



Preparing, Designing and Maintaining Your Native Plant Garden

Site assessment

The first step to creating a native plant garden is to look at the characteristics of your proposed garden area. This will help you select appropriate plants and to determine what site preparation will be needed before planting.

- **Light Conditions:** How much sun does the area get?
 - Full sun = 6+ hours per day
 - Part sun = closer to 6 hours per day
 - Part shade = closer to 3 hours per day
 - Shade = < 3 hours per day
- **Soil**
 - **Soil moisture:** You may have dry soil, average or moist soil, or wet soil. It is important to know this information before choosing the appropriate native plants for your garden.
 - This website has some helpful simple ways to determine soil moisture:
<https://homeguides.sfgate.com/wet-soil-vs-moist-soil-74188.html>
 - **Soil test:** Having your soil tested will tell you the pH and the amount of organic matter you have. It is very helpful to have this information when selecting plants as some plants need more acidic soil, while others may need a neutral or basic soil. Plants also vary with their need for organic matter content in the soil. One organization that tests soil is Cornell's Soil Health Lab. Find more info here: <https://soilhealth.cals.cornell.edu/testing-services>
 - **Drainage:** Do you have sandy soil, which is common on Long Island? This type of soil allows water to drain quickly. Clay soils will hold moisture and may have poor drainage. Some plants hate wet feet or don't do well in dry conditions. Make sure to take this into account when deciding on what plants to use. A soil test can help with this as well.
 - If you are unsure you can do a simple infiltration test.
<https://www4.des.state.nh.us/SoakNH/wp-content/uploads/2020/05/How-to-Do-a-Simple-Infiltration-Test.pdf>
- **Access to irrigation:** If you choose the right plants for the right place you shouldn't have to water them much once they are established, however native plants do need to be watered the first year and if there is a drought. It is important that your garden have access to some type of irrigation, whether it is a sprinkler, irrigation system, rain barrel or manual watering by hand.
- **Slope:** If you are planning to plant on a sloped area keep this in mind when choosing plants. There are some that can better tolerate these areas than others and some that help to prevent erosion that may be best for your garden.
- **Size and Shape**

- What are the dimensions of your garden and the total square footage? This website has a helpful tool for calculating the area of your garden: <https://www.calculator.net/area-calculator.html>
- What shape will it be? It could be rectangular, oval, or irregularly shaped. It will depend on how much space you have and the aesthetics you want.
- **Existing vegetation**
 - If there is existing vegetation that needs to be removed plan ahead to give yourself time to remove everything before planting.
 - If there are trees you are not removing in your proposed planting site be careful when planting around them, so you don't damage their roots.
 - See "Site Preparation" section for how to remove turf grass.
- **Plant Restrictions:** When assessing your site, you should start thinking about any limitations you may have when selecting plant varieties. These include:
 - Size of plants- Do you have any height/ width restrictions? For example, you may not want to choose a very tall plant if it is under a window because it will block your view or a plant that will grow too wide if it is next to a driveway since it may brush against your car or make it difficult for someone to exit the car.
 - Wildlife- Do you have rabbits or deer that frequent your yard? You will need to look for plants that are not palatable to them.
 - Types of plants- Would you like herbaceous plants like forbs, grasses, and ferns or trees and shrubs? It is good to have a mix of both to provide different resources for wildlife and a variety of aesthetics, but a shrub garden is often lower maintenance. See "Designing Your Garden" section for more information.

Designing Your Garden

Planning what plants you will put in your garden and how they will be arranged will depend on many factors. These include:

