



Committee Members

Mary Knittle, Chair
Evelyn Herwitz, Vice Chair
Patricia Austin
Ted Conna
Nathan Fournier
Deirdra Murphy
Mary Leovich

Contacting the Committee

Department of Sustainability and Resilience
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WWW.WorcesterMA.gov/GreenWorcester

Department of Sustainability and Resilience

Our Mission:

To implement the ambitious and urgent goals of the Green Worcester Sustainability and Resilience Strategic Plan (GWP), a roadmap for making Worcester the greenest mid-size city in the country.

Our Staff:

John Odell, *Chief*
Jacquelyn Burmeister, *Lakes & Ponds Program Coordinator*
Jessica Davis, *Project Manager*
Robert DeFosse, *Energy Services Manager*
Nick Pagan, *Senior Environmental Analyst*
Sarah Mount, *Energy Analyst*
Luba Zhaurova, *Director of Projects*

Accessibility:

The GWAC is committed to ensuring that its public meetings are accessible to all. Should you require interpretation, auxiliary aids, services, translations, written materials in other formats, or reasonable modifications in policies and procedures, please contact the DSR a minimum of 48 hours in advance of the scheduled meeting.

Translations:

Hay disponibles servicios de interpretación y otras adaptaciones con solicitud previa.
Avisanos por
greenworcester@worcesterma.gov

CITY OF WORCESTER

Meeting Minutes

Green Worcester Advisory Committee

Monday, May 15, 2023, at 5:30 p.m.
Location: Esther Howland Room, City Hall

Attendance

Present

Mary Knittle, Chair
Evelyn Herwitz, Vice Chair
Patricia Austin
Ted Conna
Mary Leovich (online)
Deirdra Murphy

Absent

Nate Fournier – excused

Staff

John Odell
Luba Zhaurova
Jessica Davis

Chair Knittle called the meeting to order at 5:32 pm.

1. **Welcome**
2. **Approval of Minutes – April 25, 2023** (*Attachment A*)
3. The committee unanimously approved the minutes with Member Conna’s edit of: “he would like trees to not be planted in front of solar collectors and for collectors not to be placed behind trees”.
4. **New Business**
 - a. Presentation: Mass Audubon, Erica Holm (*Attachment B*)
 - b. Discussion on Draft Urban Forestry Master Plan – comments and feedback due 5/16
- i. Member Herwitz passed out a written statement (*Attachment C*) that she read at the Urban Forestry Tree Commission meeting on May 3, 2023. She prepared the statement by reading the Draft Urban Forestry Master Plan and comparing it to both Cambridge and Philly’s tree plans. She summarized this statement verbally for committee discussion. Member Conna agreed with Member Herwitz’s comments on the plan and emphasized that the draft plan is an urban street tree master plan, not an urban forestry plan. He stated that a bolder vision is needed, there needs to be more staff and resources to accomplish this work and we need a better maintenance plan for our current trees to preserve the current canopy we have.

- ii. Member Conna made a motion to endorse Member Herwitz’s statement as written in full. Member Austin seconded. The votes were:
 - 1. Chair Knittle – yes
 - 2. Vice Chair Herwitz – yes
 - 3. Member Austin – yes
 - 4. Member Conna – yes
 - 5. Member Fournier – absent
 - 6. Member Murphy – yes
 - 7. Member Leovich – abstain

- iii. Member Conna put forward a list of five motions as recommendations for strengthening the Draft Urban Forestry Master Plan (*Attachment D*). He explained that the recommendations are aspirational and in line with the aspirational goals for the urban forest included in the Green Worcester Plan.
 - i. Member Conna made a motion that GWAC recommend the Urban Forest Master Plan (UFMP) include better defined tree planting goals, consistent with the Green Worcester Plan (GWP) and the Heat Risk Assessment Study, with the goal to have a rapid, sustained increase in tree canopy cover. Ideally, the target should be a net gain of 2,000 trees per year to be consistent with the GWP and the Heat Risk Assessment Study.
 - 1. The committee voted unanimously to approve the motion.
 - ii. Member Conna made a motion that GWAC recommend that the UFMP give more attention to the entire urban forest, beyond just street trees, or if that’s not feasible for this plan, that the UFMP at least identify when and how the city will develop policies to preserve, protect, and grow the entire urban forest.
 - 1. Chair Knittle expressed concern over the use of the word “more” because it could be interpreted to mean that GWAC wants to give more attention to certain trees than others. The committee discussed the use of the word “more” and what it was implying. Member Conna agreed to switch the word “more” to “additional”. With that change, the committee voted unanimously to approve the motion.
 - iii. Member Conna made a motion that GWAC recommend that the city/UFMP establish a goal of no-net-loss of trees for all street, sidewalk, and public and private development projects and begin to determine how to achieve it.
 - 1. The committee voted unanimously to approve the motion.
 - iv. Member Conna made a motion that GWAC recommend that the UFMP define the goal that new and existing street, sidewalk, and public development work should always include preserving and planting trees wherever feasible.
 - 1. Member Conna provided a recent example of a missed opportunity to plant trees during development. He explained that during the construction of the new ballpark, McGrath Boulevard was re-paved, yet no trees were planted.
 - 2. The committee voted unanimously to approve the motion.
 - v. Member Conna made a motion that GWAC recommend the UFMP define as city policy that the city will not plant future shade trees in front of solar collectors and will not grant permits for solar collectors that would be significantly shaded by existing or planned shade trees—just as we would not plant trees that conflict with other utilities or street lighting.
 - 1. Chair Knittle expressed concern over choosing between trees and solar collectors. Member Conna explained that his motion is not to pit trees against solar panels but rather create a policy to avoid that conflict.
 - 2. The committee voted unanimously to approve the motion.

- iv. Member Austin commented that she thought it was important for GWAC to ensure our goals and commitments are included in other city plans including the city’s new master plan (Now | Next). Member Conna agreed and showed appreciation that residents have been engaged with these plans, especially the UFMP.

- v. Member Conna highlighted other items of interest in the plan: 1. Strengthening tree protection measures and 2. Developing tree planting standards for developers including parking lots.

5. DSR Updates

i. Grants:

1. *Applied for “Worcester’s Resilient Community Place-Making and Miyawaki Forests” MVP Grant (5/4/2023)*
 - i. Mr. Odell shared that DSR applied for a Municipal Vulnerability Preparedness Grant through the state to plant Miyawaki Forests. He will provide an update in August or September on the status of that grant.
 - ii. Member Herwitz expressed appreciation for DSR’s work on this grant.
2. *Developing Urban and Community Forestry Grant Proposal with Other Departments and Community Stakeholders (due 6/1/2023)*
 - i. Mr. Odell shared that DSR is leading this effort in concert with the Department of Public Works and Parks, Department of Transportation and Mobility, Planning Department.
 - ii. Member Conna thanked DSR for organizing and leading this effort and for gathering community input for the grant proposal.
3. *Submitted Notice of Intent for Energy Efficiency and Conservation Block Grant to partially fund electrification of the Frances Perkins Branch Library*
 - i. Mr. Odell explained that these grant funds would be used to purchase equipment for the Frances Perkins Branch Library, an over 100-year-old building, which will hopefully serve as an example of how to retrofit a large old building in the city and get it close to net zero.

ii. Policy:

1. *Reviewing Specialized Stretch Code*
 - i. The state has passed the building energy stretch code and it has already taken affect for residential buildings and will be in effect on July 1, 2023, for large scale and multi-family buildings. There is an option for the city to opt into a specialized stretch code which is more stringent than the already implemented stretch code. The city is currently reviewing it to see if it is something that should be pursued. If it is, then there will be two phases: 1. Approval and 2. Implementation which occurs in a six-month window so it would be either by January 1, 2024 or July 1, 2024.
 - ii. Member Conna asked for more clarification on the difference between the stretch code and the specialized stretch code. Mr. Odell explained that the specialized stretch code lowers the HERS number requirement to get a building closer to a net zero but it doesn’t mandate removal of fossil fuels.

iii. Community Engagement:

1. *Update on the 3rd Community Meeting: Endicott & Bigelow Street Re-Design (5/11/2023)*
 - i. Mr. Odell shared that the community meeting was held at the Green Island Neighborhood Center. It was well attended and Member Conna and Murphy both attended in addition to a few City Councilors. Overall, the meeting went well, and people provided good feedback which will be reviewed and incorporated into the designs where appropriate. The final

design will go out to bid and the project will go forward in 12-18 months.

- ii. Member Conna asked if this type of project can be replicated all over the city or if it will require special funding to do so. Mr. Odell replied that this project is the first one using the Complete Streets rubric, which incorporates safety, accessibility and sustainability. The goal is for it to be a template for other streets as they are redesigned and redeveloped. The city intentionally chose the Endicott and Bigelow Streets neighborhood for this project as it is an Environmental Justice area of the city.

2. *Update on the Launch of the Green Worcester Dashboard & Annual Report (4/22/2023)*

- i. Mr. Odell shared that the Green Worcester Dashboard is now live and DSR is updating it regularly. Due to the other priorities of the recent grant proposals, the Annual Report hasn't been worked on but there will be an update on it at the next meeting.

iv. Lakes & Ponds Program

- i. Ms. Davis shared that the Worcester Cyanobacteria Monitoring Collaborative (WCMC) volunteer sampling season has begun. The WCMC have 25 lakes and over 60 volunteers participating in the program. The latest sampling results can be found at WorcesterMA.gov/WCMC.
- ii. Ms. Davis announced that the Indian Lake Alum Dosing Station is in use. There will be a new Blue Space Minute video about it and a ribbon cutting ceremony will be held in June.
- iii. Ms. Davis explained that there is a New Beach Closure Text Message Alerts program. Anyone can sign up on the Lakes and Ponds website to be alerted when a beach is closed for recreational activities.

v. Zero Waste Coordinator Job Posting – reposted, please spread the word (*Attachment E*)

- i. Mr. Odell reported that DSR has reposted the Zero Waste Coordinator position which is a key one for the department. Any candidates who already applied are welcome to apply again. Mr. Odell asked that the committee members spread the word about this position through their networks.

6. Standing Items

i. Community Outreach

- i. Member Austin shared that she will be at an event on June 2 at Binienda Beach organized by the Tatunuk Brook Watershed Association in coordination with the Lakes and Ponds Program, Clark University and Worcester State University. It is a STEM Day where 55 fifth graders will take a field trip to learn about aquatic science.

ii. Green & Open Somerville: DePave the Way program

- i. No updates.

iii. Community Feedback

- i. None.

iv. Media

a. Telegram & Gazette Article, 5/2/23, by Ted Conna (*Attachment F*)

- b. Member Conna wrote this article but he made it clear that he consults with others for the content and he thanked Mr. Odell for his suggestions on the article. In the previous article he wrote about the Worcester Cyanobacteria Monitoring Collaborative, he collaborated with Ms. Burmeister who he also thanked for her help. He also encouraged people to read the comments on the article

online which were mostly respectful. His goals in writing these articles are to inform, empower and activate people.

- v. Upcoming Events (not DSR organized)
 - i. Member Conna shared that the Urban Forestry Tree Commission’s next meeting is Wednesday, June 7 at 6pm at 50 Officer Manny Familia Way. Then the commission doesn’t meet again for 3 months which may be concerning for their work in the review and production of the Urban Forest Master Plan.
 - ii. Member Herwitz reminded everyone to fill out the survey to provide feedback on the Draft Urban Forestry Master Plan by May 16 on the city website.
- vi. Future Green Worcester Event/Summit
 - i. No update.
 - ii. Chair Knittle attended the Chamber of Commerce’s energy summit on Friday at the DCU Center. There was a discussion on fossil fuels and energy efficiency. She suggested partnering with them in the future.

