



Williamstown Lawns-to-Meadows

Sam Holmes & Aaron Stanton

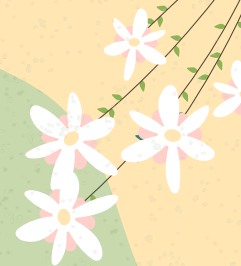


Land Acknowledgement

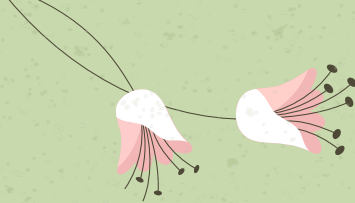
It is with gratitude and humility that we acknowledge that we are working and gathering on the ancestral homelands of the Mohican people, who are the indigenous peoples of this land.

Despite tremendous hardship in being forced from here, today their community resides in Wisconsin and is known as the Stockbridge-Munsee Community.

We pay honor and respect to their ancestors past and present as we commit to building a more inclusive and equitable space for all.



Project Scope



Building upon the work of Bee Friendly Williamstown and past ENVI 302 students, our project is to spread awareness about the benefits of turning lawns in Williamstown to pollinator meadows and create a set of proposals to convert the Town Green to meadow and make Williamstown lawn care more pollinator friendly.

This project focuses primarily on institutionally- and publicly-owned land in creating a proposal to present to the Bee Friendly Williamstown and other important stakeholders.



<http://prairiebreak.blogspot.com/2016/09/a-heavenly-hell-strip.html>

The background is a light green color with a subtle, repeating pattern of small, stylized leaves. Large, dark green tropical leaves are scattered around the edges, including a large monstera leaf in the top right, a palm frond in the top left, and various other leaf shapes in the bottom left and bottom right. Two pink flowers with white centers are located in the bottom right corner.

**Take A Second to
Imagine the
Possibilities**

Peer Communities



**Proposed Project
Great Barrington, MA**



Seattle, WA



Corvallis, OR

<https://www.kuow.org/stories/seattle-woman-builds-pathways-bees-birds-and-other-pollinators/>
<https://xerces.org/pollinator-conservation/parks>
<https://www.townofgb.org/sites/g/files/vyhlf636/f/uploads/greatbarringtonpollinatoractionplan2018.pdf>



Smith College



Langara College



Tufts University



Swarthmore College

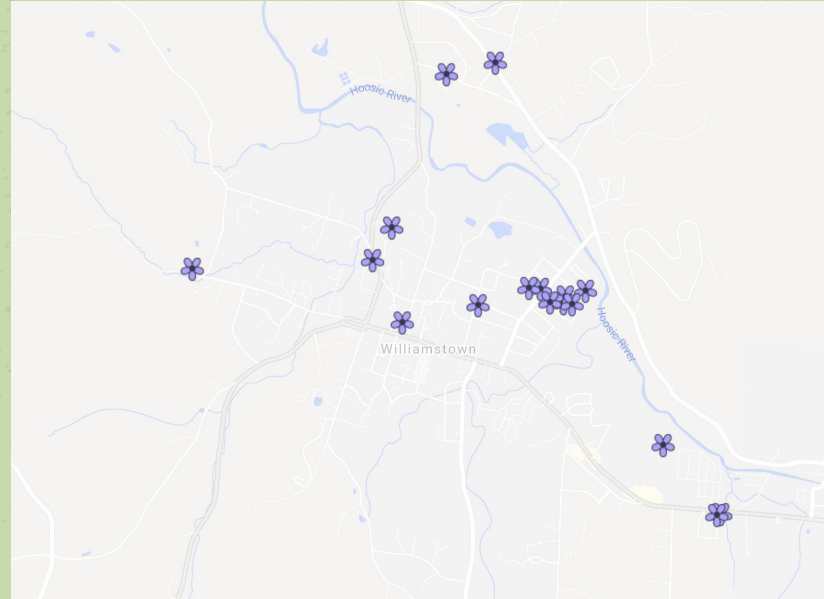
Peer Colleges

<https://sites.tufts.edu/pollinators/>
https://www.masslive.com/entertainment/2013/07/favorite_place_the_botanic_gar.html
<https://d.facebook.com/langaracollege/photos/a.135361775821/10159140991525822/?type=3>
scottarboretum.org/gardens-tour/pollinator/

Pollinator Friendly Community Resolution (2017)

Now, Therefore, Be It Resolved by the Town Meeting of the Town of Williamstown that the Town of Williamstown is hereby declared a Pollinator-Friendly Community and that the town encourages the adoption of policies and practices that support pollinator health by minimizing the use and sale of pesticides and encouraging property owners, residents, town departments, and business owners to adopt pollinator-friendly best practices including:

- * Delaying the mowing of fields to allow fall-blooming asters and goldenrods to bloom to provide an important food resource for pollinators getting ready to over-winter.
- * Avoiding the planting of flowering plants which are treated with systemic insecticides and avoiding the use of seeds coated with systemic neonicotinoids.
- * Planting diverse grass mixes for lawns that include low flowering ground covers such as clover while welcoming the presence of naturally occurring, low-growing wildflowers.
- * Reducing lawn mowing schedules so as to allow these flowering ground covers to bloom to provide an important food resource for pollinators throughout the seasons and to reduce overall maintenance costs.
- * Avoiding homeowner applications of pesticides that require a neighbor notification flag by the state of Massachusetts about the risks to children and animals, and avoiding non-agricultural homeowner usage of glyphosate products (e.g. RoundUp).
- * Where possible, replacing portions of grassed areas with low maintenance flowering perennial shrubs, wildflower corridors, and trees.
- * Allowing fallen leaves to remain along property borders under trees and shrubs as overwintering sites for insects (and birds).



Pollinator Friendly-Habitats around Downtown Williamstown collected by Bee Friendly Williamstown as of August 2021

Williamstown Net Zero Resolution (2021)



- Proposed by the Williamstown COOL Committee (CO2 Lowering Group)
- Passed Town Meeting in June 2021
- Requires the creation and implementation of a Climate Action Plan by 2023

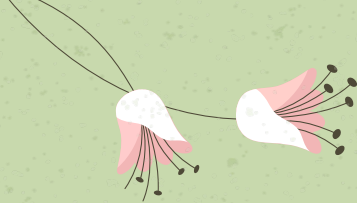
NOW THEREFORE be it resolved that the Town of Williamstown pursue a **Net Zero greenhouse gas (GHG) emissions goal** committing to achieving net-zero GHG emissions by 2050 and **develop and begin implementing a comprehensive climate action plan** by 2023 in collaboration with the community whereby we:

- (a) Take action to support clean, efficient, affordable, renewable technologies and approaches to heating, cooling and powering our homes and businesses; fueling our vehicles; minimizing and disposing of waste; and other activities to achieve a Net Zero GHG emissions goal;
- (b) Include consideration of our Net Zero GHG emissions goal and climate change impacts in all municipal decisions and planning and procurement activities;
- (c) Take action to prepare for the impacts of a changing climate;
- (d) Ensure that our climate actions recognize the needs of vulnerable members of our community and are inclusive and equitable.

Framing with Other Local Projects

- Pollinator Meadows at the Spruces
- Planting of Trees to Restore the Urban Forest Corridor along the Town Green
- Efforts to create sidewalk strip meadows on Southworth Street
- Bee Campus USA





What is a pollinator meadow?

In general, a pollinator meadow is an area filled with native plant species, including grasses and wildflowers.

For the purpose of this report, we're considering a wider array of definitions for pollinator meadow.

