

History of the Delaware Native Plant Society (DNPS) Reforestation Project at Woodland Beach Wildlife Area

At its inception, one of the primary aspirations of the Delaware Native Plant Society was to do its part in curbing the loss of forest in Delaware. The principal method we wanted to use to achieve this objective was through the reforestation of fallow fields that were already retained in conservation status. Over the years, many people have contributed, and many hours have been spent in the implementation of this goal. This report is a summary of our efforts up to this point.

The First Exploratory Steps

The first exploratory conversation was between Eric Zuelke (DNPS Treasurer) and Bill Jones (Kent County Delaware Regional Wildlife Manager) during a phone call on **18 Dec 2019**.

On **6 Jan 2020**, Eric Zuelke Spoke with Bill Jones again and Mr. Jones related that he had three possible sites in mind at three different wildlife areas in Kent County. One of them was undergoing an agricultural lease renewal and we decided to wait until those details were worked out to make any further decisions.

Another phone conversation on **22 Jan 2020** narrowed our choices down to two sites. One site was in the western part of Kent County in Blackiston Wildlife Area, and the other at WBWA, but finally on **28 Jan 2020**, Mr. Zuelke and Mr. Jones did a site visit to a 1.25 acre (54,560 ft²) field in Woodland Beach Wildlife Area (WBWA) near the McKay Field Office, and agreed that the site was the most suitable of the two. We then wrote up a Memorandum of Agreement to finalize the plans.

The Work That Has Been Accomplished

During the months of **January and February 2020**, Eric Zuelke applied for a \$1000.00 grant from the 2020 Delmarva Power Sustainable Communities Grant Program that was offered by Delmarva Power and administered by the Delaware Nature Society. On **31 Mar 2020**, we received word that the DNPS was awarded the grant. The money from this grant was used solely for this reforestation project at WBWA. It was used to purchase supplies, equipment, and live plants.

In the intervening time between the inception of this project and **21 Sep 2020**, Bill Jones retired on 1 Apr 2020, and Dylan Nicholson was hired to be his successor as the Kent County Regional Wildlife Manager. Eric Zuelke met with Dylan on this date and they discussed plans and details for this WBWA project. And it was soon after that a revised Memorandum of Agreement was signed by all parties.

Also through the months that followed word of our grant money award, Eric Zuelke used the money from the grant to buy bamboo stakes, regular wooden stakes for marking tree locations, seed collecting buckets, a seed collecting apron from Prairie Moon Nursery, and on **28 Sep 2020**, Eric Zuelke visited Edge Of The Woods Nursery in Orefield, PA and bought the following live potted plants to be used at this site:

Scientific Name	Common Name	Quantity
<i>Aronia arbutifolia</i>	red chokeberry	2
<i>Corylus americana</i>	American hazelnut	1
<i>Hamamelis virginiana</i>	witch-hazel	3
<i>Ilex verticillata</i>	winterberry holly	4
<i>Lindera benzoin</i>	spicebush	1
<i>Nyssa sylvatica</i>	black gum	1
<i>Rhododendron atlanticum</i>	coast azalea	1
Total		13

DNPS members also dug up, potted, and donated the following plants which were planted as well in various years through 2022.

Scientific Name	Common Name	Quantity
<i>Carpinus caroliniana</i>	ironwood	1
<i>Carya</i> spp.	various hickory species	8
<i>Cornus florida</i>	flowering dogwood	1
<i>Cretaeagus</i> spp.	hawthorn	3
<i>Juniperus virginiana</i>	Eastern red cedar	1
<i>Ilex opaca</i>	American holly	5
<i>Magnolia virginiana</i>	sweetbay magnolia	2
<i>Quercus nigra</i> (and others)	swamp oak & other oaks species	15
<i>Quercus phellos</i>	willow oak	5
<i>Viburnum</i> spp.	Northern and/or Southern arrowwood	9
Total		42



Site before planting began (23 Oct 2020)

The first day of field work was completed on **23 Oct 2020**. Only two people were present that day, Eric Zuelke, and Dylan Nicholson. The plants that were purchased on Sep 28 were brought to the site in a U-Haul van and further moved to the site in a full-sized Gator type UTV. Eric was able to install the signage this day, cut out some sweetgum and autumn olive, and plant 2 containerized plants with weed mat and protective stakes.

The second day of field work was completed on **25 Oct 2020**. Only two people were present that day, Eric Zuelke, and Rick Mickowski (DNPS Vice-President). The remaining containerized plants were planted with weed mat and protective stakes. Some additional *Quercus nigra* were planted in **Sep 2022**. We were now ready to do the direct-seeding of acorns and other nuts and seed, but an inspection of the surrounding forest revealed no mast worth collecting. It had been a hot, dry spring of this year and that impacted the trees ability to set seed. We sent out an email to the DNPS membership asking if anyone had oak and hickory trees on their property that we could collect seed from. We never got any seed, but we did get more hand dug and potted plants from two members.

On **31 Oct 2020**, the third day of field work was completed by just Eric Zuelke this day. Four donated potted plants were put into the ground along with weed mats and protective stakes, 15 acorns at 15 stakes were distributed randomly, and the eastern edge of the site was delineated with hardwood stakes and white flagging.

