

Sustainability September: Native Plantings

Duke Farms is committed to creating and restoring habitats with native plants. Plants are considered native if they grow naturally in a region, ecosystem, or habitat without human introduction. They are adapted to their local soils, water regimes, weather, and climate so they need less maintenance than plants introduced from other parts of the world. Native plants in our landscapes provide numerous benefits in this time of rapid climate change including heat and drought resilience, water conservation, soil conservation, pest resistance, and ecosystem sustainability.

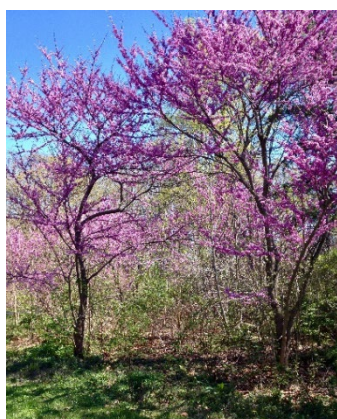
Perhaps the most critical function of native plants is maintaining diverse habitats for wildlife. Native fauna has adapted over millennia to eat very specific plants and animals within their habitats. If the right food is not available, then animals will either move for their survival or they perish. Over eons, flora and fauna can and will adapt to changing environments, but due to human impact the change is happening far too fast for them to adapt. By removing invasive species and replacing them with local native plants, sustainable habitats are restored that benefit both wildlife and people. There are a multitude of ways Duke Farms uses native plants in our landscapes including:



Blazing stars and black-eyed Susans in full bloom

Regenerating Meadows

Biodiverse meadows have many benefits including erosion control, rainwater filtering, carbon sequestration, and food and shelter for wildlife, including pollinators so crucial to agriculture. Unlike lawns, meadows are naturally sustainable over time because native grasses and herbs grow and regenerate themselves naturally. Duke Farms has converted hundreds of acres of manicured lawns into biodiverse meadows composed of native plants. The Great Meadow at the base of the Old Foundation is the most well-known example on the property, but there are many acres of restored meadows that are planted to support grassland birds throughout the western agricultural fields.



Restoring Woodlands

Woodlands sequester carbon, remove pollutants from air and water, prevent soil erosion, regulate air temperature, and supply forest products. They provide homes and food for birds, mammals, reptiles, pollinators, and other beneficial insects. For many years, Duke Farms woodlands were degraded by over-browsing by deer and invasion by non-native plant species. Today we are restoring woodlands by removing invasive species and planting native trees, shrubs, and understory vegetation. Vigilant monitoring for re-invasion by non-native invasive plant species and nuisance wildlife such as the white-tailed deer is required to maintain the health of our woodlands. Biodiverse woodlands not only provide habitat for wildlife but help to mitigate climate change.

Water Conservation

At Duke Farms we also use native plantings as natural filtering systems to efficiently improve the water quality of our lakes, streams, the Raritan River, and groundwater supplies. Vegetation planted near buildings, paved roads and gravel parking lots soaks up water runoff and returns filtered water to the aquifers underground. Planting natives along our waterways helps reduce minor flooding while providing food and habitat for wildlife. Examples include rain gardens, vegetation buffers around our lakes and the bioswales in the parking lot. Native plantings in the constructed wetlands also offer a way to naturally process wastewater from sewage and return clean water to the aquifer underground.



Pollinator Hoop House

Native Landscaping

In addition to all the critical functions that native plants provide, they are also beautiful specimens in a landscape. There are many places around the property where natives are planted to demonstrate how they can be used to enhance our yards and gardens. You can visit a showstopper native garden in the pollinator hoop house attached to the Orchid Conservatory. Here pollinator friendly native flowers bloom in profusion throughout the season. This is a lovely place to take a stroll to see butterflies, bumblebees, honeybees, moths, and other pollinators busily collecting nectar and pollen from their favorite flowers. It's also a wonderful source of inspiration for how to use native plants in a home garden.

Native Nurseries

The Native Plant Nursery and Native Tree Nursery are critical to our mission of going native. They are special places where native plants are grown from seed and nurtured until they are mature enough to be planted on the property.

In the fall, the nursery experts visit our habitats and collect native seed from plants at the end of their growing cycle. After seeds are collected, they are cleaned, then labeled for identification. Many seeds require special treatments where they go through alternating periods of warmth and cold in the greenhouse before germinating. This is called stratification. Stratified seeds are sown into flats and normally germinate in the spring as most would in nature. Seedlings are raised in the nursery until they are mature enough to be transplanted into larger trays. Eventually, plants are moved out of the greenhouses to grow outside. Plants are watered, weeded, and transplanted until they are mature enough to be used in habitat regeneration projects.



Native Nursery Coordinator, Callie Valent, transplanting seedlings

When Duke Farms opened as an environmental and sustainability center in 2012, the first habitats that we tackled for native plant restoration were the meadows. The present emphasis is on woodland restoration. The Native Plant Nursery and our Native Tree Nursery are growing trees, shrubs, and native understory plants to restore the health of our forest ecosystems. It's a massive project that takes a

village and many Duke staff members are involved in helping to save our woodlands in one way or another.

Our dedication to restoring native plants extends beyond the stone walls of Duke Farms. Right now, the Native Plant Nursery is engaged in a cooperative project with the New Jersey Conservation Foundation to save endangered plants in the Pinelands. American Chaffseed, Pine Barrens Gentian, and Pickering's Morning Glory are three species on the brink of extinction that Duke Farms is working to save. We have been collecting seed and growing these fragile plants in our greenhouses for several years. In 2019, we helped to replant them in the wild. Go Native!



