Muddy Gloves

Thielke Arboretum Trials and Tales of Stewardship

2020 – 2021 Pandemic Edition

2020 Year in Review

An exceptional year was no less exceptional for the stewardship crew. 2020 posed new challenges. We had to limit volunteer sessions to only few experienced stewards and interns. Despite the challenges, our team planted over 600 native trees and shrubs, furthering our goals to conserve and restore the Arboretum for our community and for all the native species that depend on it.

Social Distance Volunteering

Simultaneously, the Arboretum experienced a surge of visitors seeking refuge from the lock down, including an expansion of bicycle use on trails. This posed a dangerous situation for dog walkers and families on foot as well as erosion problems for the wetland. A new regulation was put in place prohibiting bicycle use on the forest trails for everyone's protection. Bike use is still allowed on the central paved and gravel paths.

2020 brought on many strong storms, heavy rains, and high winds. Unfortunately, the forces of nature took their toll on everyone's favorite weeping willow at the pond. In 2020, it significantly tilted, partially sank into the pond, and uplifted the bank that keeps the pond intact. In order to avoid disaster, the willow had to be trimmed, by a lot. The canopy was completely removed leaving short branches and the main trunk. The tree will resprout profusely and in a few years regain a canopy, but at a lower and safer height and weight, keeping the pond shore intact.

We're grateful for those who complied with social distancing guidelines and continued supporting the Arboretum through 2020. Whether visiting the Arboretum, attending a program, or even taking home a tip to make your backyard a better place for native wildlife, we hope that our community can continue to be involved in our efforts here at the Arboretum! For more updates on the Arboretum, follow us on Instagram and Facebook at @thielkearboretum.

IN THIS ISSUE

No Place for Road Salt

Every year, plowed snow is piled into the parking lot adjacent to the Arboretum's cherished stand of pitch pine (the oldest trees of the Arboretum). In recent years, stewards have witnessed intense flooding due to the snow pile's meltwater, which directly caused several pine trees to die. Stewards questioned whether the cause of mortality was only due to the unnatural and forced inundation in the pine forest or also caused by road salt in the meltwater (chloride in road salt is poisonous to plants). To test this question, intern Emily Hashem took soil samples along transects stretching from the snow pile into the forest. Then, she performed tedious experiments to determine the concentration of chloride. Several sets of samples were taken before snow and after.

Before snowfall, chloride levels were negligible. After the first major snow, chloride levels up to 700 parts per million (ppm) where found. For reference, the highest acceptable chloride level for our drinking water is 250ppm. High levels of chloride were carried into the pine forest by the meltwater. Thus, if the snow pile were not there, the forest could escape future contamination. We hope that snow piling practices next to the Arboretum are stopped to help protect the last pitch pine trees from chloride toxicity and unnatural inundation.

Snow Pile Next to the Forest of Pitch Pine (*Pinus rigida*)

2020 Field Report

PROJECTS: Tree planting, deer damage protection, trail repairs, weeding, and even a whole bunch of litter pick up.

DATES: March 2020 – March 2021

Volunteer sessions took place on Tuesdays and Saturdays with a limited, experienced crew of stewards. Even so, we few had a busy year!

Spring 2020 was a scary time. Life was very uncertain due to the pandemic, but we couldn't let our Arboretum go without stewarding. So, just a couple of us came and worked completely alone at odd times to keep up with the weeding, tending our trees, trails, and more.

April and May filled over a dozen contractor bags with invasive garlic mustard (and yes, it needs to bagged and thrown away so it doesn't spread). This nasty little herb spreads through the gardens and forest like wildfire as it literally shoots its seeds out in late spring. When it spreads it also sends out toxic chemicals in the soil, which harm the growth of native tree seedlings.

Garlic Mustard, *Alliaria petiolata*

Two formal rows of Atlantic white cedar were planted and caged to compliment the existing allee with an evergreen backdrop. In the below picture taken in Spring 2020 right after planting, each tree was about 3 ft tall. In just one year, they grew about 1.5 ft and some are even 5 ft tall now. What a success! They'll be large trees soon!

Atlantic White Cedar, *Chamaecyparis thyoides,* Allee Addition

With the large influx of folks seeking refuge from lock down, the Arboretum saw countless visitors. Unfortunately, that meant lots of litter. We experienced more trash strewn across the landscape than ever before. Our dedicated stewards would pick out litter from the pond, gardens and forest twice a week.