The committee voted unanimously to adjourn at 7:31pm.

Attachments

Attachment A: Minutes, April 25, 2023

Attachment B: Erica Holm’s Presentation, Mass Audubon

Attachment C: Public Comment on Draft Urban Forestry Master Plan written by Evelyn Herwitz

Attachment D: List of Motions on Draft Urban Forestry Master Plan written by Ted Conna

Attachment E: Zero Waste Coordinator Job Posting

Attachment F: Telegram & Gazette 5/2/23 Article by Ted Conna, “Can Worcester phase out fossil fuels fast enough to meet climate change goals?”

2023 Upcoming Meetings

Green Worcester Advisory Committee meetings begin on Mondays at 5:30pm:

<i>June 26</i>	<i>Meeting Room A*</i>
<i>July 31</i>	<i>Levi Lincoln</i>
<i>September 18</i>	<i>Meeting Room A*</i>
<i>October 16</i>	<i>Esther Howland</i>
<i>November 27</i>	<i>Esther Howland</i>

**Meeting Room A is located at 50 Manny Familia Way.*



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CITY OF WORCESTER

Meeting Minutes

Green Worcester Advisory Committee

Tuesday, April 25, 2023 at 5:30 p.m.
Location: Levi Lincoln Room, City Hall

Attendance

Present

Mary Knittle, Chair
Evelyn Herwitz, Vice Chair
Patricia Austin
Ted Conna
Nate Fournier
Mary Leovich (online)
Deirdra Murphy

Absent

None

Staff

John Odell
Luba Zhaurova
Sarah Mount

Call To Order at 5:37 pm by Mary Knittle, Committee Chair

1. **Welcome**

2. **Approval of Minutes – March 13, 2023**

i. The Committee voted unanimously to approve the March 13th, 2023, meeting minutes.

3. **New Business**

i. **Presentation: Worcester Community Action Council (WCAC), Mary Knittle (Attachment A)**

ii. Vice Chair Herwitz asked if the WCAC's work will overlap with the SMART energy advice program that the Department of Sustainability and Resilience (DSR) will be rolling out this year, or if the WCAC's focus on low-income residents will help these programs work in tandem. Chair Knittle responded that MassSave will refer low-income residents to the WCAC, which prevents overlap. She added that WCAC encourages conversations

between landlords and tenants. The tenants are the group eligible for the rebates, but for energy efficient measures to be installed, landlords must approve of the projects. Mr. Odell responded that the city's Energy Advocates will emulate the WCAC, connecting folks to incentives and programs that already exist, but they won't focus exclusively on low-income residents.

- iii. Member Fournier applauded the WCAC's work and recalled his time as an energy auditor for the MassSave program. While he was an auditor, Member Fournier recalled that he was able to carry folks through the program, but he directed low-income folks to WCAC and didn't hear how their projects went after that. He was excited to learn how the program has grown recently. He also applauded how non-profits, utility companies, and the city are working together to provide a community need.
- iv. Member Conna called attention to the dilemma that if someone's heating system breaks down in the winter, they don't have heat. Installing air-source heat pumps takes more time than replacing like-for-like but installing like-for-like means people will have oil heat for 20+ more years. He does not love temporary heating as a solution, but it is an option. He asked how often, in this situation, the air-source heat pump gets installed. Chair Knittle responded that we are currently in a policy bubble. Previously there were supply chain issues, preventing the installation. Now that supply chains are steady, she said the best practices are being developed. She also added that these best practices are being developed for residents who need hot water heaters as well.
- v. Member Conna followed up, adding that electric space heaters filled with oil are safe, because they don't get very hot. He furthered that putting space heaters around a home is not a long-term solution, but they do work in the short-term. He lamented that in the winter, residents are likely to replace their heating system with what is easiest, not necessarily what is best, if there isn't a large driving force changing behavior. Chair Knittle explained that there is often a lot of deferred maintenance and that these projects are never as simple as you'd like. She added that policies are changing rapidly and the WCAC is prepping for all eventualities.
- vi. Member Conna asked if eligible low-income folks have their bills completely covered. Chair Knittle responded that there are benefit levels. The WCAC will pay one's bills up to a fixed dollar amount. The benefits are not percentage amounts. Member Conna lauded this method because it means that there is an incentive to conserve - everyone has skin in the game. Chair Knittle noted that people occasionally see their total utility costs increase when they install heat pumps, and the WCAC is considering creating an incentive program for those who convert from gas/oil to heat pumps.
- vii. Member Conna reminisced on when there were different rates that incentivized people using energy during off-peak hours and added that it would be great to have a different rate if you have a heat pump because there is a social benefit. Chair Knittle responded that time-based incentives can disproportionately hurt low-income people because they have less flexibility in when they can do things, but she liked the idea of incentivizing people to do good things right on their electric bill. Chair Knittle brought up that these are multi-faceted issues, there are a lot of people working on advancing these policies.

4. Continued Business

- i. Update on Miyawaki Forest Pilot and MVP Grant
 - i. Ms. Zhaurova explained that the city is actively preparing an MVP grant application for up to five pilot Miyawaki Forest sites. The city has an idea where one of the sites will go and will seek community feedback when determining the locations of the other sites.
- ii. Urban Forestry Master Plan
 - i. Vice Chair Herwitz introduced the Urban Forestry Master Plan Draft that was published on the city's website earlier that afternoon. There are two opportunities for public comment next week: May 3rd at the Urban Forestry Tree Commission Meeting at 6pm at 50 Officer Manny Familia

Way and May 4th at the Parks Commission meeting at 6:30 pm at Officer Manny Familia Way. The deadline for public response is May 16th. The main goals of the plan are plan and manage the city's public trees, proactively grow and maintain public trees, and preserve and protect the public trees and engage with the community.

- ii. Vice Chair Herwitz highlighted that the USDA Forest Service has just released a grant application funded by the Inflation Reduction Act. The Forest Service has offered up to one billion dollars to fund tree-related projects across the US, and communities are eligible to receive up to fifty million dollars. Applications for this grant close June 1st. She emphasized that having an Urban Forestry Master Plan will put the City of Worcester in a good spot to receive some of this funding.
 - iii. Member Conna pointed out that with fifty million dollars the city would have more than enough money to add 30,000 trees – the estimated number of trees required to have 50% greening over the city as per the recently completed Heat Island Assessment report.
 - iv. Deb Cary, a member of the public, recommended that the Urban Forestry Master Plan include more action steps, and asked that the Green Worcester Advisory Committee take a close look at the plan and give their recommendations.
 - v. Member Conna asked DSR to help promote public comment on the Urban Forestry Master Plan through their newsletter and social media channels.
- iii. Update on Planning the 1st Annual Green Worcester Event
- i. Mr. Odell stated that DSR hasn't made any firm decisions yet but are leaning toward their original idea, building connections between local non-profit groups and the city. He noted that there is also a possibility that DSR will host a second event that is geared toward residents. He will have more to report at the next meeting.

5. DSR Updates

- i. Green Worcester Dashboard & Annual Report
 - i. Mr. Odell introduced the city's new Green Worcester Dashboard which shows the city's sustainability measures and explains how residents can help the city achieve its sustainability goals. He explained that data and DSR's work will be added to the dashboard periodically, and that the city was excited to roll out the dashboard during Earth Week. The dashboard will inform the annual report, and DSR expects to have a draft of the annual report to the Committee by the June 26th meeting.
- ii. Community Meeting: Endicott & Bigelow Street Re-Design, 5:30pm May 11th (*Attachment B*)
 - i. Ms. Zhaurova explained to the committee that there will be a third community meeting for the Endicott & Bigelow Street Redesign Project. The pilot project redesigns the street to be safe for *all* users, not just cars and increases the area's resiliency by adding trees – the trees will help reduce heat and prevent flooding. She also described that the city expects there to be a lot of support for this project, however, there has been some hesitation due to a slight reduction in parking spaces. She asked for GWAC's help garnering support for this project. Even though the project is in Green Island the city is hoping it will be a blueprint for future projects across the city.
- iii. Lakes & Ponds Program
 - i. Discount Rain Barrel Pre-ordering now open (*Attachment C*)
 1. Mx. Mount relayed that the Lakes & Ponds Program having a pre-order for rain barrels. They are buying rain barrels in bulk and passing the discount onto residents. If you would like a rain barrel, you need to pre-order it by May 14th and they will be ready for pickup May 25th.
 - ii. 2022 WCMC Water Quality Reports

1. Mx. Mount relayed that the Worcester Cyanobacteria Monitoring Collaborative's Water Quality Reports are now posted on the Lakes & Ponds webpage.
- iii. Event: Catch & Cook at Bell Pond, May 1st
 1. Mx. Mount relayed that the Lakes & Ponds team is hosting an event at Bell Pond next week. The city posted about the event on their social media and the event was filled within two hours!

6. Standing Items

- i. Community outreach
 - i. Informational item. Green & Open Somerville: DePave the Way program
 1. Ms. Zhaurova explained that there is a volunteer group in Somerville that is de-paving private lots. She suggested that a group in Worcester could take this on as well.
 2. Chair Knittle would like to discuss this next meeting.
- ii. Community feedback
 - i. Member Conna commented on the quality of the new recycling bins. Many of the new bins on his street are broken. He measured the new bins and found they are 10% thinner than the old bins, which could factor into why they are breaking so easily. He added that the collectors slam them down with a lot of force and the plastic is brittle in the cold. He suggested the city includes in the next contract that the contractor is responsible for replacing the broken bins.
 - ii. Member Conna reiterated the issue of balancing tree cover and solar access. He presented his idea to the Urban Forestry Tree Commission, and they will discuss it. He would like trees to not be planted in front of solar collectors or for collectors to be placed behind trees. He stated that he will continue to push this issue.
 - iii. Member Conna listed the current board and commission openings relevant to sustainability issues: Community Preservation Committee, Conservation Commission, Historical Commission, Parks Commission, and the Worcester Redevelopment Authority.
 - iv. Vice Chair Herwitz promoted John Odell's presentation on the Green Worcester Plan tomorrow (4/26) to the League of Women Voters at Broad Meadow Brook.
- iii. Media
 - i. Worcester Magazine Article, 3/24 (City teams up with community to take on pond scum, by Ted Conna – *Attachment D*)
 1. Vice Chair Herwitz enjoyed the article and approved of the use of the word "yucky."
 2. Chair Knittle explained that the article was about the monitoring of cyanobacteria, mitigating it, and the importance of our community's work in this area.
 3. Mr. Odell stated that the WCMC is testing twenty-five lakes this year and has 60 volunteers, more than ever before. This will likely lead to more water testing and a better sense of how the lakes are faring. He commended the work of the Lakes & Ponds Program staff; Jacquelyn Burmeister, Nick Pagan, and Emily Maynard.
 4. Member Austin stated that she helps with the program and that the WCMC gathers people from communities outside of Worcester and, at this point, she believes that they are monitoring most waterbodies in Worcester.
- iv. Upcoming events (not DSR organized)
 - i. Earth Day at the Library
 1. Mx. Mount relayed that DSR went to a tabling event on Friday, April 21 at the Library for Earth Day. DSR explained their work to residents and told residents about other green measures they can undertake.
 - ii. Arbor Day event University Park (*Attachment D*)
 1. Saturday, April 29th an Arbor Day event will be held at University Park by Clark.