It is NOT a "Lawn-gone-wild"

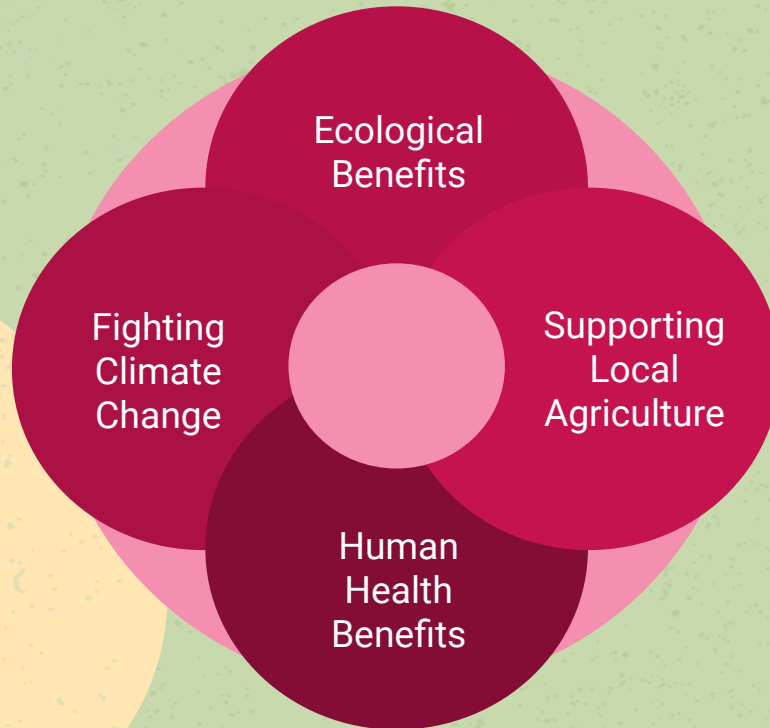


Why are lawns bad?

- **Monocropping**
- **Carbon Emissions**
- **Chemical Usage**
- **High Water Use/Runoff**
- **Habitat Fragmentation**



Why Do I Need to Convert my Lawn to Pollinator Meadow?



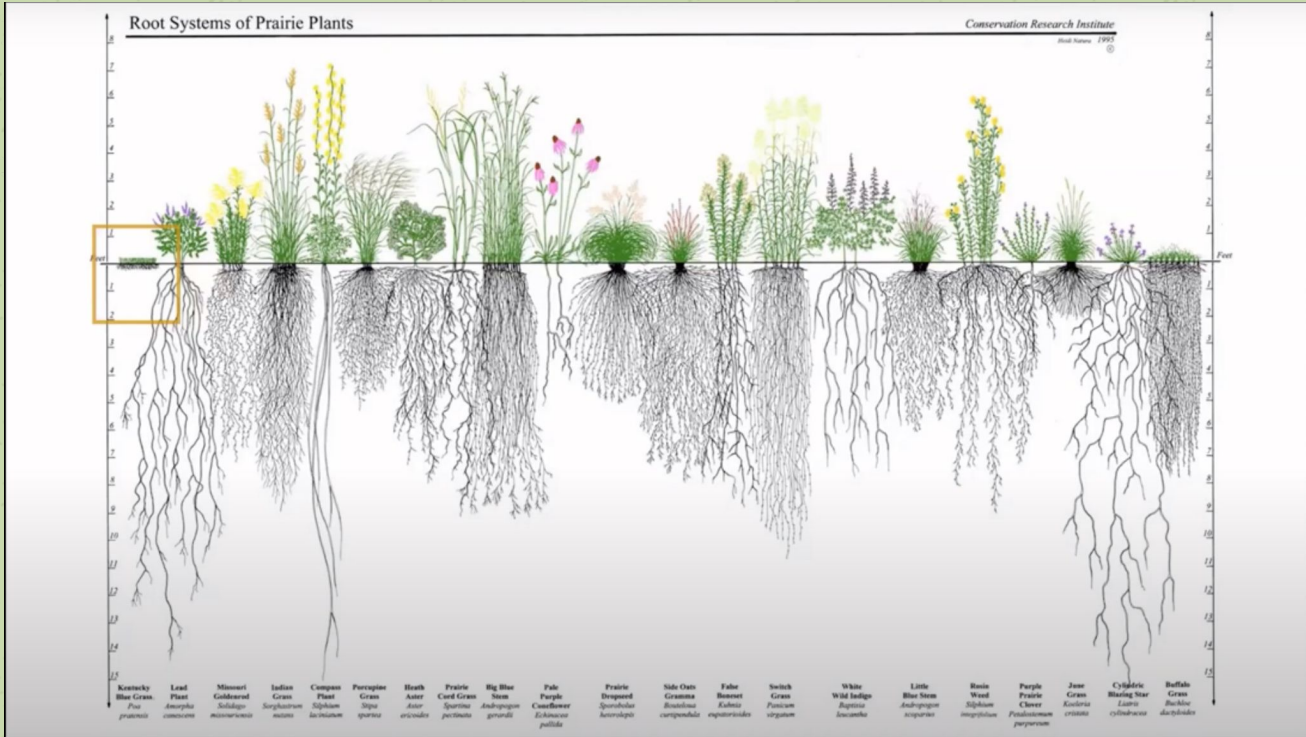
Ecological Benefits

Greater connection between pollinator species and plant species → greater diversity

~88% of flowering plants worldwide require a pollinator

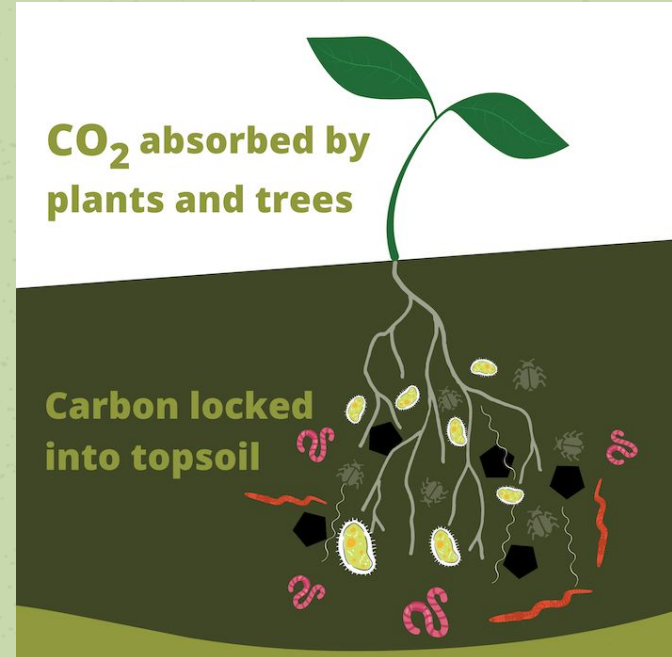
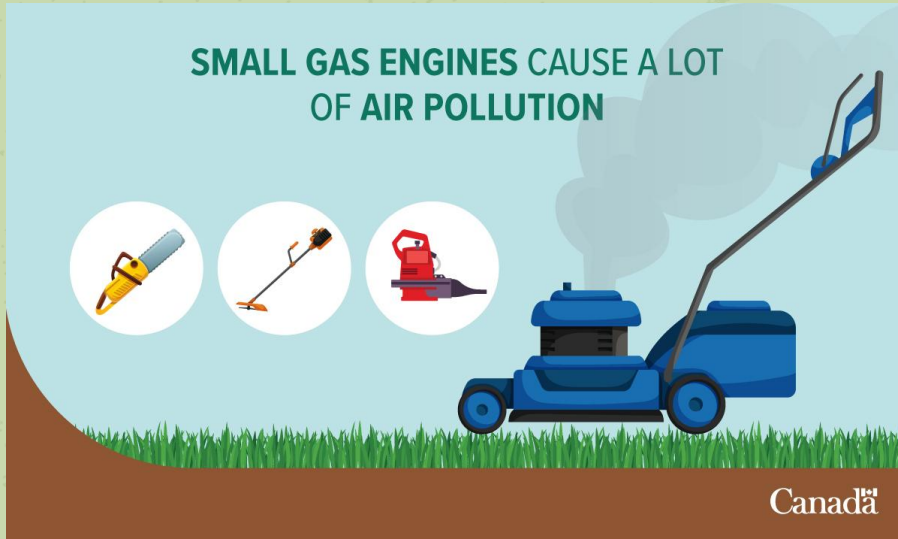
Extensive root systems increase soil fertility, organic matter, and carbon sequestration!





