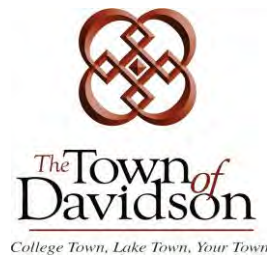




Blue Grosbeak, photo by John Mackay

DRAFT Conservation & Resource Management Plan for Fisher Farm

Wildlife Enhancement Collaborative
October 26, 2023



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, DLC volunteer
Hayden Boyd, DLC volunteer
Clint Brook, Mecklenburg County
Cathy Denham, DLC volunteer
Angie Grooms, DLC volunteer
Brad Johnson, Davidson College
Chris Paradise, Davidson College
Christa Rogers, Mecklenburg County Natural Resources
Kevin Smith, Davidson College
Mark Stanback, retired, Davidson College
Susana Wadgyar, Davidson College
Leslie Willis, Town of Davidson
Dave Cable, DLC staff

WEC Advisors

Gabriela Garrison, NC Wildlife Resources Commission

John Isenhour, NC Wildlife Resources Commission

Chris Matthews, Mecklenburg County Natural Resources

Will Ruark, Carolina Thread Trail

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 Areas

This plan is organized into the following management focus areas:

- I. Forests and Trees
- II. Meadow Restoration & Maintenance
- III. Walking and Biking Trails
- IV. Rocky River West Branch Phase 3 and 3 Watershed & Stream Improvement

- V. Citizen Science
- VI. Community Farm
- VII. Legal Conservation of Abersham Park and Assignment of Fisher Farm Conservation Easement

For most of the management areas this plan attempts to set forth:

- Goal – what are we trying to accomplish short and long term;
- Action steps with time lines; and
- The role of research for each.

The Appendices includes the Budget (Sources and Uses of Capital) along with other supporting materials.

I. Forest and Trees

Overall Goal

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

Tree planting and reforestation

Landscape tree planting is planned for fall of 2023 along the walkway from the parking lot. This will be phase IV of a 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.

Biodiversity of the Forest

Assessment of Biodiversity Fisher Farm, July 2023, Dr. Kevin G. Smith, Lauren Passek 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 around 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.

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 have begun invasive plant removal over the last year led by DLC, and these efforts will continue with all efforts being targeted by the WEC.

The first phase of contracted invasive plant management will begin in October. The focus will be the forested areas adjacent to the targeted prairie restoration. This work will be supplemented with volunteer efforts this fall and in the spring of 2024 and beyond.

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 forest is planned for late winter 2023-24.
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.

II. Meadow 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](#)

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.

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.
- 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 insect populations in September. This work will provide a baseline to measure changes in counts and biodiversity over time.
 2. Mid to late October mow both areas



Cottontail rabbit, photo by John Mackay

3. After 2nd frost, around mid-November apply glyphosate via boom sprayer. A lighter touch approach may be best for the lower area. We need to further develop the best approach here. *John adds: This treatment should be suitable for both areas and do no harm to warm season desirable species in the seedbank.*
4. Spring 2024, around late Feb or early March, burn both areas. *John adds: March would be a little better so green-up will occur faster reducing erosion potential.*
5. Summer of 2024 consider 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.*
6. Consider light broadcast seeding of buckwheat or millet for soil stabilization. Gabriela favored buckwheat.
7. 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 first 4 steps and get John Isenhour and Gabriela Garrison back out to assess the site to determine the best path forward.

Gabriela Garrison 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.



Passion flower, photo by John Mackay

John Isenhour 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.

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.

Action Steps

1. WEC to finalize the plan's initial steps in October
2. 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.
3. Chris Paradise to establish insect baseline by assessing populations in September using his fall ecology students.
4. Mid to late October mow both target areas
5. Following establishment of the prairie restoration, install permanent signage explaining the project, plants and biodiversity benefits (see Susana's comments¹).
6. After 2nd frost, around mid-November boom spray both areas with herbicide
7. Early March, 2024, burn both areas.
8. 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.
9. At that time, consider light broadcast seeding of buckwheat or millet for soil stabilization.
10. Plant via drill April 15, 2025 or wait until fall 2025, with possible reliance on the native bank in the lower area.



¹ From Susana RE Signage - given that we are going to be actively managing these prairies with burning, spraying, and mowing, I was drawn to this sign by PulseDesign, which could be a permanent installation: <https://images.squarespace-cdn.com/content/v1/560b2e0ee4b040a6eb9ec078/1642022523477-0YPYBNILJNA331STYS6X/Outdoor-Interpretive-Sign-Prairie-Restoration-Land-Stewardship-Prescribed-Burn-Fire-Invasive-Plants-Pulse-Design-Nature-Series-15918.jpg?format=2500w>

A small sign, 14"x14", and would cost ~\$1100 without any edits (up to \$1450 with 50% edits) or \$1250 for a 20"x20" size. These prices include the rights to use the artwork, printing on 1/2" thick high pressure laminate w/10 year warranty, graffiti resistant coating, and shipping. The price does not include a base or installation.

Investigation of prices for making our own signs, and the price of hiring a graphic designer by the hour would exceed the cost of these quotes. Paying for nice signage that could work for an indeterminate amount of time would be worth it. Suggestion is that we wait on signage that highlights the biodiversity of prairies until after the prairie is growing well.

The WEC will continue to pursue EQIP funding and support, and to pursue corporate and grant funding required to implement this plan.

III. Walking and Biking 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.

There are two primary tasks which can be carried out by volunteers: corridor clearing and "de-berming." Our A-Team (Larry Humbert and Dave Edwards) has kindly agreed to assist with a volunteer training day to teach these maintenance techniques. Do you already have a date in mind?

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 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=xy1y3O8R2x4>

Action Steps

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.

Trail 1:

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 decommissionings.

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 2:

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 3:

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 although 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

Action Steps

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. Secure a group of volunteer leaders who are willing to be fully trained in trail management, enhancement, building, and closure. Engage Larry Humbert and Dave Edwards and conduct train the trainer workshops.
3. Begin to host volunteer events to work on the trails.
4. Raise capital for contracted trail repair, and coordinate volunteer groups for other repairs or closures.

IV. Rocky River West Branch Phase 3 and 3 Watershed & Stream Improvement

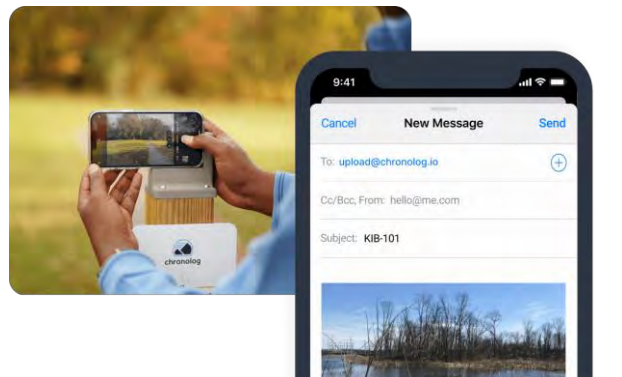
This fall (2023) Mecklenburg County Storm Water Services will begin the Rocky River West Branch Phase 1 Watershed & Stream Improvement project which stretches along the entire length of Abersham and Fisher Farm Parks. This controversial project, costing over \$8,000,000, will remove all vegetation in 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....more here from Subcommittee from College professors about details.

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 Chronology 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.



Timeline – the 5 photo locations have been selected. Those sites are to be cleared and prepared by volunteers in October 2023. The Chronolog posts, signage and related equipment will be purchased in September and installed. Citizen science volunteers have been recruited and need to be trained and scheduled. The goal is to have this program up and running by November 1.



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.

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 monitor, the WEC has no 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 is 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.

Appendices

- A. Program Budget & Timeline
- B. Relevant Maps
 - a. Management plan maps
 - b. Trail Maps
- C. Assessment of Biodiversity Fisher Farm, June 2023
- D. Park User Survey – Summary of Results
- E. Site Visit Report – John Isenhour, NC Wildlife Resources Commission
- F. Case for Conservation of Abersham and Town Resolution

**Wildlife Enhancement Collaborative - Fisher Farm
Program Budget - 2 Years - 2024-25**

Estimates subject to refinement

<i>Management Area</i>	<i>Uses of Funds</i>	<i>Total For Period</i>	<i>Notes of Funds Uses</i>
I.	Tree Planting & Stewardship / Watering - 20+ acres Landscape trees & seedlings, volunteers	\$10,000	Contracted + Volunteers
I.	Forest Biodiversity Research Project - 20 acres Equipment, supplies, support, burn, forest daylighting	\$3,500	Supplies + Students
I.	Invasive Plant Control - 25 forested acres Contracted (\$600 /A), volunteers, staff time	\$15,000	Contracted + Volunteers
II.	Native Prairie Restoration - 6+ acres Chemical & burn treatment, seed & application, mowing	\$9,500	Contracted Service
II.	Milkweed & Pollinator Gardens - 10 acres Seed, stewardship, marking, management	\$1,500	Supplies + Vounteers
II.	Educational & Interpretive Signage Sign costs, volunteer installation	\$4,000	Supplies + Vounteers
III.	Trail Restoration & Trail Closures Contracted & volunteer efforts, supplies	\$30,000	Contracted + Volunteers
V.	Citizen Science Corridor Assessment Volunteer scientiist, Chronolog fees, staff time	\$3,500	Supplies + Vounteers
N/A	Miscellaneous & Reserve	<u>\$5,000</u>	N/A
Total Uses Budget		\$82,000	
<i>Sources of Funds</i>			
	DLC Tree Grant - Town of Davidson (received)	\$8,000	
	Mecklenburg County/Davidson Col. Research Grant (rec'd)	\$5,000	
	Town of Davidson (FY25 and 26) - (requested)	\$30,000	
	Williams (received)	\$10,000	
	Estimated EQIP Requested Match	\$24,000	
	Other Sources - Seeking Funding	<u>\$5,000</u>	
Total Sources Budget		\$82,000	

**Fisher Farm Wildlife Enhancement
Environmental Quality Incentives Program - Funding Request
Estimated Project Timeline & Budget Estimates** - 2024/2025 (Subject to Revision)**

[illegible]

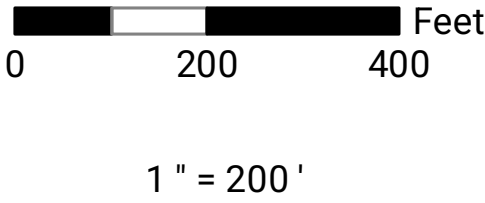
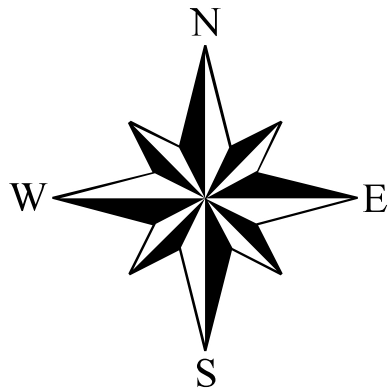
X* possible activity depending on outcomes of treatment and native seed bank response.