- iii. Member Conna heard there is a Holy Cross student group that is looking to plant a few trees across the city. The group is looking for planting sites in the community. He stated that he has their contact information if anyone is interested. Member Leovich suggested a group that may be interested.
Ms. Zhaurova asked the group to stay for an additional minute to take a photo for the dashboard.

Adjournment

The committee voted unanimously to adjourn the meeting at 6:48pm.

Attachments

Attachment A: WCAC Presentation

Attachment B: Endicott & Bigelow Flyer

Attachment C: "Get Involved" Lakes & Ponds Flyer

Attachment D: "City teams up with community to take on pond scum" by Ted Conna

Attachment E: Arbor Day Event Flyer

2023 Upcoming Meetings

Green Worcester Advisory Committee meetings begin on Mondays at 5:30pm:

<i>May 15</i>	<i>Esther Howland</i>
<i>June 26</i>	<i>Meeting Room A*</i>
<i>July 31</i>	<i>Levi Lincoln</i>
<i>September 18</i>	<i>Meeting Room A*</i>
<i>October 16</i>	<i>Esther Howland</i>
<i>November 27</i>	<i>Esther Howland</i>

**Meeting Room A is located at 50 Manny Familia Way.*

Practicing Applied Urban Ecology in Massachusetts

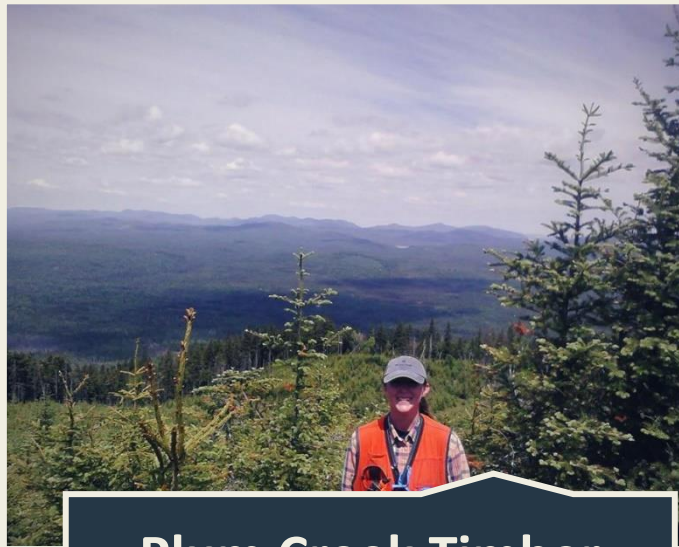


2023-05-16
Erica Holm

What brings **me** here today?



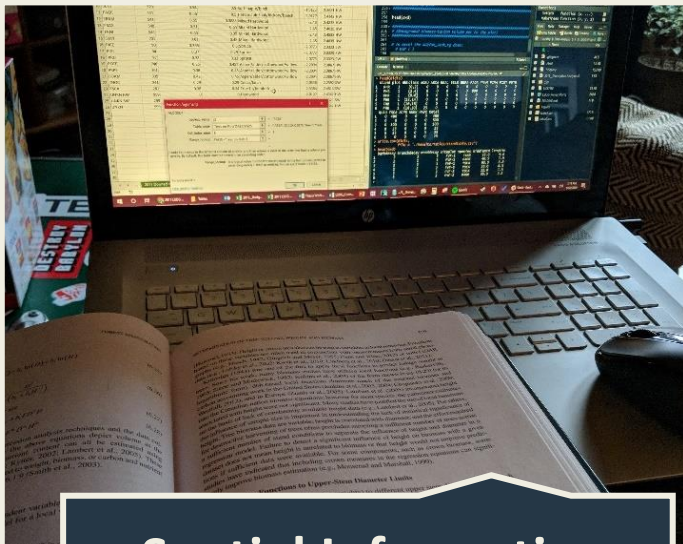
**UNH
(BSc 2012-2016)**



**Plum Creek Timber
(Weyerhaeuser)**



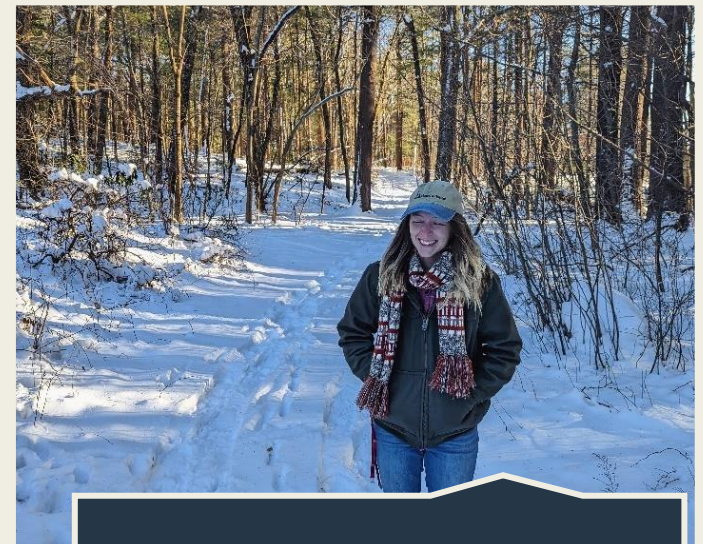
**UNH
(MSc* 2016-2019)**



**Spatial Informatics
Group**



**Emerald Necklace
Conservancy**



Mass Audubon

Mass Audubon

- Mission: to protect the nature of Massachusetts for people and wildlife
- Founded in 1896
- 160,000 members
- 14,000 volunteers
- Over 40,000 acres protected



Least Tern © Nancy Orbe

Action Agenda Go Wild! Goals

Goal 1



Protect and Steward
Resilient Landscapes

Goal 2



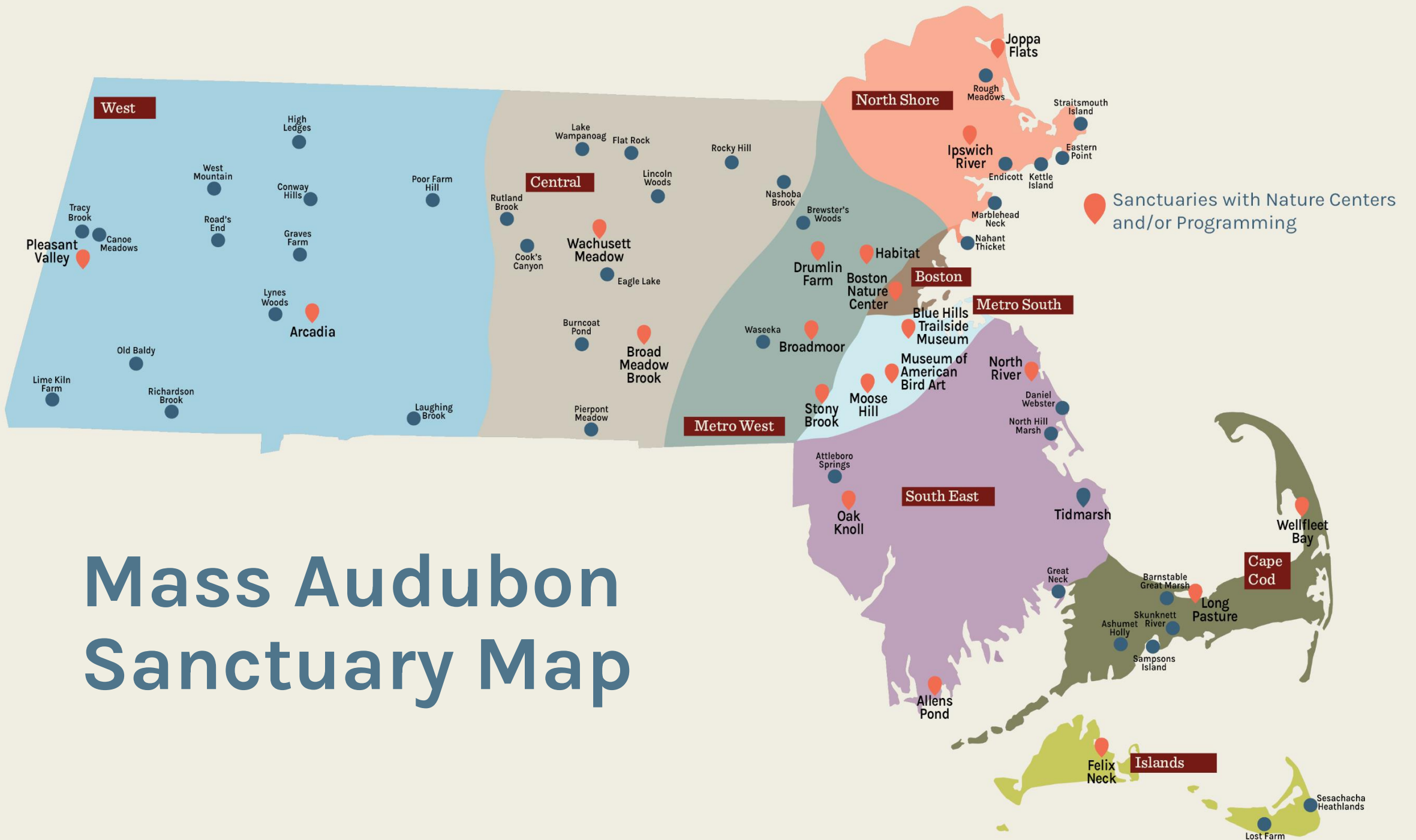
Advance Inclusive and
Equitable Access to
Nature

