



A Landscape Architect's Field Guide

*Plants and ecosystems of
Southeast Pennsylvania, New Jersey, and beyond*

Dagny Elise Carlsson



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Through Dunes and Thickets

Island Beach State Park, Cattus Island County Park

Near Toms River, New Jersey

5th September 2024



‘Keep off Dunes’ sign found at the foot of the primary dune.
Island Beach State Park, NJ.

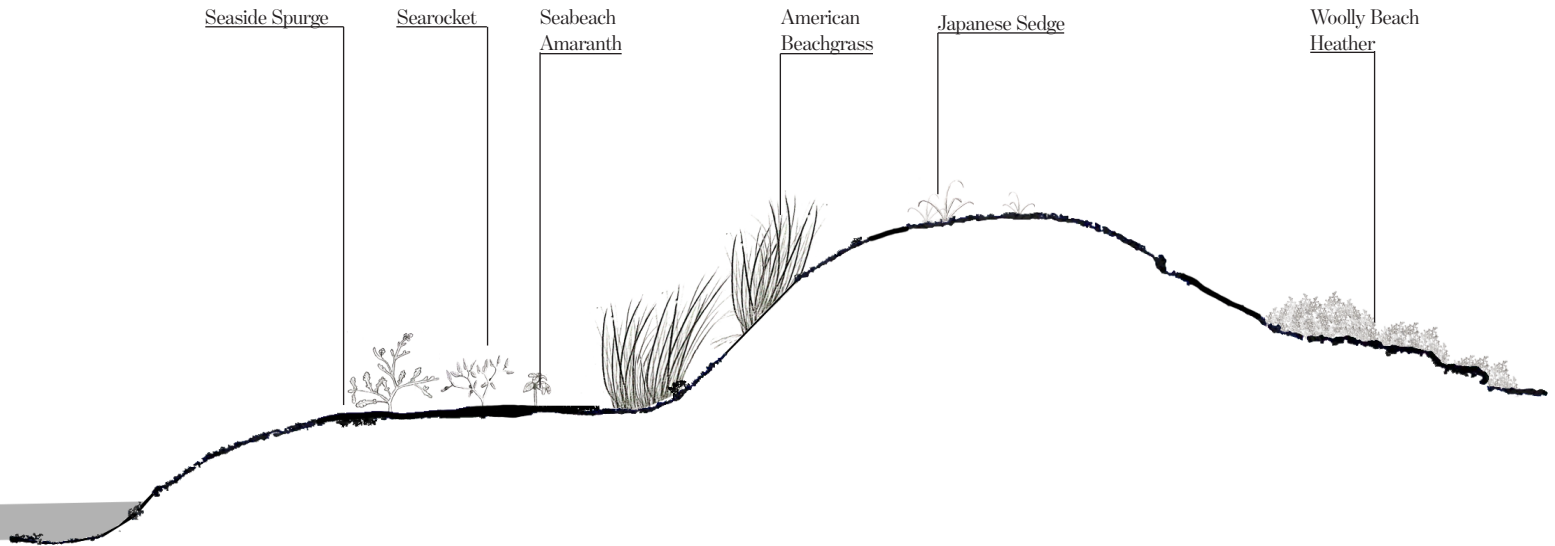
Through Dunes and Thickets, A Sandy Trip to Island Beach and Cattus Island

This excursion took us from Philadelphia to the sandy shores of New Jersey, a trip of approximately two hours and 80 miles. We visited both Island Beach State Park and Cattus Island, a county park in Toms River, NJ. These two sites, located in close proximity to each other on the Atlantic Coastal Plain that borders the ocean in this part of the United States, share many common characteristics of coastal topography and geology. They are both within the Kirkwood-Cohansey aquifer system, which is due in part to the plentiful sedimentary bedrock and permeable topsoils (consisting mainly of sandy and sand-silty loam). They were also a clear physical representation of the readings from Joanna Burger, Mark Bertness, and Collins & Anderson, which each make reference to the primary and secondary dune formations, as well as the myriad plants described in forthcoming sections. This field report will guide readers through our experience of the visit, including the species I observed and my analysis thereof.

Island Beach, Sandy Beach

Upon arrival, the LARP group made a beeline for the coast, wandering through the thicket and watching the ground change from sandy silt to silty sand and then, finally, to sand as we landed on the beach. The beach was, as described, guarded by dune formations held down by clumps of American Beachgrass (*Ammophila breviligulata*) and Japanese Sedge (*Carex morrowii*) (see figs. 1 and 2).

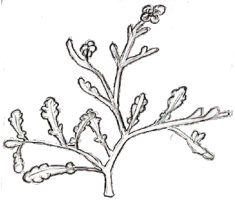
Upon landing on the beachfront, the “pioneer zone” (Bertness, p. 308) was nearly empty, with only Seaside Spurge (*Euphorbia polygonifolia*), Searocket (*Cakile maritima*), and Seabeach Amaranth (*Amaranthus pumilus*, a threatened species) making an appearance. While there were numerous clusters of Searocket and



Section Drawing, with related plant information.



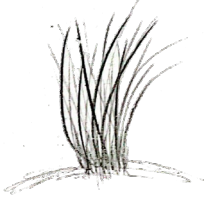
Seaside Spurge
Euphorbia polygonifolia
Native, non-invasive



Searocket
Cackile maritima
Introduced, invasive



Seabeach Amaranth
Amaranthus pumilus
Native, non-invasive



American Beachgrass
Ammophila breviligulata
Native, non-invasive



Japanese Sedge
Carex kobomugi
Introduced, invasive



Beach Heather
Hudsonia tomentosa
Native, non-invasive

Through Dunes and Thickets, A Sandy Trip to Island Beach and Cattus Island

This excursion took us from Philadelphia to the sandy shores of New Jersey, a trip of approximately two hours and 80 miles. We visited both Island Beach State Park and Cattus Island, a county park spurge, there was only one observed instance of amaranth, which was notable, as Sally said she had never seen it in this location before.

Traveling back into the dunes, the “shrub zone” (Bertness, p. 308) was indeed less windy and seemed to have the capacity to house more shrubs and vines, as observed. After the first dunes, we observed Woolly Beach Heather (*Hudsonia tomentosa*), more American Beachgrass, and Northern Bayberry (*Morella pensylvanica*), which has a naturally high salt tolerance, allowing it to survive just beyond the primary dunes. This environment was still incredibly distinct from the thicket (forthcoming) in that there was plentiful sand and large areas where there was no visible plant life. The dunes still appeared mobile, although the further from the sea they were observed, the more anchored the dunes looked. This matched with my understanding of how grasses and sedges contribute an anchoring quality, and matched with Bertness’ descriptions of sand deposition and root stabilization (Bertness, p. 305).

O, the Thicket

The thicket was a massive change from the dunescape that we observed, suddenly introducing a variety of salt-tolerant trees and shrubs. Among the wide variety observed, I saw Black Cherry (*Prunus serotina*), Supplejack (*Berchemia scandens*), and plenty of American Holly (*Ilex opaca*) and Shadbush (*Amelanchier canadensis*). The thicket reached above our heads and also contained plenty of Poison Ivy (*Toxicodendron radicans*) so we



Secondary and tertiary dunes, facing north. Plenty of visible beachgrass, sedge, and heather.

had to be extremely cautious. There were berries that had been nibbled at and eaten, among them Beach Plum (*Prunus maritima*) which I tried and, surprisingly, enjoyed.

The time we came meant that there was less in-bloom than there might have otherwise been. The salt-pruning was also clear, as none of the plants, especially the holly, appeared to reach the height I would have expected of them. I did notice that the plants that grew in this zone, while larger and woodier than the exclusively herbaceous plants observed on the dunes, were also particularly tolerant of extremes. This makes sense, as the environment was still relatively hostile compared to inland areas.

Why did the Dagny Cross the Road? To get to the Reedy Side.

On Reed’s road, there were indeed plenty of the Common Reed (*Phragmites australis*). The woodland area, observed after crossing the main thoroughfare used to access the park, led us down a path to the bay, which contained a much greater diversity of plant life than we had observed closer to the oceanfront. Amongst the reeds, there were Goldenrod (*Solidago*), more poison ivy, Shining



Cedar sketches, Cattus Island
1. Blind drawing
2. Quick sketch of same tree



Common Reed
Phragmites australis
Grass
Native, non -invasive
Wetland Indicator Category: FACW
Observed growing with dead cedar; sourgum, and dead sourgum.

The common reed at Cattus Island was found in abundance within the freshwater swamp. Saltwater intrusion from Hurricane Sandy (2012) killed off much of the nearby cedar and sourgum, but the reed survived due to its tolerance of brackish water.

sumac (*Rhus copallinum*), Arrowwood (*Viburnum dentatum*), Sourgum (*Nyssa sylvatica*) and Ashe Juniper (*Juniperus ashei*). These plants were noticeably taller, and the grasses underfoot increased in density. Suddenly there were plenty of vines and shrubs, and poison ivy on vines long enough to block the path.

The path led directly to the bayshore, where we observed a continuation of many of the same species right to the shoreline. Clearly, the bay side and the coast side of island beach were not the same, despite being located “next to the water.”

After our visit to the bayshore, we drove further into the park to observe a part of the beach that had car tracks, and as expected the spurges, rocket, and amaranth that we had observed relatively close to the waterline were moved further back, and the beachgrass that would normally anchor the dunes was located further inland. The dune protection measures appeared to be working, but it is clear that the car traffic on the beach was having an effect (limiting) the amount of plant growth and the related dune development.

Cattus Island, not an Island

Cattus Island County Park was the destination after our final stop at Island Beach, and although it was located in relatively close proximity, the park was a different experience. The park includes freshwater swamps, which I think look and feel similar to the salt marshes I’m familiar with in the California Bay Area: low, flat, dominated by reeds and trees (again, plenty of the common reed) that can withstand the salt intrusion (and littered with the husks of ones that couldn’t). Indeed, there were many trees that couldn’t withstand what appeared to be rampant saltwater incursion, and we observed a so-called “ghost forest” here, filled with cedar (*Thuja occidentalis*) and sourgum (*Nyssa sylvatica*). We did a sketching activity to blind contour and then render something in the area, and then circled the marsh. I sketched some of the dead cedar.



View of saltwater marshes at Cattus Island, with plenty of common reed and cedar on the horizon.

Conclusion: Protect the Dunes

Before our visit, and yes, even after our visit to Sandy Hook, I had little appreciation for the delicate ecosystems that thrive along the seashore. I had no idea that dunes were important to developing and shielding entire areas from the harsh, unforgiving nature of the sea and salt spray that is rampant along the waterline. But each of these environments relies on the balance, on our protection of the dunes and our understanding that the plants that rely on the dunes are each a fundamental stepping stone in building up the entire area. The first species, the beachgrasses and the sedges, anchor dunes that, when breached, allow saltwater to intrude into wetlands and kill off salt-sensitive species. When these places die off, there are widespread ramifications... which I would say I have yet little grasp of.

I am excited to continue this journey inland and continue on to next week’s exploration of a riverine environment, and I expect to see common themes there.



Shining Sumac
Rhus copallinum
 Deciduous tree
 Native, non -invasive
 Wetland Indicator Category: FACU
 Observed growing with greenbriar, poison ivy, black cherry, various grasses and shrubs in the bay area.



Sneezeweed
Helenium autumnale
 Flowering shrub
 Native, non -invasive
 Wetland Indicator Category: FACW
 Observed growing with common reed.



A close up of the rarely-spotted Seabeach Amaranth (*Amaranthus pumilus*). I admired its shiny luster and texture, although I made sure not to touch.