** Denotes budgets for 2024-2025; project costs will be incurred each year for the next decade.

Fisher Farm Park
August 2023



Contact:
Dave Cable
704-577-2004



LEGEND

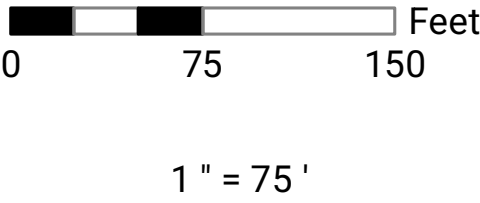
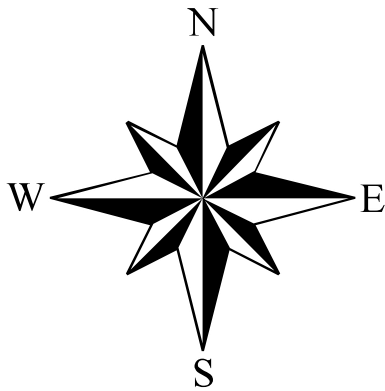
- | | |
|------------------------------------|----------------------------------|
| Abersham Park (Unprotected) | Streams, Rivers, and Waterbodies |
| Fisher Farm Park | Forested Land |
| Bike Trails | Grassy/Maintained Land |
| Abersham Emergency Access | Impervious Surface |
| Greenways | Early Successional/Scrubby Land |
| Fisher Farm Emergency Access | |
| Current Milkweed Protection Site | |
| Potential Milkweed Protection Site | |

Fisher Farm Park

August 2023



Contact:
Dave Cable
704-577-2004

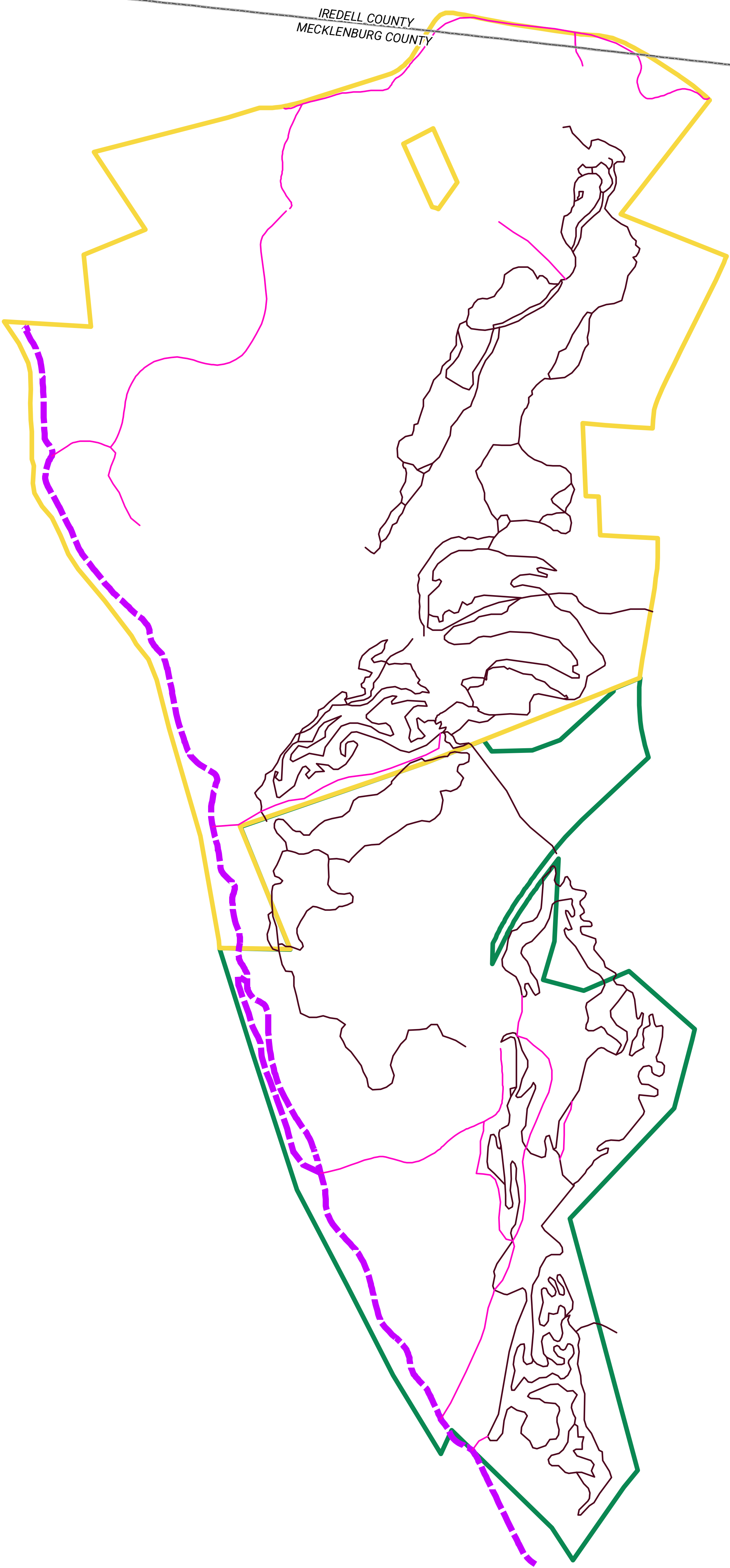


LEGEND

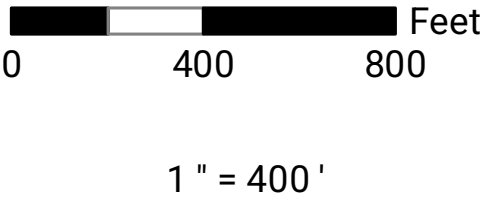
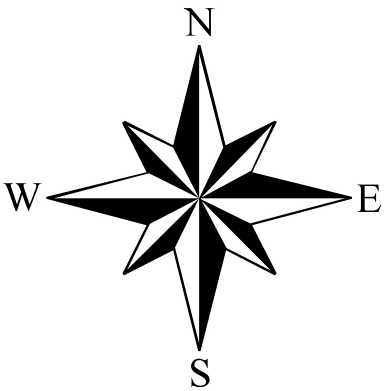
- | | |
|------------------------------|----------------------------------|
| Abersham Park (Unprotected) | Streams, Rivers, and Waterbodies |
| Fisher Farm Park | Forested Land |
| Bike Trails | Grassy/Maintained Land |
| Abersham Emergency Access | Impervious Surface |
| Greenways | Early Successional/Scrubby Land |
| Fisher Farm Emergency Access | |

Fisher Farm Park

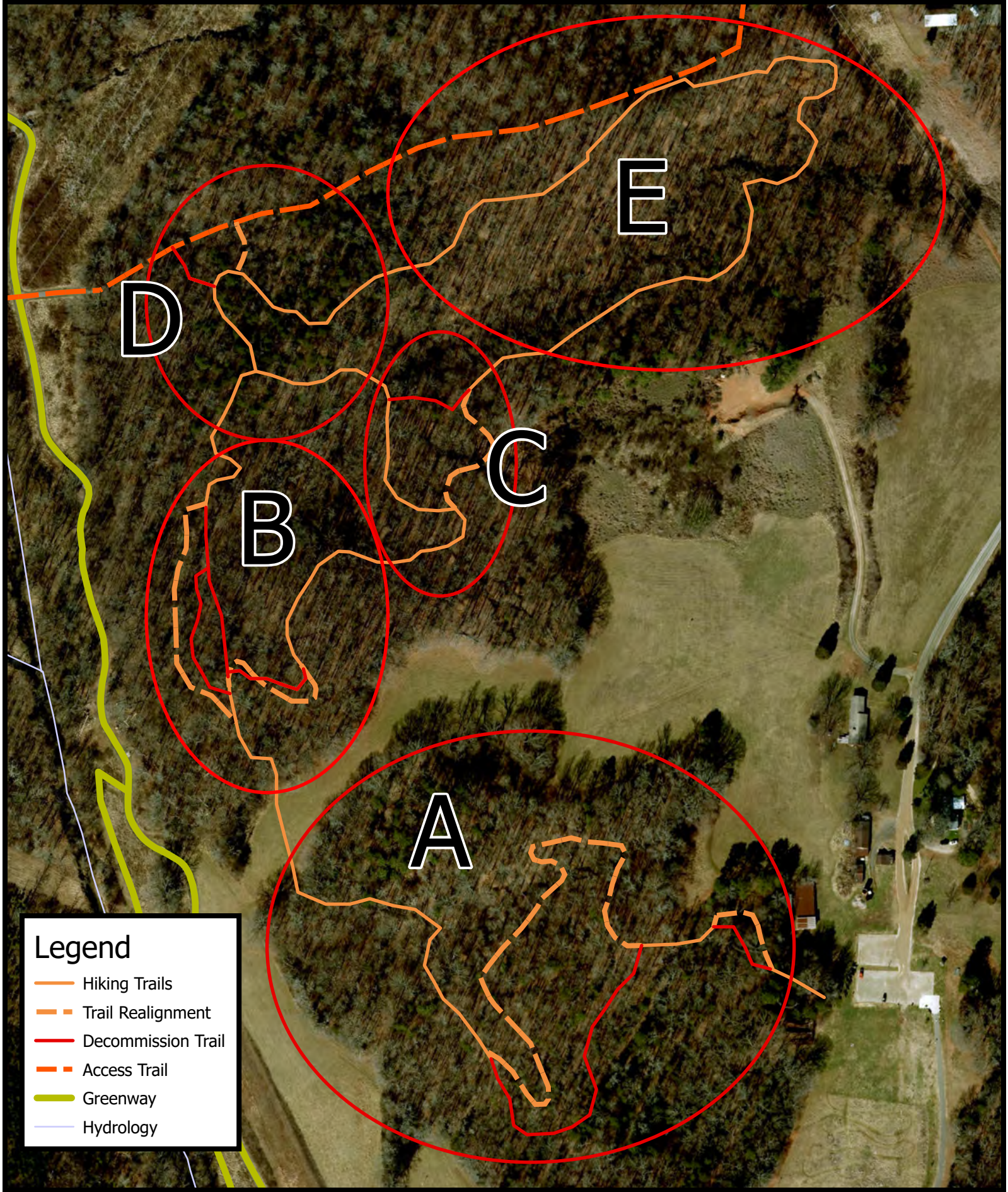
September 2023



Contact:
Dave Cable
704-577-2004



- LEGEND**
- WALKING TRAILS
 - EXISTING GREENWAYS (ALONG RIVER)
 - BIKE TRAILS



Legend

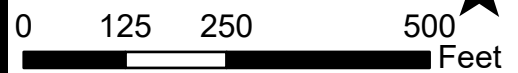
- Hiking Trails
- Trail Realignment
- Decommission Trail
- Access Trail
- Greenway
- Hydrology

