUMINOUS SPECIES THAT ARE MORE DIFFICULT TO MANAGE WITH TRICLOPYR.**
- Crop oil or methylated seed oil: adjuvant/surfactant.

*I'll have to make sure that we can tank-mix Poast® and triclopyr ester without any problem. I feel like we can but will need to do a "jar test" to check for compatibility. Worst case, we make two separate applications.*

*We could substitute 2,4-D or one of its variants for triclopyr and expect similar results. Half-life in soil is around 7-10 days but has had some bad press over the years (component of "Agent Orange", possible groundwater contamination under certain circumstances, possible carcinogenicity and teratogenicity), so I tend to shy away from using it. However, it's an effective and relatively safe chemical in general, and has been around for over 50 years.*

*Another alternative to triclopyr ester would be the amine or choline versions of triclopyr, but they are slightly less effective compared to the ester, I and many of my colleagues believe. In contrast to the ester, though, they don't have the volatility issues and so can be used at temps in the upper 80s-low 90s with essentially no vapor formation".*

Kevin: Just to be clear, we failed on the upper field given the lack of native seed release. The Johnson grass definitely needs to be eradicated as much as possible, and the milkweed is probably not worth working around – just save the seed pods.

Eli: we will need to drill-plant the upper field.

Gabriela: burns are good too for managing disturbance in established prairies but probably not a good option in our situation. We need to focus on killing the vegetation and not burning. Kevin agreed, and noting that the question is what is our strategy.

Here is the timing and task listing endorsed by the group for the upper field:

- April 1 – closely monitor the field, note and report what's coming up, overall conditions.
- May 1 – take photos and monitor every week, cruise the field and report findings
- May 15-30 – Herbicide treatment, see Eli's note above, specific to address noted vegetation.

- Fall 2025 – target to plant seeds in upper field.

Tasks for the lower field recognizing this area is better botanically, and therefore a more surgical approach is warranted:

- Backpack spray using key herbicides with timing similar to treatment of the upper field
- The group agreed that contracting this work is important given the limitations of volunteers

The meeting concluded around 3 pm.

Dave Cable, DLC support volunteer



**Fact Sheet & Position Statement Regarding**  
**A. Permanent Conservation of Abersham Park &**  
**B. Assignment of Conservation Easement on Fisher Farm**  
September 15, 2023

**Summary**

In late 2022 and early 2023, DLC lead a community engagement process to evaluate Mecklenburg County's proposed West Branch stream restoration project. One result of that process was strong community support for permanent conservation of Abersham Park, a currently unprotected county-owned park. In response to the community request for the Park's conservation, the Town of Davidson elected leaders passed the attached resolution of support for conservation of Abersham Park.

The Town has also requested that the County assign its conservation easement on Fisher Farm to DLC. DLC monitors, stewards, and enhances Fisher Farm and has done so for over a decade under an agreement with Mecklenburg County.

The town's request to conserve Abersham Park has been denied by the County without consultation with the senior Mecklenburg County Park and Rec staff, Mecklenburg County Board of Commissioners, the county's Park and Rec natural resource staff, the Town of Davidson, or the Conservancy. The County has also denied the request for conveyance of the Fisher Farm Easement to DLC.

**Background**

Abersham Park, with 345 acres, is owned by Mecklenburg County. This land was approved for residential development in the early 2000's, and was purchased in 2010 by the County during the recession. Much of the former development's infrastructure remains. The Park is cooperatively managed by the Town and Mecklenburg County Park & Rec and is not protected from future development by a conservation easement.

Fisher Farm, adjacent to and south of Abersham, covers 200 acres and is owned by the Town of Davidson. Mecklenburg County holds a conservation easement on Fisher Farm; the conservation easement was required by the County as a condition of their partial funding for the Town's purchase of Fisher Farm years ago. The County engages Davidson Lands Conservancy to monitor and steward the conservation easement.

Together, Abersham and Fisher Farm contiguously provide a regionally significant 545-acre park with many areas that mimic nature preserve quality habitat. The land is largely undeveloped excepting bike and hiking trails, limited access roads, parking areas, and a picnic shelter at Abersham. The land in its relative natural state is treasured locally, is vital to the community and the West Branch ecosystem, and is used extensively by nature lovers, walkers, bikers and bird watchers. It is viewed as a natural gem in the region.



### **Stream Restoration of the West Branch Proposed**

Mecklenburg County Storm Water Services plans to complete a stream restoration of the 1.5 miles of the West Branch along the western flank of both parks. This proposed project precipitated rigorous community interest because of the disruptive nature of project, including removal of vegetation in the stream corridor and substantial changes to the soils, stream and landscape.

In the interest of the community at large, a study group was formed in collaboration with the Town of Davidson, Mecklenburg County, Davidson College and Davidson Lands Conservancy. This community engagement process resulted in a number of community comments and recommendations to mitigate the project's impact on the stream corridor.