"Designing Biodiversity in the Age of the Anthropocene" with Evan Abramson

Fighting Climate Change





Supporting Agriculture

A.k.a the fruits and vegetables we all enjoy!

>45%

Percentage of agricultural commodities in Massachusetts rely on pollinators

\$355 million

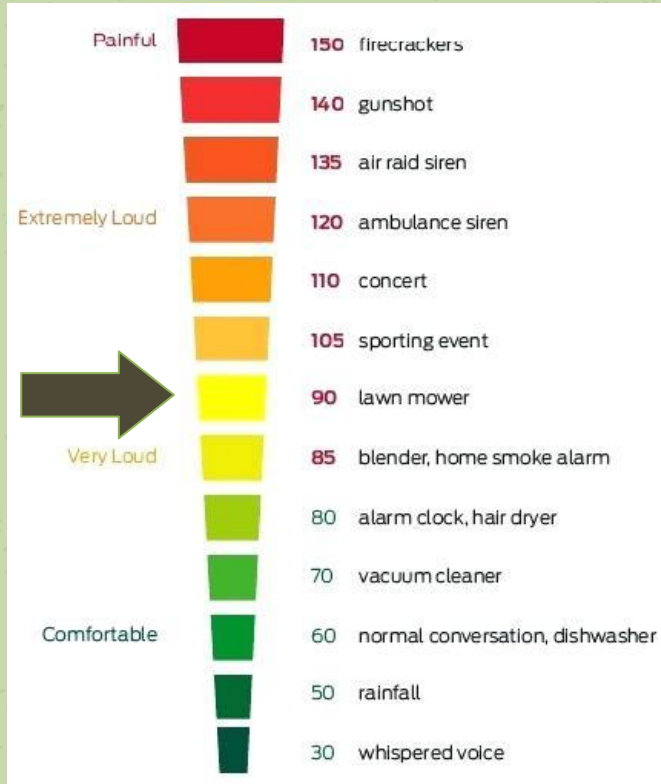
estimated value of crop pollination by managed bees in Massachusetts

35%

Percentage of global food production pollinators are responsible for



Human Health



- **Noise Reduction**
- **Pollution Emission Reduction**
- **Less Chemicals**
- **Increased Beauty**

Myths about Pollinator Meadows

- Unkempt and Messy
- Grow too tall and are unsafe
- Ticks and Bees and other insects



Hungry Ghost Bakery,
Northampton, MA



Northampton, MA Sidewalk
Strip Planting

<https://www.facebook.com/hungryghostbread/photos/10155933581873167>
<https://www.wmasbees.org/pollinator-pathways>
<https://www.hgtv.com/outdoors/gardens/garden-styles-and-types/establishing-a-wildflower-meadow>



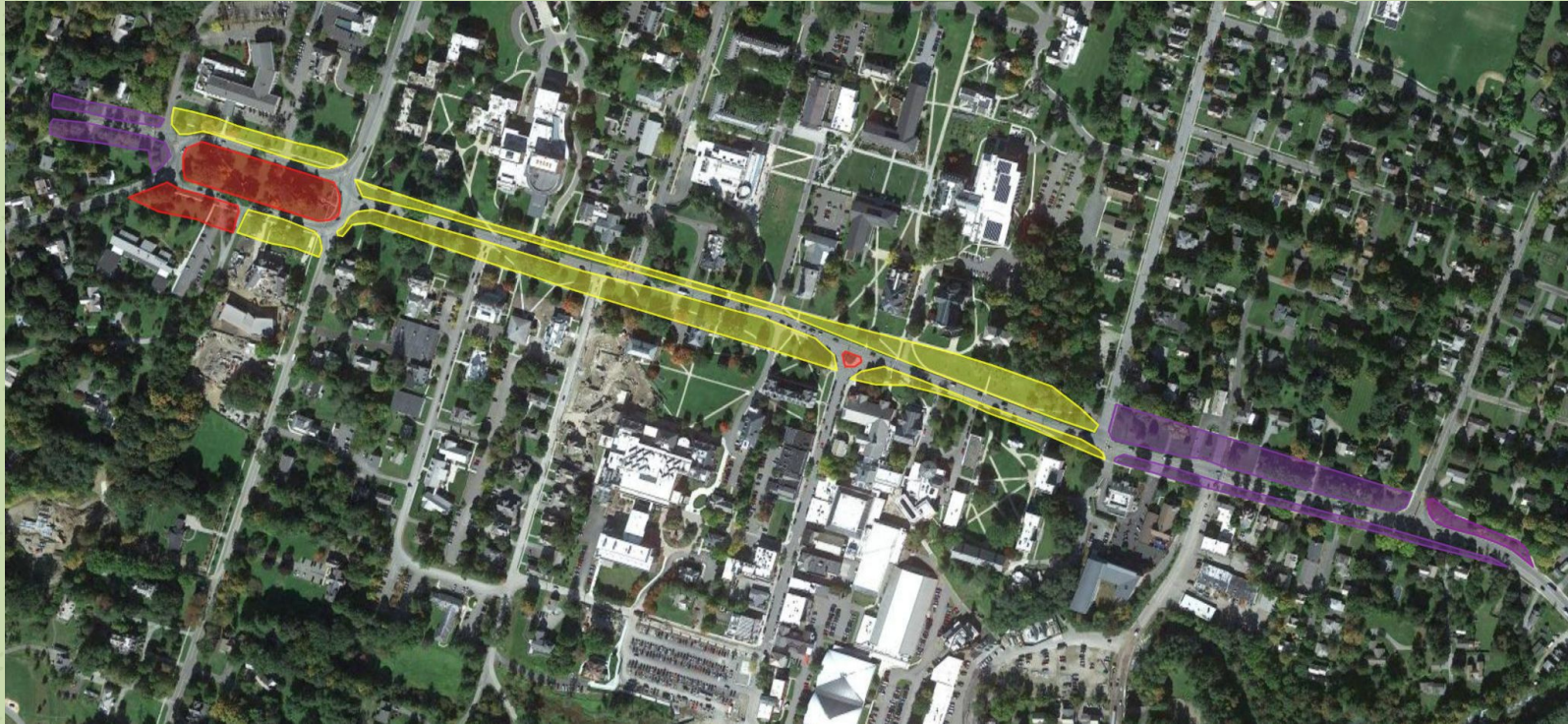
Maintenance of Town Green



Purple: Private

Yellow: College

Red: DPW



Community Stakeholders



Williamstown Residents and Groups:

- Bee Friendly Williamstown
- Town Planner Andrew Groff
- Williamstown DPW
- First Congregational Church
- Abutters to Town Green
- Other Private Landowners
- Countryside Landscaping

Williams College:

- Lydia von Schwanenfluegel '23
- Professor Joan Edwards
- Williams College Grounds and Landscaping

Outside Experts:

- Evan Abramson
- Owen Wormser
- Rosemary Malfi
- Vivian Orlovski
- Elizabeth Kolbert
- Massachusetts Pollinator Network
- Western Massachusetts Pollinator Network
- Berkshire Conservation District



Williamstown Lawn-to-Meadow Survey

Williamstown voted to be a "Pollinator-Friendly Community" in (state year). Bee Friendly Williamstown, a committee of community members concerned with the disappearance of bees and pollinators from the ecosystem, is working to increase the prevalence of pollinator meadows in Williamstown. Pollinator meadows are habitats for bees and other natural pollinators, increase local biodiversity, support local agriculture through the influx of pollinators, help fight climate change at a local level by sequestering carbon dioxide, absorbing rainwater, and decreasing emissions from mowers and blowers, and benefit human health.