Goal 3



Mobilize to Fight
Climate Change

2021 - 2026



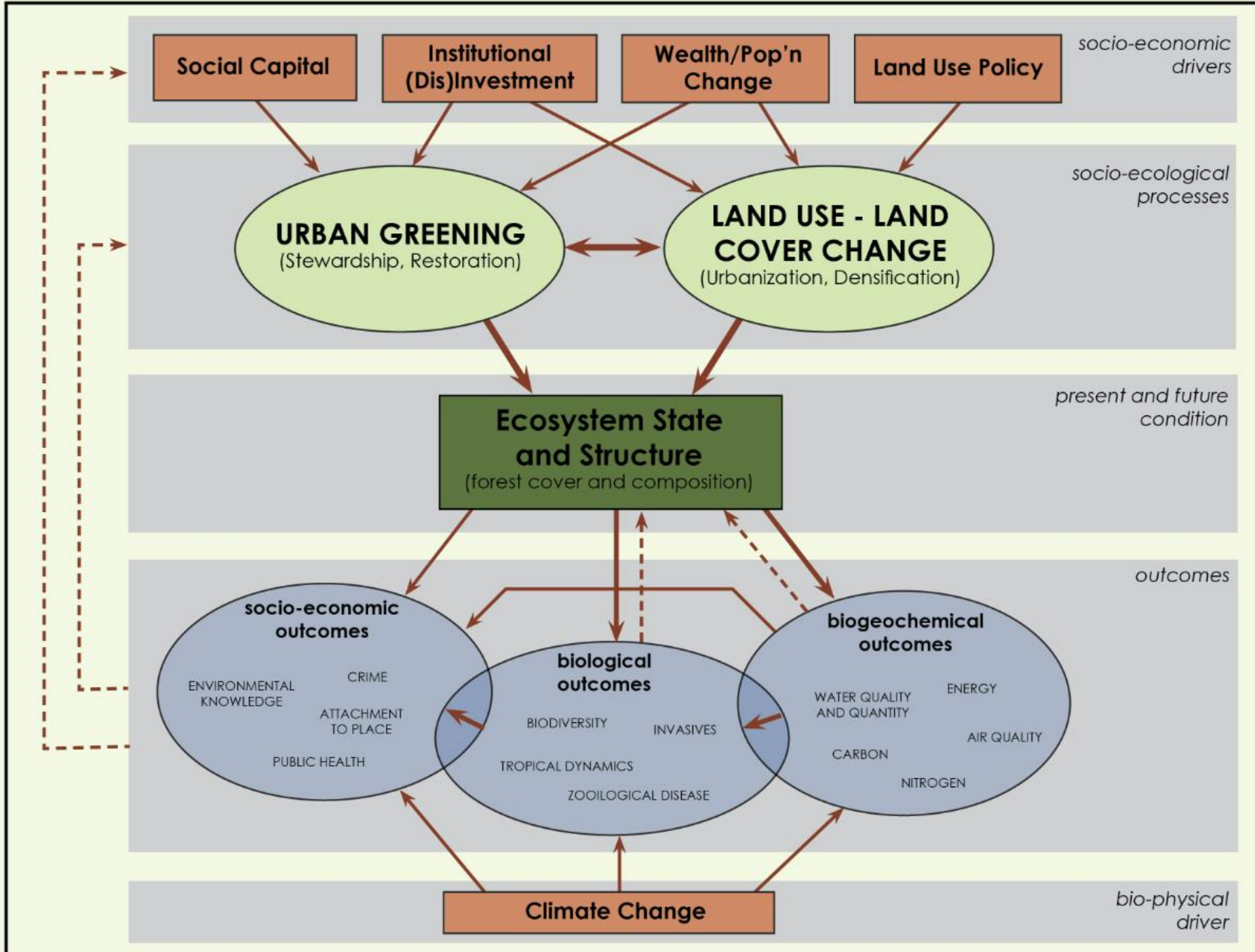
Mass Audubon Sanctuary Map

What is **urban ecology**?

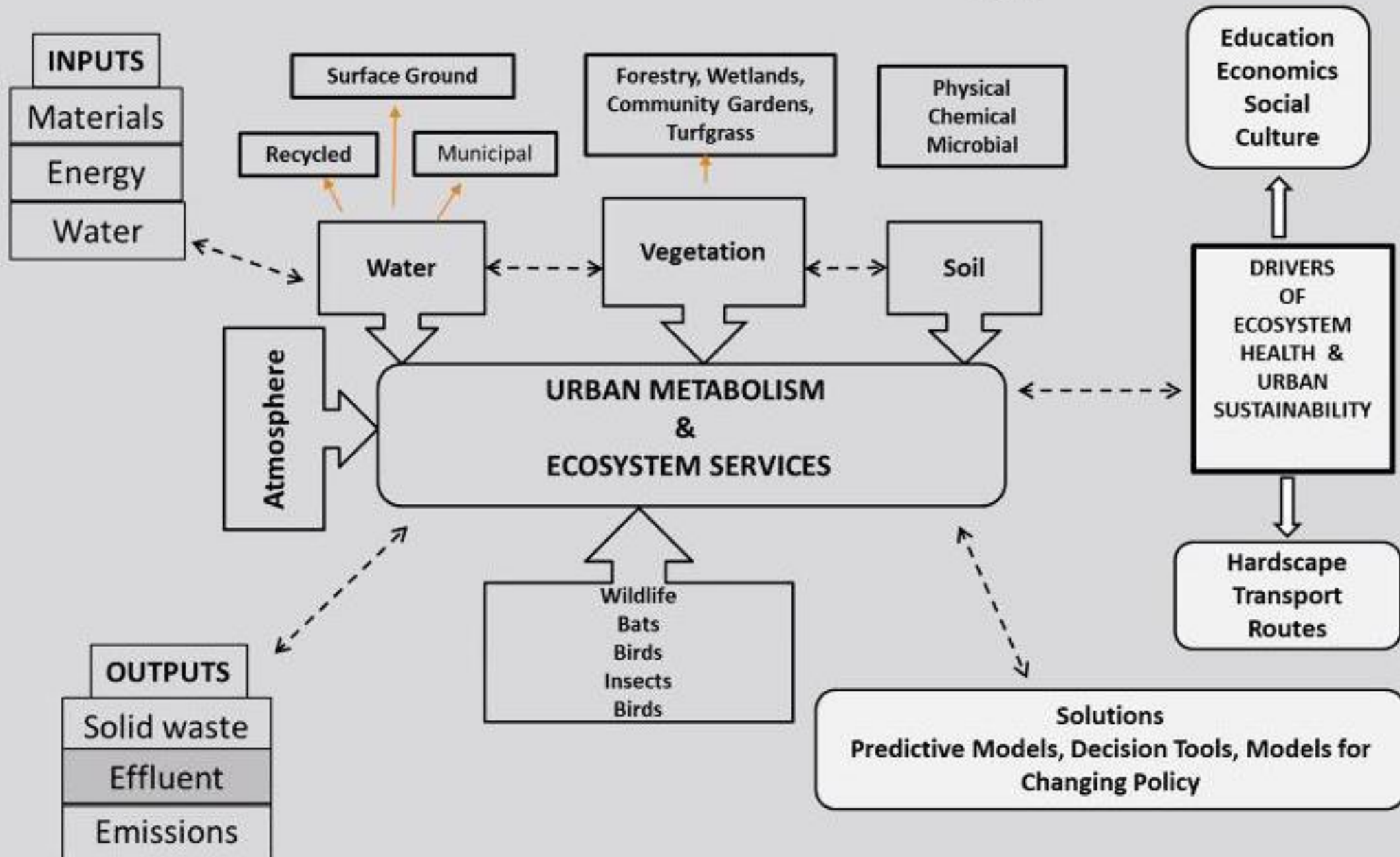
Urban Ecology

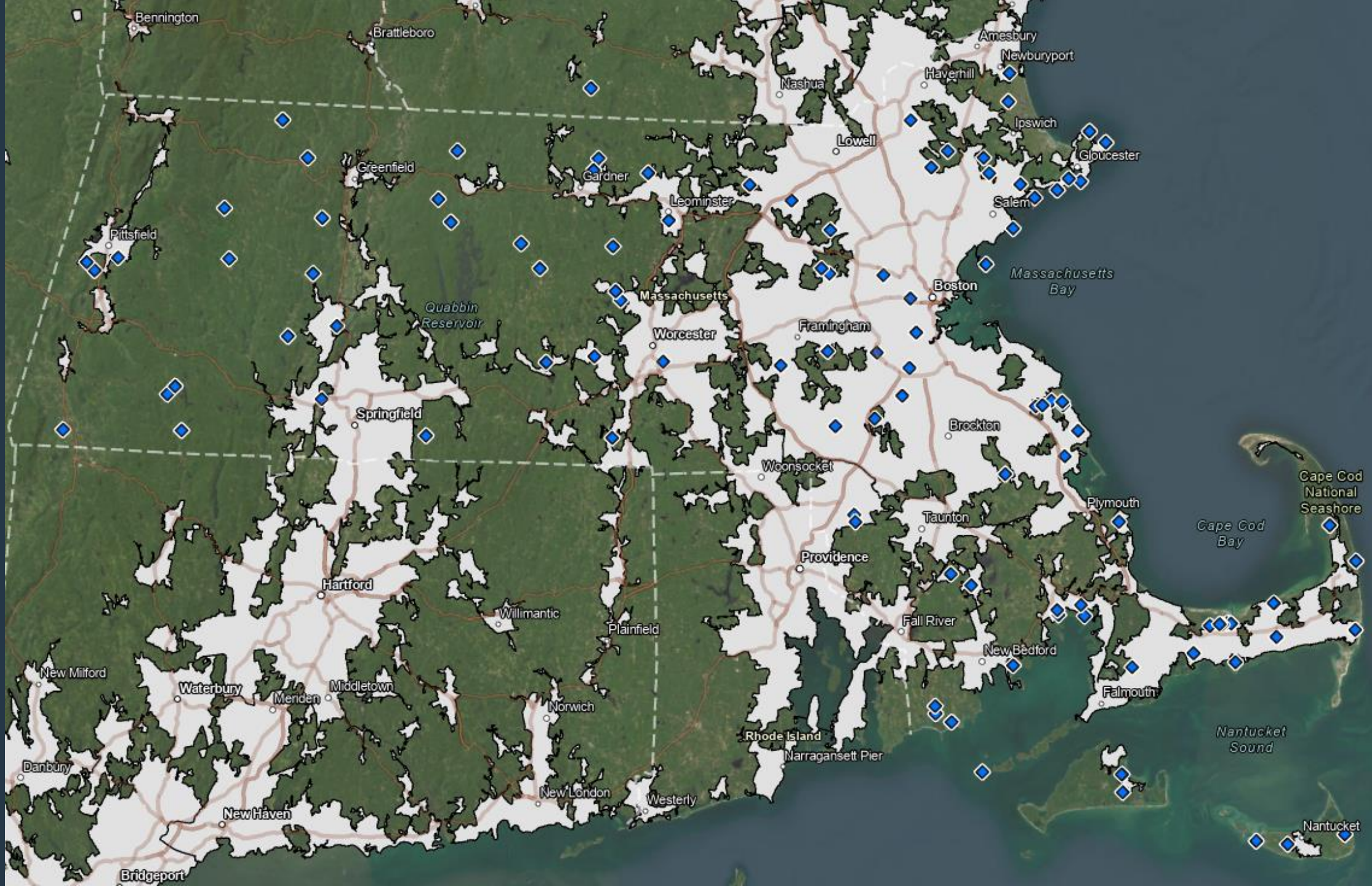
Urban ecology integrates both basic (i.e. fundamental) and applied (i.e. problem oriented), natural and social science research to explore and elucidate the multiple dimensions of urban ecosystems.