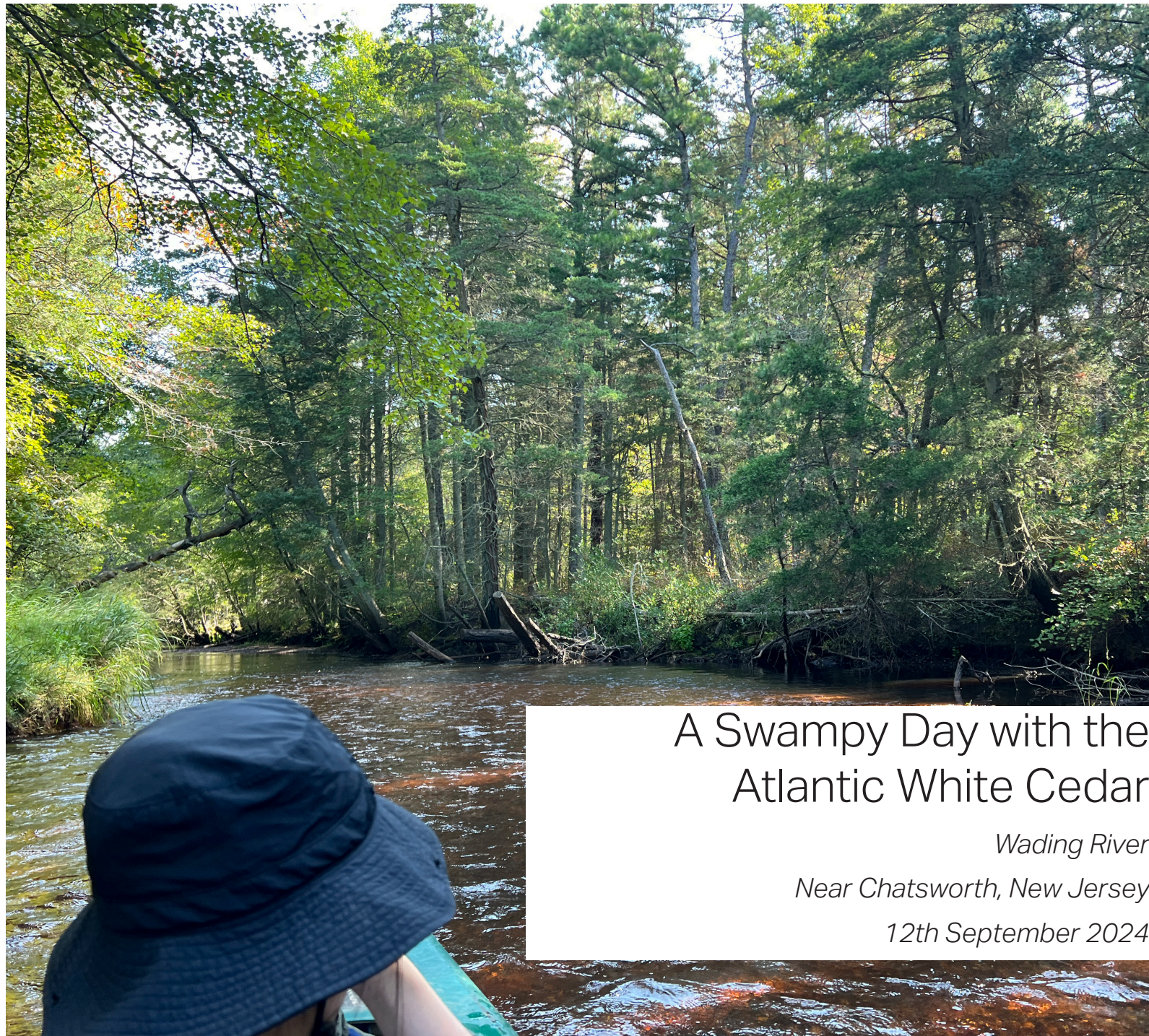
Among the reeds.



Sign spotted in the thicket.



Woolly beach heather on the dunes!



A Swampy Day with the Atlantic White Cedar

*Wading River
Near Chatsworth, New Jersey
12th September 2024*



Some lovely pickerelweed, *Pondetaria cordata*.

Swampy Day with the Atlantic White Cedar A Kayak Trip Through the Pine Barrens

This excursion took us from Philadelphia to the pine barrens of New Jersey, just over an hour away. We began in Chatsworth, NJ and kayaked for about three hours down the river, with a stop at a sandy beach for lunch and plant spotting. Although this trip was a less conventional visit, it still yielded quite a few interesting plants and was a deep look into the ecology of the Pine Barrens.

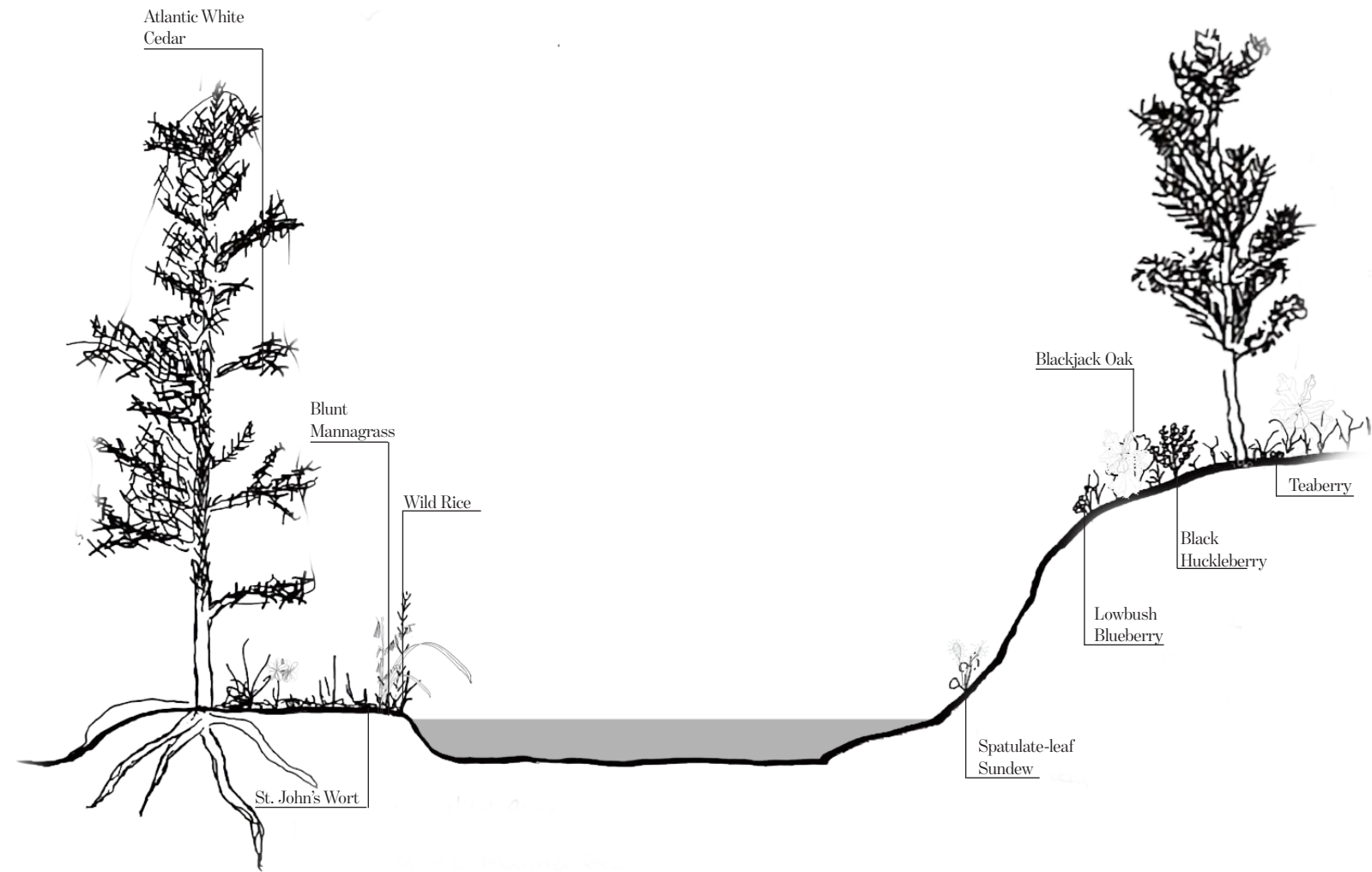
Just like last week, this look at coastal New Jersey is deeply tied to the Kirkwood-Cohansey aquifer system and the soil and drainage systems that are connected to it.

The Wading River

Our kayak trip down the Wading River began with a boat push-off and plenty of caution about not dropping things into the dark water. Indeed, the water was very dark, and at parts where the bottom was more than a foot down, it became very difficult to see. The water was tinged with brown-reddish cloud, and the light coming through it made the rocks at the bottom appear golden and orange. It was oddly beautiful.

Because there had not been much rain, the river was incredibly shallow, often not more than a foot deep. At some points, we had only inches of clearance beneath our kayaks, and there were four times we got stuck on the rocks and had to dislodge ourselves using our oars or by getting out of the boat and dragging it off the rocks.

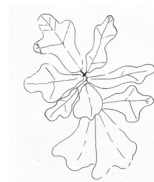
There was ample tree cover over most of the river, with canopy giving way to sky only in bends in the river. There were plenty of fallen trees and other obstacles which we had to dodge, as well as obvious signs of human intervention, including pier/damming



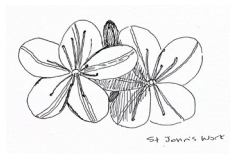
Atlantic White Cedar
Chamaecyparis thyoides
Native, non-invasive



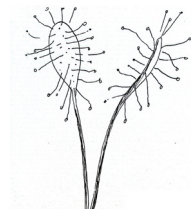
Black Huckleberry
Gaylussacia baccata
Native, non-invasive



Blackjack Oak
Quercus marilandica
Native, non-invasive



St. John's Wort
Hypericum perforatum
Native, non-invasive



Spatulate-leaved
Sundew
Drosera intermedia
Native, non-invasive



Wild Rice
Zizania palustris
Native, non-invasive

mechanisms that blocked off the river. If the water level had been higher, we might not have noticed them at all.

Uplands and Lowlands

After boating for about an hour, we came upon a sandy beach where we took a break. This beach is useful as a clear divide between the uplands and lowlands, two areas visible in the Pine Barrens (Boyd, 51). The uplands are sandier and house ecosystems filled with Pitch Pine (*Pinus rigida*), Lowbush blueberry (*Vaccinium angustifolium*), Blackjack oak (*Quercus marilandica*), dangleberry (*Gaylussacia frondosa*), Black huckleberry (*Gaylussacia baccata*), Pennsylvania Sedge (*Carex pensylvanica*) and Teaberry (*Gaultheria procumbens*). (I was able to try the teaberry, and I liked it.) Right on the water's edge, we spotted a single young instance of Spatulate-leaved sundew (*Drosera intermedia*), a carnivorous plant.

By contrasts, the lowlands were comprised of mainly Atlantic White Cedar (*Chamaecyparis thyoides*), Wild rice (*Zizania palustris*), Atlantic manna grass (*Glyceria obtusal*), and some St. John's wort (*Hypericum perforatum*). I was unable to venture too far into the grasses in the lowlands, home to plenty of ticks. From the river, I was able to observe that the grasses in the lowlands are far more dense than the shrubs and lichens that grow in the uplands. In the uplands, I was able to comfortably walk between plants and linger in the bushes.

As Boyd states in *The Ecological Pine Barrens of New Jersey*, the ecological differences in these two systems can be traced back to the varying height of the water table; this was obvious at this particular site as the uplands were at least six feet above the river whereas the lowland plants were growing right next to the water. The uplands vegetation was also more drought tolerant and was growing freely in the sandy soil.