The project extended into November, and on **2 Nov 2020**, Eric Zuelke put four donated potted trees into the ground along with protective weed mats and stakes, and Dylan Nicholson helped out with moving plants with the Gator UTV.

Field work for the year was completed on **7 Nov 2020** when Eric Zuelke and volunteer Rick McCorkle planted the remaining containerized donated plants and placed weed mats and stakes.

We planted 55 individual plants of at least 17 species. Some of the small seedling oaks and hickories cannot be identified until they grow larger, so undoubtedly our species count will be greater than 17 as we become able to identify them more accurately in future years assuming everything survives.



After planting was completed for the 2020 season (7 Nov 2020)



Public signage (7 Nov 2020)

The first day of field work for the 2021 growing season began modestly on **6 Mar 2021**. One of our DNPS members, Laura Parks, volunteered and along with Eric Zuelke, dug up from her backyard in Dover and transplanted into the site, six first year oak seedlings.

Field work continued from **May 2021 through August 2021** when the site was visited once per month at which times we cut, and/or chemically treated sweetgum trees of various ages, and also chemically treated multiflora rose shrubs.

On **18 Oct 2021**, Eric Zuelke visited the site to seed it. The process was similar to what we had done in our other reforestation sites; seeds were collected in the surrounding mature forest and were then planted in small holes dug with a metal auger in the site. The following species and amounts were planted:

Species	Number of seeds planted
<i>Quercus alba</i> (white oak)	214
<i>Quercus coccinea</i> (scarlet oak)	49
<i>Carya tomentosa</i> (mockernut hickory)	68
<i>Juglans nigra</i> (black walnut)	22

To check on the progress and health of the site to and began field work for 2022, we visited it on **4 Apr 2022**. We found a moderate deer browse, but overall the site looked healthy. One thing that was not seen were sweetgum and multiflora rose, which proved that our efforts to chemically control them has worked very well thus far. We did not find any seedlings from the previous efforts last October at any point in 2022.

Throughout the summer of 2022, Eric Zuelke visited the site multiple times to chemically treat non-natives and invasives. The deer browse at this site is heavy and many of the plants that we put into the ground suffered losses, or at least setbacks in growth.

Some of the plants suffered setbacks because of an unfortunate incident with a four-wheeler operated by a DNREC employee who did not know the site was protected. Eric placed more signs on the edges of the site one day in August to more effectively display what the site was.

On **19 Sep 2022**, Eric Zuelke, completed the planting of 6 *Quercus nigra* (water oak) into the wetter section of the site, and all these were protected by tree tubes. These saplings had been hand dug and donated by member Marlene Mervine. Eric also began placing tree tubes around any plant he could find that could benefit from the protection. Today he placed tubes around four oak seedlings. On **23 Sep 2022**, 10 more tree tubes were put in place, and on **26 Sep 2022**, 5 more were put in place. Then on **30 Sep 2022**, 5 more were put in place for a total of 30 protected plants to date. This date was the last day of work for this season.



Last day of 2022 field season (30 Sep 2022)



Last day of 2022 field season (30 Sep 2022)

Six *Quercus alba* seedlings were planted in the field on **29 Apr 2023** to kick off the 2023 field season. The seedlings were growing from acorns collected in the nearby forest in the autumn of 2022. Each one got a colored tree tube which began an informal research project on how the color of tree tubes affects growth rate.

Also planted were four *Viburnum dentatum* that were purchased from the spring 2023 Adkins Arboretum native plant sale. These were planted to continue building up the border of viburnum that is imagined for the southeastern edge of the site. This brings the total number of *Viburnum* along this border to 13 as of this date.

We also did some non-native and invasives management and straightened up tree tubes that had gotten blown sideways over the winter over the following week.

On **15 May 2023**, two *Juglans nigra* were planted to increase the diversity of the site a little. These walnut seeds were collected from an old growth black walnut tree in Dover, DE that is growing near Holy Cross Church on State St. This tree is listed as the largest known walnut tree in the state in the “Big Trees of Delaware” book. Out of the 20 nuts that were collected from this tree in October 2022, we got 6 seedlings and these seedlings have been planted in three of our reforestation sites.

Throughout the summer of 2023, Eric Zuelke visited the site multiple times to chemically treat non-natives and invasives, and to spray newly planted trees and shrubs with Plantskydd to keep the deer browse to a minimum. It was observed that many of the plants that were protected with tree tubes in Sep of 2022 were doing very well and had quite a bit of growth.

Because of a generous donation by Octoraro Native Plant Nursery in Kirkwood, PA, we were able to add quite a bit of diversity to the site on **11 December 2023**. This donation of plants was to celebrate our 25th Anniversary year as a native plant society. The following species were planted this day by Eric Zuelke, Edna Stetzar (Div of Fish and Wildlife Fisheries Biologist and DNPS volunteer), and her daughter Samantha Stetzar:

Species	Quantity
<i>Amelanchier canadensis</i> (Eastern shadbush)	2
<i>Aronia arbutifolia</i> (syn. <i>Photinia pyrifolia</i> , red chokeberry)	3
<i>Celtis occidentalis</i> (hackberry)	3
<i>Viburnum dentatum</i> (arrowwood)	5
<i>Quercus alba</i> (white oak)	4

This also brings the total number of *Viburnum* along the border of the site to 18 as of this date. This was the last day of field work for the 2023 season.