Replacing large, unused public and institutional lawn space with pollinator meadows will both decrease the use of insecticides, such as neonicotinoids, and the prevalence of the monocrop plant that we think of as "grass". We are surveying landowners abutting pieces of public property, public officials, institutional landowners, and other important stakeholders to determine how best we can begin implementing pollinator meadows in our community.

We hope that this project will serve as a stepping stone, showing the broader Williamstown community the ease and benefits of pollinator meadows, and leading to more public and private meadows being created in the long term.

 sch4@williams.edu (not shared) [Switch account](#) 

* Required

Name? *

Your answer

Email Address? *

Your answer

Stakeholder Survey

Main Topics:

- **Relation to Lawn-to-Meadow Project**
- **Aesthetic Wants and Concerns**
- **Time of Conversion**
- **General Worries and Question**

Lawn-to-Meadow Factsheet



We are in an ecological crisis. Native plants and pollinators depend on one another. Pollinators are bees, birds, insects, and small animals that spread pollen from one flowering plant to another to help them reproduce. Today, 23% of native plant species are in decline, native and domesticated bees are dying, and 19 species of butterfly and moth and 9 species of beetle are listed as endangered, threatened, or of special concern by the Mass. Natural History & Endangered Species program.

Negatives of a "Typical" Lawn

- The most common lawn grass in Williamstown is Kentucky Bluegrass, a **monocrop** that requires regular mowing, fertilization, chemical application, and watering. Lawns have little ecological value.
- Insecticides and neonicotinoids that are applied to lawns are highly **toxic** to invertebrate species, have led to decreases in pollinator populations, and can persist in soil for years, **contaminating water** sources through runoff.

15% of water use nationally is for lawn maintenance!

- Using a gas-powered lawnmower for an hour emits the equivalent amount of pollution as driving a car for 100 hours. The average leaf blower produces 70-75 decibels, well above the 55 decibels recommended by the WHO for outdoor noise.

Positives of Pollinator Meadows

- Native plants have a more extensive root system than lawn grass. This increases soil fertility, organic matter in the soil, and **sequesters carbon!**
- 45% of all agricultural commodities in Massachusetts depend on pollinators.
- The **maintenance** of pollinator meadows is incredibly **simple and inexpensive**. They do not require insecticide, herbicide, or fertilizer, need less water, and are mowed significantly less than lawns.
- Pollinator meadows mean more flowering plants and beautiful insects, butterflies, and other creatures living in front of your house! **See the back side of this sheet for examples of pollinator-friendly plantings!**

20% of Massachusetts is lawn!



Images above are of the Demonstration Pollinator Plantings at The Spruces, 60 Main Street, Williamstown, MA from beefriendlywilliamstown.org




The image above is an example of pollinator-friendly planting at a home. Photo credit: Xerces Society, www.xerces.org

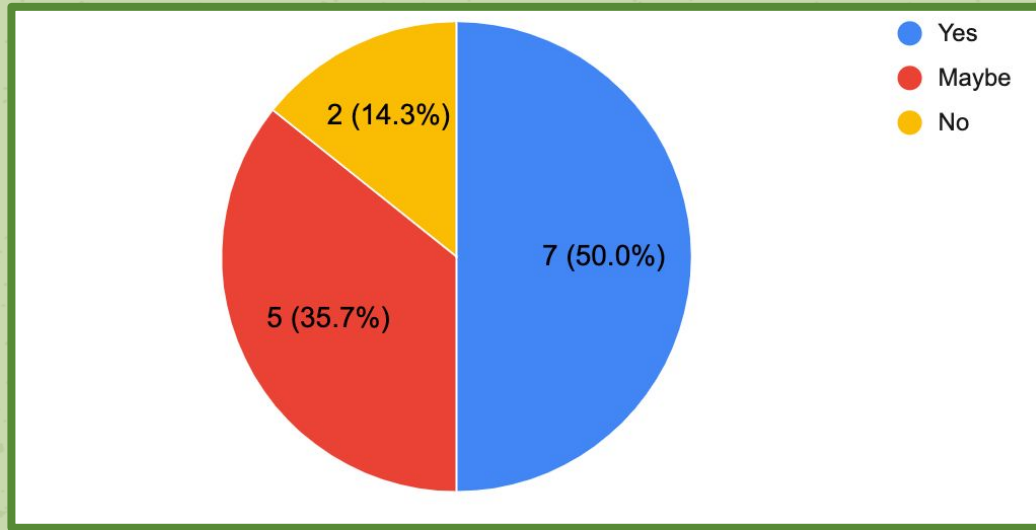


Survey Results

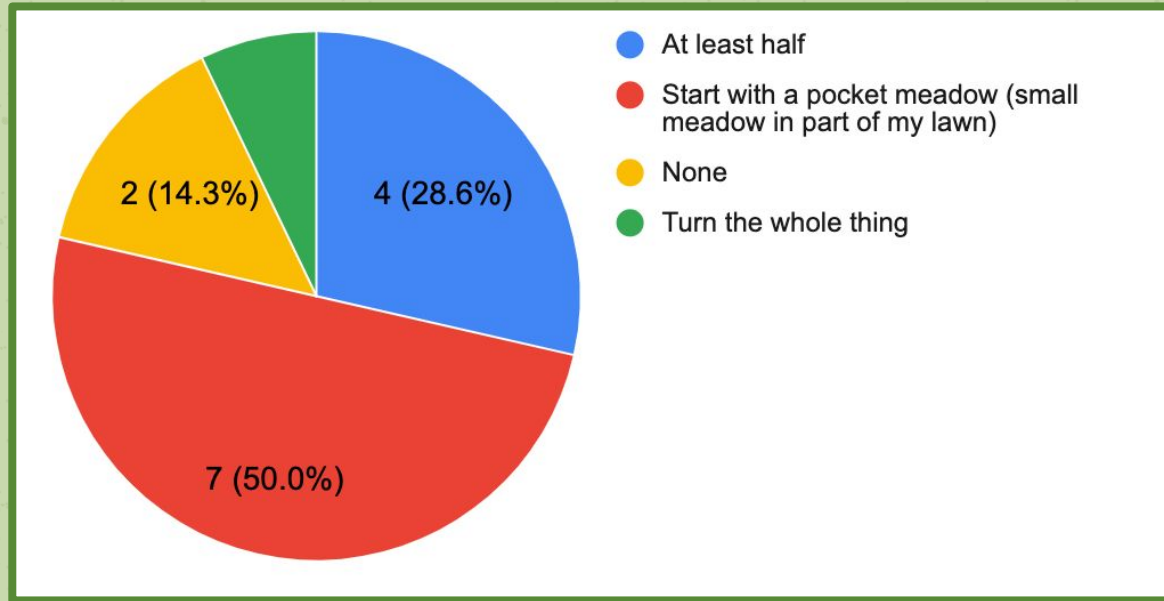
Of the residents along the Town Green,
14/29 houses abutting have responded.