At this site, I was able to source some bog iron, which is the reason for the color of the water. Crushing the iron and rubbing some of

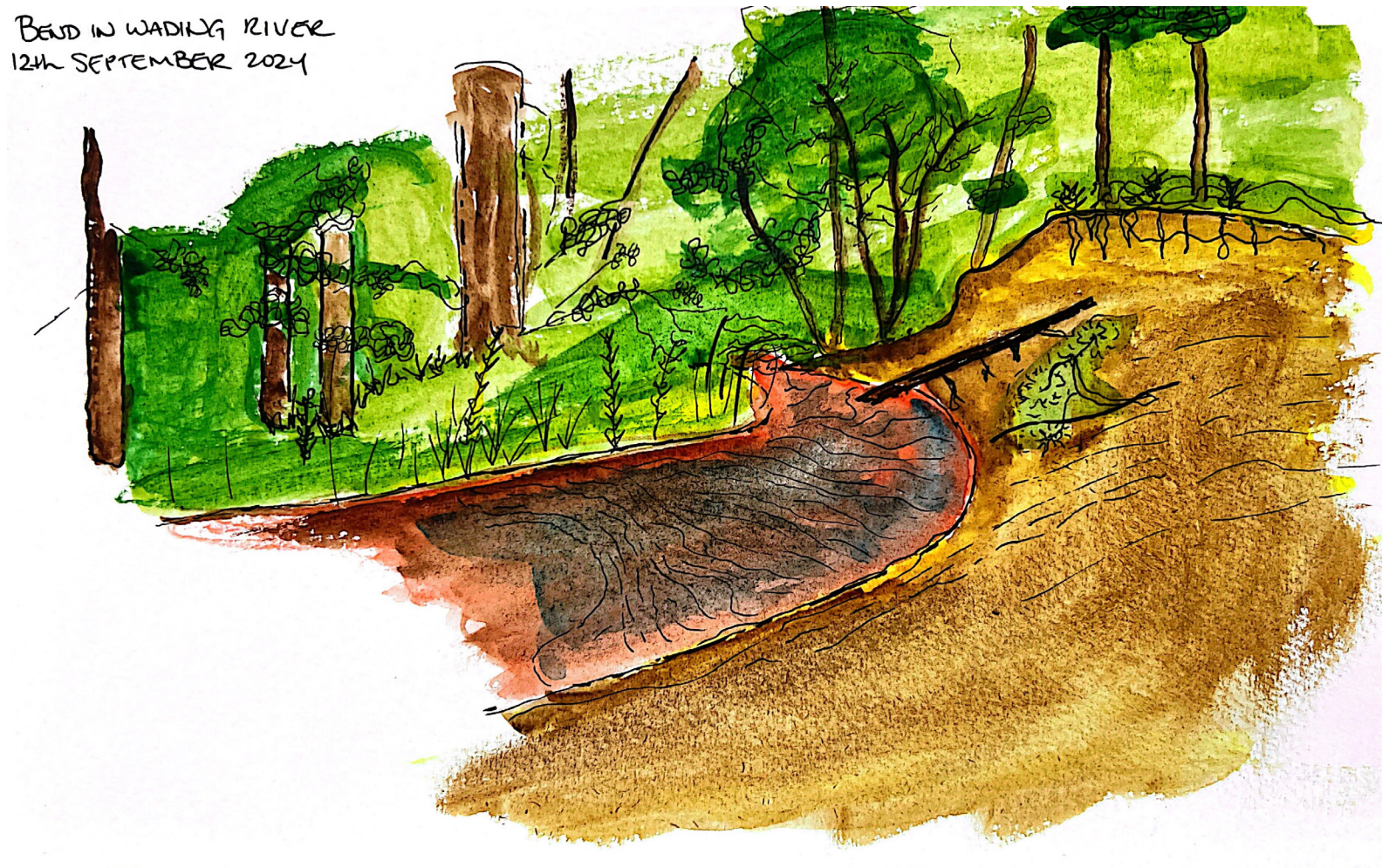


The uplands-lowlands divide, seen by the river:

it onto watercolor paper yielded a faint orange smudge; greater amounts and more thorough crushing would potentially provide a strong orange hue. The presence of bog iron alone is enough to suggest that former development in the area might have been related to the processing and purifying of the available bog iron. This also connects to the history of industrialization and pollution in New Jersey, the state with the most EPA superfund sites, of which a shocking number are located near to the Wading River. Nearly thirty superfund sites are located in this region of the Pine Barrens. Although this is speculation, it could explain the amount of human interference in the area.

After lunch, we continued for another hour downriver, progressing through more lowland swamp, which at times became quite dark and scary. There were more felled trees, more obstacles, and two more times getting stuck on the riverbed. Towards the end of our journey, the water deepened, and the river became tidal. I was unable to distinguish the point at which this occurred; the change seemed gradual and natural. But by the end, it was clear that the water had widened and given way to more flood-tolerant plants

BEWD IN WADING RIVER
12th SEPTEMBER 2024



Watercolor of Sketch Section

Including the uplands and lowlands with visible Pitch Pine (*Pinus rigida*), Black huckleberry (*Gaylussacia baccata*), Pennsylvania Sedge (*Carex pensylvanica*), Atlantic White Cedar (*Chamaecyparis thyoides*), Wild rice (*Zizania palustris*), Atlantic manna grass (*Glyceria obtusa*), and some St. John's wort (*Hypericum perforatum*). The river is red from the bog iron.

and that it was now of a tidal nature.

Blueberry Ice Cream

After returning our kayaks, we embarked upon a futile quest for blueberry ice cream, eventually settling on a local place. With my milkshake in hand, we discovered yet another path behind the ice cream restaurant. This path housed more blackjack oak and highbush blueberry. On the trip, I was most shocked by the predominance of blueberry and the cranberry bogs, which I did not see but was told about. I had no idea that New Jersey produced, both agriculturally and naturally, such a large number of blueberries. The fact that they were just growing in the woods behind an ice cream joint was a surprise to me.

Conclusion: I Like the Pine Barrens

The pine barrens have always seemed a little scary to me, especially when driving through them at nighttime. However, my trip down the Wading River showed what a vast diversity of life lives within them, both in the uplands and the lowlands. I was especially fascinated that a range of carnivorous plants have their homes there, and that plants like blueberries and cranberries can be found naturally growing in these environments. It was remarkable to me that across a riverbed, there can be a completely different ecosystem that is drier or wetter than the other side.

Bibliography

In The Ecological Pine Barrens of New Jersey: An Ecosystem Threatened by Fragmentation by Howard P. Boyd, 2008, Plexus Publishing, Inc., Medford, NJ Ch. 1: Abiotic Factors Basic to Pine Barrens Ecology (pages 11-47)



River obstacles.



Lowbush Blueberry
Vaccinium angustifolium
 Low shrub
 Native, non -invasive
 Wetland Indicator Category: FACU
 Observed growing with Blackjack Oak, teaberry, dangleberry, and pitch pine.



Blackjack Oak
Quercus marilandica
 Small to medium-sized Oak with bristle lobes
 Native, non -invasive
 Wetland Indicator Category: NI
 Observed growing in uplands habitat with lowbush blueberry, dangleberry, and teaberry.



Wild Rice
Zizania palustris
 Tall grass with rice grains
 Native, non -invasive
 Wetland Indicator Category: OBL
 Observed growing in lowlands, near swamp. Grows with St. John's Wort, Blunt Mannagrass.



The beach where we sat.



Beautiful British Columbia Have you ever seen a Douglas Fir?

*Vancouver
British Columbia, Canada
27th September 2024*



The Coast Mountains in the distance, looking north from downtown Vancouver.

Beautiful British Columbia A Surprise Visit to Stanley Park, Vancouver

Introduction

This report covers a solo trip to Stanley Park, Vancouver, BC. Stanley park is one of the largest urban parks in North America and is slightly larger than Central Park. It is a coastal temperate rainforest, surrounded by developed areas and a seawall. It is roughly bifurcated by a road that leads to the Lionsgate bridge and from there to North Vancouver.

The interior of the park, many monument trees, and remnants of logging, British Columbia's main industry. A popular tourist attraction is the totem poles on the east end of the park, located near a historic lighthouse.

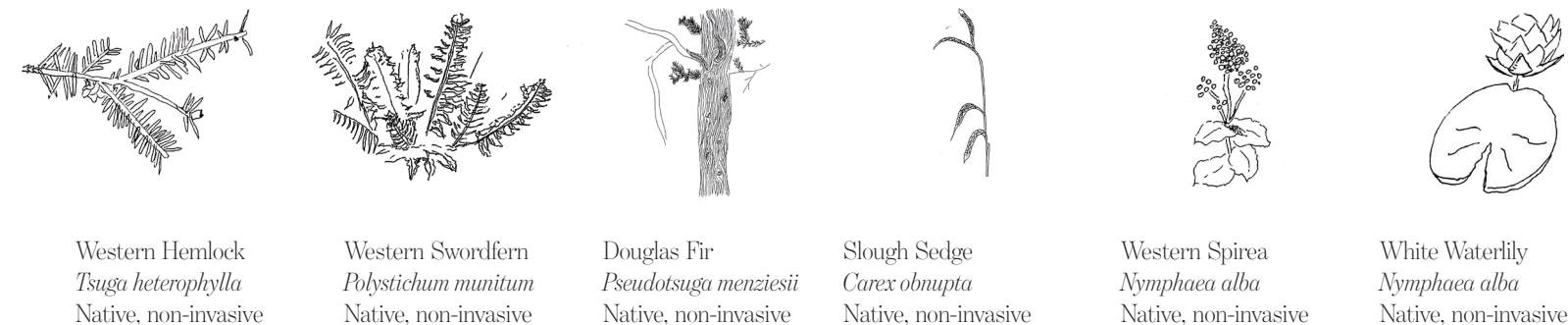
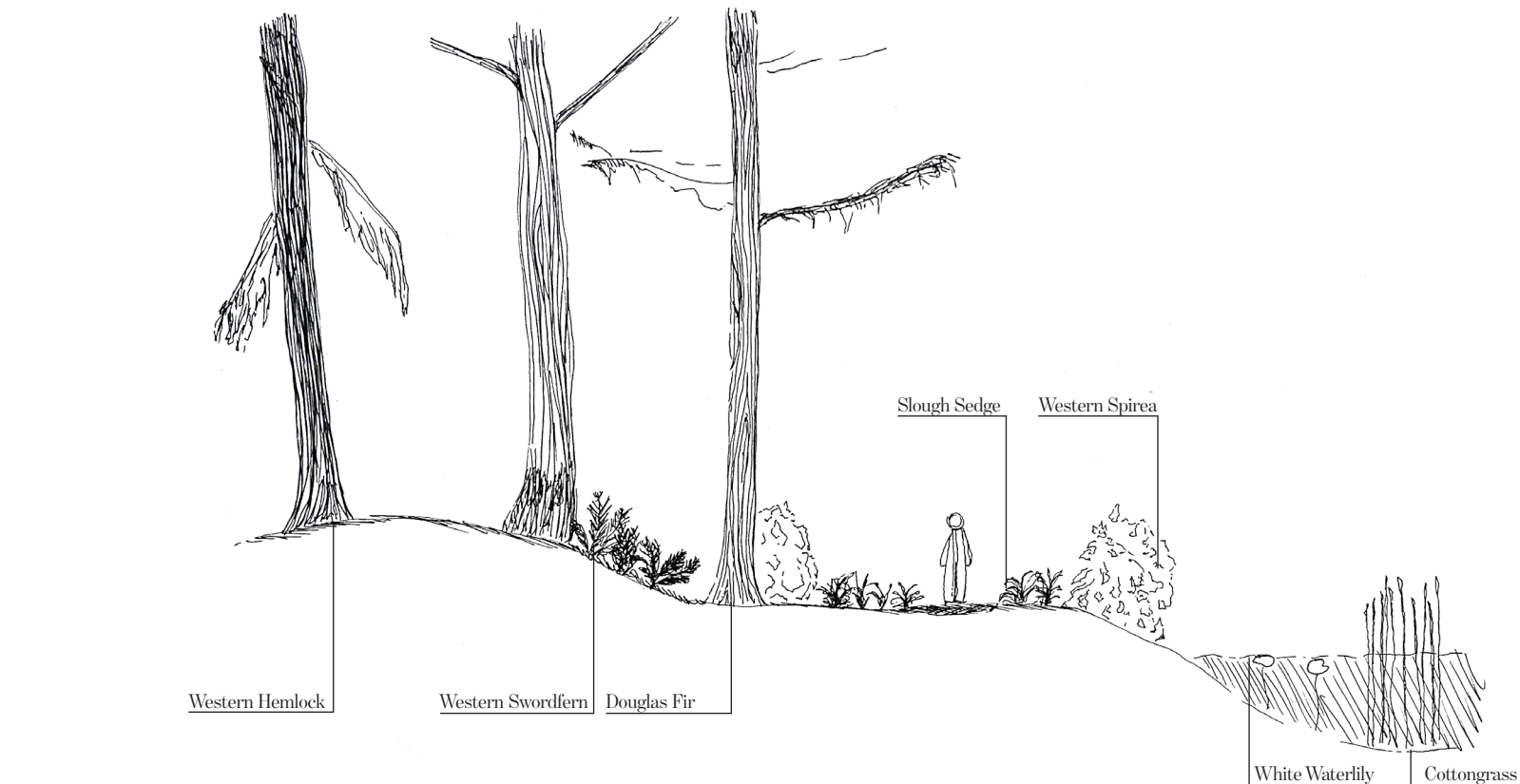
Geologically, the area is notable and stunning. The Coast Mountains to the north are made of igneous rocks, made from dormant volcanoes not unlike those along the Washington, Oregon, and California ranges in the south. Through glacial activity, large chunks of ice gradually cut valleys into the mountains, which has helped to form the present day varied topography of this region of British Columbia.