As summer came, our few stewards were juggling many tasks: litter clean up, weeding, trail maintenance, deer damage repair and more. One important job that never gets attention is cleaning the weir. Our trusty stewards do this on a weekly basis. It keeps the pond clear of fallen leaves and branches so folks can keep on fishing without entanglements.

Wherever an invasive plant is removed, we have an opportunity to restore habitat. Stewards do this by planting new native species to add to our collection, and ones which provide vital ecological services. While many beautiful exotic plants remain at the Arboretum without spreading or threatening other species, removal of harmful invasive plants is a necessary job our stewards do to save our local ecosystem for local wildlife and our community.

A few examples of habitat restoration are:

- The past removal of invasive white mulberry at the north side of the pond made way for two new planting areas. 1. A native pine stand including six native species of the *Pinus* genus. 2. A bald cypress grove.

- Removal of hazardous and invasive Norway maples a few years ago has made space for a native birch grove, where five of our locally native species are planted and growing strong.

Installing a Protective Tomato Cage Around a Bald Cypress Seedling

- The two dense acres of invasive pygmy bamboo in the forest understory has smothered and killed hundreds of native species over that past couple decades. It is being removed and restored with a diverse palette of native flowering herbs and woody shrubs and vines.

To find the native species needed in bulk, we often buy small, bare-root or potted seedlings. Thus, reforestations take some time to grow and establish. But they're going to be as tall as you before you know it! Plus, it's healthier for plants to be planted in their early years and small sizes. Large plant stock often suffer from risky transplant shock, which can cause disease.

In addition, we plant these restorations densely, as they grow in the forest. This is the best method for habitat restoration and reforestation; this process forces small trees to grow straighter, taller, and faster, creating healthy stands.

Trail maintenance and repair was a big job this year as many feet were walking through the Arboretum. It is an exceptional challenge in our wetter locations. But we used trusty techniques, like corduroying, to keep feet dry and out of the muck. Corduroying is the artful placement of properly cut branches to create a dry path in an otherwise wet spot.

A few piles of tree branches were placed in specific areas that are commonly mistaken for pathways. These piles keep feet out of areas that reserved for wildlife and growth of forest plants. Plus, the piles are great nesting places for little creatures seeking refuge from predators or severe weather.

Oh, Deer! Protecting our Trees from Deer Damage

Deer overpopulation in New Jersey is a serious problem— not just for our highways, but for our native trees, plants, and all the wildlife that depend on them. Incidents of deer browse and damage to plants, shrubs, and understory trees have shot up in the past year. Our stewards had to get creative with the ways in which we protect plants from deer. The good news is, much of the deer protection we implement at the Arboretum is inexpensive and great example of what you can also do in your yard!

Wire Mesh

You might see 4- or 6-foot-tall wire cages around many trees, shrubs, or areas of plantings at the Arboretum. We've had to install many new cages, add height to many cages as the plants grew, and correct deer-inflicted damage. You might see cages that are twisted into interesting shapes, folded over to protect the tops of short trees, or topped off with additional chicken wire to prevent deer from poking their heads in for a leafy green snack.

Deer Netting

Deer netting is a rite of passage for many of our stewards. Despite its cost-effective and aesthetic advantages, deer netting has proved an unwieldy material for protecting trees, so stewards have often opted to use wire caging instead. Nonetheless, we've improved our methods by using a "candy-cane" wrapping style around tree trunks to protect them from deer antler-rubbing. This is a very inexpensive tactic to protect trunks for non-palatable trees and those with branches higher than the browse line.

Why is this important?

The over population of deer is an unnatural phenomenon that we humans have caused, by removing their natural predators and not hunting enough to keep their populations in check. Now the problem is so severe that they are destroying entire ecosystems. This is called a trophic cascade, which is a fancy way of saying that without the top predator, the entire ecosystem is negatively affected.

Protecting our native plants from deer is critical. Without the protection the overabundant deer gobble up every plant and tree seedling in the forest. This makes it so there are no new tree regenerating. As big trees die, there will be none to fill their place in the future. It is a serious problem. So, humans need to intervene and save the future of our forest. We are demonstrating how at the Arboretum.

An example of our plantings which benefit from deer protection are our young Atlantic white cedar stands. Many of our common native tree saplings, such as Red Maples, fail to survive due to increased deer activity. In the past, the planted Atlantic White Cedars have been deer-resistant, so planting them to increase biodiversity and regenerate the forest has been a promising alternative in the canopy openings of the swamp (behind the municipal pool). However, deer population has surged so high they ran out of food they prefer and began eating foliage they never used to. Our Atlantic white cedars were in danger and getting browsed. Now they are 100% protected after lots of hard work. These trees are special to us and the Arboretum as they are a re-introduction of an extirpated (no longer exist locally) species in Bergen County. These are first in our county to be successfully re-introduced.