Fisher Farm Trail Project

Davidson Lands Conservancy

September 27, 2023

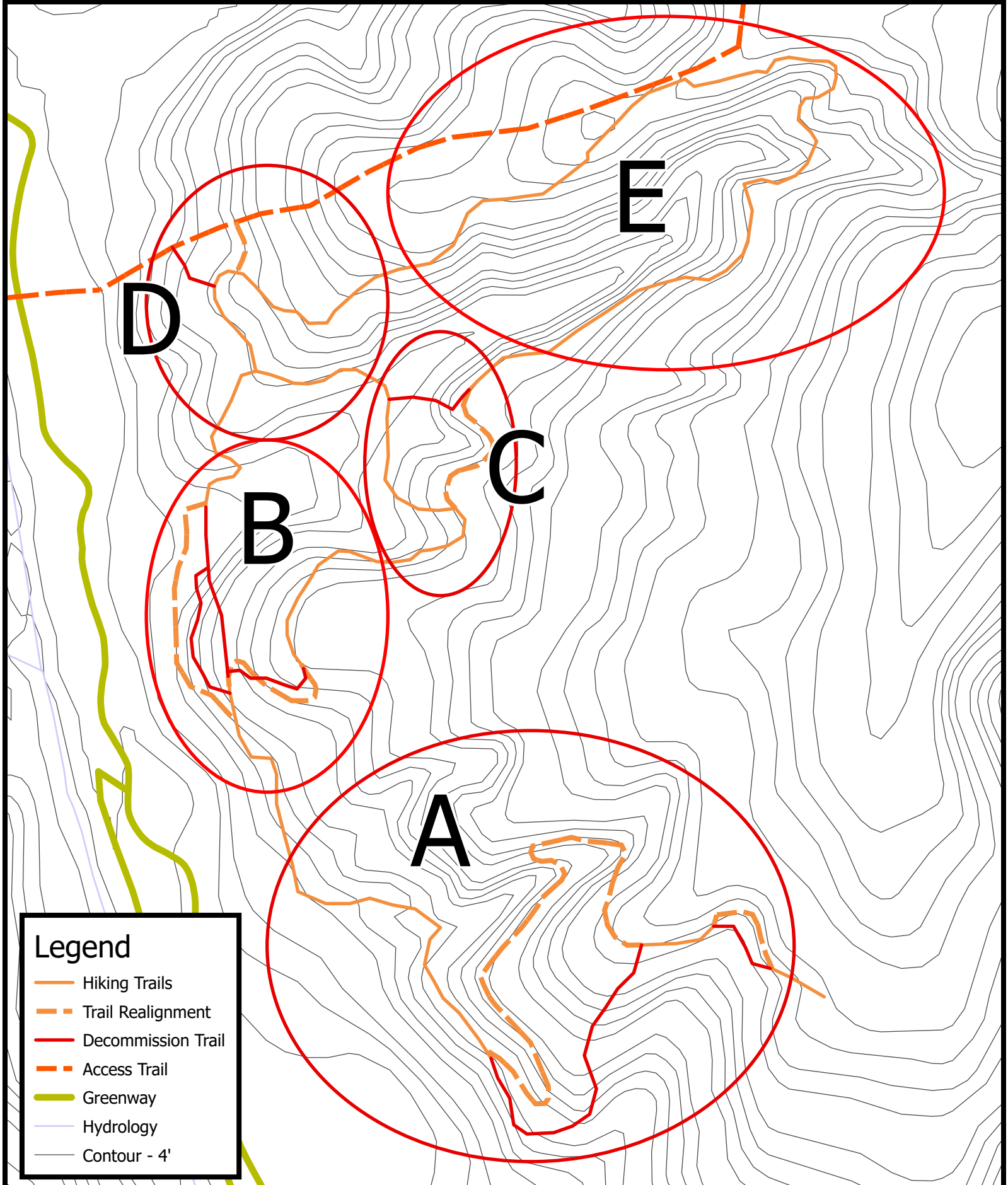
Will Ruark



CATAWBA
LANDS CONSERVANCY
LAND | WATER | FARM | NATURE



CAROLINA
THREAD TRAIL



Legend

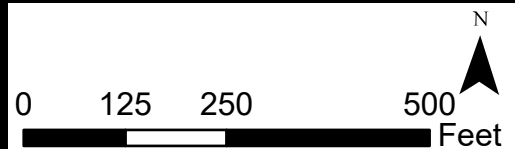
- Hiking Trails
- Trail Realignment
- Decommission Trail
- Access Trail
- Greenway
- Hydrology
- Contour - 4'

Fisher Farm Trail Project

Davidson Lands Conservancy

September 27, 2023

Will Ruark



CATAWBA
LANDS CONSERVANCY
LAND | WATER | FARM | NATURE



CAROLINA
THREAD TRAIL



Assessment of Biodiversity Fisher Farm

July 2023

Kevin G. Smith, Lauren Passek Collver, Izzy Hernandez,
Katieanne Peterson, Soren Timura, Carlos Vargas



Executive Summary

In summer of 2023 Davidson College researchers began a biodiversity survey and assessment project as part of an ongoing relationship with Davidson Lands Conservancy and the Town of Davidson at Fisher Farm. 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. We split the forest into seven sections in order to obtain ample information about the patch.

We 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.

The forest patch has an impressive number of woody and herbaceous species. Unfortunately, this high species richness is undermined by an uneven distribution, as there are only a few species that dominate the forest at each respective level (forest floor, shrub, tree). There is potential, depending on the goals held for this forest patch, to increase biodiversity by balancing the distribution of these species through low-intensity burning, thinning, and/or herbicide use. Non-native species are found throughout the forest patch. The most prevalent ones, Autumn Olive and Japanese Honeysuckle, occur primarily around the edge of the forest patch at relatively low but variable densities. Eradication of these species is unlikely, but given their low densities management may be successful and should be based on stakeholder goals for the forest patch.

Overall, our findings indicate strong potential to support plant diversity and a diverse wildlife population in the forest patch at Fisher Farm. We suggest 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, we suggest that these management strategies will provide ecosystem benefits to wildlife as well as aesthetic benefits to visitors at Fisher Farm.

Executive Summary	1
Objectives and Scope of Report	3
Site Location(s) and Description	3
Methods	4
Assessment of Biodiversity	5
Strengths	5
Weaknesses	6
Tree and Shrub Diversity	6
Forest Floor Diversity	8
Non-native Species	11
Wildlife Value	12
Stakeholder Survey	14
Recommendations	14
Appendix	16
A. Tree Size by Species	16
B. Abundance of Green Ash	17
C. Shrub Cover	17
D. Light Levels Methodology	17
E. Further Information on Forest Floor Cover	18
F. Further Information on Non-native Species	18
G. Deer Forage	20
H. Edge Species	21
References	22

Objectives and Scope of Report

In summer 2023, researchers from the Davidson College Biology and Environmental Studies Departments and Davidson Lands Conservancy (DLC) and the Town of Davidson developed a collaboration to assess biodiversity at Fisher Farm as part of DLC's Wildlife Enhancement Collaborative. The Davidson College team was led by Dr. Kevin G. Smith, a tenured biology professor and conservation scientist, and included one full-time research technician and four full-time student researchers in Biology and Environmental Studies. Conversations between Kevin Smith and DLC led to the development of plans to survey a 20 acre forest in the middle of Fisher Farm, with a specific focus on native biodiversity and to help develop plans to enhance biodiversity, wildlife habitat, aesthetics, and ecosystem health, in alignment with DLC's mission.

In this report, we summarize the work completed by our (the Davidson College) research group at Fisher Farm during June and July of 2023. Our goals for this work were to:

- Assess botanical (tree, understory, herbaceous) biodiversity, including potentially invasive species and value to wildlife
- Summarize our findings to describe the current conditions of the Fisher Farm forest plot as and to inform DLC's and the Town of Davidson's management decisions, and provide baseline data for comparison in future years, post-management
- Provide tentative recommendations for future management activities to be considered alongside those already under consideration by DLC and the Town of Davidson

It has been our pleasure to work with DLC and the Town of Davidson and to work at Fisher Farm. We hope that the information we provide in this report will be useful as you plan future management activities.

Site Location(s) and Description

Fisher Farm is a 200 acre publicly accessible park in Davidson, NC. The park is a popular location for recreational activities including walking, running, and biking. Fisher Farm is owned by the Town of Davidson and protected by a conservation easement held by Mecklenburg County. Davidson Lands Conservancy conducts stewardship and monitoring of the park in order to ensure the land is protected to the standards of the permanent conservation easement.

The Fisher Farm survey focused on a 20 acre mixed hardwood forest with a trail running through the center. This location was chosen because of its large size and relative lack of disturbance and management. It is immediately adjacent to the main parking area and is one of the first forested habitats visitors to the park will encounter. For our surveys, we divided the 20 acre plot into seven 100m x 5m sections spread out around the site to effectively assess the overall biodiversity, individual species present, density and cover, and physical topography, across the entire forest patch.