Plate Tectonic Theory is also relevant in this region due to the subduction of the Juan de Fuca plate, not unrelated to the Strait of Juan de Fuca just south of Vancouver. The subduction is simultaneously related to the volcanic activity in the region as well as the increased earthquake risk in the pacific northwest.

Stanley Park, as a coastal region, consists of primarily sedimentary rocks such as sandstone, mudstone, and other accumulated conglomerates. And, according to the BC interactive geology map, coal.

A Sunny Day (Finally!)

My walk took me from the Vancouver Convention Centre all the way along the seawall and west into the park. I ventured inland and made a loop around Beaver Lake so as to document both the



seawall and the inland portion of the park, which was more densely wooded and far less developed. As a result, my documentation includes both planted trees, which were added to the more public and managed section of the park, as well as the native trees of the region. It is important to keep in mind that as a well loved and often used urban park, so most of this area has been disturbed. This is compounded with a fact that this entire area was heavily logged in the late 19th century. In essence, everything has been touched. The walk along the seawall was littered with silver maple (*Acer saccharinum*) street trees, which eventually turned into the much larger western red cedar (*Thuja plicata*) as I grew closer to the park proper. Upon park entry, the seawall path development meant that there was a pretty limited shrub layer amongst the taller trees, but I still observed instances of English ivy (*Hedera helix*) and various ferns, including western swordfern (*Polystichum munitum*). Along the pathways there were ample instances of big leaf maple (*Acer macrophyllum*) and the planted tree European beech (*Fagus sylvatica*). There was also red huckleberry (*Vaccinium parvifolium*) which is native to coastal forests on the west coast, and it had me fooled for a moment that it was highbush blueberry—they are related, and look very similar!

As I marched to the interior, the tree height grew rapidly—it was instantly clear which trees had been planted for the park and which native trees had been targeted for logging over a century ago. The Western Hemlock (*Tsuga heterophylla*) and the Douglas fir (*Pseudotsuga menziesii*) were shockingly tall, even for myself—and I used to live amongst the redwoods in California. The amount of shade was noticeable, and the temperature dropped more than a few degrees when I was in the dense woodland. A layer of good-smelling duff covered the entire ground.

Along the path to the lake, there were plenty more swordferns, and felled trees had ample broom forkmoss (*Dicranum scoparium*). Where the swordfern didn't dominate (and it dominated often) there were spots with western skunk cabbage (*Lysichiton*



Beautiful bark of the Douglas Fir:

americanus), snowberry (*Gaultheria shallon*) and red elderberry (*Sambucus racemosa*). I spotted an instance of Oregon crabapple (*Malus fusca*) thanks to its bright leaf color.

The lake path populated by ferns and firs soon gave way to a vast open area, dominated by cotton grass (*Eriophorum virginicum*) or something like it. It was only after walking a bit did I realize that there was indeed water in the lake bed, and between bunches of grasses were white water lilies (*Nymphaea odorata*). The park path was surrounded by a sedge, identified as slough sedge (*Carex obnupta*) that was housing a wooly caterpillar. Just in the other side of the path, the upland section, was home to yet more hemlock, fir, and fern. The contrast was stark. The final part of my walk was a return to the seawall. I observed that the less commonly traveled parts and paths of the park were dominated by ferns. I also knew from research that many of the fallen trees were left there from logging.

Conclusion

I think the seawall portion is amazing and helps this to be one of



3 minute charcoal sketch of the lake bed and the surrounding forest, filled with Douglas fir.

the best urban parks on the continent. I particularly enjoyed how empty the park's interior was for my hike; the trails were well-kept and not crowded, but still maintained a sort of exciting character that made this urban park feel secluded and remote.

I also loved seeing all of these western plants that I would never encounter in the Pennsylvania/New Jersey area that we have been looking at. I was pleased how much my plant identification skills helped me get my bearings on what a plant could be, even if I wasn't entirely sure what something was, I had a better starting point to attempt to guess.

Interestingly, it was really obvious which species were introduced and which were native. After visiting, my opinion is that the planting of unremarkable non-native species takes away from the park's natural character and charm. The lawn spaces came across as distinctly unnatural and underutilized, although there is an argument to be made that the fact that all contemporary development and the majority of human activity is restricted to the most disturbed portions of the park makes it less objectionable to have non-native species planted so frequently. Again, nothing is "virgin" wild in this park... but I believe there are consequences for that.

The Stanley Park ecology society has resources I used while doing some background research on the park, and their work is evidence that much contemporary work at the park includes conservation and the protection of the varied habitats that exist in the park. The ecology society is particularly concerned about what I noticed on my hike, the fact that there are ample introduced and invasive species in the park. Concern has been heightened after the region dealt with the risk of the Mountain Pine Beetle, which has destroyed nearly half of BC's pines (and was potentially the worst forest insect blight since colonization). At the height of destruction about 15 years ago, the Pine Beetle blight had affected about 40 million acres of forest. As a result it makes sense that conserving the park is a top issue in this region.



Me, at the totem poles.

Bibliography

Armstrong, John E. "Vancouver-Rocks." CGEN Archive, www.cgenarchive.org/vancouver-rocks.html. Accessed 27 Sept. 2024.

Natural Resources Canada. "Mountain Pine Beetle." Natural Resources Canada, / Gouvernement du Canada, 27 May 2024, natural-resources.canada.ca/our-natural-resources/forests/insects-disturbances/top-forest-insects-and-diseases-canada/mountain-pine-beetle/13381.

Stanley Park Ecology Society. "Stanley Park Life List." Stanley Park Ecology Society (SPES), 29 July 2021, stanleyparkecology.ca/ecology/life-list/.

Stanley Park Ecology Society. "Native Plants of Stanley Park - Stanley Park Ecology Society." Yumpu.Com, www.yumpu.com/it/document/read/11387920/native-plants-of-stanley-park-stanley-park-ecology-society#google_vignette. Accessed 27 Sept. 2024.

Vancouver, City of. "Trees of Stanley Park." City of Vancouver, vancouver.ca/parks-recreation-culture/trees.aspx. Accessed 27 Sept. 2024.



Red Huckleberry
Vaccinium parvifolium
 Low shrub with red berries, member of the heath family
 Native, non -invasive
 Wetland Indicator Category: FACU
 Observed growing with skunk cabbage and western hemlock.



Oregon Crabapple
Malus fusca
 Deciduous tree with apple fruits
 Native, non -invasive
 Wetland Indicator Category: FACW
 Observed growing near swordferns and Douglas fir.



Northern Giant Horsetail
Equisetum braunii
 Shrub with long stems and fertile offshoots
 Native, non -invasive
 Wetland Indicator Category: FACW
 Observed growing near lake, surrounded by damp areas.



Swordfern growing everywhere.





Swampy close up



The understory was so dense!



The Western Hemlock!



Brief visit to the totem poles.



Hello, Houston Meadow and A Wonderful Wooded Wander

Philadelphia

Pennsylvania

10th October 2024



The Common mullein stands tall.

Hello, Houston Meadow And A Wonderful Wooded Wander

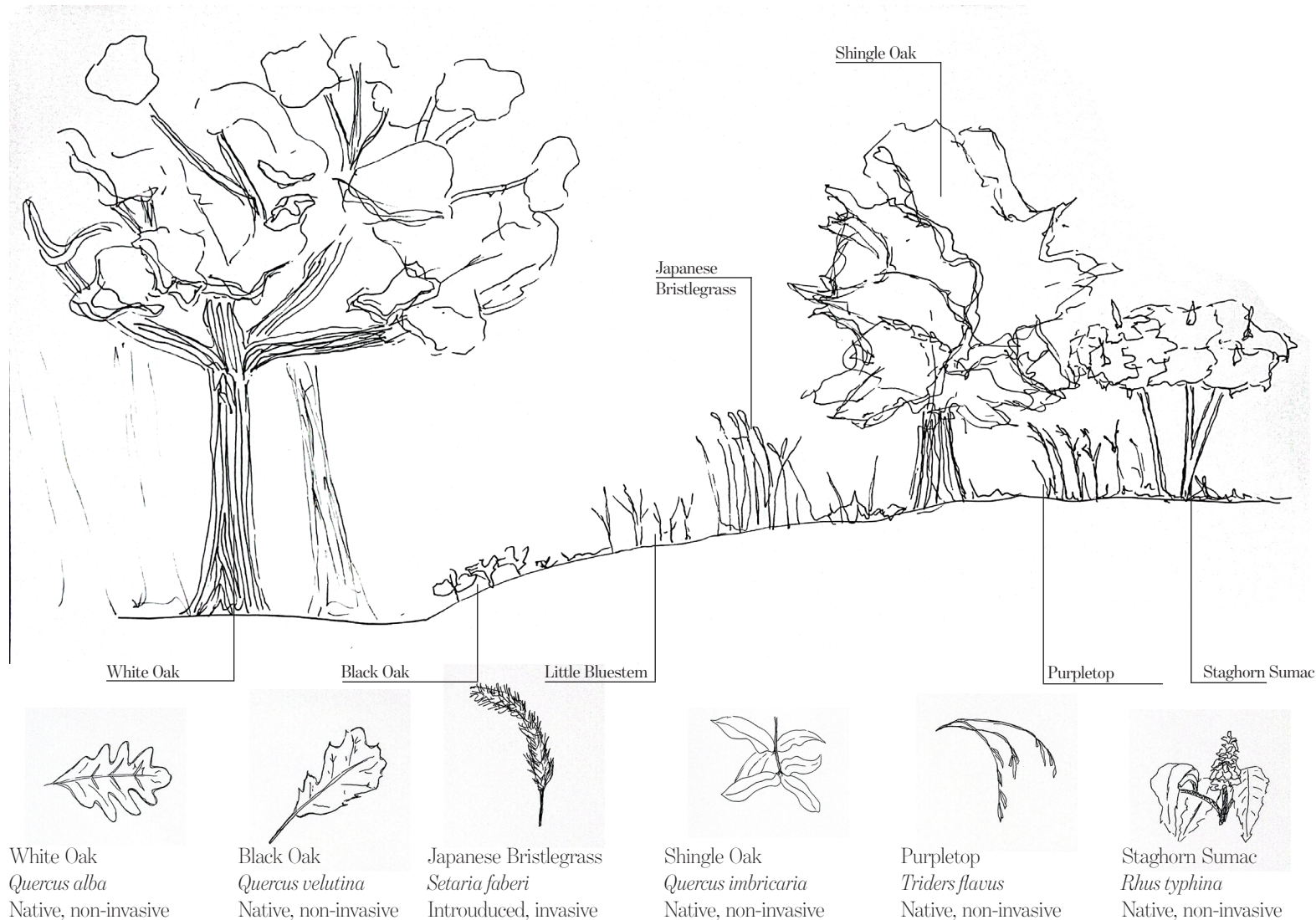
Introduction

This report covers our trip to Houston Meadow, a 48-acre space that was created by Philadelphia Parks & Recreation's Meadow Creation Initiative (2001-2013). Our walk began at the recreation fields and followed the trail down into the meadow, following the Yellow Trail that approaches Wissahickon Creek. The trail meanders through meadow and into wooded areas, then back into meadow as it approaches the recreation center.