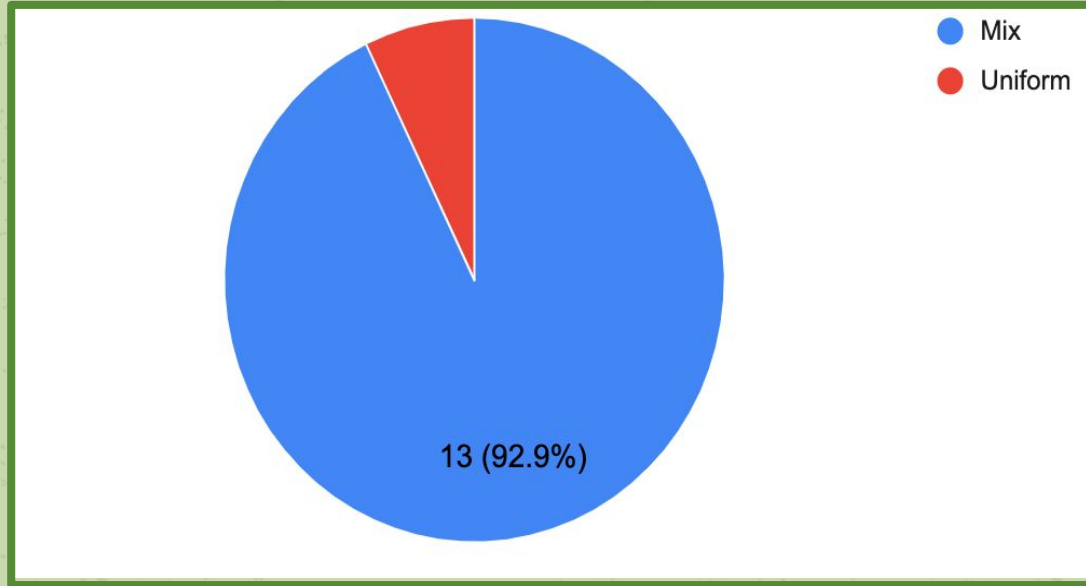
Are you willing to turn some or all of your section of the Town Green into pollinator meadow?



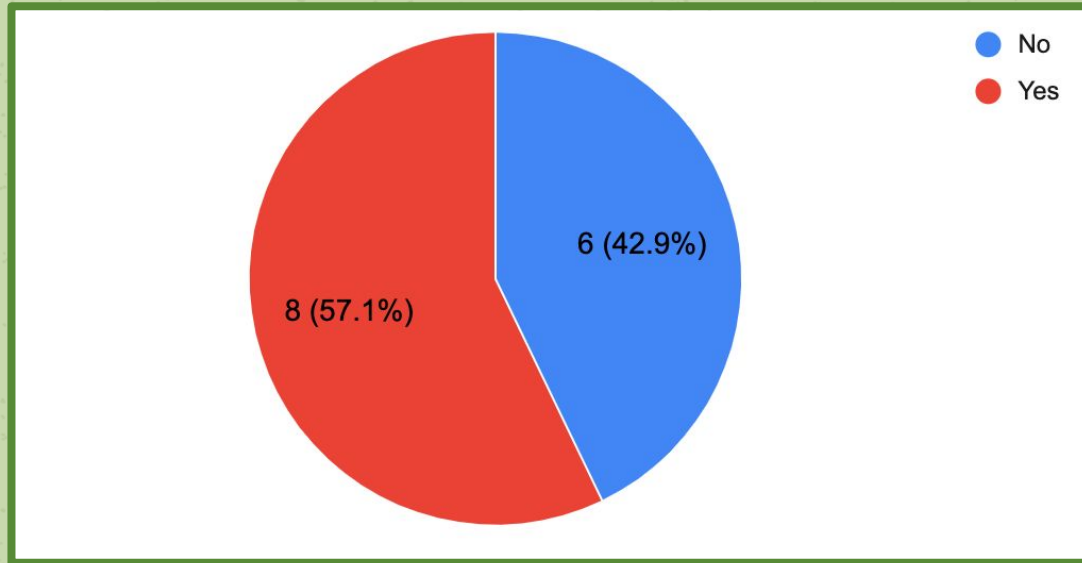
How much of the section of the Town Green you maintain are you willing to turn into a pollinator meadow?



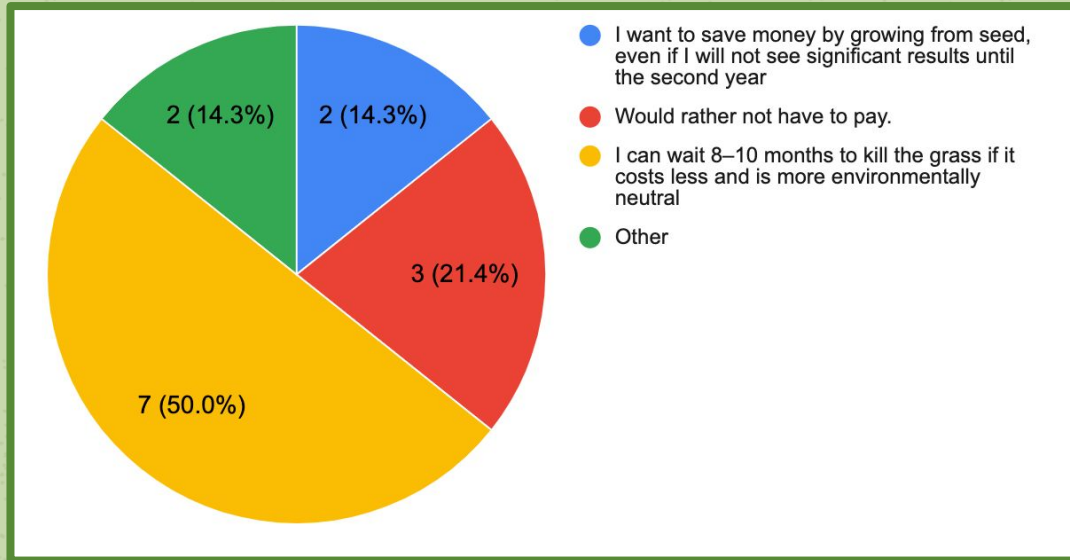
Would you like a mix of native plants or the uniformity of a single species?



Is it important to you to add features (mown paths & edges, decorative fencing, signage) to balance the “wild” aesthetic of a meadow?



There are a few ways to begin the conversion of lawn to meadow, each taking different lengths of time and requiring different amounts of work and expense. Which of the following statements would you most agree with?



General Concerns



- Ticks and other insects
- Maintenance
- Aesthetics
- Between-house uniformity
- Safety



Interview Highlights



Community Stakeholders



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- Berkshire Conservation District

Lydia von Schwanenfluegel '23

- President of Gardening Club
- Ongoing campus project: **Bee Campus USA**
 - Certification through the Xerces Society to promote pollinator-friendly spaces on college campuses
- Proposal includes points on:
 - Pollinator habitats
 - Emissions reductions
 - Pesticides
 - And more!