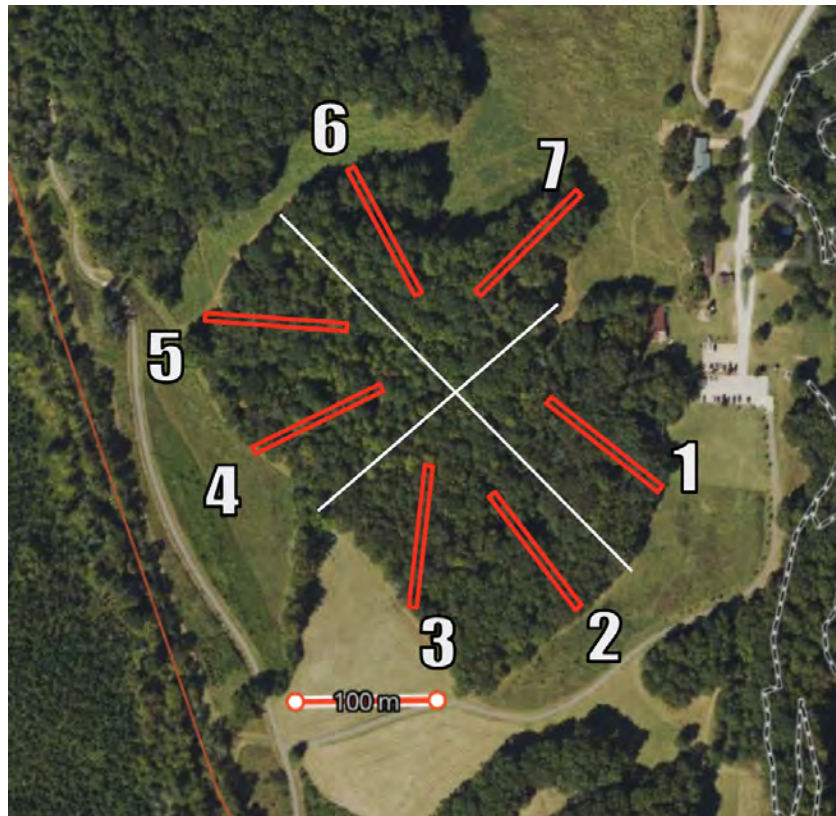


Fig 1. Map of Fisher Farm with locations of each section where a transect was conducted.

Methods

To present a comprehensive report of the biodiversity within Fisher Farm, we used three distinct methods to collect data on the diversity of the forest floor, midstory, and overstory.

1. Identification and diameter of trees occupying the overstory.
2. Identification and coverage data of plants occupying the mid story, commonly referred to as the “shrub layer.”
3. Identification and coverage data of plants occupying the forest floor.

For each survey, we established a 100 meter long and 5 meter wide transect using a reel tape. The species of every tree in the transect that was greater than thumb-width was identified and the diameter at breast height (DBH) was recorded. The presence of vines on trees was also documented. 25 square-meter plots were set up every 20 meters on the transect to conduct shrub level surveys. Within these subplots, we identified all species that were taller than 40 centimeters and less than thumb width and visually estimated the proportion of the plot area they occupied (referred to as maximum percent cover). For our forest floor level surveys, we set up 1 square-meter plots every 10 meters along the transect and did the same maximum percent cover estimations on species that were shorter than 40 centimeters. To ensure our data

reflected the ecosystem as accurately as possible, we also conducted rare species surveys where we recorded the presence of any plant species that fell within each transect but did not appear in any of our subplots.

Assessment of Biodiversity

Strengths

The forest patch has many strengths in terms of biodiversity and wildlife habitat. Overall, we observed high diversity among herbaceous plants and tree species. We documented 61 different species of trees and shrubs and 70 different species of herbaceous plants in the forest patch. For plants found on the forest floor, there is a 96% chance that any two random individuals in the surveyed plot will be different species, and there is a 93% chance that any two trees and shrubs will be different species. These numbers, calculated with the Simpson's Diversity Index, indicate a high level of biodiversity in this forest patch. The diversity of plant species is encouraging for the wildlife population at Fisher Farm, because "diversity begets diversity." Having many different types of plants helps ensure that resources are available for a similarly diverse array of species across all taxa.

The presence of large, mature trees, mainly oaks, in the forest patch is another strength. These trees provide valuable habitat, shade, and food to wildlife and people at Fisher Farm. Large trees also contribute greatly to the aesthetic and physical atmosphere of Fisher Farm and are valuable to the experience of visitors.

While there are non-native species present throughout Fisher Farm, the abundance and density of especially invasive species is only moderate compared to other areas in this region and even other parts of Fisher Farm. Invasive species that are present, such as Autumn Olive and Japanese Honeysuckle, do not exist as monocultures and so their control and management is possible. Additionally, many of these species provide habitat and forage for a wide array of wildlife, which may be considered in future management decisions.

An additional strength of the surveyed forest patch is the topographic heterogeneity of the site. The site consists of upland and bottomland, and the deep ravine that may have been caused by historical land clearing and/or unsustainable farming practices. This diversity of topography supports a high diversity of upland and lowland species and provides many different types of habitat in a relatively small section of land.

Overall, the forest patch has strong potential for providing value in terms of biodiversity, wildlife resources, and esthetic values for visitors to Fisher Farm.

Weaknesses

Although the forest patch has the above strengths, because it is not being actively managed for biodiversity and associated value we have identified some weaknesses.

For example, the forest is dominated by a small number of tree species in the midstory like Winged Elm (*Ulmus alata*), which occurs at nearly triple the abundance of the next most common species, and Green Ash (*Fraxinus pennsylvanica*). Other than Elms and Ashes, the latter of which are unlikely to survive, there are relatively few species available in the understory to maintain the present diversity of the tree canopy in the future. This suggests that tree biodiversity in the forest patch will decline over time in the absence of management.

Furthermore, the closed canopy of mature trees and high density of young trees in the mid and understory prevent sufficient sunlight from reaching the forest floor. As a result, herbaceous cover (e.g., forbs and wildflowers) is very low. Although many herbaceous species are present, they occur at very low abundance and provide few services or resources, limiting the biodiversity value of the forest patch.

Several invasive species are common in the forest patch, but they are not found in high densities meaning that they currently do not pose a severe threat to the biodiversity and can be managed. However, we did find high cover of invasive species concentrated in some spaces.

Tree and Shrub Diversity

In this section we summarize the most abundant tree and shrub species and discuss their implications for the biodiversity of the forest patch.

Tree diversity: The surveyed area is primarily a mixed hardwood forest. Winged elm (*Ulmus alata*) is the most abundant species, followed by Eastern Red Cedar (*Juniperus virginiana*), Sweetgum (*Liquidambar styraciflua*), Green Ash (*Fraxinus pennsylvanica*), and American Beech (*Fagus grandifolia*).

Tree size: A critical point of the tree diversity at Fisher Farm is that among the most abundant trees, Winged Elm and Green Ash appear almost exclusively as small to medium sized trees in the midstory. The diameter at breast height (DBH; see *Appendix A for more information*) of most Winged Elms and Green Ash are under 8 cm and 5 cm, respectively. Smaller trees of these species were also among the most abundant in the shrub level. A concern of this is that these species are taking up space in the midstory and understory that could otherwise be occupied by trees that live longer and provide more value for wildlife (Oaks, for example). Further, the high density of ashes will eventually be susceptible to the Emerald Ash Borer, an invasive insect that kills adult ashes (see *Appendix B for more info*).

In contrast to understory trees, canopy tree species provide a variety of ecosystem services including producing hard mast of nuts/acorns and providing habitat space for a variety of bird species. Hickories (*Carya*) and American Beech are trees that contribute to these services once

they are big enough to join the canopy. The most common canopy tree in this forest plot is White Oak (*Quercus alba*) which alongside other oak species contribute huge services to wildlife (see *Wildlife Value for more information*). Canopy trees such as Sweetgum (*Nyssa sylvatica*) and Tulip Poplar (*Liriodendron tulipifera*) are in high abundance, yet do not provide these same services, limiting their value to the surrounding ecosystem.

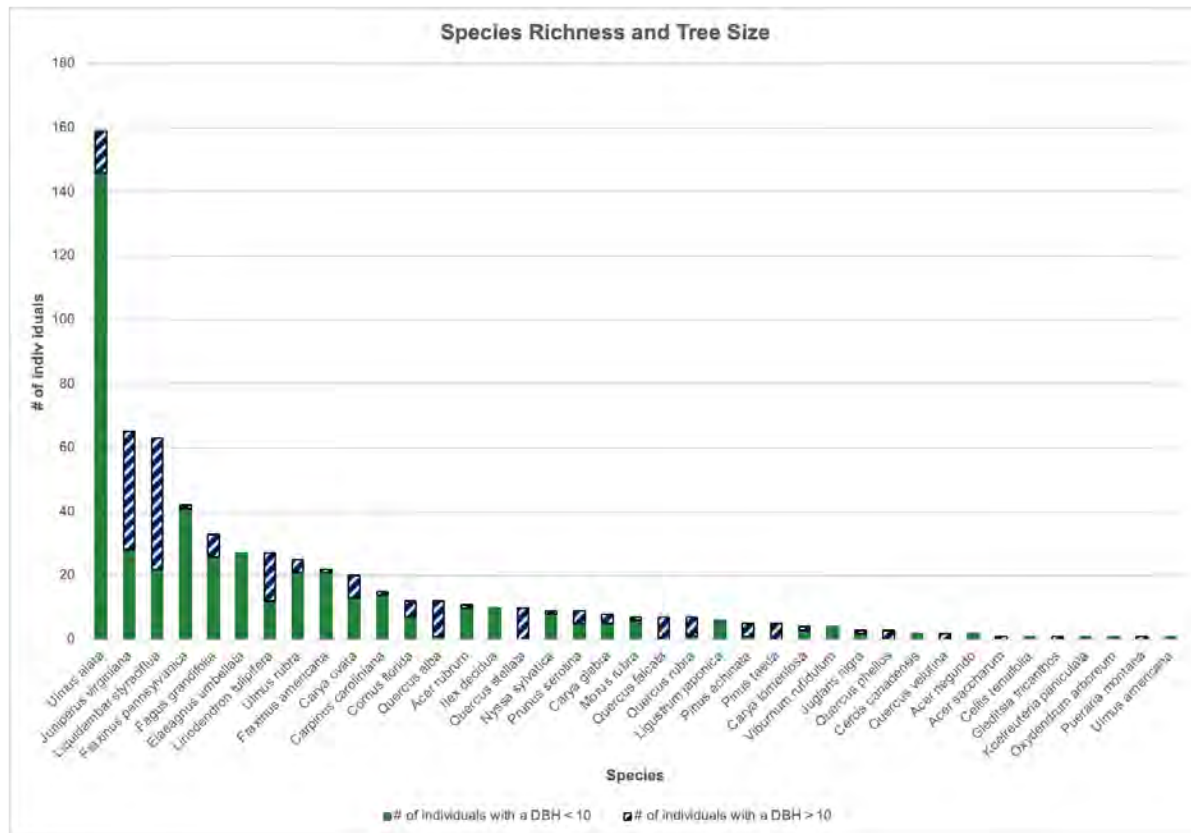


Fig 2. Species richness and tree size (DBH). This figure shows the dominance of small Winged Elm (*Ulmus alata*) in the forest patch. Winged Elm is drastically more abundant than the next most abundant species, and the vast majority of Winged Elm trees are smaller than 10cm in diameter.