The meadow site was selected for improvement for several reasons, among them being that the habitat is important for breeding birds (Broad-winged Hawk (*Buteo platypterus*), American Woodcock (*Philohela minor*), and the Yellow-breasted Chat (*Icteria virens*) to name a few) and that meadowland is underrepresented in parks throughout this region. As a result Houston Meadow was reclaimed in an effort to preserve habitat for birds and prevent the entire site from reverting to a second-growth forest.

The Marvelous Meadow

The meadow was home to a range of grasses and low shrubs, including, most prominently, Deerberry (*Vaccinium stamineum*), Morrow's honeysuckle (*Lonicera morrowii*), Rough-leaved goldenrod (*Solidago rugosa*), Little bluestem (*Schizachyrium scoparium* = *Andropogon scoparius*), and Broomsedge (*Andropogon virginicus*). There was also an abundance of Indian grass (*Sorghastrum nutans*). Of special concern was the Chinese silver grass (*Miscanthus sinensis*) which is introduced and invasive. We spotted some near the trail and discussed how this particular plant is troublesome and spreads easily, pushing other plants out. I am curious how the custodians of this meadow are mitigating the presence of introduced and invasive plants that can threaten this delicate and important ecosystem.



Also along the pathway were several trees, most notably the shiny Shingle oak (*Quercus imbricaria*) with its glossy leaves. The shingle oak was spotted near Grey birch (*Betula populifolia*), Black cherry (*Prunus serotina*), and Staghorn sumac (*Rhus typhina*) which I had never seen this mature or big before. All of the trees were native except for the crabapple species (*Malus sp.*) which were introduced.

Although we spotted a whole range of grasses including Orchard grass (*Dactylis glomerata*), Purpletop (*Tridens flavus*), Deertongue grass (*Dichanthelium clandestinum*), and Japanese Bristlegrass (*Setaria faberi*), I had trouble distinguishing between them and noticing different groups. Prior to this visit, I had no idea the range of grasses that one could spot (especially considering the Japanese stiltgrass and Orchard grass are introduced!) and so I have gained a greater familiarity of what I might expect when visiting a meadow ecosystem. I am curious as to how this meadow would look if we were visiting in the spring or summer, especially with these being better times for birdwatching. Despite not seeing any notable birds (or perhaps not being able to recognize any of the ones I would have seen) there was evidence of Fairmount Park's plan to build more infrastructure and restore bird habitats in the form of birdfeeders and houses seen along the trail.

The Wonderful Woods

As the day warmed, we entered the woods that bordered the meadow and were immediately confronted with a range of impressive Tulip Poplars (*Liriodendron tulipifera*) and color-changing leaves of the Pin Oak (*Quercus palustris*) and Sourgum (*Nyssa sylvatica*) which was a lovely red color. Overall, there were oaks galore, with plenty of White oak (*Quercus alba*), Chestnut oak (*Quercus montana*) and Red oak (*Quercus rubra*) to be spotted. The ground was littered with leaves, some of which were impressively large compared to the size of ones you may find on a typical Philadelphia sidewalk.

We were able to find several groups of clustered maples and compare the broad leaf of a Norway maple (*Acer platanoides*) to



The Japanese bristlegrass (*Setaria faberi*).

the more modestly-sized leaf of a Sugar maple (*Acer saccharum*) to spot the differences. The selected Norway Maple did indeed have a very obvious milky sap when the leaf was plucked, making it even easier to tell.

All along the path we were able to see ample Christmas Fern (*Polystichum acrostichoides*) which I have historically had a bit of trouble identifying. When comparing it to the last field report, in which I wrote a lot about the Western Swordfern (*Polystichum munitum*) it seems like Christmas ferns are much smaller and seemed much "drier," which makes sense when examining the rainfall these two areas receive. During our walk, we also discussed how rainfall this season has been unusually low, which may also be contributing to the shriveled appearance of some plants which may be struggling.

While I would consider myself familiar with the oaks, hemlocks, beeches and maples we saw along the path, one tree I had not yet been acquainted with was the Amur corktree (*Phellodendron amurense*) which is an introduced tree with medicinal properties. I conducted a bit of research afterward, because I was interested in this tree, and I found that the tree is native to Northern China,



30 minute sketch of trees bordering the meadow. Black Birch (*Betula lenta*).

Korea, and Japan, and the “Amur” comes from the fact that this tree usually grows in the moist soils along the Amur (Heilong) River that runs through this region. Apparently, it is useful in combatting abdominal pain, diarrhea, gastroenteritis and urinary tract infections, and it could potentially help to fight lung cancer.

Although it was October, I did not see the flowering Witch Hazel (*Hamamelis virginiana*) so I may return to the site in the next few weeks to see if I can see it for myself.

Conclusion

Houston Meadow proved to be a particularly valuable site visit for me at this point in my plant-identification journey specifically because, as the reclamation plan said, meadow is underrepresented ecologically in the urban parks in the mid-Atlantic region. I have also spent limited time in meadows and have little to no appreciation of how important places like this can be for bird populations. Apparently meadows are good at fostering healthy populations of soil-inhabiting organisms and small mammals, both of which are important foundations for the local food web.

I also found it interesting that the reclamation plan detailed the meadow as a “zone of greater aesthetic interest” between the managed land of the recreation complex and the “wild” of the forest area. I wonder if meadow is simultaneously incredibly vulnerable as a typology due to it being seemingly easier to develop. The plan also shares how this area has historically been vulnerable to change and development because it is located so close to the surrounding communities. From a practical standpoint, it appears far easier to clear and develop a meadow than it would be to develop the steeper, forested ground near the creek. I wonder, is there a trend of meadow ecological endangerment due to the grassy and open nature of meadowland? Perhaps this would be an interesting project as we compare building development across ecological zones.



Changing leaves in the canopy above the forest path.

Bibliography

Friends of Wissahickon. “Houston Meadow.” Friends of Wissahickon, 12 July 2024, fow.org/virtual-valley/trails-to-the-past/houston-meadow/.

Kim, Joo-Hee; Huh, Jeong-Eun; Baek, Yong-Hyeon; Lee, Jae-Dong; Choi, Do-Young; Park, Dong-Suk (March 2011). “Effect of Phellodendron amurense in protecting human osteoarthritic cartilage and chondrocytes”. *Journal of Ethnopharmacology*. 134 (2): 234–242. doi:10.1016/j.jep.2010.12.005. PMID 21182922.

James, Michael A.; Fu, Huijing; Liu, Yan; Chen, Da-Ren; You, Ming (January 2011). “Dietary administration of berberine or Phellodendron amurense extract inhibits cell cycle progression and lung tumorigenesis”. *Molecular Carcinogenesis*. 50 (1): 1–7. doi:10.1002/mc.20690. PMC 6004604. PMID 21061266.

Witmer, Tom, and Keith Russell. Houston Meadow Reclamation and Maintenance Plan, Fairmount Park, 2009.



Little Bluestem
Schizachyrium scoparium
 Grass, commonly used as ornamental
 Native, non -invasive
 Wetland Indicator Category: FACU
 Observed growing in a drier area along the trail in the meadow.



Chinese Silver Grass
Miscanthus sinensis
 Grass
 Introduced, invasive
 Wetland Indicator Category: UPL
 Observed growing near other grasses such as purletop and little bluestem



Pokeweed
Phytolacca americana
 Shrub with prominent fruit in fall, bright purple stems
 Native, non -invasive
 Wetland Indicator Category: FACU
 Observed growing along trail next to Indian grass and common mullein.





Rapid Changes at Nottingham County Park

Chester County

Pennsylvania

17th October 2024



The Indian Grass aplenty in the manor section of the park.

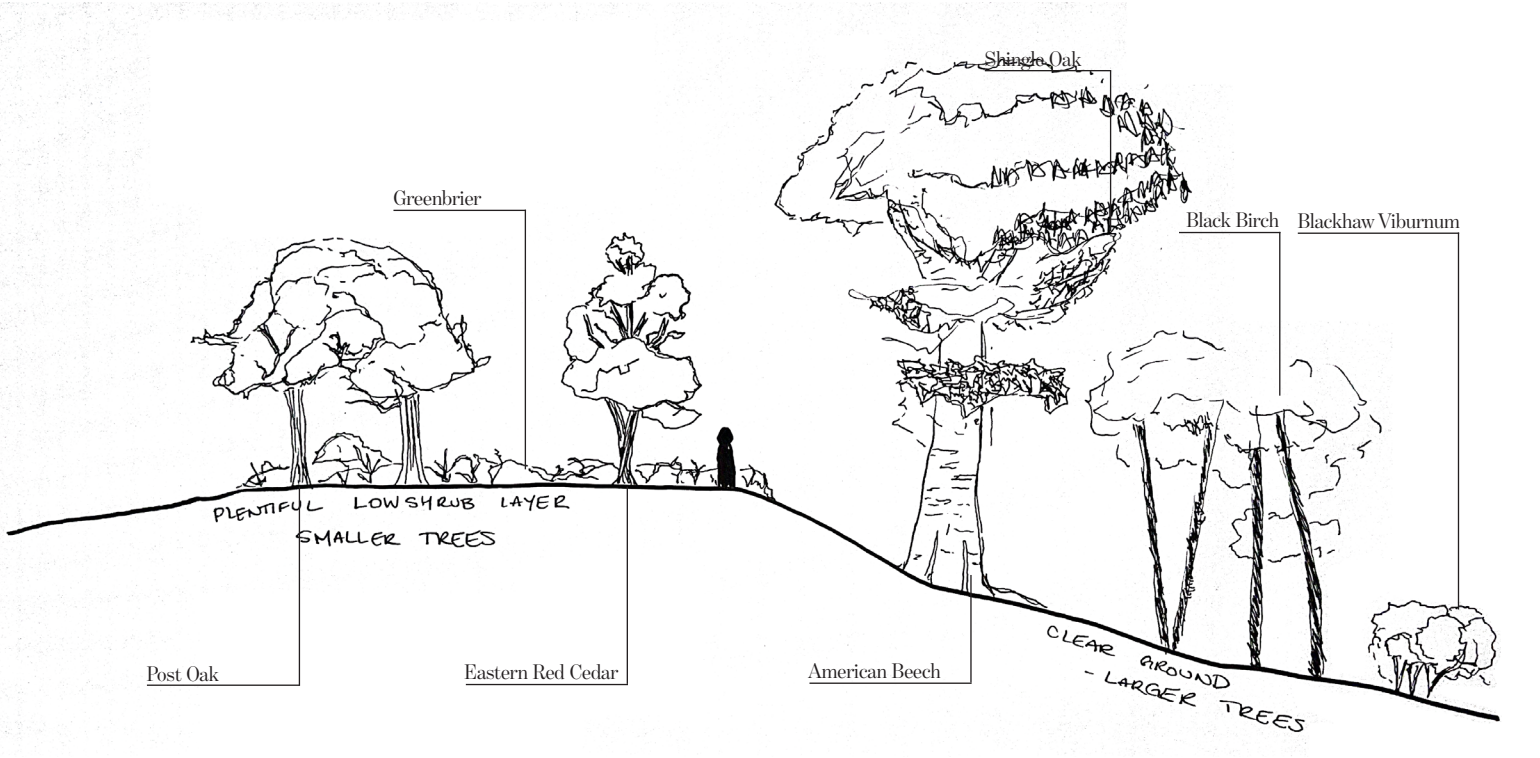
Rapid Changes At Nottingham County Park

This report covers our trip to Nottingham County Park located in Chester County, PA approximately 55 miles away from Philadelphia in the Piedmont uplands. The park is notable for the Serpentine Barrens located there, which are denoted by a soil shift from the Manor series to the Chrome series. While the Manor soils are good cropland and host an abundance of life typical of this region of Pennsylvania, the Chrome soils are indicative of an area generally less favorable for plant growth, with high levels of iron and magnesium and toxic levels of nickel, chromium, and cobalt. The barrens are also home to serpentinite, a mafic-ultramafic metamorphic rock formed though high pressure. The green color makes it easy to find these rocks on the ground in the barrens.

