

Native Plant Trust

Conserving and promoting
New England's native plants

Building the Buzz: Pollinate New England as a Model for Regional Engagement

APGA Conference, June 19, 2019



Overview

- Partnerships and Learning Approaches in Gardens Education
- Creation of Pollinate New England
- Development and Launch of Project Components
- Measurables and Evaluation
- Impact and Next Steps



Partnerships

- Weigh the Potential Benefits
- Approach with an Attitude of Abundance
- Know What You Want
- Set Criteria
- Maintain the Relationship



Learning Principles

- Scope
- Replicable Models
- Collaborative and Open Source
- Objectives-Focused
- Interactive and Inquiry-Based
- Contextual



Development of a Great Idea



Home Bee Counted Partners Resources Impact News FAQs Contact Us Q



Help build on the Million Pollinator Garden Movement

We surpassed our goal to [register](#) a million gardens and landscapes to support pollinators.
[Learn more about the garden networks that made this possible.](#)

Pollinators Still Need Your Help

ators are responsible for **1 out of 3 bites** of food we take each day, and yet pollinators are at critical p
s. We know for certain, however, that more nectar and pollen sources provided by more flowering plant

- Birth of the Pollinate New England Concept
- Presidential Memo and the birth of the National Pollinator Garden Challenge
- Desire to go beyond the honeybee
- Awareness of systemic insecticides
- Regional adaptation and locally sourced plant material
- Replacing lost habitat through gardens and guiding gardeners through a flood of misinformation

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Pollinator Decline



IMLS & Concept Development

- Institute of Museum & Library Services
 - Previous support
 - Online education
 - Garden in the Woods master plan
- Museums for America Learning Experiences category
- Strategic plan goals
 - Improve designed landscapes that support or could support native plants
 - Build a broader and more engaged constituency for native plants
 - Expand and strengthen our outreach using a clear and compelling message

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ONLINE LEARNING

[Home](#) [Native Plant Trust Web Site](#) [Courses ▾](#) [Resources ▾](#)

[Home](#) > [Courses](#) > [Horticulture and Design](#) > [Designing with Native Plants](#)

Your progress [?](#)

Designing with Native Plants

Welcome to Designing with Native Plants! This online course will teach you the basics of designing with native plants and how to incorporate plants into your garden and landscape. Discover the variety of native plants found throughout New England and how to design a landscape with seasonal and visual interest that also supports biodiversity. We'll also follow a case study throughout the course: a small public garden designed by New England Wild Flower Society at Lincoln Station Park in Lincoln, Massachusetts. Follow the evolution of this garden, from goal-making through final installation and see how the garden looks many months on. This course will be taught by New England Wild Flower Society Educators, but is entirely self-paced. If you have difficulties, please contact education@newenglandwild.org. Thank you!



[Course Syllabus](#)

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Project Deliverables



Three major components:

- Develop and administer a free online course
- Hold free hands-on workshops in each of the six New England states
- Suggest ways that homeowners can share their gardens with others

Curriculum Design Principles

- Develop environmental literacy in participants through opportunities to:
 - Understand ecosystems and how they function. (course slideshows)
 - Appreciate natural phenomena and biodiversity through observation and direct experiences in natural settings. (workshop, course activities)
 - Think critically about how human actions affect ecological functioning and subsequent environmental concerns/problems that arise. (course slideshows and additional resources)
 - Participate in action planning for themselves and their community to address environmental issues. (workshop, Plant Finder database, course activities, garden installation of their own)
- Provide sound, accessible scientific information.
- Create a narrative arc to engage curiosity and maintain participation.
- Use multimodal content engagement (videos, readings, website links, narrated slideshows with printable scripts, garden plans, searchable database).
- Scaffold course content application with quizzes, activities, worksheets, pollinator kits.
- Use evaluation to monitor program quality and goal attainment.