Pickering's morning glory in bloom in the Pine Barrens

Native Plants and You

A fun and rewarding activity you can do at home is planting a butterfly garden. It's an activity that both adults and children can enjoy. It's great exercise, it's fascinating, and you'll be doing so much to help support butterflies and other pollinators. This project can be done in a portion of your yard or if you only have a deck or patio, then you can scale it down and make a planter with native plants that attract butterflies. You can find full instructions for how to go about creating a native butterfly garden [here](#).



Pickering's morning glory being grown in the greenhouse at Duke Farms

Questions and Answers

1. What is a native plant?

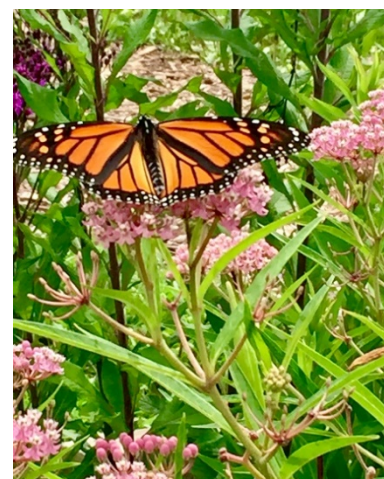
Answer: Plants that grow naturally in a region, ecosystem, or habitat without human introduction.

2. What are some benefits of native plants in a landscape?

Answer: They provide heat and drought resilience, water conservation, soil conservation, pest resistance, and ecosystem sustainability.

3. What are the benefits of meadows with native grasses and herbs?

Answer: Erosion control, rainwater filtering, carbon sequestration, and food and shelter for wildlife, including pollinators so crucial to agriculture.



4. The Native Plant Nursery is responsible for collecting seed from native plants and propagating them. What is the special treatment of native seeds called?

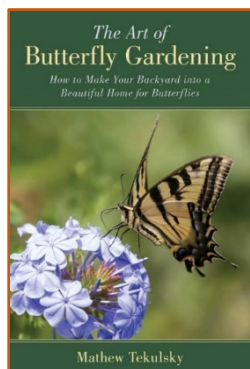
Answer: Stratification

5. What are the three endangered Pineland plants that Duke Farms is trying to save from extinction?

Answer: American Chaffseed, Pickering's Morning Glory and Pine Barrens Gentian.

Additional Resources

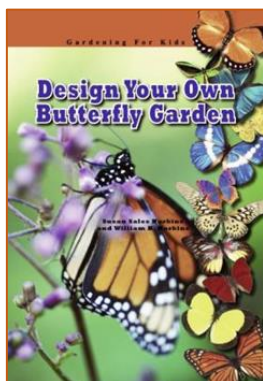
- [Creating a Butterfly Garden](#)
- [Guide to Duke Farms](#)
- [Conservation in the Pinelands; Part 1](#)
- [Conservation in the Pinelands; Part 2](#)
- [Native Plant Society of NJ](#)
- [Jersey Friendly Yards](#)
- [Where to buy Native Plants](#)



For Further Investigation

The Art of Butterfly Gardening offers chapters including: What is Butterfly Gardening; Nectar Sources; Larval Food Plants and Butterfly Gardening Activities.

"Butterfly gardens come in all shapes and sizes. They are diverse as the people who create them."



For Younger Butterfly Gardening Enthusiasts

Design Your Own Butterfly Garden (Part of the Gardening for Kids Series)

by Susan Sales Harkins and William H. Harkins

This book provides colorful photos and ideas on how to start your own butterfly garden.

Climate Change

Adults, as well as children, can be involved in efforts to combat climate change through simple green activities such as the creation of a Butterfly Garden. Those living in places where a full garden is not possible, can still contribute and enjoy the beauty by creating container gardens. With just a few native plants, you may be surprised by the amount of insect activity generated by a modest sized planter.

The **Pollinator Hoop House** at Duke Farms welcomes your visitation! It is located adjoined to the Orchid Range. The hoop house is a showplace of NJ native plants that attract and support a rich assortment of pollinators.

Learning about the native plantings at Duke Farms aligns with the newly adopted NJ Student Learning Standards. For more information about how you may use this topic in your PK-12 and beyond classrooms, contact Kate Reilly, Manager of Education, Duke Farms at kreilly@dukefarms.org.

Adopted 2020 New Jersey Student Learning Standards (NJSLS)

Climate Change

New Jersey is the first state in the country to require climate change curriculum across all content areas and at a K-12 level. As stated by the NJDOE:

On June 3, 2020, the State Board of Education adopted the 2020 NJSLS in the following content areas:



- Career Readiness, Life Literacies, and Key Skills;
- Comprehensive Health and Physical Education;
- Computer Science & Design Thinking;
- Science;
- Social Studies;
- Visual and Performing Arts;
- and World Languages.

These standards truly represent a foundation from which districts will build coherent curriculum and instruction that prepares each New Jersey student with the knowledge and skills to succeed in our rapidly changing world. They will put New Jersey again at the forefront of national education by including the following:

- Climate Change across all content areas, leveraging the passion students have shown for this critical issue and providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Photo credits: Blazing stars courtesy of Abby Schmid, Pickering's morning glory courtesy of Charles Barreca. All other photos courtesy of Mrs. Bird.