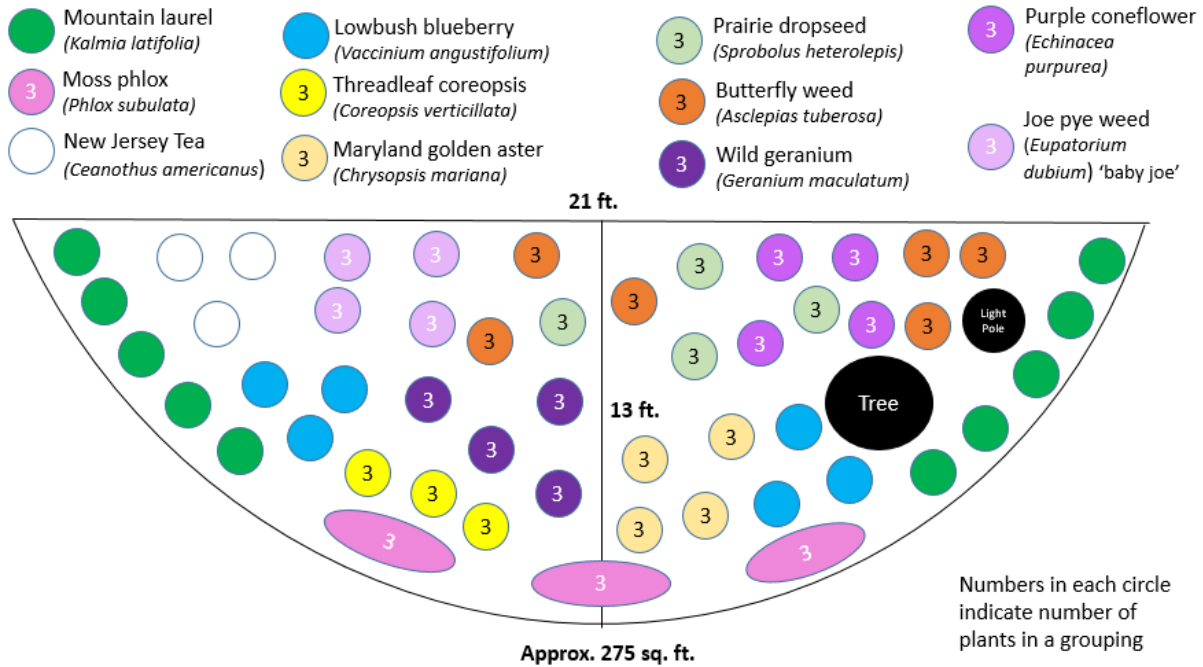
- **Light and soil conditions:** You should choose plants that best fit the light and soil conditions you determined for your site. Don't choose plants that need a moist or wet environment if you have dry soil or plants that need full sun if your area is in the shade.
- **Size of plants:** Plan for the ultimate size of the plant in terms of height and spread. Use the plant list provided and click on the links for more information. Make sure to leave enough space so that plants won't have to be cut back.
 - Make sure that you put shorter plants in the front or edges of the garden, while putting taller plants in the back or middle. This will help make sure one plant doesn't obstruct the view of another.
- **Contrast:** Choose a variety of colors, textures, shapes, patterns in flowers and foliage or even berries and seeds to provide visual interest in your garden.
 - Foliage is important since it is visible for more time of the year than blooms are, and it can also change with the seasons. Many plants have interesting fall color. Examples include:
 - Little bluestem grass- bronze/red color in autumn, has fluffy seed heads; many other grasses look beautiful in the fall and winter and have interesting seed heads
 - Ninebark- peeling bark in the winter
 - Wild ginger- leaf shape
 - Common yarrow- interesting fern-like foliage texture