Narrative Arc through Course Topics

Ecology-Focused Content (big picture)

1. Meet the Pollinators

- Plants' and Pollinators' Ecosystem Roles
- Plant-Pollinator Interactions

2. Saving Our Pollinators

- Status of Pollinators
- Threats to Pollinators

3. Assessing Your Yard

- Pollinator Habitat Needs
- Invasive Plants Review

Narrative Arc Through Course Topics

Garden-Focused Content (practical application to support ecology)

4. Pollinator Garden Planning and Design

- Determining Your Yard's Growing Conditions
- Planning Your Pollinator Garden

5. Plant Selection for Pollinators

- Selecting Your Pollinator Garden Plants—Plant Finder
- Pollinator Kits and Designs












6. Garden Installation and Maintenance

- Installing Your Pollinator Garden
- Buying Healthy Plants
- How to Plant a Tree
- Planting Small Shrubs and Herbaceous Plants
- Maintaining Your Pollinator Garden Through the Seasons

Multimodal Content Engagement

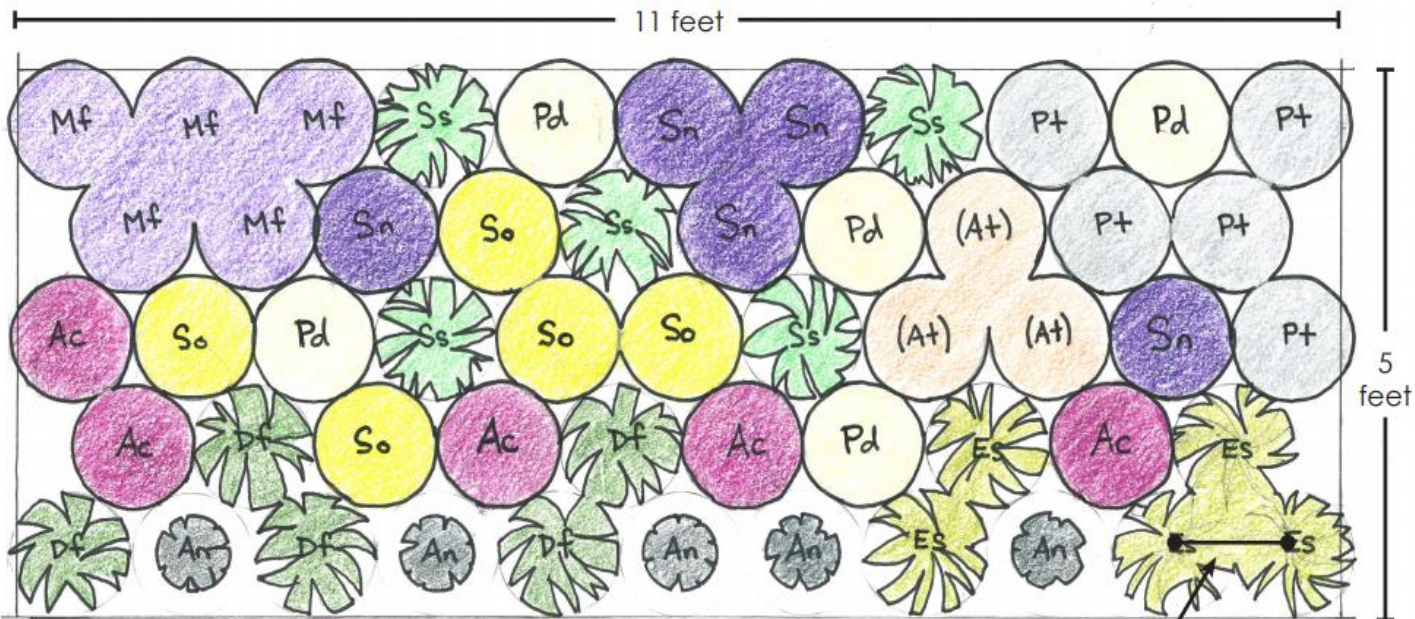
- Target audience was homeowners with some basic gardening experience
- Likely age range 30-60 years old, navigation had to be easy and obvious
- Narrated slideshows with printable scripts
- Videos for planting demonstrations
- Additional readings that included more in-depth information about topics introduced in topic, suggested books list for each topic
- Web Resources: Xerces Society, Climate Central, National Pollinator Garden Network, The Pollinator Partnership, BeeSmart app, NWF Garden for Wildlife Program, The USA National Phenology Network, Budburst, Early Detection & Distribution Mapping System (EDDMapS), USDA Plants Database, Go Botany, and Plant Finder, soil testing in each state
- Activities, worksheets, design examples
- Pollinator Kits for purchase, workshops