Most abundant Shrub species: Besides Green Ash and Winged Elm, the most abundant species in the shrub level by coverage (see *Methods*) are Muscadine Grape (*Vitis rotundifolia*), Autumn Olive (*Elaeagnus umbellata*), and Winter Honeysuckle (*Lonicera fragrantissima*) (see *Non-native Species for more info on Autumn Olive and Winter Honeysuckle*).

Light levels: Due to the dense overstory coverage, the amount of light reaching the forest floor is low. For light level readings we measured Photosynthetic Active Radiation (PAR), the light actively used by plants. Light levels were extremely low in the forest patch compared to the open field (100% light), with all sites having less than 5% available sunlight (Table 1). Reduced sunlight levels on the forest floor lead to suppressed understory growth, including saplings and young trees, herbaceous plants, and shrubs. In forested habitats, a minimum of 30% of available light should be able to reach the forest floor to allow for diverse and abundant plant communities to develop within the forest.

Table 1. Light level readings at Fisher Farm taken on July 25, 2023.

	Open field	Section 1	Sections 2-3	Sections 4-5	Sections 6-7
PAR μmol	1961	80.05	68.6	66.2	45.85
% of Available Sunlight	100%	4.08%	3.50%	3.40%	2.34%

Forest Floor Diversity

In this section we summarize the herbaceous cover on the forest floor, list the most common species, and discuss average percent coverage across the site. Many of these species are useful forage for wildlife and lend importance to the overall health of the ecosystem.

On average, 24% of the forest floor is covered by herbaceous plants and varies between sections of the forest. The most abundant species on the forest floor in order of coverage are Crossvine (*Bignonia capreolata*), Virginia Creeper (*Parthenocissus quinquefolia*), Muscadine Grape, and two non-native, invasive species; Greater Periwinkle (*Vinca major*), and Japanese Honeysuckle. It is interesting to note that all of these species have the growth form of woody vines, or lianas. This abundance of woody vines indicates that the only species of plants that can currently thrive in the shaded understory are species that can climb to higher sunlight levels. Other fairly common species found at the forest floor level included Green Ash, various grasses, and Eastern Redbud (*Cercis canadensis*). These species further demonstrate the dominance of young trees. Figure 3 presents an overall species richness distribution for the forest floor level. Figure 4 demonstrates the species richness excluding vines. Both of these figures show there is high diversity of species on the forest floor, yet there are a few species (mainly woody vines) dominating the system and most herbaceous species are very rare.

Table 2. Average forest floor percent coverage for the overall site and each section.

Location	Average Forest Floor % Cover
Whole Site	24.07%
Section 1	19.8%
Section 2	13.6%
Section 3	18.8%
Section 4	41%
Section 5	25.8%
Section 6	31.1%
Section 7	18.4%

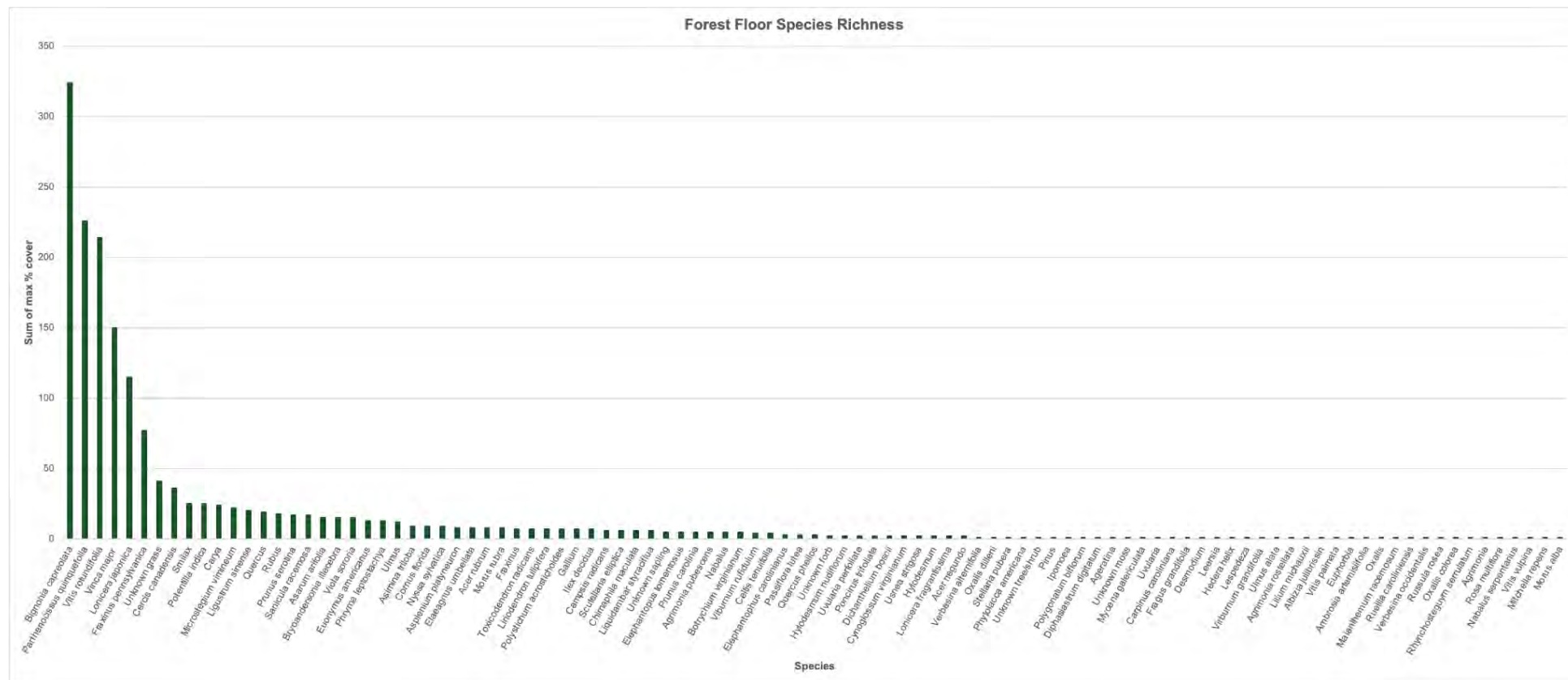


Fig 3. Species richness distribution at the forest floor level using sum of max percent cover

Non-native Species

Non-native and invasive species have been a source of concern at Fisher Farm Park. For example, some management effort has already been applied to reducing the population of Autumn Olive at the park. Determining the threat posed by individual non-native species depends heavily on preferred outcomes and individual stakeholder values. As a result, different values may lead to differences in desired management strategies. This section is intended to provide information to assist in that determination in order to inform future management.

We documented a number of non-native species throughout the forest patch, some of which are considered invasive and many of which are naturalized in the area or very rare. While some may be the target of future management efforts depending on stakeholder goals, we did not document many cases of invasive species forming monocultures or obviously suppressing biodiversity. The two most abundant invasive species are discussed below (*see Appendix F for more information on other non-native species we documented*).

Autumn Olive was introduced to the Southeastern U.S. for erosion control and as forage for wildlife, and it produces fruits that are highly nutritious and even edible to people. It grows quickly in dense thickets and is known to outcompete native species through its resilience to disturbance and ability to fix nitrogen in poor soils. As with all thicket-forming shrubs, the plant will shade the forest floor and prevent growth. It is considered invasive for these reasons.

However, despite it being the fourth most abundant species at 7% cover (see Figure 5 below), we did not find evidence of it outcompeting other species at the shrub level, such as small native hardwoods. We also did not see many Autumn Olive thickets in the surveyed patch.

To further investigate whether Autumn Olive was impeding understory growth, we looked for an inverse relationship between Autumn Olive and forest floor plant cover. For Autumn Olive plants that were small enough to be counted in our shrub surveys, we did not find a significant decrease in herbaceous growth on the forest floor. This may be due to the closed canopy having a greater effect on light levels. This is supported by our observation that herbaceous growth decreased when Autumn Olive was large enough to be counted in the tree surveys (*see Figure 8 in Appendix F*). *For specific recommendations regarding Autumn Olive management, see the Recommendations section.*

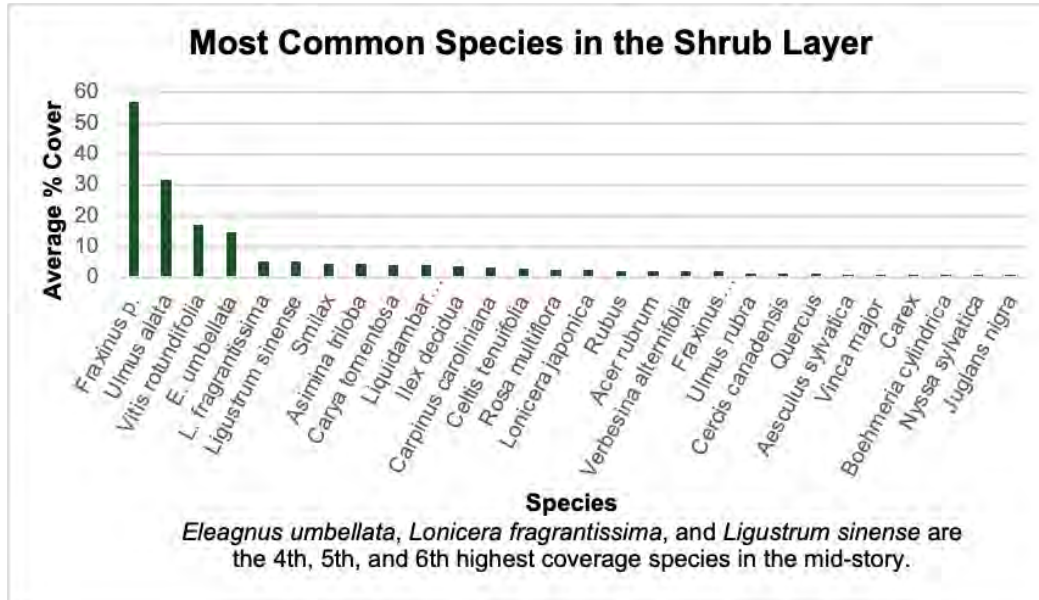


Fig 5. Most common species in the shrub layer

Japanese Honeysuckle is a woody vine that is also considered to be highly invasive. It outcompetes other species for nutrients, water, and sunlight. It is a common forage plant for deer, especially during the winter, and the flowers and berries are eaten by birds and rabbits. **Japanese Honeysuckle is widely present at Fisher Farm and makes up about 7% of all forest floor plants in the forest patch.** Important context while assessing the threat posed by this species is the presence of native vines in the same area. **11 out of the 14 vine species we identified were native, three of which were more abundant than Japanese Honeysuckle** (see Appendix E Figure 7 for more information). Additionally, Japanese Honeysuckle was only the fifth most common of the eight vine species we found growing on trees.