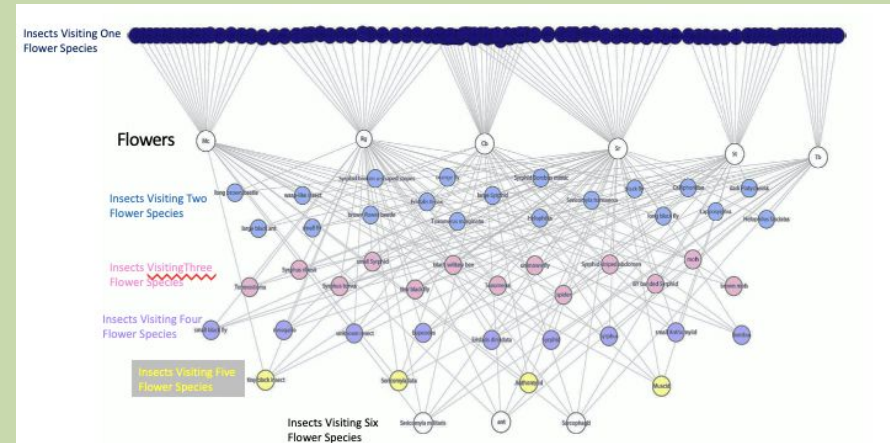
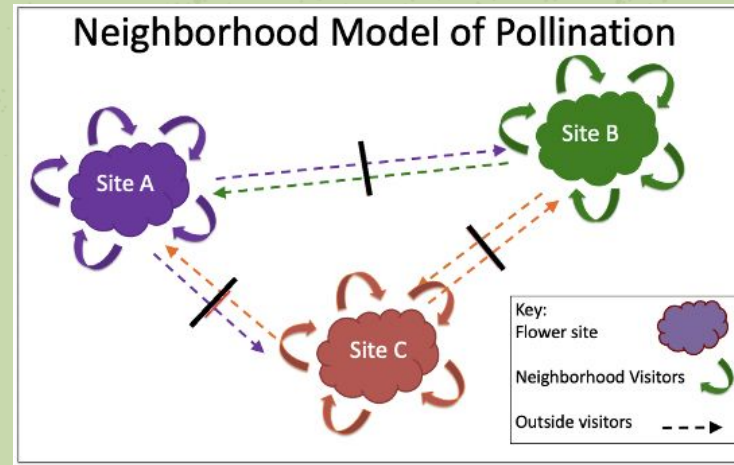
WILLIAMS COLLEGE

BEE CAMPUS USA

W

Professor Joan Edwards

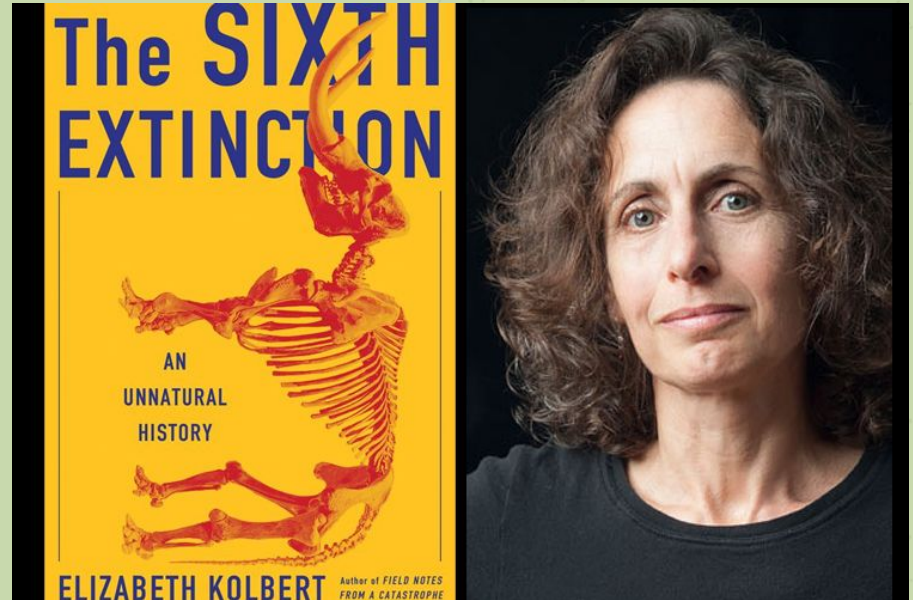
- Any and all pollinator meadow sites are important in supporting pollinator populations in an area
 - Each site, even if the same makeup of plants, attracts different sets of pollinators.
- Diversity of flowers/pollinator sites=diversity of pollinators
- Mowing patterns
 - Late October, 1x per year
 - Maximizes number of flowering stems, provides more food sources for overwintering pollinators, and attracts more insect visitors



Images from Professor Edwards Pollinator Powerpoint for the Environmental Planning Course

Elizabeth Kolbert

- Author of Pulitzer Prize winning book *The Sixth Extinction: An Unnatural History*
- Emphasized tackling the economics of the project
 - Lawn conversion is a way to restore habitat without taking away from food production
- Everyone can play a part
 - Easier for the college and residents to help these organisms that are dying off here in Williamstown rather than, for example, gorillas



https://www.salon.com/2014/02/15/elizabeth_kolbert_earths_growing_extinction_crisis_is_a_man_made_disaster/

Chris Lemoine: Director of Williamstown Public Works

- DPW has never mowed any of the Town Green
- Field Park off-limits to change because of the 1753 House Museum and war memorials
- Pollinator Meadow at Spruces
 - Community Aesthetic Concerns
 - Keep front section lawn
 - Mow buffer zones
- Expects a lot of pushback
- Recommended we consider mowing buffer zones of up to 25 feet



https://www.berkshireeagle.com/news/northern_berkshires/trash-from-a-1900s-landfill-is-causing-concern-in-williamstown-grab-your-bags-for-a/article_77099f36-db72-11eb-b62f-636e73ee9665.html



Williams College Grounds Team

- Excited to continuing increasing meadows and pollinator-friendly spaces on campus
 - Critical of the Town Green being the space for further work
- Concerned about the maintenance required to prevent invasive species takeover and aesthetics for prospective students/alumni
- Open to switch to electric powered lawn equipment, but needed technology does not yet exist

Other Massachusetts Projects:

- **Great Barrington, MA**
 - Created a Pollinator Action Plan
 - Focuses on the 91 miles of roadways in the town
 - Use pollinator strips and focus on municipal properties
- **Lincoln, MA**
 - Chosen sites to convert to pollinator meadows
 - Supported pollinator planting kits for the public

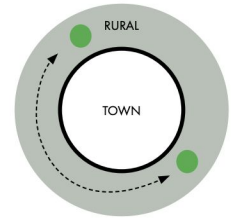
Herbaceous ground cover provides cover habitat and access to the ground while competing with invasive plants.

Trees sequester carbon, provide shade, and assist with stormwater infiltration.

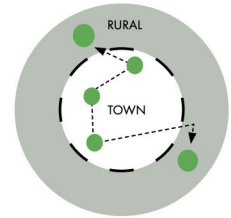
Shrubs provide year-long habitat as dead stems are used for nesting.