The Manor Series

Upon arriving at the site, we were confronted with typical Pennsylvania woody plants (white oak *Quercus alba*, red maple *Acer rubrum*, and Sourgum *Betula lenta*, as examples) as well as a few newcomers to my reports, namely post oak (*Quercus stellata*) which has not been spotted before! The trees were found in clusters amongst the meadow grasses, which were familiar from Houston meadow. There was indian grass (*Sorghastrum nutans*), Big Bluestem (*Andropogon gerardi*) and autumn olive (*Elaeagnus umbellata*), as well as very tall american sycamore (*Platanus occidentalis*) and a stand of black walnut (*Juglans nigra*) that was completely barren.

As for the soils, we examined two spots in the Manor series, some near the creek and a more upland variant. The creek soil was a silt loam that could not be ribboned; it was extremely dark and the horizons could not be distinguished due to the color. As the soil was located directly on a floodplain, it was assumed that the soil was nearly constantly inundated with water.



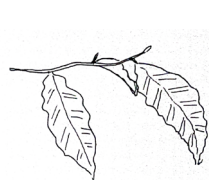
Post Oak
Quercus stellata
Native, non-invasive



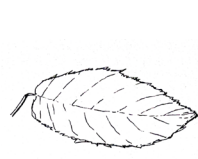
Greenbrier
Smilax rotundifolia
Native, non-invasive



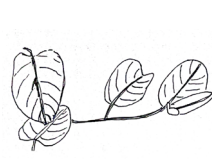
Eastern Red Cedar
Juniperus virginiana
Native, non-invasive



American Beech
Fagus grandifolia
Native, non-invasive



Black Birch
Betula lenta
Native, non-invasive



Blackhaw Viburnum
Viburnum prunifolium
Native, non-invasive



The stand of black walnut that was completely bare.

The upland variant was a manor schist, with an Oi layer of variable thickness, approximately 1/4" Oe layer. The soil was much lighter in color, likely due to the fact that we concluded it was well drained due to its position on the hillside, and we could easily distinguish between the horizons. There was ample plant on the O layer and the color of the B horizon of the soil was easily placed on the Munsell color chart at 10YR 5/6— a yellowish brown.

As we continued uphill, we spotted more and more variety. There were some herbaceous plants that we looked closely for, including partridgeberry (*Mitchella repens*) found right near our soil test site. There was also some black birch (*Betula lenta*) that I got to try; the wintergreen was very nice. A plant i was previously unfamiliar with but found attractive was the Blackhaw viburnum (*Viburnum prunifolium*) which was right near the boundary with the serpentine barrens.

The Serpentine Barrens

The threshold where the Chrome series began was obvious and quite jarring. From one moment, the forest floor was visible, and the next the forest became less tree-dense

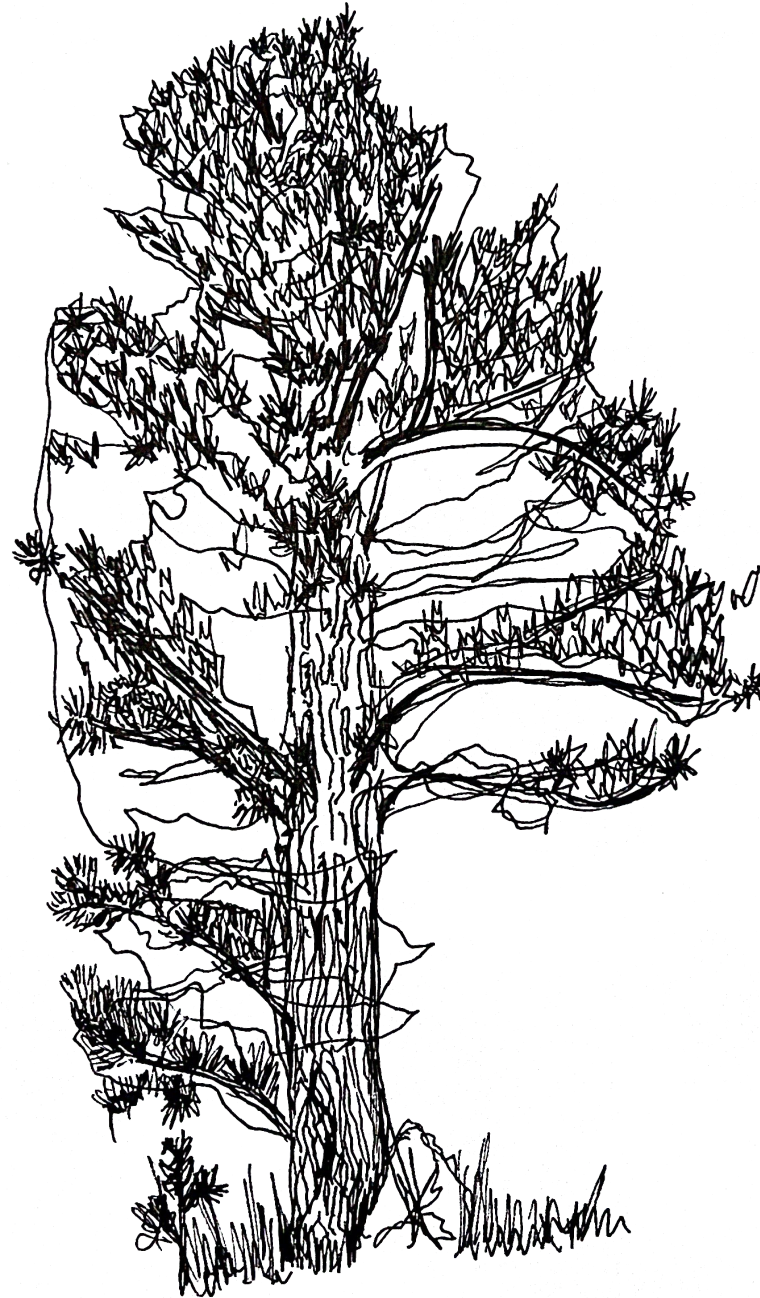


The Serpentine aster; spotted in the barrens!

and suddenly had lots of Greenbrier (*Smilax rotundifolia*) and it was everywhere! After the change, we spotted red cedar (*Juniperus virginiana*), some more post oak, winged sumac (*Rhus copallinum*), serpentine aster (*Symphyotrichum depauperatum*), rock sandwort (*Minuartia dawsonensis*), gray-stem goldenrod (*Solidago nemoralis*), and prairie dropseed (*Sporobolus heterolepis*). Like in the New Jersey pine barrens, there was some blackjack oak (*Quercus marilandica*). My favorite plant from the barrens was actually three-awn grass (*Aristida purpurea*) because the little awn was so delicate. It blew away in the wind.

The Chrome soil was hard to dig and was spectacularly light in color. The grassland soil had virtually no Oi, an A layer that was about 6" deep and was brown, and then there was a rock layer. Sally was unable to dig any more soil due to significant resistance. It makes sense that such compacted and well-drained soils would be hard to dig up.

After sitting for a while and attempting to sketch some pitch pine (*Pinus rigida*) it was time for us to head back to Philadelphia.



A contour drawing into a detailed drawing of a pitch pine (*pinus rigida*) in the barrens.

Conclusion

I liked the serpentine barrens significantly more than I thought I would—the feeling of drier heat combined with the lighter soils and hardy plants reminded me of my time in California or Colorado, despite being smack in the center of the east coast. Strangely, this abnormal area even reminded me of the part of southern Sweden where my family comes from. Although Gotland, Sweden has plenty of silurian limestone not at all like the chrome series in the serpentine barrens, the small island of Faro has an inland sand dune area formed in the 18th century due to irresponsible logging and farming. The rocky island now has a series of sand dunes surrounded by pine forest (somewhat like the pitch pine we saw on our trip!) and therefore has a similar area where plant biodiversity is limited significantly by incredibly harsh geological conditions. I think it would be fun to visit more areas like the barrens to see how plants fare in these environments where they occur worldwide.

Bibliography

Faro.se. "Ulla Hau Naturreservat." Faro.Se - Fårös Egen Hemsida, 7 Apr. 2024, www.faro.se/en/ulla-hau/.
 Fike, Jean. Terrestrial and Palustrine Plant Communities of Pennsylvania, June 1999, www.naturalheritage.state.pa.us/fikebook/terrestrial_plant_book.pdf.
 Latham, Roger Earl. "The Serpentine Barrens of Temperate Eastern North America: Critical Issues in the Management of Rare Species and Communities." *Bartonia*, no. 57, 1993, pp. 61–74. JSTOR, <http://www.jstor.org/stable/41610016>. Accessed 18 Oct. 2024.
 Lubick, Naomi. "Travels in Geology: Gotland Getaway: Sweden's 'tropical' Escape in the Baltic." *Travels in Geology: Gotland Getaway: Sweden's "tropical" Escape in the Baltic*, www.earthmagazine.org/article/travels-geology-gotland-getaway-swedens-tropical-escape-baltic/. Accessed 17 Oct. 2024.



The manor series soil.



The chrome series soil, much lighter in color than the floodplain soil.



Autumn Olive
Elaeagnus umbellata
 Tree useful for erosion control; red berried fruit
 Introduced, invasive
 Wetland Indicator Category: Not classified.
 Observed growing alongside grasses in the meadow.



Swamp White Oak
Quercus bicolor
 Medium-sized tree with lobed leaves
 Native, non-invasive
 Wetland Indicator Category: FACW
 Observed growing along the pathway a small distance from other swamp white oaks and post oaks.



American Sycamore
Platanus occidentalis
 Sizable tree with large leaves.
 Native, non -invasive
 Wetland Indicator Category: FACW
 Observed growing in the manor section of the park, distant from other trees.



Trail into the serpentine.



All Five Senses Ringing Rocks Park

Bucks County

Pennsylvania

24th October 2024



Ringing the rocks!