It is worth noting that there are higher levels of invasive species on the outside edge of the forest patch, which we did not survey but did observe during our work. These species include Lesser Periwinkle (*Vinca minor*), Multiflora Rose, Japanese Honeysuckle, and others. Management of species on the outside edge is more likely to be easier than in the interior and would help prevent further ingress. Managing Japanese Honeysuckle is unlikely to be successful, though keeping some may be beneficial if providing forage for deer is an interest.

Wildlife Value

Elm, Cedar, and Sweetgum are the most common trees in the forest patch. These types of hardwoods provide valuable habitat and food for some small birds and insects. **However, they do not produce high protein hard mast such as acorns and nuts that are preferred by deer, large birds, and other small mammals.** Trees that do produce acorns and nuts include Oaks, Hickories, and Beech, all of which are relatively less abundant in the forest patch. While all trees provide resources for other species, the relative lack of mast-producing trees indicates a potential for improving the wildlife value of the forest stand, depending on which types of

wildlife are considered priorities. If a management goal is to support a higher number and a wider range of wildlife, then the forest could be managed to **increase the production of trees with high mast value** (see *Recommendations*).

Additionally, the low coverage of herbaceous growth on the forest floor caused by the low light levels is diminishing their utility to wildlife. Having abundant herbaceous growth provides important habitat for most species of birds and small mammals. Managing the forest stand to promote herbaceous growth would be useful if supporting these wildlife is a priority.

Table 3. Wildlife value of common trees found at Fisher Farm

Wildlife Value of Most Abundant Trees (Adapted from Harper, 2020)			
Species	Relative Abundance (# of Individuals)	Mast Value	Wildlife Utilization
Elm	29%	Low	- Deer (browse) - Birds, Squirrels (seeds & flowers)
Eastern Red Cedar	10%	Low/Medium	- Birds (berries & habitat)
Sweetgum	10%	Low	- Birds (seeds)
Ash	10%	Low/Medium	- Birds (seeds)
Oak	6%	High	- Acorns widely consumed
American Beech	5%	Medium/High	- Beechnuts widely consumed
Hickory	5%	Medium/High	- Squirrels, Bear (nuts)
Tulip Poplar	4%	Low	- Birds (cavity nesting)
American Hornbeam / Musclewood	2%	Low	- Minimal value to wildlife
Flowering Dogwood	2%	Medium	- Birds (drupes)

Stakeholder Survey

Our team is conducting ongoing surveys at Fisher Farm. We posted survey signs in July 2023 at Fisher Farm and are receiving responses from visitors. Our main goal for these surveys is to collect information from visitors about their use of the site, values held by the community about natural spaces and biodiversity, and perceptions of management practices. We can better understand and manage stakeholder values once the surveys are completed and analyzed. This may change some management recommendations down the road, but all recommendations listed below are based on our current knowledge.

Recommendations

Our surveys and assessments of the mixed hardwood forest patch at Fisher Farm show that there is high biodiversity but low evenness, meaning there are few very abundant species and many rare species. The biggest weaknesses are the abundance of young and small trees, low light levels into the forest, low forest floor coverage, and a lack of valuable wildlife trees in the canopy. Using the different management techniques that are outlined below, this habitat can become more diverse and robust to support a variety of species.

Forest Stand Density

The density of the forest stand is our primary concern for Fisher Farm. We suggest that management should focus on addressing the 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.

If increasing herbaceous growth and promoting plant diversity in the forest patch is a goal for managers, we recommend decreasing the density of small trees, specifically Ash and Elm. We propose two possible approaches to achieving this goal:

- A low intensity burn would achieve two outcomes. First, it would help eliminate many small trees without harming mature trees, opening up the midstory. 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.

See Appendix B for specific information on Green Ash abundance.

If addressing the low sunlight levels is of interest, we recommend thinning some abundant mature trees such as Sweetgum and Tulip Poplar 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.

If taking action such as described above, consideration should be given to the effects of increased sunlight levels on the shrub species. With canopy trees felled/thinned, there is a potential for an increase in the density of shrubs to the extent that the forest floor continues to be blocked from receiving sufficient levels of sunlight. This concern is primarily for particularly resilient species of shrubs - see Autumn Olive recommendations below.

Autumn Olive Management

We consider Autumn Olive to be a moderate threat to plant diversity in the forest patch at Fisher Farm. However, completely and permanently eradicating Autumn Olive is not an achievable goal due to the species' ability to both quickly resprout and become regularly reintroduced by birds who spread its seeds.

Determining the proper management approach of Autumn Olive depends on the desired management outcome. If maintaining overall biodiversity is the primary goal, then Autumn Olive does not need to be aggressively controlled but rather can be routinely managed in order to control its abundance. In contrast, if Autumn Olive is considered a threat solely because of its status as a non-native species (e.g. if an entirely native forest patch is desired), then more aggressive management may be considered. Alternatively, if managing specifically for wildlife value, Autumn Olive provides fruit for birds and small mammals and midstory habitat cover. As long as this species is prevented from forming dense thickets through standard management, it may not be a significant threat to biodiversity of the habitat.

If controlling Autumn Olive is a desired management goal, a combination of cutting and herbicide application (such as hack-and-squirt or cut-and-paint) would be required. One potential concern is that any removal utilizing machinery could cause damage to the forest floor and shrub communities and risk doing more harm than good, including creating disturbance that could promote the spread of other invasive species into the forest patch. Regardless of the preferred management outcome, a complete and permanent eradication of Autumn Olive is not possible or necessary for promoting a diverse forest stand that is supportive of both wildlife and people. Consistent management would be more practical and better suited for this.

Additional Findings - Farm Dump Sites

While surveying the forest patch, we found garbage and farming debris that could be an aesthetic concern. For aesthetic purposes as well as potential habitat enhancement, cleaning up the old equipment and debris could be beneficial.

Appendix

A. Tree Size by Species

The metric used in these surveys to record and assess tree size is Diameter at Breast Height (DBH). This is a measurement taken in centimeters and measured approximately 1.5 meters off of the ground.

- A tree with a DBH between 0 and 2 will be smaller than thumb-sized.
- A DBH between 5 and 10 will be about hand-width.
- Once trees reach 10cm in diameter, they are typically considered canopy trees.
- A tree with a DBH over 50 cm is one that will be difficult to wrap your arms around and is considered a significantly large tree.

In accordance with the DBH standards listed above, Figure 6 shows the tree size range of various species in both the canopy and understory for comparison between species. This further emphasizes the abundance of small Elms (*Ulmus*) and Ash (*Fraxinus*) as well as Oaks (*Quercus*) and Sweetgums (*Liquidambar*) as the larger trees occupying the canopy.

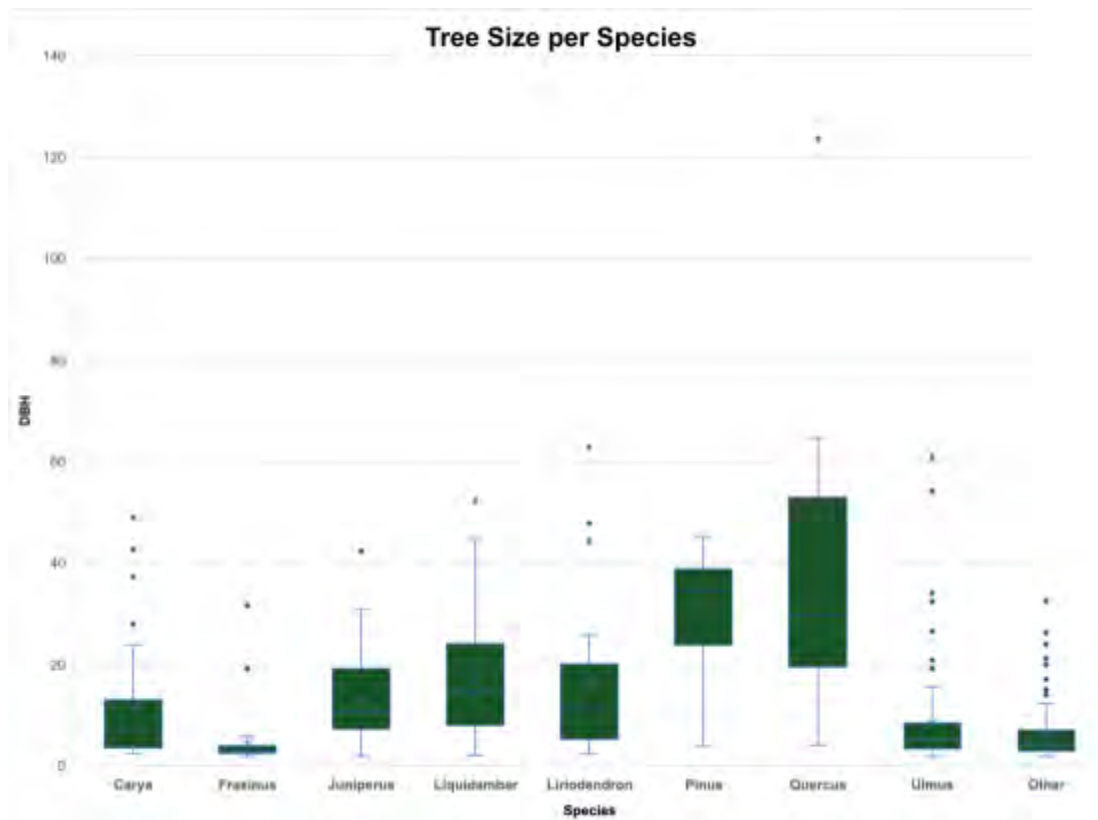


Fig 6. Comparison of tree size based on DBH between various species demonstrating Oaks, Sweetgums, and Tulip Poplar as some of the larger, canopy species.