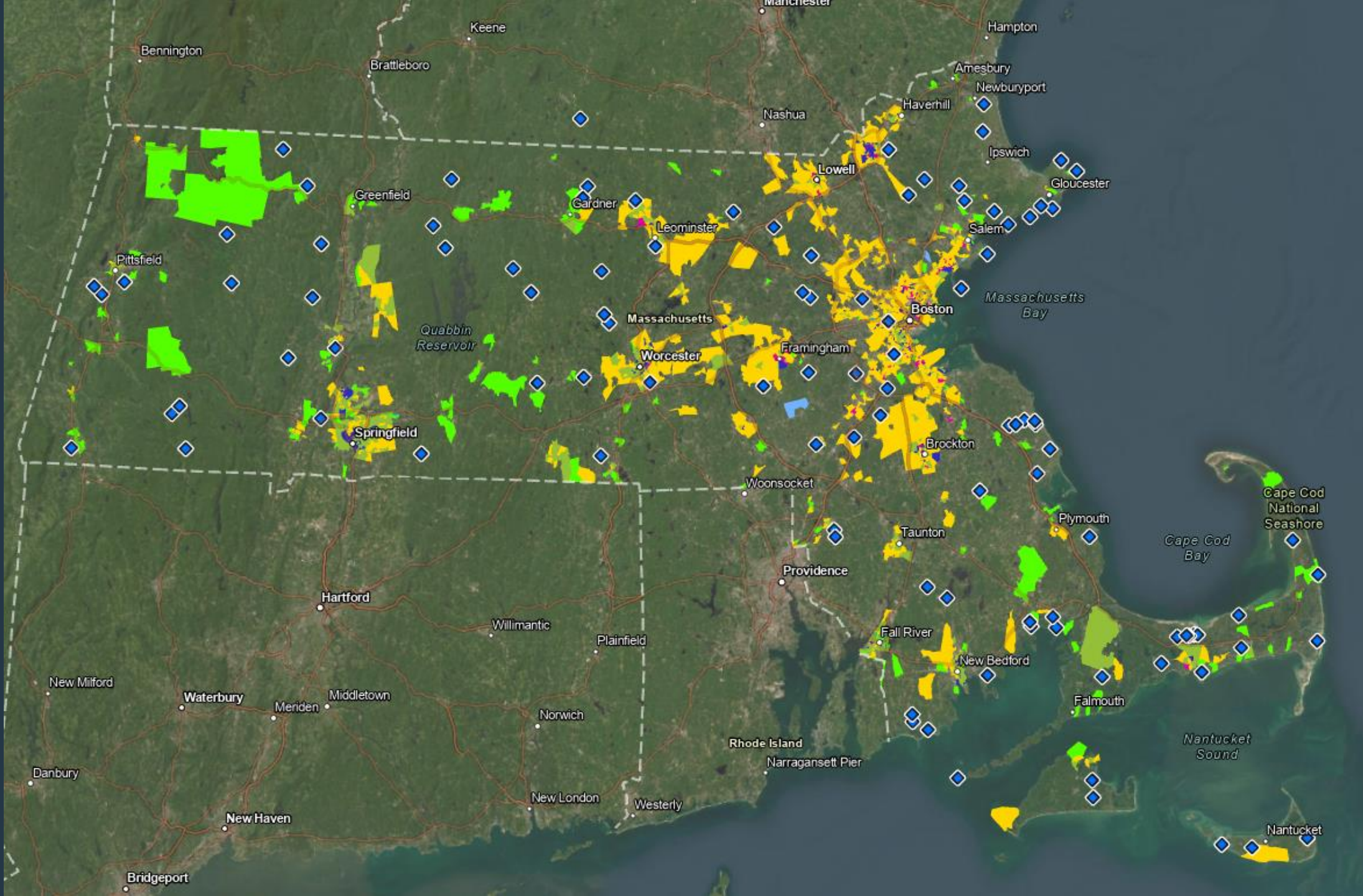
McDonnell, M. J. 2011. The history of urban ecology: an ecologist's perspective. Pages 5–13 in J. Niemelä, J. H. Breuste, T. Elmqvist, G. Guntenspergen, P. James, and N. E. McIntyre, editors. *Urban Ecology: Patterns, Processes, and Applications*. Oxford University Press, Oxford, UK. <<https://doi.org/10.1093/acprof:oso/9780199563562.003.0002>>. Accessed 31 Aug 2022.



What is Urban Ecology?







Urban Ecology

- Is it really:
 - emerging?
 - different from natural?
 - possible to define in just one way or another?
- What is a city? What is science? What is urban?
- How does one practice this science, or come to consider oneself an urban ecologist?

MacGregor-Fors, I. 2011. Misconceptions or misunderstandings? On the standardization of basic terms and definitions in urban ecology. *Landscape and Urban Planning* 100:347–349.

The word **urban** is not synonymous with **environmental justice**.

Both concepts should be explored and increasingly understood by **urban ecologists** and the **communities** they live and work in.



Urban Ecologist

- Conservation Science Department
- Nature in the City and more
 - Listen + engage with urban residents
 - Conserve, restore + improve urban green spaces
 - Research + practice urban ecosystem science
 - Partner across sectors + disciplines
 - Support participatory and community science in urban areas



Boston Nature Center



1909



8.3. The hospital buildings at Pierce Farm as seen from the Walk Hill side, in a photograph from the 1909 Annual Report. *Courtesy of the City of Boston Archives.*

1938



1955



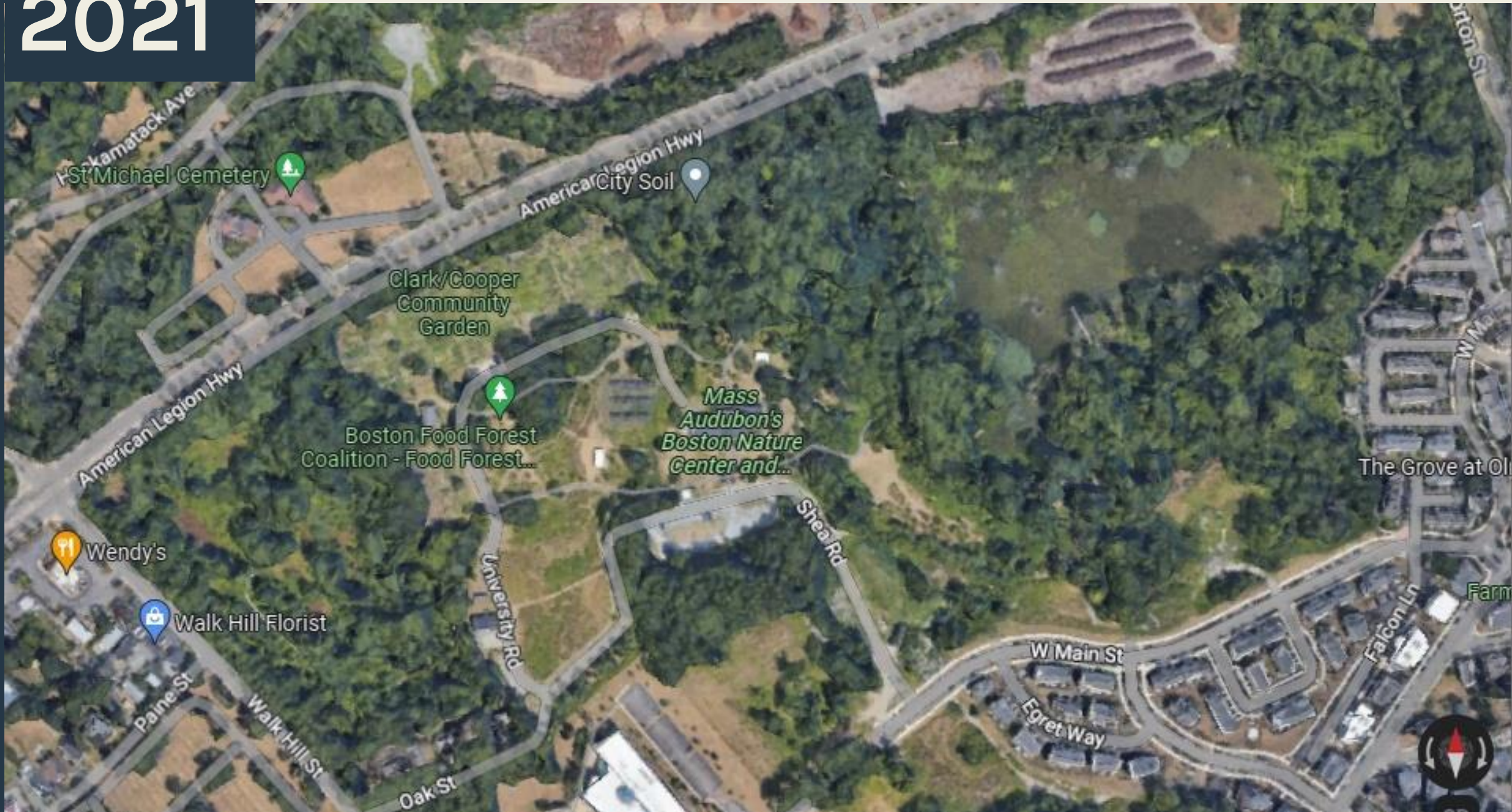
1995



2005



2021



NOW

George Robert White Environmental Conservation Center

First net-zero,
carbon neutral
City-owned
building

Geothermal

Education space
– preschool,
camp, field trips

Public trails



NOW

Lots of heterogeneity, competing uses, and work to do

Table 3. BNC Wildlife Sanctuary General Cover Types.

<u>Cover Type</u>	<u>Area (Acres)</u>
Wetlands	16.5
Cattail Marsh	5.7
Wet Meadow	4.3
Shallow Marsh Meadow or Fen	0.9
Riparian (wetlands along stream)	3.0
Shrub Swamp	2.6
Uplands	31.0
Shrubland	10
Woodland	15.5
Cultural Grassland	5.5
Other Land Uses	13.2
Buildings, Parking, Lawns	3.0
Community Garden	5.5
Compost Facility	4.7



NOW

Lots of heterogeneity, competing uses, and work to do





Urban Ecologist

- Urban Forest Plans
- Open Space and Recreation Plans
- Grants in urban ecology
- Networking and learning
 - Urban Ecology Collaborative
 - Community Coalitions
 - Researching special topics
 - Rodenticides
 - Urban wildlife conflict
 - Urban forestry
 - Community/participatory science





Early Career Opportunities

Willow Tree Youth Leaders Program

- Based at Boston Nature Center
- 3-year, paid afterschool/weekends

Environmental Fellowship Program

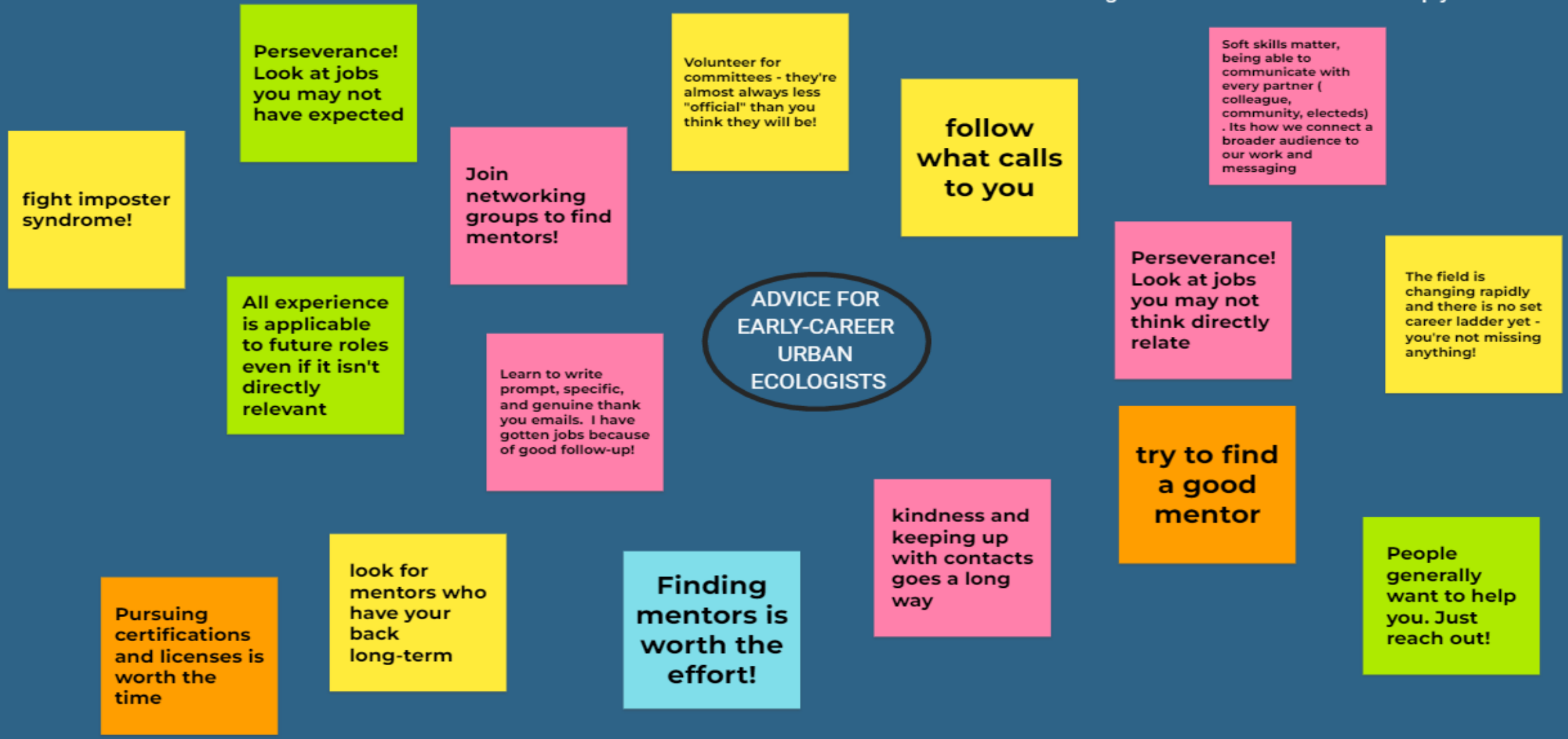
- 14-month, paid fellowship program (\$50-55k)
- 300+ applicants for 5 positions in 2022