Application

- Quizzes to reinforce content
 - Matching Plants and Pollinators
 - Pollinator Threat Assessment
- Activities and Worksheets
 - Observe Pollinators 
 - Identify Invasive Plants in Your Yard (activity)
 - Backyard Botany 
 - Assess Your Soil 
 - Record Your Yard Characteristics 
 - Finalize Your Garden Design 
 - Choose Your Plants 
 - Generate a Shopping List 
- Creating a Planting Plan 
- Map Your Garden Installation and Maintenance Timeline 
- Pollinator Garden Best Practices 
- Install Your Pollinator Garden 
- Join a Conservation Effort with Your Yard (websites)

Pollinator Plant Designs

POLLINATOR KIT #1: Full Sun, Average to Dry



KEY

(Species subject to change based on availability)

- Mf *Monarda fistulosa*
- Ac *Aquilegia canadensis*
- So *Solidago nemoralis*
- An *Antennaria plantaginifolia*
- Pd *Penstemon digitalis*
- Sn *Symphotrichum novi-belgii*
- Pt *Pycnanthemum tenuifolium*
- Df *Deschampsia flexuosa*
- Es *Eragrostis spectabilis*
- Ss *Schizachyrium scoparium*
- (At) *Asclepias tuberosa* (not included in kit)

12 inch spacing
between all plants

Pollinator Plant Designs

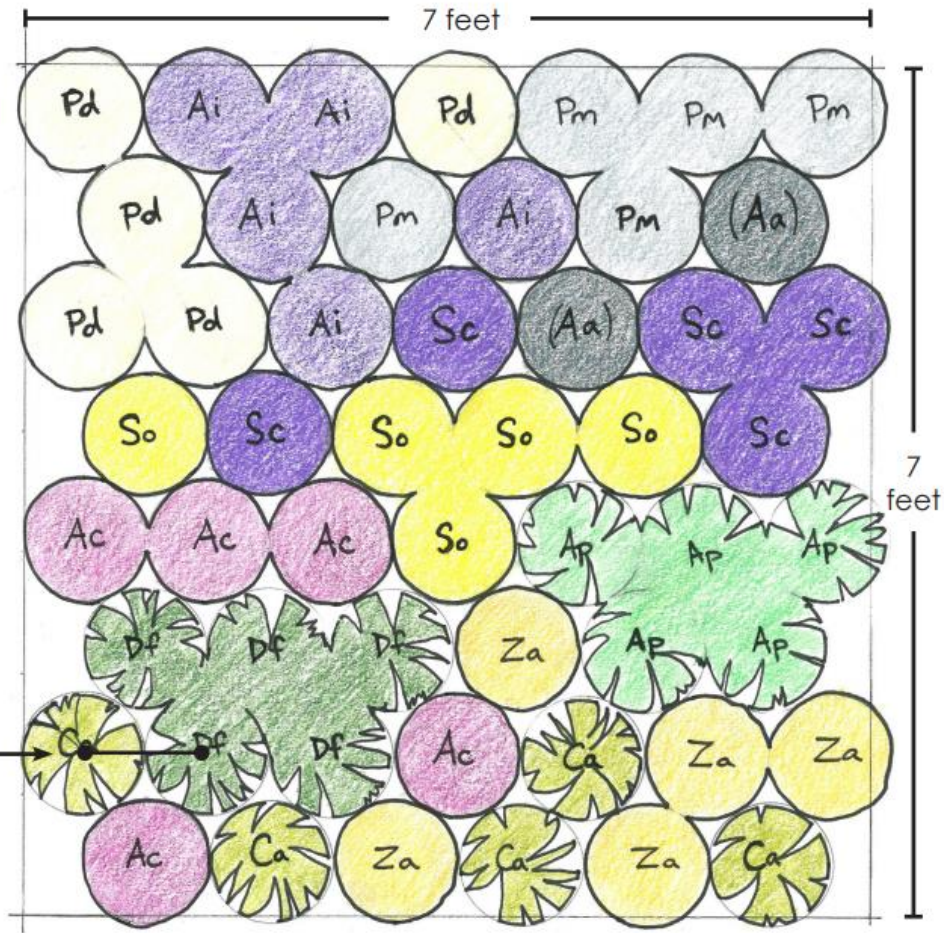
POLLINATOR KIT #2: Full to Part Sun, Average to Moist