B. Abundance of Green Ash

The dominance of Green Ash (*Fraxinus pennsylvanica*) is a cause for concern due to the threat of the Emerald Ash Borer (EAB). Survey sections 1 and 2 are the locations where Green Ash trees are the most abundant. In these two sections, Green Ash makes up about 65% of all plants in the shrub layer. It is highly likely that the majority of these trees will be affected by the EAB and die before reaching maturity, leaving sections of the survey plot without other tree species entering the future canopy. Unfortunately, there are very few resources or treatment options for protecting ash trees in a forest stand from EAB. One management option to address this concern would be to prioritize the diversity of small tree species by thinning the small Ash trees to allow other saplings to thrive more readily. Promoting tree diversity in these sections would be proactive to ensuring a healthy mature tree community in the future.

C. Shrub Cover

The metric to record shrub cover was a visual estimation of the amount of space a species took up within a 25 square-meter plot. The average shrub cover over the whole forest patch was 27.03%. Overall there was a wide range of coverage section to section. This information has implications if the overstory is to be thinned.

Table 4. Average percent cover at the shrub level for the overall site and each transect/section.

Location	Average Shrub % Cover
Whole Site	27.03%
Section 1	36.4%
Section 2	28.4%
Section 3	39.6%
Section 4	18.8%
Section 5	16.6%
Section 6	27.4%
Section 7	22%

D. Light Levels Methodology

We measured light levels using a Spot-On Quantum PAR light meter in “Scan” mode. The light measurements were taken on a sunny day around 1:00 pm. For the measurements taken inside of the forest patch, two readings were taken in each area and averaged together. The open field

light measurement was taken to get an understanding of what 100% sunlight is, this was taken at the field adjacent to the forest patch.

E. Further Information on Forest Floor Cover

To further emphasize the dominance of vines, see Figure 7, a species richness chart of just vines and their average percent cover across the entire forest plot site. There are 14 species of woody vines present in the area, with high coverage of Crossvine, Virginia Creeper, Muscadine, Greater Periwinkle, and Japanese Honeysuckle.

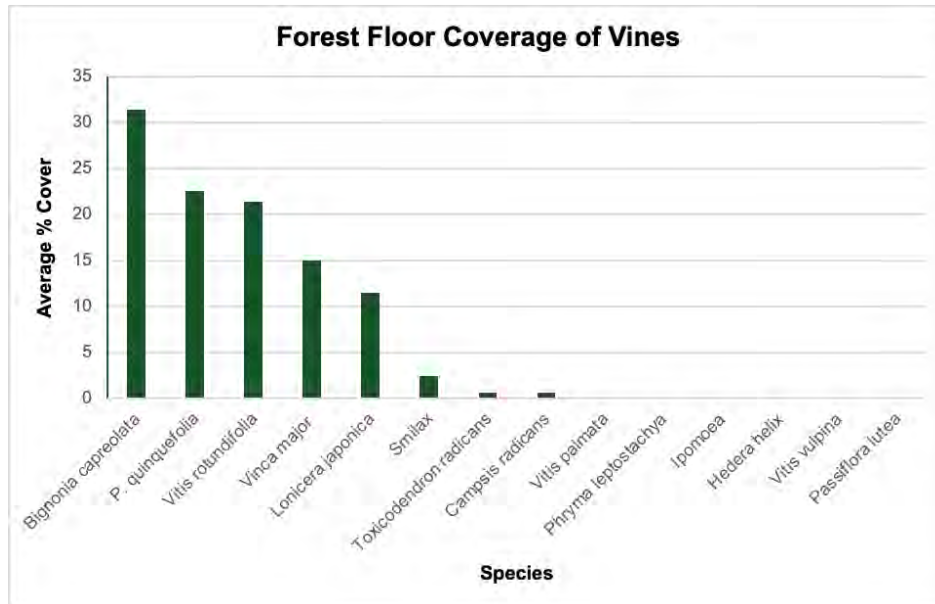


Fig 7. Species richness of woody vines at the Fisher Farm forest patch.

F. Further Information on Non-native Species

As discussed in the report, Autumn Olive is one of the more prominent species at Fisher Farm. We did see a negative correlation (Figure 8) between Autumn Olive presence at the shrub level and forest floor coverage in this area.

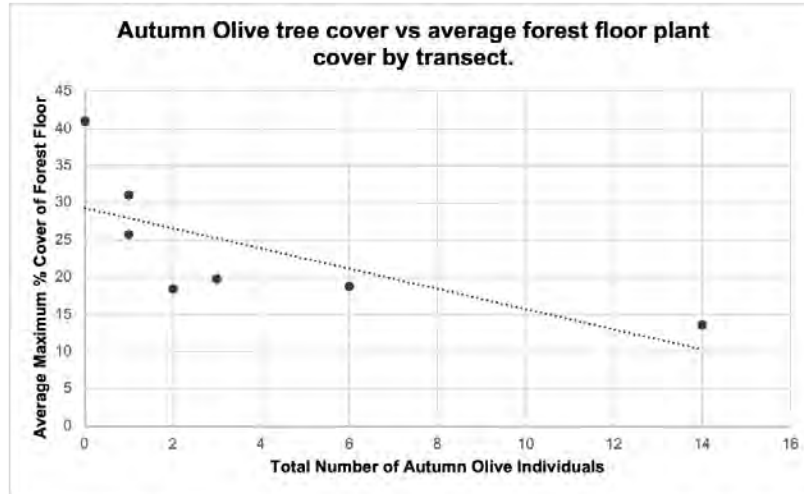


Fig 8. Autumn olive tree cover correlation to forest floor cover.

A detailed listing of all the non-native species recorded at the forest patch and in which sections can be found in Table 5. This emphasizes the low appearance of many of these species while others may be present at all sites. Further information on Winter Honeysuckle, Chinese Privet, Multiflora Rose, and Greater Periwinkle can be found below.

Table 5. All non-native species present in the forest patch and which sections the species were present in.

Species	Section(s) Present
Autumn Olive (<i>Elaeagnus umbellata</i>)	All
Chinese Privet (<i>Ligustrum sinense</i>)	1, 2, 3, 4, 5, 7
English Ivy (<i>Hedera helix</i>)	2
Flowering Viburnum (<i>Viburnum grandiflorum</i>)	6
Golden Raintree (<i>Koelreuteria paniculata</i>)	6
Greater Periwinkle (<i>Vinca major</i>)	6
Japanese Honeysuckle (<i>Lonicera japonica</i>)	All
Japanese Privet (<i>Ligustrum japonicum</i>)	3
Japanese Stiltgrass (<i>Microstegium vimineum</i>)	2, 3, 4
Mimosa/Silk Tree (<i>Albizia julibrissin</i>)	1
Mock Strawberry (<i>Potentilla indica</i>)	1, 2, 3, 4, 6
Multiflora Rose (<i>Rosa multiflora</i>)	2, 3, 4, 5, 7
Trifoliolate Orange (<i>Poncirus trifoliata</i>)	1, 3
White Mulberry (<i>Morus alba</i>)	1, 4, 6, 7
Winter Honeysuckle (<i>Lonicera fragrantissima</i>)	2, 4, 6, 7

Winter Honeysuckle (*Lonicera fragrantissima*) is a flowering shrub honeysuckle native to China and introduced to the U.S. to be ornamental and wildlife habitat. It is considered invasive across the Southeastern U.S. and is easily spread by birds and other wildlife. It can easily invade forests and form dense thickets. It is a valuable plant for pollinators, birds, and small mammals. It is currently in four out of the seven sections.

Privets are considered highly invasive shrubs and small trees that form dense thickets and outcompete native plant species. Chinese Privet (*Ligustrum sinense*) was introduced in the 1800s as an ornamental plant and is now widespread across the Southeastern U.S.

Multiflora Rose (*Rosa multiflora*) is found throughout the Eastern U.S. and is considered an invasive plant and noxious weed. It can outcompete other species and poses a threat to native biodiversity. At Fisher Farm, Multiflora Rose is found in most sections of the study site but is not very common compared to other shrub species. It does not appear to be outcompeting other species or forming dense thickets.

Greater Periwinkle (*Vinca major*) is present in one dense patch within Section 6 of the forest plot. Greater periwinkle has a sum percentage of 15% on the forest floor, which is the greatest of any invasive species. Although greater periwinkle is currently isolated to section 6 there is a chance it may spread, actions to prevent the spread of it and allow for more biodiversity can be taken (see recommendations).

Other species: while there are other non-native species present, none are abundant enough to present as a threat to the integrity of the overall biodiversity.

G. Deer Forage

White-tailed deer is one of the main large wildlife species present at Fisher Farm. Many of the top forage species for deer are present in the forest patch. Virginia Creeper, Muscadine Grape, and Japanese Honeysuckle are the top three species present for deer forage at this site. These are also all within the top five forest floor herbaceous cover species, meaning that deer have a good amount of food resources within this forest patch site. While the abundance of woody vines is supporting the deer population, deer may eat up to 600 different species of plants and require a diverse population of plants to support all of their nutritional needs. Reference Figure 6 below for the full breakdown of top forage species and their abundance at the forest patch.