Massachusetts Climate Corp

- 10-week, paid summer research (\$18-25/hr)
- 2 crew leaders, 8 crew members in 2023



What did you wish you had known when starting out?
What strategies did you use or do you recommend to build a career?
What can the next generation learn/do to most help you or the field overall?



Boston urban forestry Alliance
for tree canopy on private land



Response to City of Boston Tree Planting and Maintenance Program Request for Proposals

Stacey Beuttell
Senior Director
Nature in the City
sbeuttell@massaudubon.org
781-259-2170

Erin Kelly
Acting Director
Boston Region
ekelly@massaudubon.org
617-983-8500 x 6906

Erica Holm
Urban Ecologist
Conservation Science
eholm@massaudubon.org
617-620-7683





Spring Planting Pilot Kickoff Event

Tree Planting Demo

- Two individual sugar maples, 7 gallon size
- Detailed demonstration of planting
- Demonstration of what homeowners would typically need to do to plant & maintain trees

Microforest Planting

- 333 plants in total, of 33 native species
- PowerCorpsBOS, Mayor Wu help plant
- Small trees planted densely to grow canopy and reforest barren land rapidly

Tree Giveaway

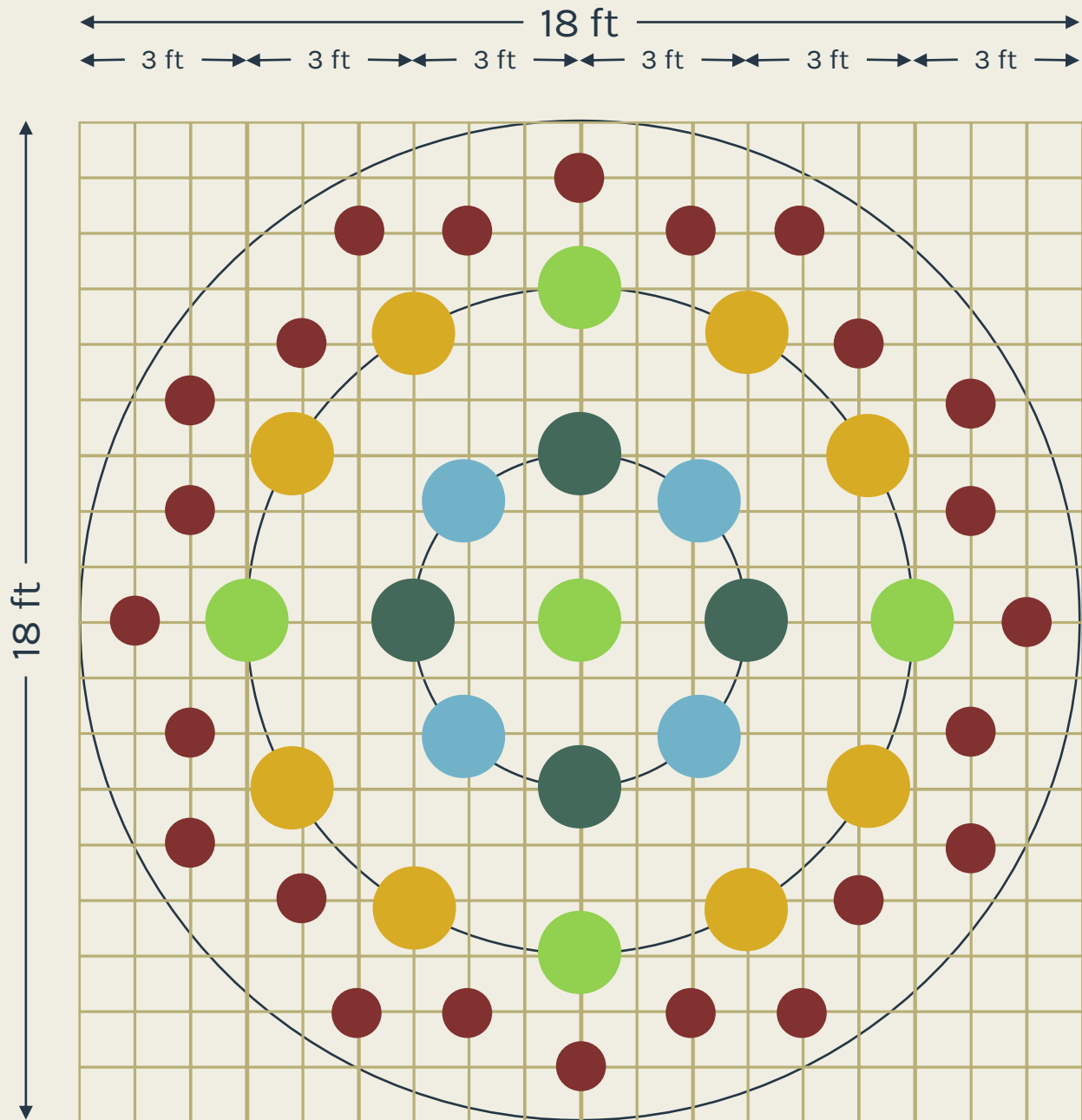
- Speak for the Trees to administer giveaway
- Folks taking a tree agreed to follow-up visits and check-ins from the Alliance
- European hornbeams



2019 Tree Canopy at the Boston Nature Center – southern boundary canopy lost in 2023



Microforest: Initial Design



MIYAWAKI SUPERCLUMPS

Adapted from <https://www.plantnovatrees.org/create-a-mini-forest>

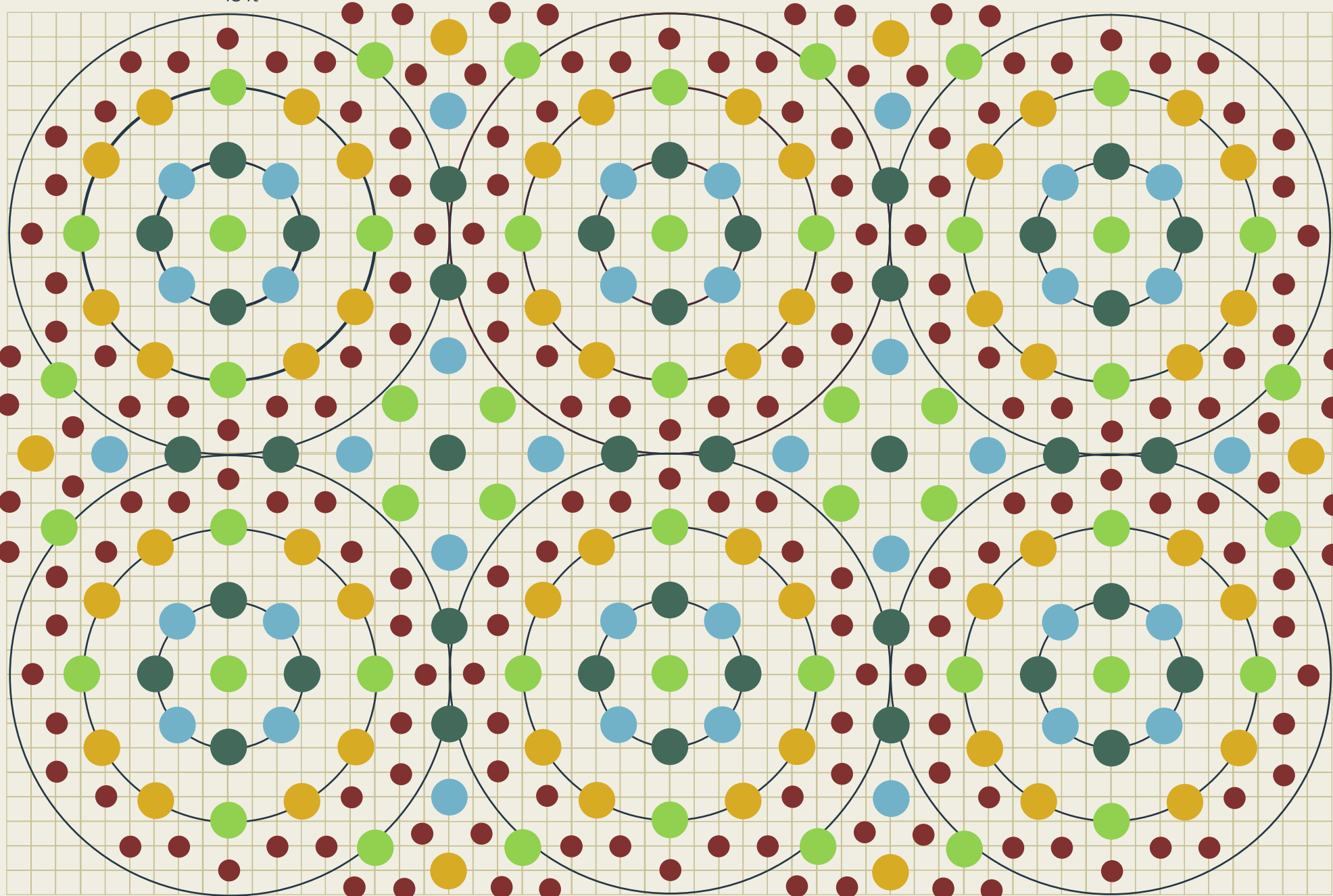
- native perennial (n=24)
- native shrub (n=8)
- native fast-growing tree species (n=5)
- native understory tree species (n=4)
- native climax canopy tree species (n=4)