- *Baptisia tinctoria* or *australis*- beautiful foliage and seed pods
 - Choosing a variety of colors will not only provide a beautiful aesthetic but will allow a variety of pollinators and birds to be attracted to your garden. Examples:
 - Orange- blooms of butterfly milkweed, tulip tree
 - Red- blooms of columbine, scarlet beebalm, and cardinal flower, berries of winterberry and cranberry, foliage of common bearberry and blueberries in fall, fruit and foliage of flowering dogwood in fall
 - Purple- blooms of wild bergamot, purple coneflower, phlox, false indigo (*Baptisia australis*)
 - White- blooms of common yarrow, mountain mints (*Pycnanthemum*), New Jersey Tea, serviceberry, blueberries, chokeberries, buttonbush, *Clethra alnifolia*
 - Yellow- blooms of goldenrods, black-eyed Susan, spicebush, sunflowers, wild indigo (*Baptisia tinctoria*), fall leaves of ninebark, birch, spicebush, some maples, and serviceberries
 - Choosing a variety of shapes of flowers will have the same effect. Certain flower shapes are also preferred by bees, butterflies, hummingbirds and other pollinators.
- **Layering**- use a variety of plant types such as:
 - Groundcovers can provide visual interest as well as help keep weeds out. They can be woody or herbaceous.
 - Woody- common bearberry, wintergreen
 - Herbaceous- Moss phlox (*Phlox subulata*), bluets, foamflower, coral bells, wild ginger, Pennsylvania sedge, scarlet strawberry, barren strawberry
 - Forbs- these are herbaceous (not woody) wildflowers as well as grasses, sedges and rushes
 - Woody species - Flowering trees and shrubs are good sources of pollen and nectar for pollinators, particularly in early spring when there often are not many. They also provide structure, cover and nesting habitat for birds, and a multitude of other resources.
- **All Seasons Blooms**: Choose plants that bloom throughout the seasons to provide resources for pollinators and other wildlife species throughout the growing season. Planting at least 2 blooming species each season (spring, summer, and fall) is highly encouraged.
- **Plant in mass and drifts**: Grouping multiple plants by repeating the same species allows each type of plant to make a strong visual image. This also helps pollinators who go from flower to flower for pollen and nectar. If the same species is planted in groups of at least 3 it helps pollinators find the plants they need.
- **Cue of Care**
 - An edge or path allows the area to look neat if that is the aesthetic you would like to create.
 - Borders, mowed edges, pruned hedges, or a short fence can accomplish this.
- **Spacing**
 - Triangular spacing allows you to save space and utilize more plants in a smaller area.
 - Planting densely leaves less available space for weeds. A good rule is planting 12 inches to 18 inches apart (although this may be larger for larger trees and shrubs and plants that have a large width at maturity).
- **Number of Plants Needed**

- To help determine your design and budget you will need to figure out how many plants will be needed in your entire garden. This calculator is helpful:
<https://www.inchcalculator.com/plant-and-flower-calculator/>
 - If you are planting 12” apart, the square foot of your garden is the number of plants you need. For 18” spacing, multiply the square feet of the garden by 0.45 and the answer will be the number of plants needed to fill the space (ex. 100 square feet times 0.45 = 45 plants needed).
 - Be mindful of how much your plants will spread at maturity. You will most likely need less trees and shrubs to fill an area than grasses and forbs because they will grow and spread out to a larger area.
- **Choose plants that benefit wildlife**
 - Food resources:
 - *Berries*- winterberry, viburnums, blueberries, huckleberry, raspberry, blackberry, northern bayberry, scarlet strawberry, common juniper, chokeberries, common bearberry
 - *Pollen*- a variety of flowering species
 - *Pollen specialist bees*- Some bees are specialists on the pollen of certain plants that they eat themselves and feed to their larvae. Providing for them is important. This webpage has more information on specialist plants for bees:
https://jarrodfowler.com/host_plants.html
 - *Nectar*- a variety of flowering species
 - *Seeds for birds*- ex. purple coneflower, goldenrods, Joe pye weeds, coreopsis, asters, sunflowers, columbine, many grasses/rushes/sedges, many species of trees
 - *Insects*- most native plants will attract insects which are food for birds
 - *Hosts for caterpillars*- Planting at least one species of milkweed is highly encouraged as this is the host plant for the declining monarch butterfly and monarch conservation is an important goal of the Town who has taken the Mayors’ Monarch Pledge with National Wildlife Federation. Other host plants include alexanders (*Zizia* sp.) for black swallowtails, spicebush and sassafras for spicebush swallowtails, asters for the pearl crescent, native grasses for skipper butterflies, sweetbay magnolia for tiger swallowtails, and oaks and cherries for a variety of butterfly and moth species.
 - Nesting sites for insects and birds- logs, snags (dead or dying trees), bare ground, stems, trees
 - Cover: many types of plants provide cover for birds and other wildlife. Trees and shrubs provide good coverage because they are larger, but plants like grasses and other forbs can as well. Evergreen plants provide good winter cover.