KEY

(Species subject to change based on availability)

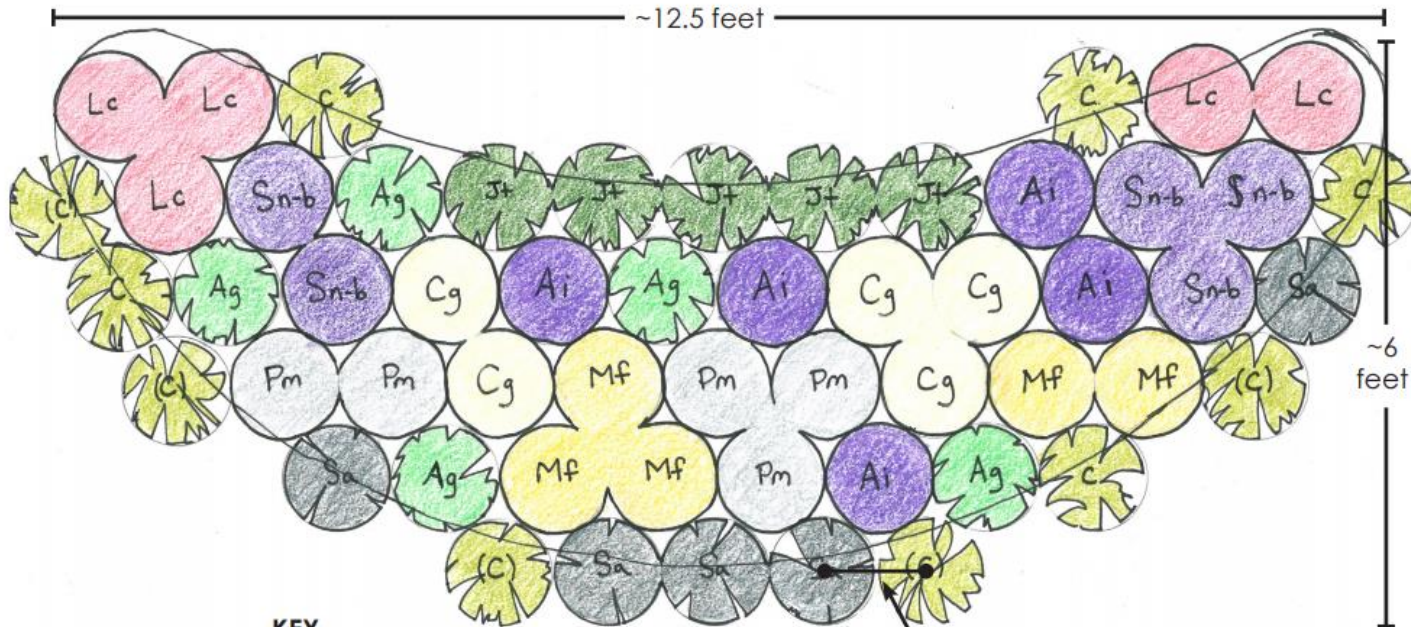
- Ac *Aquilegia canadensis*
- Ai *Asclepias incarnata*
- Pd *Penstemon digitalis*
- Pm *Pycnanthemum muticum*
- So *Solidago caesia*
- Sc *Symphotrichum cordifolium*
- Za *Zizia aurea*
- Ap *Agrostis perennans*
- Ca *Carex appalachica*
- Df *Deschampsia flexuosa*
- (Aa) *Ageratina altissima* (not included in kit)

12 inch spacing
between all plants



Pollinator Plant Designs

POLLINATOR KIT #3: Full Sun, Moist to Wet



KEY

(Species subject to change based on availability)

- Ai *Asclepias incarnata*
- Cg *Chelone glabra*
- Lc *Lobelia cardinalis*
- Mf *Monarda fistulosa*
- Pm *Pycnanthemum muticum*
- Sa *Sisyrinchium angustifolium*
- Sn-b *Symphotrichum novi-belgii*
- Ag *Andropogon glomeratus*
- C *Carex crinita*
- Jt *Juncus tenuis*
- (C) *Carex* spp. (not included in kit)

12 inch spacing
between all plants

Plant Finder

Plant Search

Plant Type/Program:

- ANY TYPE
- Fern
- Groundcover
- Ornamental Grass
- Perennial
- Shrub
- Tree
- Vine/Liana

Ctrl-click (Mac users ⌘-click) to select multiple types to include in the search.