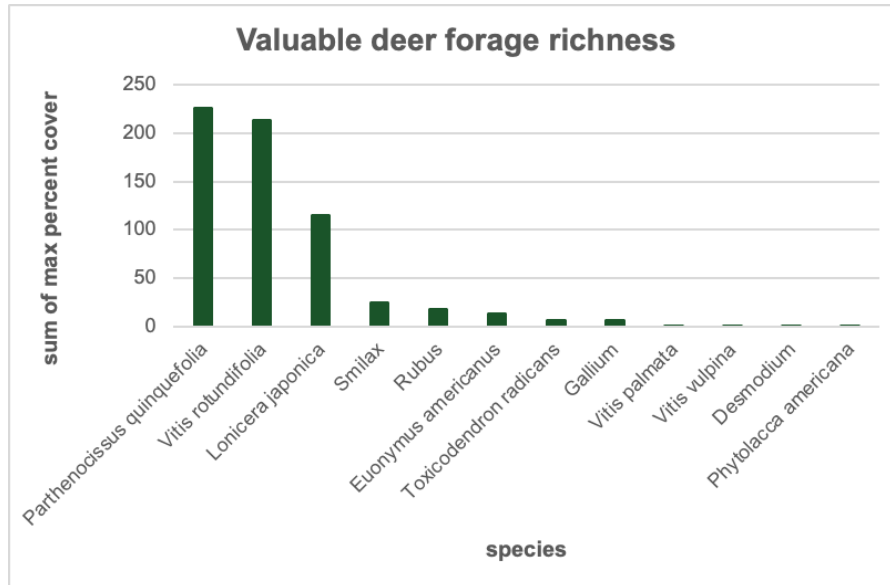
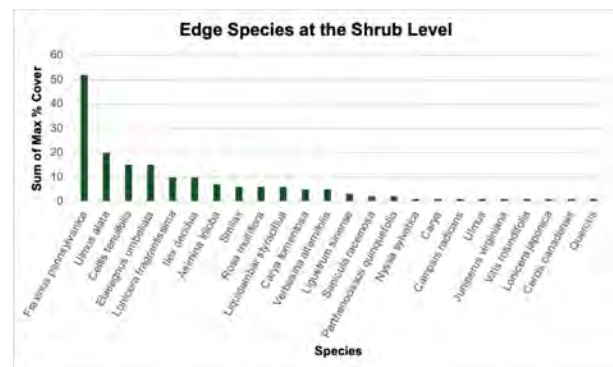
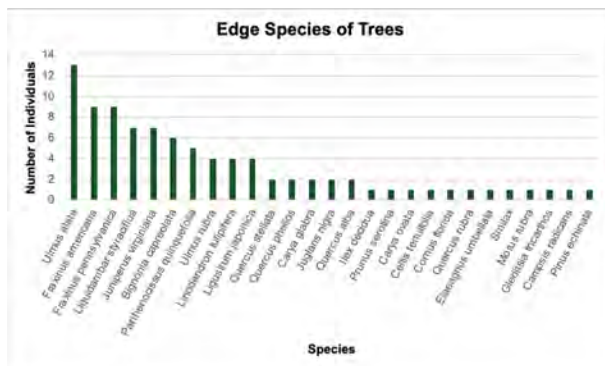
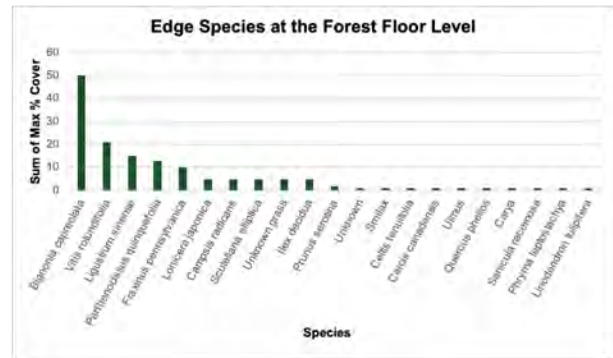


Fig 9. Valuable deer forage species and their sum of coverage at the Fisher Farm forest patch.

H. Edge Species

As expected with a patch of forest, there are significant differences between the species found in the edge of the forest and throughout the rest of the site. These figures show the abundance of species found within the first ten meters of each of our transects. Crossvine (forest floor), Green Ash (shrub), and Winged Elm (tree) abundance indicated at the edge is consistent with what we found within the forest.



References

- Davidson Lands Conservancy. Accessed July 2023. Fisher Farm Park. Davidson Lands Conservancy. <https://davidsonlands.org/conserve-and-steward-land/fisher-farm/>
- Harper, C.A. 2020. Forest Stand Improvement: Implementation for Wildlife in Hardwood Stands of the Eastern U.S. University of Tennessee Institute of Agriculture Department of Forestry, Wildlife and Fisheries. <https://extension.tennessee.edu/publications/Documents/PB1885.pdf>
- Lashley, M.A., C.A. Harper, G.E. Bates, and P.D. Keyser. 2011. Forage Availability for White-Tailed Deer Following Silvicultural Treatments in Hardwood Forests. The Journal of Wildlife Management 75(6): 1467-1476. <https://doi-org.proxy048.nclive.org/10.1002/jwmg.176>
- N.C. State Extension. Accessed July 2023. North Carolina Extension Gardner Toolbox. N.C. Cooperative Extension. <https://plants.ces.ncsu.edu/>
- North Carolina Forest Service. 2010. Invasive Species Leaflets. N.C. Forest Service and N.C. Department of Transportation. <https://www.ncforestservice.gov/>
- Warwick, J.A., C.A. Harper. 2018. Considerations for Wildlife and Fire in the Southern Blue Ridge. The Nature Conservancy - North Carolina and Southern Blue Ridge Fire Learning Network. <https://extension.tennessee.edu/publications/Documents/PB1869.pdf>

Summary of User Survey of Visitors at Fisher Farm

Collected between July 15th and September 8th, 2023

Lauren Collver, Davidson College Biology

A user survey was conducted at Fisher Farm between July 15th and September 8th, 2023. In total, 39 responses were collected and 35 were analyzed, after filtering for incomplete responses. The survey was distributed through signs posted throughout the park alongside walking trails. Questions focused on understanding what visitors value most about the site, and how they perceive different types of management activity. A final short-answer question allowed for respondents to provide feedback that was non-specific to the goals of the survey.

Summary:

The majority of respondents visit Fisher Farm at least once a week. When determining how people use the site, visitors equally visit for recreational activities and to experience nature. From this we can determine that Fisher Farm's 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 around 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.

Average responses:

Responses ranged from 1-5: Strongly disagree, Somewhat disagree, neutral, somewhat agree, and strongly agree.

How do you use this natural area?	<i>"I visit this site for recreational activities"</i> 4.8 Strongly Agree	<i>"I visit this site to experience nature"</i> 4.6 Strongly Agree	<i>"How often do you use this site?"</i> 1.4 More than once a week / once a week
What do you enjoy most about the site?	<i>"I enjoy the site for its scenery and peaceful atmosphere"</i> 4.7 Strongly Agree	<i>"I enjoy the site for the diversity of plants, trees, and wildflowers."</i> 4.2 Somewhat Agree	<i>"I enjoy the site to view wildlife"</i> 4.2 Somewhat Agree
Do you think any of the following management activities would enhance your enjoyment of the site?	<i>"Managing the site to remove invasive species"</i> 3.7 Somewhat Agree	<i>"Managing the site to enhance the diversity of wildlife"</i> 3.9 Somewhat Agree	<i>"Managing the site to enhance the diversity of trees and plants"</i> 4.0 Somewhat Agree
Knowledge of biodiversity	<i>"I know a lot about the diversity of this site"</i> 3.4 Neutral	<i>"I would like to know more about the diversity of this site"</i> 3.8 Somewhat Agree	

Written Responses in Order of Submission:

(Edits made to grammar / spelling for clarity)

1. A bridge is needed in a hiking trail area known for flooding between fisher farm and abersham. Gravel road is rough on vehicles at fisher farm entry.
2. This place is like no other. Some changes could be tolerated (invasive or harmful species removal) but it largely functions well as is. The stream restoration effort has been a very good enhancement.
3. We visit Fisher Farms nearly every day. It is the perfect place to walk our dog. The site is absolutely gorgeous with the wildlife and mother natures beauty. And the trails in the woods and cut paths down by the water are perfect for our pup.
4. I think the site has been very well managed and developed a date. It is good to see areas that support specific activities, like archery, hiking, biking, etc. I would like to see this balance maintained as biking seems to be taking up more space these days.. one other area of concern is some of the litter left behind by photographers, especially foil, glitter/confetti. If there was a way to prevent that, that would be good for the site.
5. We really enjoy this site and appreciate Davidson's foresight in acquiring it and the diligence with which it is maintained. Thanks! I would like to have "off-leash" hours for dogs (e.g., before 8am on weekdays or something like that).
6. Parents need to manage their children better
7. Love the park, especially the wooded walking trails. Love that it connects to additional trails in Abersham
8. I am a daily visitor to the park. I really support the rewilding initiative and would like to see more effort put into the trails through the woods
9. We most enjoy the natural landscape. The new additions that feel more man orchestrated feel less interesting. This site is a great amenity. In thinking of biodiversity I wonder if the paved surface would benefit from some variation of surface finishes, i.e. paved sets that let grasses grow through them, or mulch tracts if the budget allowed.
10. Please keep it natural. Please keep the effects of human hands off of this beautiful place.
11. Request to clear fallen tree on hiking path in woods and repair the old rotted bridge!0
12. please leave it natural and stop trying to "improve" it.

13. Love the passive nature of the park (ie, no ball fields and associated crowds and noise). I also think a leave no trace behind campaign would be beneficial. Too many ribbons and course paint markings starting to show up/accumulate
14. Add more activities for fitness
15. Been coming here for almost 2 decades. Great park with a lot to see and do 5 stars!!!
16. Signage could be improved, especially as it pertains to extensive walking/running trails, which are mostly unmarked. Fields seem underutilized (really the park in general seems this way), but perhaps better left alone. Perhaps I could be more proactive, but publicity seems to be lacking.
17. This park is better off kept lowkey
18. I do appreciate the open meadows, even if they impede biodiversity. The open sight lines are helpful for safety and I find them to be very peaceful.
19. Thank you to all those people who work on the trails and the biodiversity of this site!
20. Thank you for providing this nature area. It is very valuable and life enhancing to me, and I'm sure many others, please continue, and we're possible raise the investment so that more people can enjoy this great area.
21. Tell a certain hiker named Richard to stop building illegal trail in Abersham.
22. I love Fisher but the off leash dogs are a problem for the safety of others enjoying their right to not be jumped on or chased and it affects wildlife. More importantly allowing off leash dogs to continue and not take a hard stance on it is resulting in people with disabilities not able to safely enjoy the park. Those in a wheelchair with dogs running up at them, those with hearing impairments who can't hear the dog coming up behind them or those who have a fear of dogs. Please do something to ensure these groups of people can safely enjoy the park. Don't discriminate them. Thank you
23. Some attention needs to be paid to the erosion on the trails as there are several areas that have washed out.
24. You guys have done an incredible job. Keep up the good work. It's amazing to have a place to come and walk around.
25. Management practices seem wonky. Nice stands of milkweed are repeatedly mowed. The plantings of new trees all in rows and close together doesn't enhance the natural attributes of the park



◻ North Carolina Wildlife Resources Commission ◻

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 11th, 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 availability.

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.



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
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

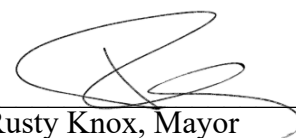
WHEREAS, the Town of Davidson desires to see a permanent conservation easement placed on Abersham Park and is confident that the Davidson Lands Conservancy is the appropriate entity to manage and steward the easement.

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