Last day of 2023 field season (11 Dec 2023)



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A new field season began on **21 Apr 2024**, with a visit to the site to remove some tree tubes from plants that no longer needed them and to assess current needs.

On **20 Apr 2024**, Eric Zuelke installed two more *Viburnum dentatum* that were purchased from the Adkins arboretum spring native plant sale. These two shrubs were planted to replace two other previously planted individuals that had died. The site has also grown quite a few non-native and invasive species that were cut and stump treated today.

Fieldwork performed on **5 Aug 2024** marked the completion of the planting of white oak seedlings that were grown from acorns collected near the site in October 2023. A total of 13 oaks were planted during June, July and August. All of the trees were put in the exact spot where a sweetgum or multiflora rose had been growing and were dug out first. The site has also been visited multiple times during the summer to cut and stump treat multiflora rose and sweetgum. It has also been noticed that the deer browse in the site is still heavy, especially on the *Viburnum dentatum*. The deer are relentless in browsing this shrub, even with the application of the Plantskydd. They just wait for it to wear off, then continue browsing, and with this site being so remote, and with so little human presence, it has been

very difficult to control the deer damage. The deer will even push soft plastic tree tubes down like an accordion to gain access to the leaves inside the tube.

Because of the persistent deer browse on the *Viburnum dentatum*, the installation of a deer enclosure was begun on **25 Aug 2024**. The enclosure consisted of 8' tall pine 2" x 3" stakes hammered into the ground, 7.5' tall polypropylene fencing with 2" square holes from critterfence.com, and vinyl rubber coated wire to attach the fencing to the stakes.

One *Quercus alba* and a *Quercus bicolor* that were purchased at the Adkins Arboretum fall native plant sale were planted on **23 Sep 2024**. Additionally, an entire row of *Elaeagnus umbellata* (autumn olive) that was getting itself firmly entrenched was cut down with our chainsaw and each remaining stem was treated with Tordon. The row was about 12 feet long and the plants were less than four feet tall, so it was a good time to delete them from the habitat. Some *Rosa multiflora* was also cut out and treated.

The final shrub (a *Lindera benzoin*, which was purchased at the Adkins Arboretum fall plant sale) was put into the ground on **28 Oct 2024**. This was the last day of field work for 2024.

Eric Zuelke picked up over 40 oak and hickory seedlings on **6 Dec 2024** from DNPS member Robert Meadows. Bob got these seedlings from a person named Brian who just randomly and fortuitously ran into Bob at the New Castle County Extension office just before Thanksgiving this year and asked Bob if he'd be interested in taking some of these seedlings that Brian grew from seed as a hobby in his backyard. After taking them, Bob asked the DNPS if we wanted some too. These will be all planted in this reforestation site. All the nuts were collected from wild, natural trees in various spots around New Castle County, DE.



Last day of 2024 field season (28 Oct 2024)



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The **2025** season began early in January with the purchase of five American Hybrid chestnut seeds from Foraged.com who sourced them from Sherwood's Seeds (a family-owned heirloom seed company located in Fallsington, PA), who sourced the seeds from Coppertop Chestnut Grove (a family-owned seed company that specializes in growing hybrid, blight-resistant chestnut trees). These seeds are from *Castanea dentata X mollissima* trees in a purpose-planted grove located in northeast PA. They were cold-stratified from Oct 2024 when they were harvested, then again by Eric who planted them in pots in his backyard in January, but unfortunately none of them germinated.

The real field work for the season began on **8 Mar 2025**, when Eric, and two new volunteers, Gilbert and Daniel worked on cutting down large patches of multiflora rose that had gotten out of hand over the past two years. They were cut down so that they would regrow as smaller plants that could then be sprayed with herbicide more easily.

Over the following two months, Eric visited the site many times to eliminate multi-flora rose, do maintenance on the deer fence, and to get the site ready for the planting of the trees donated to us in Dec 2024. On **12 May 2025**, this planting began with the installation of five *Carya tomentosa* seedlings, and one *Prunus serotina* seedling. By the end of May, we planted an additional five *Quercus phellos*, and five *Quercus velutina* seedlings.

On **2 Jun 2025**, we had a good wildlife sighting. As Eric was doing a brief tour of the site to check on the health of the newly planted saplings, he flushed a hen turkey off a nest of eight eggs. This nest was in the interior of the reforestation site just a few feet away from the deer enclosure that was put around the arrowwood shrubs and under a medium-sized *Elaeagnus umbellata*. He observed one chick a couple weeks later, and was confident most of them survived.

The rest of the summer was spent tending to the new plants, fixing the deer enclosure as needed, and combating non-natives and invasives. The last day of field work for this season was on **12 Dec 2025**.



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