Create a Basic Garden Layout

- Creating a simple drawing by hand or digitally that shows the layout of the native plant or rain garden will help to plan out the placement of your plants and overall look of your garden.
- Include placement of plants, any plants that are currently in the garden that you plan to keep, other non-living elements (ex. fountain, bird bath), the basic shape, measurements, and anything else you feel would be relevant.
- The layout below is an example.
- Also see the ‘Sample Basic Garden Designs’ on the Native Plants webpage.



Site Preparation

- **Removing existing plants**
 - If possible, do this by hand or mechanically, without the use of herbicides.
 - If it is not possible to remove a woody plant, it can be cut back to the ground.
- **Removing turf grass**
 - In residential yards and smaller plantings, it is recommended to cut away the sod prior to planting to effectively remove weed roots and seeds. This can be accomplished with sod cutters, sod kickers or shovels for smaller areas.
 - Another way is to use cardboard to cover up the turfgrass or existing weeds (this doesn't work for shrubs). To do this place a layer of cardboard across the garden to smother the lawn grass or weedy area. Once the cardboard is in place, put 3 inches of mulch over the cardboard for additional smothering. Wait about two weeks for the grass and other vegetation to die under the cardboard before planting. In that time, hopefully it will rain so the cardboard is very easy to dig through. Plant directly through the mulch and cardboard.
- **Dig Safe:** It is important to make sure you know the locations of any underground electrical wires and piping. Call 811 for Dig Safely NY and they will come to your property to mark out these locations prior to any planting www.digsafelynewyork.com/

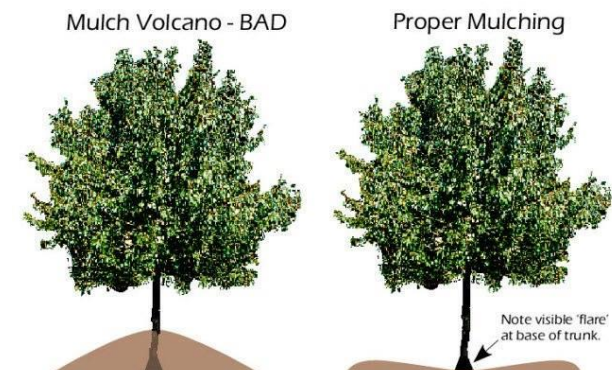
Acquiring Plants

- The document created by the Long Island Native Plant Initiative entitled "Native and Invasive Plant Resources for Conservation, Restoration and Landscape Plantings" has information on where to purchase plants. Please note the Town of North Hempstead cannot recommend any business entity and does not guarantee performance or quality of goods/services from any vendor.
- Also, the National Wildlife Federation has a new program where they are selling groups of native plants that go well together in certain garden conditions (ex. full sun). Please visit their site for more information: gardenforwildlife.org

- One way to cut costs when purchasing plants is to get plugs or small pint/quart sized plants, which will cost less than gallon size plants and do just as well in a garden, though they will take a little longer to become established. This will depend in availability of sizes from vendors.
- To help you with determining the budget needed for the plants you will purchase for your garden it is helpful to contact vendors to provide prices.
- It is important to understand that some plants requested may not be available in the spring but may be available later in the year. If needed you can plant all the available plants from your list in the spring and then wait until the fall to plant others that you can only acquire later in summer (since it is best to plant in spring or fall). Make sure you leave space in your garden for these plants.

Plant Installation

- Proper planting techniques improve the likelihood of a plant's success in the garden.
- Make the planting hole 2 to 3 times as wide as the root ball. Plant roots grow out, not down.
- Make sure that the root ball of a shrub or tree is level with the existing soil/ground and the plant's root collar is above the soil. For more information on proper tree planting visit www.arborday.org/trees/planting/
- Many times, container grown plants are root bound. It is best to break up any roots that have circled around the plant so they can grow properly when in the ground.
- Use the original soil when backfilling the planting holes.
- Water thoroughly at the time of planting.
- If mulching, make sure you do not volcano mulch around trees. This can cause disease and rotting of the tree.