1 base pattern = 45 plants total, 13 trees, 21 if including shrubs






18 ft diameter circle =
254 sq ft or 24 m²

A little under 2 plants per square meter in this adapted design

18 ft



54 ft x 36 ft
1,944 sq ft

6 SUPERCLUMPS		
	perennials	180
	shrubs	54
	fast-growing	50
	understory	38
	canopy	40
	TOTAL	362

128 true trees
182 trees if
including shrubs

family	species	common name	function	form	size/lat	grows	lifespan
Aceraceae	Acer saccharum	sugar maple	climax canopy tree	tree	60'-100'	slow	long
Juglandaceae	Carya ovata	shagbark hickory	climax canopy tree	tree	60-90'	slow	long
Fagaceae	Castanea dentata	American chestnut	climax canopy tree	tree	35'-115'	fast	long
Fagaceae	Quercus bicolor	swamp white oak	climax canopy tree	tree	50'-100'	fast	long
Aceraceae	Acer rubrum	red maple	fast-growing tree	tree	60'-75'	fast	short
Betulaceae	Betula populifolia	gray birch	fast-growing tree	tree	20'-40'	fast	short
Pinaceae	Larix laricina	tamarack	fast-growing tree	tree	40'-80'	fast	moderate
Salicaceae	Populus grandidentata	bigtooth aspen	fast-growing tree	tree	50'-75'	fast	short
Rosaceae	Prunus serotina	black cherry	fast-growing tree	tree	40'-80'	fast	moderate
Rosaceae	Prunus virginiana	chokecherry	fast-growing tree	tree	15'-30'	fast	short
Annonaceae	Asimina triloba	paw paw	understory tree	tree	10'-40'	slow	short
Oleaceae	Chionanthus virginicus	fringe tree	understory tree	tree	12'-25'	slow	short
Cornaceae	Cornus florida	flowering dogwood	understory tree	tree	20'-30'	moderate	short
Magnoliaceae	Magnolia virginiana	sweetbay magnolia	understory tree	tree	40'-60'	moderate	moderate
Lauraceae	Sassafras albidum	sassafras	understory tree	tree	24'-75'	moderate	moderate
Rosaceae	Aronia melanocarpa	black chokeberry	shrub	shrub	6'-15'	moderate	short
Rhamnaceae	Ceanothus americanus	New Jersey tea	shrub	shrub	3'	slow	moderate
Clethraceae	Clethra alnifolia	sweet pepperbush	shrub	shrub	16'	moderate	moderate
Myricaceae	Comptonia peregrina	sweet fern	shrub	shrub	2'-5'	slow	moderate
Betulaceae	Corylus americana	American hazelnut	shrub	shrub	6'-12'	moderate	short
Ericaceae	Gaylussacia baccata	black huckleberry	shrub	shrub	30'-60'	slow	long
Pteridaceae	Adiantum pedatum	northern maidenhair f	perennial	fern	8"-30"	moderate	moderate
Aristolochiaceae	Asarum canadense	wild ginger	perennial	wildflower	4"-8"		
Campanulaceae	Campanula rotundifolia	harebell	perennial	wildflower	4"-15"		
Cyperaceae	Carex pensylvanica	Pennsylvania sedge	perennial	grass	6"-12"		
Primulaceae	Dodecatheon meadia	eastern shooting-star	perennial	wildflower	6"-20"	moderate	short
Papaveraceae	Sanguinaria canadensis	bloodroot	perennial	wildflower	6"-24"		
Saxifragaceae	Tiarella cordifolia	foamflower	perennial	wildflower	6"-16"		

Microforest: Implementation

2022
Oct 12



2023
Apr 04



2023
May 04



2023
May 08



2023
May 09



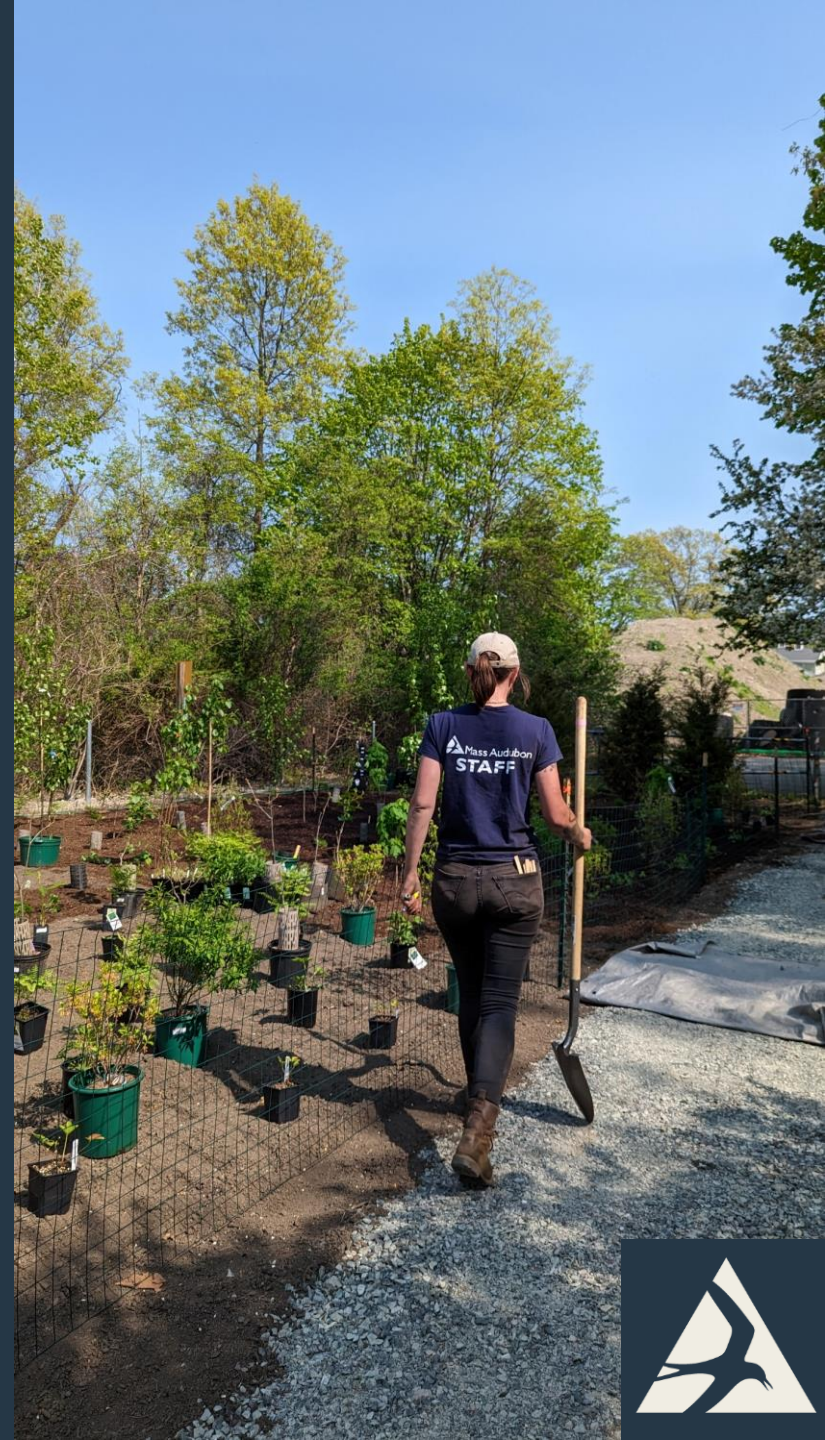
2023
May 09



2023
May 10



2023
May 10



2023
May 12



2023
May 12



2023
May 12



Where can you **learn more?**



Follow-Up Resources

Boston Nature Center



[Boston Nature Center & Wildlife Sanctuary](#)

[A Healing Landscape](#)

[City of Boston PowerCorps Program](#)

[Pollinator-Friendly Solar Meadow Visual Timeline](#)

[2023 Greater Boston Area City Nature Challenge](#)

[Massachusetts Climate Corps](#)



Follow-Up Resources



Applied Urban Ecology

[Urban Ecology Collaborative on YouTube](#)

[Urban Waters Learning Network](#)

[Urban Wildlife Information Network](#)

[Urban Bird Treaty Cities Program](#)

[Boston Biodiversity Consortium](#)

BostonTreeAlliance@massaudubon.org

Thank You!



eholm@massaudubon.org

Feedback on Worcester's Draft Urban Forest Master Plan

Worcester Urban Forestry Tree Commission, May 3, 2023

I'm Evelyn Herwitz, and I live in District 1. Thank you for the opportunity to share my thoughts about the draft Urban Forestry Master Plan. The Plan is a huge accomplishment, a key step in realizing the Urban Forestry goals of the Green Worcester Plan. I commend Mr. Antonelli and his team along with Davey Resource Group for giving us a very clear picture of the status of our City's urban forest, as well as some foundational goals and recommendations for growing our canopy and better caring for our trees. I also appreciated that you cited my book, *Trees at Risk*, as end-note #1. As I was reviewing the historical timeline, I thought, that looks familiar!

The plan confirms, with data and other research, what we all know to be true: our City's trees need help. I enthusiastically support the recommendations to shift from a reactive to proactive approach to managing and protecting our urban forest, as well as the importance of doing so with a priority on equity, sustainability, and climate resilience. We now have a huge opportunity to significantly improve our efforts with the US Forestry Service Urban & Community Forestry IRA grant program. Time is of the essence, as the deadline for grant applications is June 1.

Here's what I think will help to strengthen the Plan, which should form the basis for the grant application, and improve our chances of getting much-needed resources for its implementation:

Vision: What We Want

While the plan is based on adaptive management principles and does a good job of explaining what we have and how we're currently doing, it needs more clarity, imagination, and specificity regarding what we want and how to get there. In particular, the plan needs a vision that guides the goals and action steps. I offer the following:

In ten years, Worcester will be home to a healthy urban forest for all, with an equitable distribution of climate-resilient trees, a growing canopy shading heat islands, and cooling corridors that connect our neighborhoods. We will foster public investment, public-private partnerships, and robust community involvement to maximize tree plantings and best-practice stewardship of our urban forest, to ensure a sustainable and resilient environment for generations to come.

Action Plan: How to Get There

Current language in the plan includes goals and recommendations. I think we need a greater emphasis on action, sooner than later. A few observations:

- While the Plan recommends a comprehensive urban tree canopy assessment, to pick up where the Plan leaves off, **waiting another two years for the results before defining planting priorities is too long.** We already have ample data from Clark University and WPI studies, the recent heat island study by Urban Climate Consulting, American Forests Tree Equity Score data and other readily available resources to set priorities. We all know that **Green Island and the City's other core neighborhoods need more trees to mitigate heat and help control flooding.** Now is the time to find viable planting locations and work with the neighborhoods to build support for planting and maintenance. The comprehensive tree canopy assessment can inform plantings as we move forward, but we have no more time waste, given the

increase in severe weather events. I also believe that **we have the data and expertise in this community to help us identify viable planting sites and neighborhood canopy cover goals** without waiting for the tree canopy assessment. This should be a Year One priority.

- **Trees and their care need to be priorities in all economic development**, from site planning through construction and after the buildings are completed and occupied. This should be made explicit in the Plan and linked to zoning ordinance reviews, the site permitting process, and any updates to the City's tree ordinance.
- **We need to plant more trees than we remove.** A 1:1 planting replacement goal will continue to result in a net loss of tree canopy, given the many stresses on young trees in an urban setting. I urge you to consider at least 2:1, and even 3:1, as a goal. If we are able to secure federal funding, we can be much more visionary and aggressive with planting diverse species in the right places, while also thinking more creatively about incentives for private land owners to plant trees on their property and ways to overcome resistance to planting and caring for trees.
- **We need to think boldly about what kind of urban forestry department our City needs** to meet the demands of climate change and pressures on our urban forest. The plan makes a modest proposal for additional staffing, and I'm aware of current budgetary constraints on the City. But the USFS grant provides an opportunity to rethink the size and organizational structure of Forestry, so that we have the people and funding support in place to become truly proactive.
- As you address these points and other feedback, it is essential that a **subcommittee of the Urban Forestry Tree Commission work directly with consultants and City staff on any revisions of the Plan.** We have some real expertise on the Commission that will be of benefit to all involved, and your active involvement in shaping the Master Plan is needed.