Atlantic White Cedar, ***Chamaecyparis thyoides***

Carolina Silverbell,
Halesia caroliniana,
Protected by a 6ft Cage

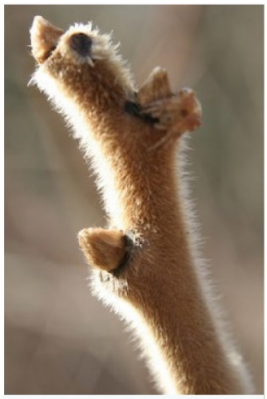
Grey Birch, ***Betula populifolia***, Saplings with Wire Mesh Deer Rub Guards

Smooth – Shining – Staghorn

No, this list is not an ode to the antlers of adult male deer, the problematic physical feature that causes so much damage to young trees. Instead, it names the sumac species installed on Gilligan Ridge in 2019 and 2020. The ridge is an artificial feature created when the existing wetland was destroyed to make the playing fields near the Glen Rock recycling center. Consisting largely of construction rubble and sand, with only a thin layer of soil on top, the area might seem like an unlikely place to plant anything. But sumacs are tough, thriving in poor soil and harsh conditions. In fact, they're often seen growing along the soft shoulder of roadways. For years the ridge—named for the late Bill Gilligan, the greatly-missed trailmaster of the Arb—has grown only invasive species which threaten our native biodiversity. The hope is that the installed sumacs, all native species, will eventually shade out the invasive Japanese knotweed that Bill and his trail crew tried so hard to control. These young trees are already playing an important role in reclaiming the ridge as part of our native ecosystem.

Smooth Sumac, *Rhus glabra*
Smooth Twig in Winter

Shining Sumac
Rhus copallinum
Shiny Leaves in Summer
(Above) & in Fall (Below)



Staghorn Sumac
Rhus typhina
Fuzzy Twig in Winter

UPCOMING EVENTS

Sat.4/17 Weed Warrior Session	9am-12pm
Th.4/22 GREEN WEEK BEGINS	
Th.4/22 Environment Issues Webinar	7:30pm
Fri.4/23 Free Tree Giveaway	3-6pm
Sat.4/24 Free Tree Giveaway	10am-12pm
Sat.4/24 Nature in All Seasons Walk	2pm
Su. 4/25 Rain Barrel Workshop	12-2pm
Tu.4/27 Best Gardening Advice	6pm
W.4/28 Tree Care 101	7pm
Th.4/49 Sustainable Food Choices	7pm
Fri.4/30 Arbor Day Tree Planting	5pm
Sat. 5/1 Weed Warrior Session	9am-12pm
Sat.5/15 Weed Warrior Session	9am-12pm

REGISTER @

www.thielkearboretum.org

Roots to Rivers: Reforestation Success

In the fall of 2019, FOTA partnered with the Glen Rock Dog Park to pursue a competitive grant under the "Roots to Rivers" program, a statewide initiative to revegetate watersheds with native species. It was funded by Sustainable Jersey, The Nature Conservancy, and the Watershed Institute. Tom Scerbo led the application effort with Jean Epiphan supplying the vision, species selection and layout for the project.

The Friends of the Thielke Arboretum (FOTA) was awarded a grant of $4,300 to design and implement native plantings at the Glen Rock Dog Park area. Leading up to the planting, the Glen Rock DPW prepared the soil. Though the pandemic delayed the planting until the fall of 2020, FOTA volunteers stepped up over the course of a long weekend to plant a total of 450 native trees and shrubs along the North fence of the Dog Park and adjacent swale. Visitors can access the Dog Park at the edge of the Arboretum in the upper ball field, where plantings can be seen leading down to the Diamond Brook. Thielke Arboretum's stewards continue to protect the plants from animal browsing with metal fencing and deer netting.

Epiphan's plan interspersed sycamore, black willow, sweetgum, black gum, swamp white oak, red cedar, river birch, grey birch, northern bayberry, red-osier dogwood, highbush cranberry, groundsel bush, and swamp rose to complement existing stands. We planted densely and with thoughtful variety in height and color to give the planting its best chance for a quick and beautiful start. Frequent patrons of the dog park as well as the volunteers who contributed to the project are eager to watch this all come alive in the spring! FOTA is committed to maintain and oversee all the plantings.

Native Tree & Shrub Reforestation Area Completed