All Five Senses Ringing Rocks Park

Introduction

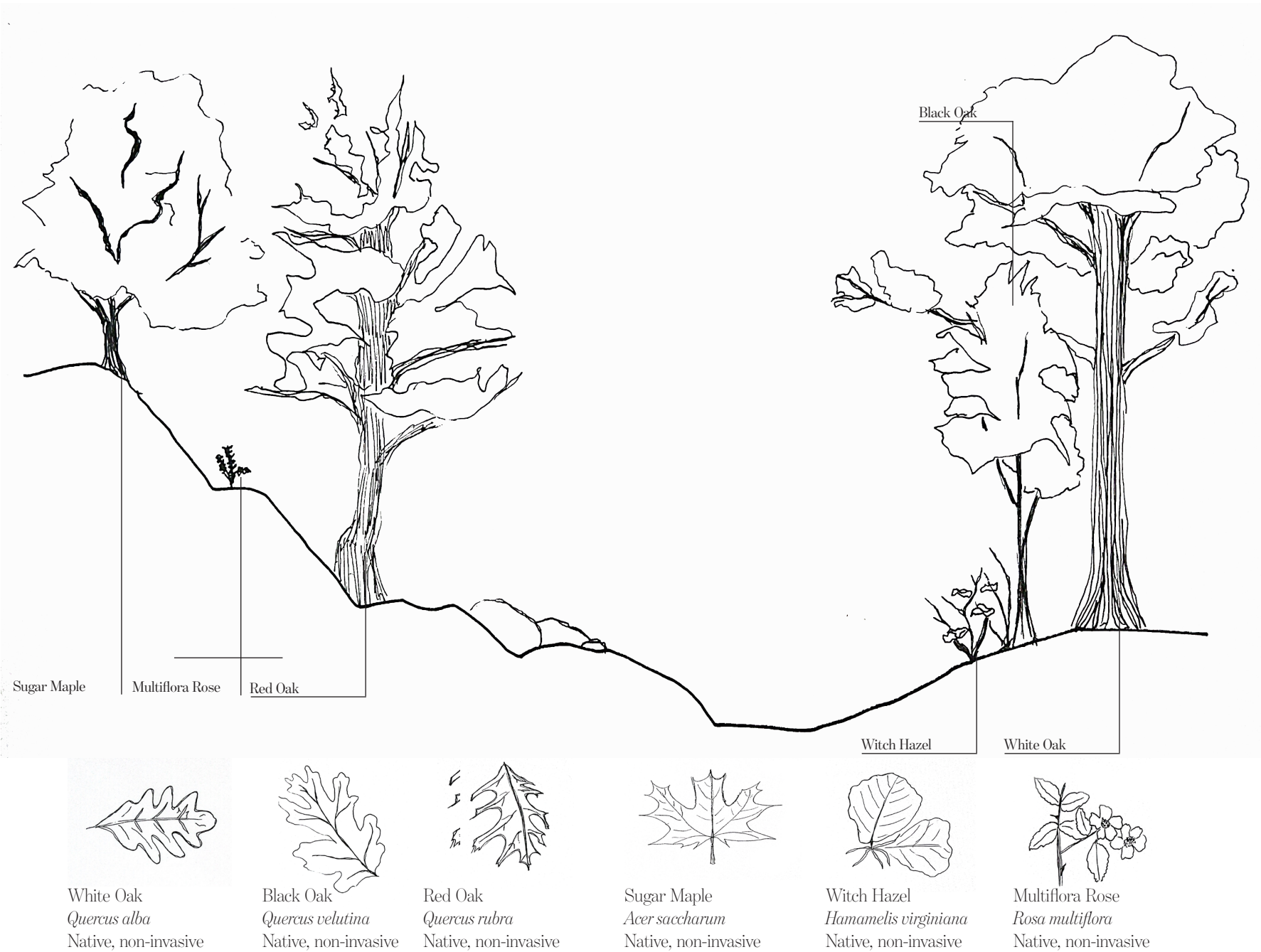
This report covers our trip to Ringing Rocks Park located in Bucks County, PA approximately 60 miles away from Philadelphia in the Piedmont lowlands. The 123-acre park is notable for the “ringing rocks” which make tones when you hit them with something hard, like a hammer! For this trip, I brought a hammer with me to try out the rocks.

The site is also where two different bedrock types meet each other. There is plenty of sedimentary rock, including shale and sandstone, and this is peppered with igneous intrusions of diabase. After extreme heat and pressure, it metamorphoses into hornfels. These formations, the Diabase and the Brunswick Formation, are visible in the woods and particularly at the creek where the topography undergoes massive changes.

Woody Plants

Immediately upon disembarking, we braved the plant quiz; this site was perfect for finding many of the common Pennsylvania plants we have gotten to know over the course of this field guide. First up, some massive specimens of white oak (*Quercus alba*) and red oak (*Quercus rubra*, not on the quiz!). There was also spicebush (*Lindera benzoin*) which had shed most of its leaves and was a bright yellow. The witch hazel (*Hamamelis virginiana*) was the star of the show, as its mid-October bloom was apparent from the very beginning to the end of our hike. The tiny yellow flowers, when blooming all over the shrub, were beautiful and a dead giveaway for the witch hazel.

We also encountered ironwood (*Carpinus caroliniana*), American beech (*Fagus grandifolia*), chestnut oak (*Quercus Montana*) and black birch (*Betula lenta*). The birch tree we found was a tricky specimen, and it almost had me fooled (it was nearly barren!) for sourgum (*Nyssa sylvatica*). Perhaps a rookie mistake, but I was



Sitting on the rock ledge

able to recognize it in the end.

The Rock Fields

After our plant ID quiz, we made our way to the rock field which was comprised of boulders lodged closely to one another—so close that one must keep one’s hands free to protect against falls. Some of the crevices were deep enough to lose a cell phone or keys in, so we kept most of our gear packed away when traversing the boulders.

I was very pleased to discover that the rocks do indeed ring. Different size rocks have different tones, and some are clearer than others. While some would have a dull thud, there were several that produced a clear and attractive tone that subsided after a moment. All of the rocks had clearly been struck before (and as we would later see, visitors, even children, will often bring their own hammers to hit the rocks upon a visit). It was obvious where on each rock was the most popular place to strike. When multiple people were “playing” the rocks at once, there was a delightful cacophony of rock music.

When the rock music grew quiet, a powerful breeze through



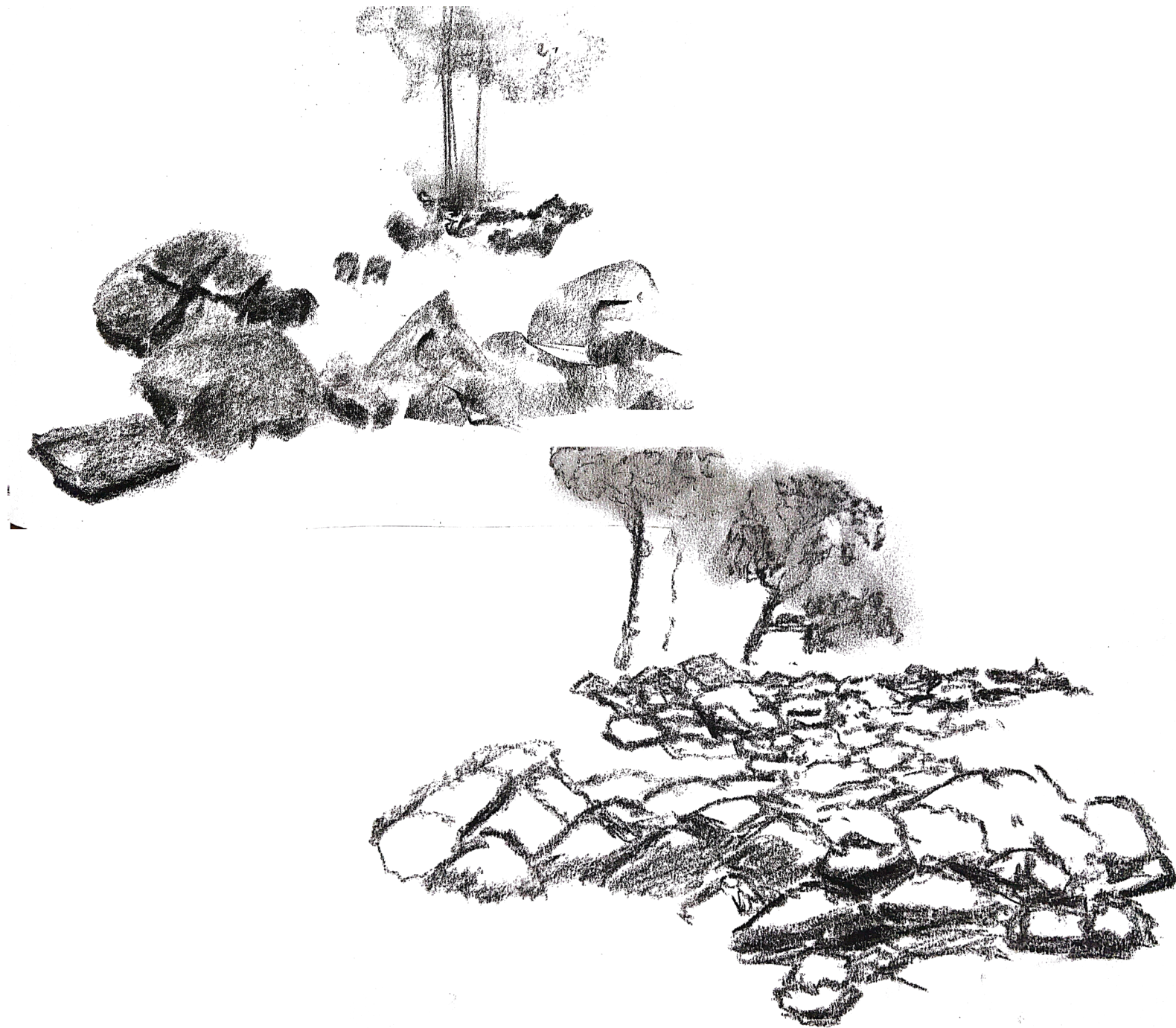
Tulip poplars and a clear sky.

the trees created a white noise, the sound of the forest. The trail leading away from the clearing was hardly visible due to the fall foliage litter; I was curious how often the trail was used, especially because it was no longer obvious where it would lead aside from tree carvings and general flatness.

We finally made our way to the hillside descent where we spotted multiflora rose (*Rosa multiflora*) and Christmas fern (*Polystichum acrostichoides*, a PA forest regular). There was also maple leaf viburnum (*Viburnum acerifolium*) which was this delightful shade of pink. The heavy leaf color made it hard to discern if there were other herbaceous plants I was missing.

The Barren Creek

After a steep descent from the trail we made it to the creek, or what would have been the creek and waterfalls. What the park’s website proudly touts as “Bucks County’s largest waterfall” was entirely dry; the creek bed was waterless, save for several pockets of puddles that held half an inch of water and leaves. The creek bed aquatic plants were dead and dried out on the rock, and it was fairly safe to walk despite the fallen trees. The



Two sketches of the boulder fields.

sides of the creek were each up against a steep grade and large rocks that made it easiest to proceed through the canyon on the creek bed. After a series of brief climbs we were at the foot of the largest waterfall, where the diabase and the hornfels met together. I completed a sketch of this scene; the rounded, smoothed boulders against a more geometric and square rock face normally hidden by water. On both sides were plenty of witch hazel and tulip poplars (*Liriodendron tulipifera*) as well as mature red oak and more black birch.

Sensual Summary:

See: Changing fall colors, the flowers of the witch hazel, dancing shadows on the ground from the tree canopy blowing in the wind. Hear: The crunch of leaves underfoot, the constant wind in the trees creating a white noise background, the crumble of rocks and the ringing when rocks were struck.

Smell: An unidentified very pleasant smell near the top of the trail. Fresh air.

Taste: Black birch, the taste of wintergreen. My pressed beet juice.

Touch: The smoothness and roughness of the rocks. Some had been weathered smooth; others were still rather rough and sharp. The ringing rocks had divots where they had been hit many times.

Conclusion

Reader, I was very pleased with my plant ID confidence! I began this field guide with virtually no plant identification skills, but I am pleased to say that drawing trees and shrubs repeatedly has sufficiently exposed me to their unique characteristics and I have been able to recognize familiar faces, so to speak. I also particularly enjoyed my time down on the creek bed. To see the exposed rock face, despite the drought, was to see bedrock conditions juxtaposed just as well as you could hope for. It was fascinating to see how the forest was dealing with the dry conditions at this time of the year especially the yellow witch



Evidence of woodpeckers!

hazel littering the sides of the creek.