Lack of Connected Habitat



Connected Habitat

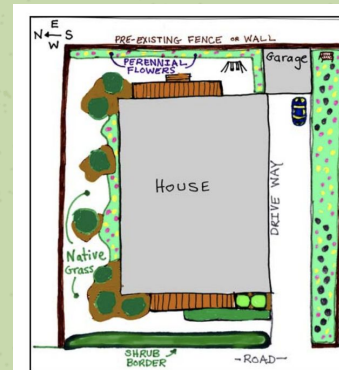
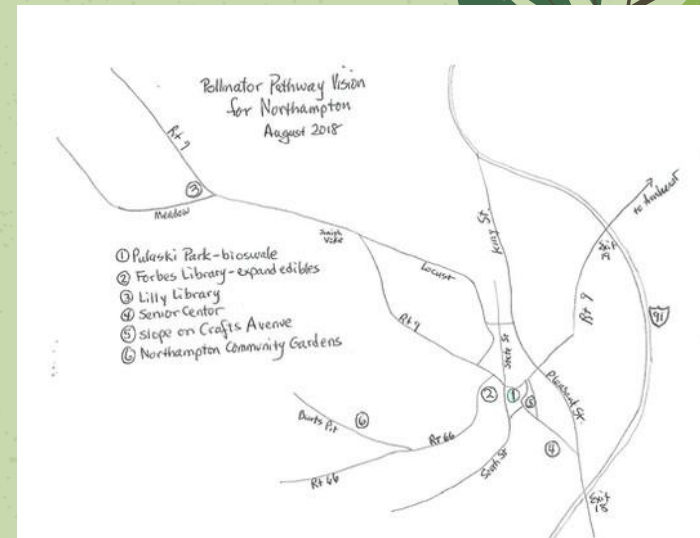


Establishing pollinator habitat in the town center of Great Barrington creates opportunities for connectivity between fragmented natural communities found in rural outlying areas.

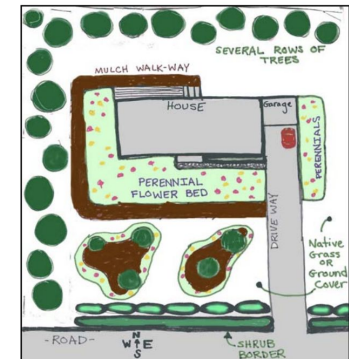
- June Grass, *Koeleria macrantha*
- Nodding Onion, *Allium cernuum*
- Prairie Alumroot, *Heuchera richardsonii*
- Little Bluestem, *Schizachyrium scoparium*
- Butterfly Milkweed, *Asclepias tuberosa*
- Spotted Bee Balm, *Monarda punctata*
- Wild Petunia, *Ruellia humilis*
- Purple Prairie Clover, *Dalea purpurea*
- Prairie Smoke, *Geum triflorum*

Massachusetts Projects con.

- **Northampton, MA**
 - Pollinator Pathway through the city with anchor points
 - Maintained and created by community volunteers
- **“Growing Wild” by Mass. Dep. of Conservation and Recreation and Mass. Dep. of Agricultural Resources**
 - Partnered with local nurseries to create a sell pollinator habitat starter kits
 - Created a guide “More than Just a Yard Landscaping Tools for Massachusetts Homeowners”



Small Yard Design



Large Yard Design



Evaluation Matrix for Town Green Conversion

Alternatives	Environmental	Visibility	Conversion Cost	Long-Term Maintenance Cost and Manageability	Public Opinion	Educational Value	Total
Entire	1	1	2	2	3	1	10
Only North Side	1.5	1.5	1.5	3	2	1.5	11
Only South Side	1.5	1.5	1.5	3	2	1.5	11
5 Foot Strip on Both Sides	2	1.5	1	2	1	1.5	9

1 = Best
3 = Worst

Ranking Explanation	Environmental	Visibility	Conversion Cost	Long-Term Maintenance Cost and Manageability	Public Opinion	Educational Value	Total
Entire	- 11.33 acres will be converted to pollinator meadow	- Directly surrounding Route 2, main street, through downtown Williamstown and Williams College	- Most costly of the different options because it is the most area	- Need to mow border around meadows on both sides of the road - Mow entire Town Green only once per year after frost	- Uniform across the entire Town Green - Worries over safety and messiness on both sides of the road	- Ample space for native plants, pollinators and signage	10
Only North Side	- 5.09 acres will be converted to pollinator meadow	- Directly off of Route 2 running through downtown Williamstown and Williams College - Only on half of the lawn	- Less expensive because it is only about half the land of the entire Town Green	- Need to mow border on one side of road - Mow about half Town Green only once per year after frost - Most about half Town Green as much as normal lawn	- Not uniform across the entire Town Green - Worries of safety on only one side of the road	- Some but less space for native plants, pollinators and signage	11
Only South Side	- 4.85 acres will be converted to pollinator meadow	- Directly off of Route 2 running through downtown Williamstown and Williams College - Only on half of the lawn	- Less expensive because it is only about half the land of the entire Town Green	- Need to mow border on one side of road - Mow about half Town Green only once per year after frost - Most about half Town Green as much as normal lawn	- Not uniform across the entire Town Green - Worries of safety on only one side of the road	- Some but less space for native plants, pollinators and signage	11
5 Foot Strip on Both Sides	- 1.08 acres will be converted to pollinator meadow - Minimum size of strip necessary to provide adequate habitat to pollinators	- Directly surrounding Route 2, main street, through downtown Williamstown and Williams College - Less visible because less area converted	- Least expensive option, because only 1/11 of the land of the entire Town Green converted - Do need to convert to completely separate sides of the road	- Mow only 1 acre once per year after the frost - Mow other 10 acres of Town Green on regular schedule for lawn	- Many of the residents interviewed were interested in starting small - Uniform across the entire Town Green - Less worry over safety because smaller size	- Some but less space for native plants, pollinators and signage - While smaller acreage than the other options, more spread out so opportunities for more types of plants/pollinators	9

Other Possible Lawn Care Policies



- Banning the use of gas-powered lawn care equipment
- Native and/or Noninvasive Plant Ordinance
- Mowing Time and Height Regulations



Evaluation Matrix for Other Lawn Care Policies

Alternatives	Environmental	Cost	Social/Equity	Public Opinion	Feasibility	Enforceability	Total
Ban the use of gas powered lawn equipment:	-	-	-	-	-	-	-
In Williamstown	1	3	1	1	2	3	11
At Williams College	1	3	1	1	2	1	9
Native/Non-Invasives only on Town Property	1	2	1	2	2	1	9
Regulation on Mowing Amount and Time of Year on Town Property	1.5	1	1	3	1	1	8.5