Care After Planting

- **Watering regularly:** Establishment of native plant root systems can take a year so they should be watered regularly over the first growing season, especially during long periods of time without water. If there is a high amount of rainfall, then they don't need to be watered as much or at all. Planting in the spring and fall is best since rain is usually plentiful at these times of the year and temperatures are lower. Planting in summer is discouraged since it is usually very hot and dry.
- **Weeding:** It is important that the gardens are weeded regularly for the first growing season. Native plants need time to grow and if they are crowded or shaded out by weeds, they may become unhealthy or die. Once plants become larger and spread, weeds won't be as much of an issue and even if they are there they won't be as noticeable.
- **Mulch:** While plants are becoming established and spreading out mulch can help to tame weed growth (although it can't stop it completely) and help the soil retain moisture.

- Keep in mind that mulch may prevent ground nesting bees from being able to create nests in the soil. An alternative to mulch would be planting densely and using a groundcover. Until plants spread weeding will be necessary.

Regular Maintenance

- **Watering:** For the most part native plants will not need to be watered after the first year, however if there are 1 to 2 weeks without rain and high temperatures they should be irrigated. You should be able to tell if this is necessary if the leaves are wilting or turning brown.
- **Weeding:** Though weeds shouldn't be that much of an issue once plants spread out, you can hand weed or use a cultivator to remove them. If there is a big empty space where plants may not have grown back over the winter, then these should be replanted.
- **Cutting back to control height:** In late May to early June some perennial plants can be cut back by 50% to promote a fuller and more compact growth. These include: grasses (little blue stem, switchgrass), goldenrods, beebalm, coneflower, garden phlox, and asters. This may not be necessary depending on the variety of plant. Keep in mind that it is better to look at the characteristics of the plant before choosing it for your garden, but occasionally a plant may grow bigger than we think it will and cutting back is an option that won't harm the plant if done at the correct time.
- **Pruning:** If you choose the best trees and shrubs for your site pruning should not be a big part of maintenance. Pruning is a good way to remove dead or diseased branches or crossing branches. The following are good resources on how and when to prune.
 - <https://extension.umn.edu/planting-and-growing-guides/pruning-trees-and-shrubs#trees-and-shrubs-to-prune-after-blooming-1336761>
 - <https://extension.unh.edu/resource/basics-pruning-trees-and-shrubs-fact-sheet>
- **Cutting back dead growth of perennials:** Perennial native plants grow dormant in the fall/winter months. However, they can still provide a nice aesthetic and benefits to wildlife. Therefore, plants should not be cut back until at least April of the next year, **NOT** in the fall. It is best to wait until temperatures reach 50 degrees F for an extended period as to not disturb any overwintering insects. Benefits of leaving dormant plant growth up throughout the winter include:
 - Stems, seed heads, berries and bark can look beautiful with no foliage
 - Seeds and berries provide food for birds and small mammals during the lean winter months
 - Providing cover for overwintering insects (many butterflies and bees spend the winter under leaf litter), birds and other wildlife
 - Cutting back dead plant stems to 8-12 inches or higher allows them to be used by many solitary native bees for nesting.
- **No Pesticides:** Your native plant garden provides habitat for pollinators and other wildlife and pesticides including, insecticides, herbicides, and fungicides can harm and even kill them. Many native plants are very resistant or resilient to native pests and can take damage without killing the plant. They also attract predatory insects that may be able to take care of the problem for you, like lady beetles, lacewings, and hoverfly larvae. Weeding can be done by hand or with tools and using mulch and planting densely will also keep out weeds.
 - This article has some good tips on how to deal with pests in the garden in a safe and non-toxic way:
https://www.canr.msu.edu/news/ipm_smart_pest_management_for_the_vegetable_garden

- ***Leave the Leaves:*** Autumn leaves are very beneficial to gardens. They can act as natural mulch and as they break down, they provide nutrients to the soil. They can also provide overwintering habitat for insects like butterflies and bees.

Good luck creating your new native plant or rain garden! If you have any questions, please contact sustain@northhempsteadny.gov. Happy planting!