I also enjoyed really being intentional about sensing the site. Much of the time we are buried in cameras and drawings, but focusing on my surroundings during this point of the year yielded pleasant sights and new smells. Fall in Pennsylvania has such a vivid and wonderful color palette. Even focusing on touch and taste was an eye-opening (hand opening? Perhaps mouth opening?) experience. Tasting things like black birch and berries, as I have done in the past, has introduced entirely new sensations that you can't communicate visually.

Bibliography

"Ringing Rocks Park." VisitPA, www.visitpa.com/region/philadelphia-countryside/ringing-rocks-park. Accessed 24 Oct. 2024.

Willig, Sally. "LARP5110 Field Trip to Ringing Rocks County Park on 10/24/24."



Chestnut Oak
Quercus montana
 Medium to large tree; deep furrowed bark
 Native, non-invasive
 Wetland Indicator Category: UPL
 Observed alongside other oak trees.



Red Maple
Acer rubrum
 Medium to large tree with narrow crown and autumn foliage.
 Native, non-invasive
 Wetland Indicator Category: FAC
 Observed growing along the trail near other maples and oaks.

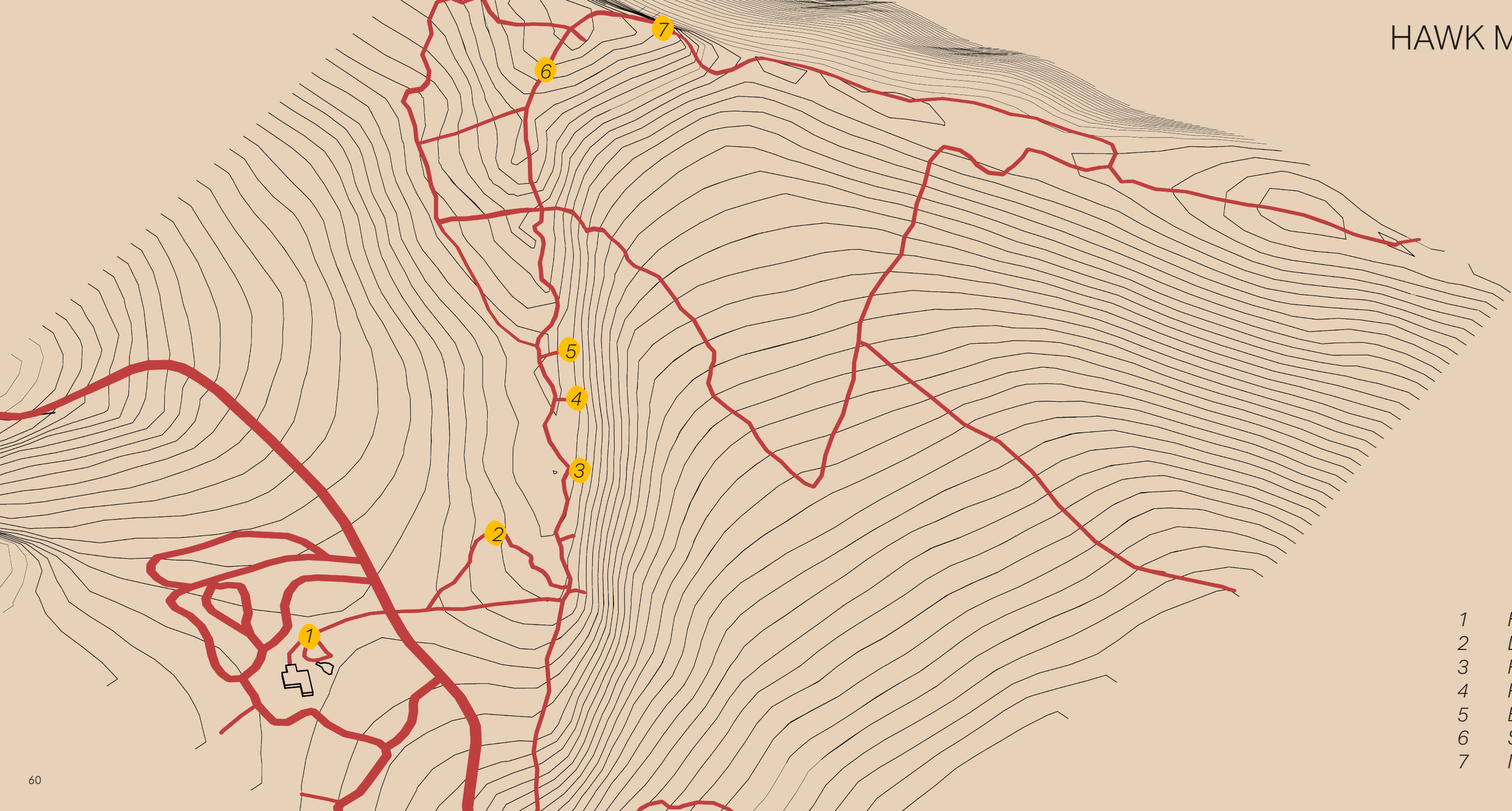


Mapleleaf Viburnum
Viburnum acerifolium
 Low densely branched shrub with maple-shaped leaves
 Native, non -invasive
 Wetland Indicator Category: UPL
 Observed growing along the trail near maples and oaks.



At the base of the cliff.

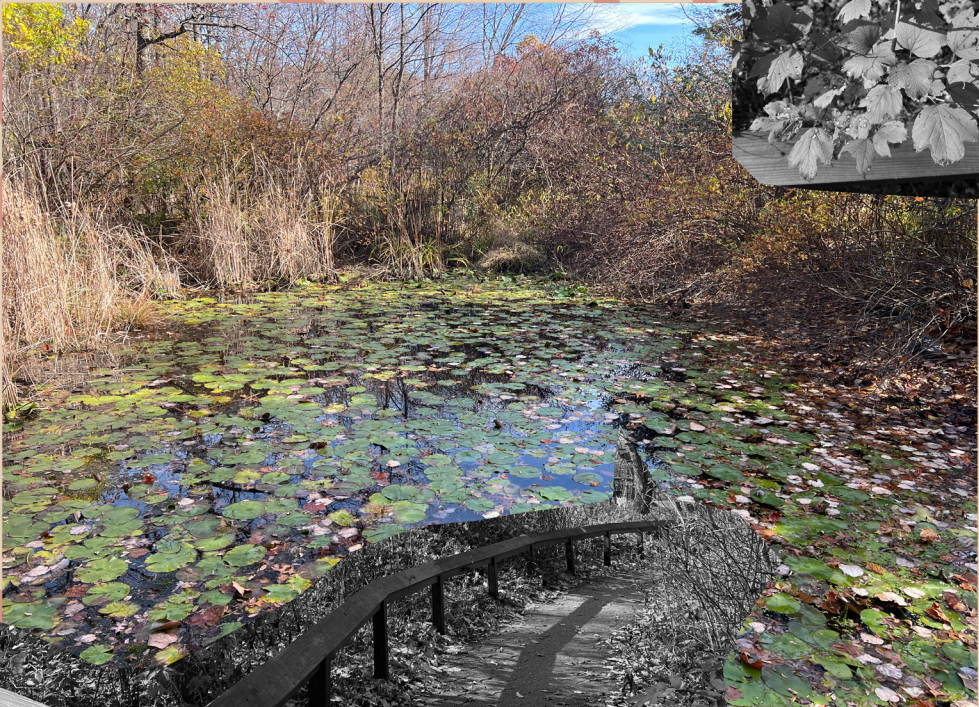
HAWK MOUNTAIN SANCTUARY TRAIL GUIDE



- 1 HABITAT GARDEN
- 2 LAURELWOOD NICHE
- 3 RIVER OF ROCKS
- 4 RIDGE OVERLOOK
- 5 BALD LOOKOUT
- 6 STAIRWAY
- 7 NORTH LOOKOUT

HABITAT GARDEN

The habitat garden is directly next to the visitor center and is easily accessible through two gates. The garden features a variety of native plants typical of the region and a delightful little pond.



LAURELWOOD NICHE

The laurelwood niche is a small gathering space for educational sessions; it features plenty of sitting space and could be a nice spot for a rest.



RIVER OF ROCKS , RIDGE OVERLOOK & BALD LOOKOUT

These three lookouts line the trail between the south and north lookouts. Each of them features a slightly different version of the view, but each has a rocky approach that allows for a clearing and a decent view. Pick your favorite!



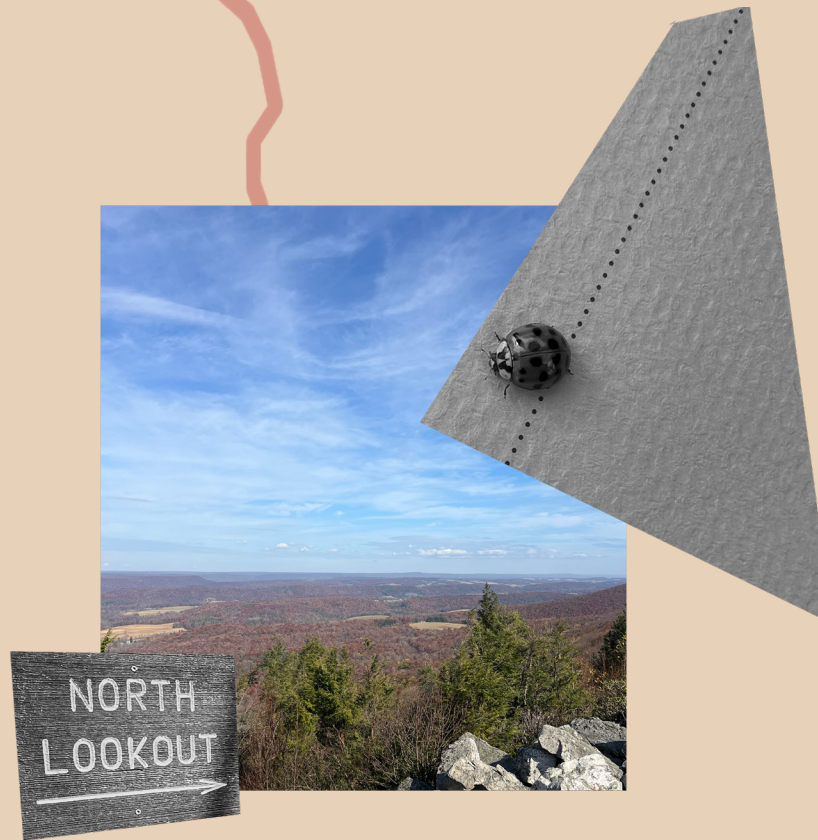
STAIRWAY

This is the steepest bit of the trail; this rock staircase is difficult to navigate and includes handrails. Hold on, but don't forget to look at and enjoy the exposed rock beside you.



NORTH LOOKOUT

An incredible view of the mountains and surrounding valleys. This is a great spot to look for birds or stop for lunch. The rock clearing makes for great visibility. Just make sure you watch for the asian ladybugs----they bite!



SELECTED SPECIES



Garden phlox
Phlox paniculata



Canadian anemone
Anemonidium canadense



Canada yew
Taxus canadensis



European cranberry bush
Viburnum opulus



Trumpet honeysuckle
Lonicera sempervirens



Northern red oak
Quercus rubra



Allegheny-spurge
Pachysandra procumbens



Great laurel
Rhododendron maximum



Eastern hemlock
Tsuga canadensis



Witch hazel
Hamamelis virginiana



Mapleleaf viburnum
Viburnum acerifolium



Marginal wood fern
Dryopteris marginalis

Sketch



Species Notes

Eastern white pine

Pinus strobus

Tree commonly found in temperate forests in eastern North America. Typically one of the tallest trees in the forest

Height: 98-220ft

Native or introduced: Native

Invasive habit: None

Wetland Indicator: FACU

Observed growing: These white pines were spotted growing just near this rocky outcropping at the South Lookout. Was seen growing with mountain laurel, scarlet oak, and groups of other maples, oaks, and tulip poplars in the mixed forest below.