Flower Color:

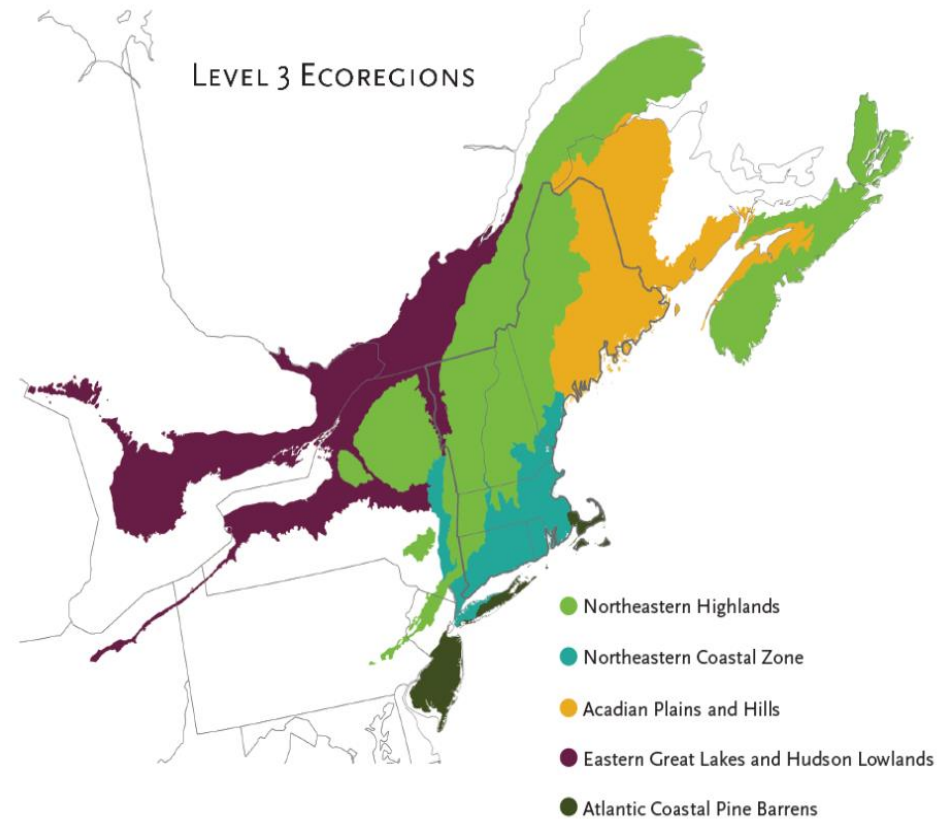
- ANY TYPE
- Blue
- Green
- Insignificant
- Maroon
- Non-Flowering
- Orange
- Pink
- Purple
- Red

Ctrl-click (Mac users ⌘-click) to select multiple types to include in the search.

Height:

 Inches ▾

Spread:

 Inches ▾

Plant Finder

Check any box below to find only plants having the specific characteristic(s). Otherwise, leave all boxes unchecked to maximize your search results based on the criteria above.

Exposure

- Sun
- Part Shade
- Shade

Soil Moisture

- Dry
- Average
- Wet

Ecoregion

- (58) Northeastern Highlands
- (59) Northeastern Coastal Zone
- (82) Acadian Plains and Hills
- (83) Eastern Great Lakes Lowlands
- (84) Atlantic Coastal Pine Barrens

Attracts Wildlife

- Attracts Bees
- Pollinator Powerhouse Plant
- Attracts Butterflies
- Host Plant
- Attracts Songbirds
- Attracts Hummingbirds
- Other Pollinators/Wildlife