Edward Winslow Lincoln, who was the 19th century mastermind behind our many green streets, Elm Park, and our municipal parks system, had a vision of shaded streets and ample green spaces where citizens could find respite from a rapidly industrializing city and enjoy the public health benefits that trees provide. As I read through 150 years of Tree Commission reports for my book, I found his words and relentless championing of trees to be an inspiration. We would not have the urban forest that we have today without his visionary efforts.

We are at a crucial point in our City's history, now, as temperatures rise and pressures on our urban environment intensify. We need an inspiring vision and aggressive action plan to meet that challenge. We are blessed with dedicated public servants, as well as expertise and enthusiasm among members of our community who want to help to ensure we have a sustainable, resilient urban forest for the 21st century. Let's go.

Evelyn Herwitz
21 Chippewa Road
evelynherwitz@gmail.com

5/15/23 GWAC - discussion of Urban Forest Master Plan

These motions were all approved unanimously by the six GWAC members in attendance.

1) Motion that GWAC recommend the Urban Forest Master Plan (UFMP) include better defined tree planting goals, consistent with the Green Worcester Plan (GWP) and the Heat Risk Assessment Study, with the goal to have a rapid, sustained increase in tree canopy cover. Ideally, the target should be a net gain of 2,000 trees per year to be consistent with the GWP and the Heat Risk Assessment Study. (motion – Ted, second – Deirdra)

2) Motion that GWAC recommend that the UFMP give additional attention to the entire urban forest, beyond just street trees, or if that's not feasible for this plan, that the UFMP at least identify when and how the city will develop policies to preserve, protect, and grow the entire urban forest. (motion – Ted, second – Evelyn)

3) Motion that GWAC recommend that the city/UFMP establish a goal of no-net-loss of trees for all street, sidewalk, and public and private development projects and begin to determine how to achieve it. (motion – Ted, second – Mary)

4) Motion that GWAC recommend that the UFMP define the goal that new and existing street, sidewalk, and public development work should always include preserving and planting trees wherever feasible. (motion – Ted, second – Evelyn)

5) Motion that GWAC recommend the UFMP define as city policy that the city will not plant future shade trees in front of solar collectors, and will not grant permits for solar collectors that would be significantly shaded by existing or planned shade trees—just as we would not plant trees that conflict with other utilities or street lighting. (motion – Ted, second – Evelyn)

Job Details

The City of Worcester is an EEO/AA Employer. Preference is given to Worcester residents.

ZERO WASTE COORDINATOR DEPARTMENT OF SUSTAINABILITY AND RESILIENCE CITY OF WORCESTER

The City of Worcester seeks applicants for the position of **Zero Waste Coordinator** for the Department of Sustainability and Resilience. This position will assist with implementation of Zero Waste goals of the Green Worcester Sustainability and Resilience Strategic Plan (GWP) and will work closely with the Department of Public Works & Parks. The Zero Waste Coordinator will coordinate the development and implementation of a Zero Waste Master Plan to promote waste prevention, materials reuse, and diversion of food waste. The coordinator will lead public outreach campaigns including developing content for educational and outreach materials on zero waste topics; attend community events to educate the public about the city's zero waste initiatives; and increase awareness of recycling requirements to ensure compliance with state and local laws, in collaboration with residents, public schools, institutions, businesses and community groups. The coordinator will also expand on the existing and initiate new municipal programs to divert waste; and will organize and/or participate in waste collection events. The employee will prepare and submit required annual MassDEP reports, pursue applicable MassDEP grants and other grant opportunities to advance GWP zero waste goals, and will review and propose changes to the policies, practices, ordinances, and laws governing the collection, recycling, and disposal of household solid waste.

REQUIRED KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of the principles, practices, and objectives of different aspects of waste reduction and management
- Excellent written and verbal communication skills
- Proven strong project planning and management, organizational, critical thinking, and problem-solving skills
- Willingness and ability to think creatively and learn, and attend training, conferences, seminars, and meetings to remain knowledgeable of sustainable resource management practices.
- Strong computer skills and proficiency with standard productivity software (MS-Office Suite, Adobe Acrobat, etc.)
- Ability to read, interpret, understand, and apply laws, rules and regulations, policies, procedures, specifications, and guidelines related to integrated solid waste systems and programs
- Ability to understand and communicate complex data analysis and complex sustainability issues in a simple manner to garner credibility and support
- Ability to work and communicate with diverse populations, maintaining professional and helpful attitude while educating stakeholders on resolving issues
- Ability to examine data from different primary and secondary data sources and create meaningful analyses and determine solutions
- Ability to work both independently and collaboratively as part of a team

MINIMUM REQUIREMENTS:

- Associate degree in Sustainability, Waste or Resource Management, Environmental Management, Environmental Science, Natural Resources, Public Health, or related

discipline, OR,

o An equivalent combination of education and experience demonstrating the knowledge, skills, and abilities may substitute for the above degree requirement.

- Experience in the field of waste management such as recycling, food waste, materials reuse, and/or a similar program.
- Experience communicating with diverse population groups.
- Possess a Valid Driver's License

PREFERRED QUALIFICATIONS:

- Bachelor's or Higher Degree in Sustainability, Waste or Resource Management, Environmental Management, Environmental Science, Natural Resources, Public Health, or equivalent education.
- Three (3) or more years of experience in the field of waste management such as recycling, food waste, materials reuse, and/or a similar program.
- One (1) or more years of relevant waste management experience in the public sector
- Two (2) years of experience in developing and/or implementing public outreach or educational campaigns related to sustainability topics
- Trainings and certifications related to waste management, such as TRUE Advisor Certification.

SALARY RANGE: \$68,500 -\$76,159 annually, full-time, with an excellent benefits package.

To apply, please visit: www.worcesterma.gov/employment or send resume and cover letter to: City of Worcester, 455 Main Street, Room 109, Worcester, MA 01608. **OPEN UNTIL FILLED, applications received prior to or on FRIDAY, MAY 19, 2023, will receive preference.** Preference is given to Worcester residents. **The City of Worcester is an equal opportunity, affirmative action employer. Women, minorities, people with disabilities and protected veterans are encouraged to apply.** Direct inquiries to: City Hall, Human Resources, Room 109, 508-799-1030, HR@worcesterma.gov

COLUMNS | Opinion *This piece expresses the views of its author(s), separate from those of this publication.*

Can Worcester phase out fossil fuels fast enough to meet climate change goals?

Ted D. Conna Special to Worcester Magazine

Published 5:13 a.m. ET May 2, 2023

We have known about human-caused climate change since at least 1979, when scientists at MIT started talking about it. But only in recent years have we begun to take the problem seriously, and even now, we are doing far too little to rein in the fossil carbon emissions that result from burning oil, coal and gas.

Climate change is an existential threat to life as we know it on this planet, and while it once seemed far in the future, it no longer does. We are already suffering its effects in the form of droughts, wildfires, floods, heat waves, stronger storms and the downstream effects of such events on our health and safety, our food supply and the cost of living. Climate-fueled disasters cost the U.S. economy \$165 billion in 2022, or about \$500 for every person in America. And it keeps getting worse.

In response, 15 states, including Massachusetts, have adopted plans to achieve net-zero greenhouse gas emissions by 2050 or sooner. In Worcester, the plan is to phase out the use of fossil fuels entirely by 2045 in both transportation and buildings. Scientists consider that time frame critical to avoid the worst impacts of climate change, and 2045 is just 22 years away.

So, how do we get there from here?

In order to heat and power homes and businesses without fossil fuels, the plan is to do deep energy retrofits to improve efficiency, fully electrify the vast majority of buildings, invest heavily to upgrade electric grid capacity and replace fossil fuels with renewables like solar, wind and hydroelectricity to power the grid. In order to meet the building sector target, Worcester will need to convert about 2,000 buildings per year off of fossil fuel, every year until 2045.

New construction is the low-hanging fruit, because it can be built to a higher efficiency standard and because there is no obsolete heating system to remove or tie into, no preexisting obstacles to correct.

Worcester has about 5,000 new housing units in the development pipeline or in the planning stage, and if this new construction is built to be heated with oil or gas, we'll be stuck with that for decades to come. Every new investment in fossil energy technology is a wasted opportunity, and we don't have decades to waste.

But what about the 40,000+ existing buildings in Worcester that already depend on fossil fuel? If your building is heated by oil or gas, one solution is to replace that with an efficient heat pump, and the most economical time to do that is when you need a new heating system anyway — which only happens every 25 years or so.

When that moment comes, the information, equipment and installers must all be readily available, and property owners must be convinced that remaining dependent of fossil fuels is a bad bet both financially and environmentally. If we want to hit the target, we have to get this right, one building at a time.

More: City of Worcester teams up with community to take on pond scum

More: First person: When our legs yield to the gift of time

Some communities hope to accomplish all this by banning the installation of new fossil fuel systems, but Worcester will not be among them, at least not yet. The alternative is an aggressive effort to jump-start the voluntary conversion of our city away from fossil fuels and toward more efficient energy systems powered by renewables.

This will require the education of property owners and contractors, utility and government funding incentives, granting city tax incentives only to developers who forgo fossil fuels, and a new level of collaboration between the city and development community. The Inflation Reduction Act includes generous subsidies for switching away from fossil fuels.

This will be a massive project, both citywide and globally, but as we continue to build and replace our cars, homes, businesses and infrastructure, it is both myopic and just plain foolish to keep investing in obsolete fossil fuel technology. The cost of transition will be considerable, but the cost of not changing is far greater.

Moving beyond fossil fuels is the future, and those who get there first will be the first to avoid the price instability and the supply uncertainty that awaits those who don't. Converting fossil fuel systems citywide will also be a massive economic and workforce development opportunity, creating many skilled jobs and requiring the training programs needed to fill them.

Worcester developed the award-winning Green Worcester Plan with the vision of becoming the most sustainable midsized city in the country by 2050. To meet that challenge will take bold leadership and commitment from every part of our community. But we have been here before. When Worcester established its curbside recycling program in 1993, it was the largest city anywhere in the U.S. to do so, and our success became a model for other cities to learn from and build upon.

Worcester has built the largest municipally owned solar farm in New England. The Greater Worcester Land Trust, Mass. Audubon and the city have preserved thousands of acres of conservation land in the past few decades. Worcester is no stranger to dreaming big, committing and investing for the long haul, and succeeding. Weaning our economy off of fossil fuels will be a massive challenge, and we need to do it rapidly. Let's lead the nation once more, reap the benefits of a more secure, affordable and sustainable energy future, and set an example yet again for other cities to follow.

Ted D. Conna is a longtime environmental activist. He was the first executive director of the Regional Environmental Council and now represents District 4 on the Green Worcester Advisory Committee, promoting the full implementation of the city's award-winning Green Worcester Plan. His viewpoint expressed here is consistent with the Green Worcester Plan.