1 = Best
3 = Worst

Ranking Explanations	Environmental	Cost	Social/Equity	Public Opinion	Feasibility	Enforceability	Total
Ban the use of gas powered lawn equipment:							
In Williamstown	<ul style="list-style-type: none"> - Decrease greenhouse gas emissions and noise pollution - Would be more even environmentally friendly if the electricity comes from renewable sources - Fits in the Williamstown Net Zero Pledge 	<ul style="list-style-type: none"> - Will be costly until more reasonably priced technology is developed (which should occur once California's ban goes into power in 2022) - Cost cannot be exorbitant as that might be unfair to lower-income families 	<ul style="list-style-type: none"> - Gas powered lawn equipment is not safe for lawn care workers - Decrease CO2 and other emissions and loud noises 	<ul style="list-style-type: none"> - As long as electric-powered equipment works just as well as gas-powered, there is little reason to expect pushback 	<ul style="list-style-type: none"> - Currently not very feasible due to the need for technological advancement - Very feasible as soon as technology meets need 	<ul style="list-style-type: none"> - Difficult for the town to check all private residents equipment - California's ban includes the public keeping their neighbors on top of enforcement with strikes (which could work in Williamstown) - Checking up on lawn care companies will likely be easier 	11
At Williams College	<ul style="list-style-type: none"> - Decrease greenhouse gas emissions and noise pollution - Part of the Williams College Climate Action Plan 	<ul style="list-style-type: none"> - Will be costly until more reasonably priced technology is developed (which should occur once California's ban goes into power in 2022) 	<ul style="list-style-type: none"> - Gas powered lawn equipment is not safe for lawn care workers - Decrease CO2 and other emissions and loud noise - Fits perfectly into the Williams College Climate Action Plan 	<ul style="list-style-type: none"> - Believe that students would be very happy if the college switched lawn equipment to electric-powered - Should be no pushback from administration, faculty, or staff either 	<ul style="list-style-type: none"> - Currently not very feasible due to the need for technological advancement - Very feasible as soon as technology meets need 	<ul style="list-style-type: none"> - Easy to enforce, as only the Williams College landscaping/grounds team works on Williams campus 	9
Native/Non-Invasives Plant Ordinance on Williamstown town property	<ul style="list-style-type: none"> - Provides habitat and food for pollinators and other animals that might not have been available from lawns or other nonnative plants 	<ul style="list-style-type: none"> - May be more expensive than usual plantings due to needing to find and buy native/non-invasive seeds and bulbs - Once planted, these plants usually require less work or insecticides 	<ul style="list-style-type: none"> - Can lead to more flowering plants and beautification of town lands - Require less insecticide use to upkeep 	<ul style="list-style-type: none"> - Needs to be exceptions for athletic fields, gardens, holiday plantings - Might face some pushback due to changes in usual optics of town land 	<ul style="list-style-type: none"> - Would need to be phased in and only occur to new plantings - Williamstown DPW should be able to make sure plantings fit this ordinance 	<ul style="list-style-type: none"> - Easy to enforce as the Williamstown DPW takes care of the majority of the town land - Would be easy to see if local residents and the college are following these rules on the Town Green 	9
Regulation on Mowing Height and Time of Year on Town Property	<ul style="list-style-type: none"> - Decrease the use of large mowers throughout the year - Allow plants to grow taller and possible flower, providing food for pollinators - May naturally lead to larger diversity of plants 	<ul style="list-style-type: none"> - Lower the cost of the town's lawn maintenance as less mowing would be required 	<ul style="list-style-type: none"> - Less opportunity for lawn care workers to be exposed to negative effects of mowing - May lead to more flowering plants and a beautification of town lands 	<ul style="list-style-type: none"> - Worries over the town property looking messy or unkempt - Worries about providing habitat for bees, wasps, and ticks (all of which are unlikely to harm humans) 	<ul style="list-style-type: none"> - Simple to do if actually chosen, just have to mow less and set the mower height to a specific number 	<ul style="list-style-type: none"> - Easy to enforce as the Williamstown DPW takes care of the majority of the town land - Would be easy to see if local residents and the college are following these rules on the Town Green 	8.5

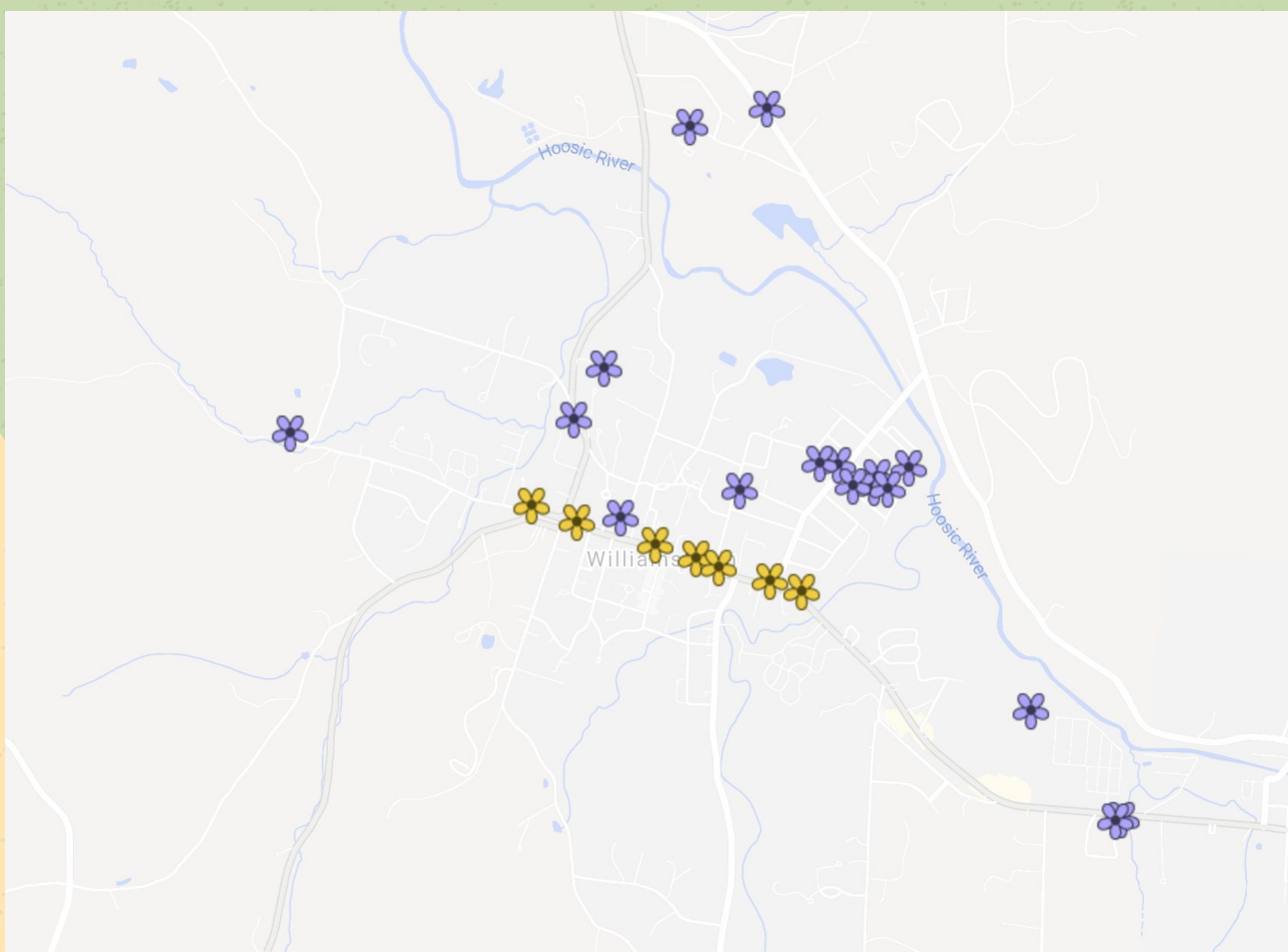
Our Proposal for the Williamstown Town Green



Phase 1: Anchor Meadow Plantings



Map of the 7
proposed Anchor
Pollinator Meadow
Plantings in Phase 1.
Created using Google
Earth



Pollinator Friendly-Habitats around Downtown Williamstown collected by Bee Friendly Williamstown as of August 2021 in Purple plus Proposed Phase 1 Anchor Pollinator Plantings in Yellow



Why should Williamstown and Williams College care?



- Fulfills part of each entity's climate pledge***
- Helps the pollinators, agriculture, human health, and global emission levels
- Opportunity to be a leader, be an example for other towns
- Becoming more and more popular



Williams

<https://williamstownma.gov/>

<https://www.givecampus.com/schools/WilliamsCollege>

The background features a light green textured area on the left and a light yellow textured area on the right, separated by a curved boundary. Various tropical plants are illustrated: a large dark green monstera leaf in the top left, a fern frond in the top right, and two pink flowers on a large green leaf in the bottom left. A large, semi-circular yellow shape resembling a sun or moon is positioned in the upper right quadrant.

Questions?

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