Ornamental Interest

- Spring Bloom
- Summer Bloom
- Fall Bloom
- Summer Fruit
- Fall/Winter Fruit
- Fall Foliage
- Winter Interest and/or Evergreen

Attractive Fall Foliage and/or Ornamental Fruit

- Red Fruit
- Red to Purple Fall Foliage
- Orange to Brown Fall Foliage
- Bright Yellow to Bronze Fall Foliage
- Blue Fruit
- Multi Color Fall Foliage
- Purple to Black Fruit
- White Fruit
- Orange to Yellow Fruit

Landscape Use

- Groundcover
- Hedge
- Massing
- Specimen
- Rain Garden

Additional Attributes

- Edible
- Low Maintenance
- Spring Ephemeral
- Dioecious (fruits only on female plants)
- Fragrant

Tolerance

- Deer/Rabbit Resistant
- Drought Tolerant
- Salt Tolerant
- Urban Environment
- Compaction Tolerant

- Show only plants having **ALL** checked characteristics above
- Show plants having **ANY** checked characteristics above

BEGIN SEARCH

Pollinate New England Workshops



- Hands-on pollinator garden workshops held throughout the New England region
 - In these day-long workshops, participants learned how to select plants and install and care for their own gardens by helping to install a 150-square-foot pollinator garden in a public space
 - We supplied the plants for the garden, the soil amendments, and all tools for installation and maintenance
 - The twelve gardens were donated to the local host partners who committed to continue to care for them after installation
- Native Plant Trust**

Workshop Site Selection Criteria

- Two workshop sites in each of the six New England sites
 - At least one workshop site in a low-income community
- The site must be highly visible to passerby
- There must be a local partner willing to maintain the garden after installation
- The site must be easily accessed for installation
- The site must be able to accommodate 150 square foot pollinator garden
- There must be irrigation water accessible at the site. Bathroom facilities are a plus.
- Applicants who are willing to increase the impact of the project by providing additional resources will be given preference.

Workshop Site Selection Process



Detailed Application

- 4 questions about the organization (1-3 pages)
- 11 questions about the site (3-6 pages)

Key questions:

- Description of need. Why should your site be chosen for garden installation? What are the demographics and number of people you plan to serve?
- How will you maintain the garden in the short and long-term (next 5 years) after installation?
- Will the garden remain compatible with the other uses of the site in 5 years? In 10 years?

Selected Workshop Sites



- 3 Preserves/Conservation Areas
- 2 Nature Centers
- 1 Town Green
- 1 University
- 1 Public Library
- 1 Traffic island (Low-income neighborhood)
- 1 Police Station
- 1 City Park
- 1 Zoo

Workshop Coordination

- Met with all selected sites face-to-face in fall 2017 (prior to summer 2018 workshops)
 - Met with partners on-site
 - Chose a location for the 150 sf pollinator garden within each site
 - Assessed the facilities
 - Soil analyses
- Created the plant list for all gardens (coordinating with native plant nursery)
- Designed the gardens
- Maintained contact with partners through the winter
- Marketing for workshop

Workshop Curriculum



- Half-day hands-on workshop for adult novice gardeners
- Limited to 20 participants
- Combination of instructor-led discussion, demonstrations, and hands-on learning
- Key Topics:
 - Introduction to gardening for pollinators
 - Introduction to basic gardening tools
 - Site selection/analysis
 - Site preparation
 - Planting design
- 2-hour evening lecture for all experience levels, accommodating a larger audience

Workshop Packing List

- 150 Plants
- Plant list
- 8 (3 cf) bags mulch
- 12 (1cf) bags compost
- 2 pop-up tents w/ stakes
- 2 folding tables
- Camp chairs
- 18 trowels
- 18 pairs work gloves
- 2 flat-head shovels
- 2 spear-head shovels
- 2 hand turf edgers
- 2 steel rakes
- 100' hose
- 1 hand pruners
- 1 hori hori
- 1 watering wand
- Plant labels
- Small sign for garden
- Compost samples
- Example of root bound plant
- Example of pot sizes
- Box of clipboards
- Maintenance kit
- List of Workshop/Lecture Registrants
- Handouts w/folders
- Evaluation forms
- Seed mix samples
- Mulch samples
- Soil type samples
- Pollinator collection cups
- Pollinator nets
- Reference books
- Sample Pollinator Kit