When the study group presented its recommendations to the public, each participant, without exception, voiced strong desire to conserve Abersham with a conservation easement to permanently keep the park in its natural state. This strong recommendation was among several resulting from the public review of the project.

#### **A. Request for Permanent Conservation of Abersham Park**

Placement of a conservation easement held by Davidson Lands Conservancy on Abersham Park is important because of the need to:

- Respond to the community's clearly stated desire to permanently protect the Park with a conservation easement;
- Establish Abersham Park with the same status of protection as Fisher Farm to promote the consistent and synchronized management of both properties;
- Remove the ability of future political leaders to repurpose, develop, or sell Abersham Park;
- Keep the Park largely in its natural state forever consistent with its current use, while providing for suitable areas for active recreation;
- Recognize the community's concern that Abersham includes interior roads and infrastructure from the former development that make the property more easily developed;
- Ensure that the County, long-term, does not sell Abersham Park without first offering it to the Town or the Conservancy;
- Provide the community and the Conservancy with the opportunity to review future stream restoration or other reclamation or large scale projects impacting the Park;
- Provide for regular and rigorous monitoring and stewardship of the conservation easement, consistent and in harmony with Fisher Farm, by an independent land trust to protect the land's conservation values;
- Deter future condemnation or development of inappropriate infrastructure on the property.





**B. Request assignment of the Fisher Farm Conservation Easement to DLC**

DLC currently works in partnership with the Town of Davidson to monitor and steward the conservation easement on Fisher Farm and manage the Park for maximum benefit to the public and nature. DLC is also working closely with the Town on a long-term plan to re-wild parts of Fisher Farm.

Because Mecklenburg County, being both the holder of the conservation easement and the driver of the West Branch stream restoration project, amended the conservation easement to accommodate its planned West Branch restoration project. The County's conservation easement amendment removed the stream corridor from the easement coverage area to allow the planned project to move forward. Conservation easements are designed to be held by impartial third parties with sole intent to protect conservation values.

DLC currently monitors the Fisher Farm conservation easement at Mecklenburg County's request, as well as nearby Rocky River Bluff Nature Preserve where DLC holds the conservation easement. As holder of the conservation easement at Fisher Farm, Mecklenburg County is subject to the legal obligations of the easement. Accordingly, these obligations create a liability to the County.

As an accredited land trust focused on local land conservation, greenways, wildlife habitat and tree canopy, DLC is best suited to hold, steward, monitor, and enforce the conservation easement. The Conservancy's holding of the easement would provide an important check and balance for all parties to ensure the conservation values of the land are protected in perpetuity. Consistent with best practices and the policies of DLC, Abersham's conservation easement will be endowed by DLC to ensure long term stewardship and protection.

On December 13, 2022 the Town of Davidson Board of Commissioners formally requested conservation of Abersham Park and assignment of the Fisher Farm easement to Davidson Lands Conservancy.

Dave Cable, Executive Director  
[dave@davidsonlands.org](mailto:dave@davidsonlands.org)  
704-577-2004

Attachment: Town of Davidson Resolution



**RESOLUTION 2022-21  
REQUEST TO MECKLENBURG COUNTY  
FOR CONSERVATION EASEMENT AT ABERSHAM PARK**

**WHEREAS**, preservation of park land, open space, and natural areas are consistent with the Town's strategic plan and core values, and are vitally important to the Town and the region; and

**WHEREAS**, Mecklenburg County acquired the Abersham property located in Davidson to add to the park system and augment the adjacent Fisher Farm Park; and

**WHEREAS**, the open space and natural features of the parks are highly valued and enjoyed by town residents and visitors alike; and

**WHEREAS**, the Town of Davidson and Mecklenburg County have a track record of successfully partnering on park projects in the Davidson area; and

**WHEREAS**, Abersham Park is owned by Mecklenburg County and is not permanently conserved by a conservation easement; and

**WHEREAS**, the adjacent Fisher Farm Park is owned by the Town of Davidson and has a conservation easement on the property held by Mecklenburg County which is managed and stewarded by the Davidson Lands Conservancy; and

**WHEREAS**, Davidson Lands Conservancy has a long history of stewardship of conserved properties and is a long-time partner of the Town of Davidson; and

**WHEREAS**, Davidson Lands Conservancy has offered to hold, manage, and steward a conservation easement on Abersham Park for Mecklenburg County; and


**WHEREAS**, the Town of Davidson desires to see a permanent conservation easement placed on Abersham Park and is confident that the Davidson Lands Conservancy is the appropriate entity to manage and steward the easement.

**NOW THEREFORE BE IT RESOLVED**, The Town of Davidson Mayor and Board of Commissioners do hereby request that Mecklenburg County grant a conservation easement on Abersham Park to Davidson Lands Conservancy for permanent conservation of the Park and its natural features.

**Adopted on the 13 day of December 2022**

**Attest:**

  
\_\_\_\_\_  
Elizabeth K. Shores, Town Clerk

  
\_\_\_\_\_  
Rusty Knox, Mayor