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Maintenance Kit



- Hori hori
- Hand pruners
- Flat head shovel
- Spear head shovel
- Hand edger
- Steel rake
- 100' hose
- Watering wand

Lessons Learned from the Workshops

- Simplify logistics
 - Bring own tools, materials, and bagged mulch/compost
- Weather challenges
 - No rain dates
 - Provide shelter from rain and sun
 - Heat more limiting than rain
- Marketing challenges
 - Importance of well-connected partners
 - Pre-registration taken less seriously for “free” events
- Team Teaching
 - Diversified areas of expertise
 - Created a conversation-friendly environment
 - Allowed for instructor breaks while keeping the workshop moving
 - One instructor laid out plants in garden while other talked about the plants
- Expect the unexpected!
 - All sites and all partners are different
 - Be flexible as unique challenges arise

Evaluation Process



- Pre-post course survey (MOODLE)
- Course quizzes (MOODLE)
- Pre-post workshop survey (Hardcopy)
- The learner outcomes assessed:
 - Change in level of knowledge on native plants in their home state, threats to pollinators, pollinator-plant interactions.
 - Change in level of motivation to install pollinator garden in their own yards or community.
 - Change in level of comfort in discussing these issues with other community members.
- Descriptive analysis of frequencies

Participation



Course

- 238 accessed course, 67 (28%) completed all course actions, 39% completed >half
- Most homeowners with yard and some experience (target population)

Workshop

- 129 completed evaluation forms
- There were more “less experienced” gardeners who took the workshop than the course

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Knowledge Changes—Course



Dan Jaffe

Quizzes

- Plant-pollinator interactions:
 - There were 206 pretest respondents with average grade=87% correct
 - 82 posttest respondents with average grade of 94% correct, indicating an overall increase in accurate knowledge as a result of the course experience.
- Pollinator syndromes:
 - average grade on the first attempt for the quiz was 94% correct, indicating that the course was effective in explaining pollinator syndromes.
- Clarifying threats to pollinators:
 - an average of 95% correct across all three questions

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Knowledge Changes—Workshop



Regardless of their pre-workshop knowledge level (none - a lot), the following percentages of participants reported “a great deal of change” in their knowledge as a result of the workshop:

- 63% how to prepare a garden site
- 62% diversity of native pollinators in your area
- 60% how to install and maintain a garden
- 58% how plant-pollinator relationships
- 57% plants that are native to your area
- 43% stressors on native pollinators

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Motivation to Install Pollinator Garden



Dan Jaffe

Course

- 71% at pre-test were extremely likely
- 89% at post-test
- Matched comparison (16% increased likelihood pre to post)

Workshop

- Regardless of pre-test level of likelihood (extremely unlikely – extremely likely), everyone was “more likely” to install pollinator garden after the workshop participation.

Discussing Pollinator Issues—Course



Pre: How often do you discuss pollinator-related issues with friends, co-workers, or family members? (never- usually, in about 90% of the chances I could have)

- 16% rarely do
- 55% occasionally
- 38% frequently

How likely is it that after taking this course, you will discuss pollinator-related issues with friends... (extremely unlikely – likely)

- 14% likely
- 84% extremely likely

Matched comparison 46% more likely

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Overall Satisfaction



Course

- Course was reviewed very positively, with 65% of participants being “extremely satisfied”
- 91% agreed that “the course has motivated me to take more classes or workshops about plants and/or garden design”

Workshop

- Vast majority participants “Mostly satisfied” (somewhat dissatisfied – mostly satisfied) with all aspects of the workshop (instructors, pedagogy, nature and amount of information)

Results

- Native Plant Trust's Impact on Partners and Region
- Pollinate New England's Impact on Native Plant Trust
- Growth of Partnerships and Audiences



Next Steps

- Native Plant Trust
 - Disseminate Programming Package
 - Advance Regional Partner Relationships
 - Deepen Research With Colleagues
- Fellow Gardens
 - Identify Current and Ideal Resources
 - Consider Potential Audiences
 - Explore Partnership Models



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Conserving and promoting
New England's native plants

www.NativePlantTrust.org