



Figure 63: A 128.9 foot tall silver maple in the center of Thompson's island. This is the tallest silver maple documented in the ENTS database. Dale Luthringer is show for scale (photo by Edward Frank, 2009).

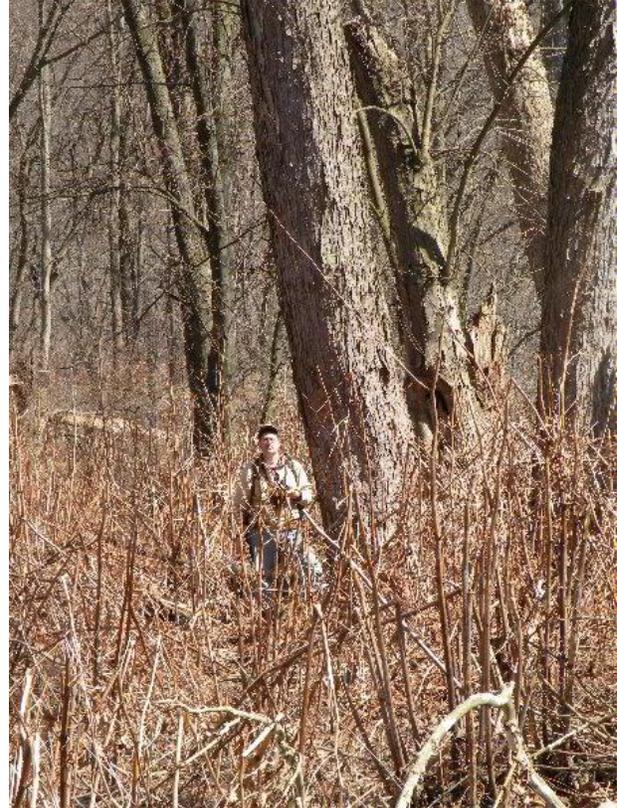


Figure 64: Base of the 128.9 foot tall silver maple found in the center of Thompson's Island (photo by Edward Frank, 2009).

I also was able to photograph a massive seven trunk silver maple at the lowest end of the island. We found it on a previous trip, but the photos taken at that time did not turn out well. The tree had a combined girth of 24 feet and was 108 feet tall. At the lower end of the island we found what appeared to be a man-made channel cut into the edge of the island. A cut square timber could be seen in the bottom of the water course. Perhaps this was a grist mill or a sawmill channel at some time in the past. We documented more tree species on this trip that we had not measured before, including river birch and black willow.

Thompson's Island At 67 acres is the second largest of the Allegheny River Island Wilderness islands. The Rucker index of 108.92 is the third highest of the twelve islands in the study, second among the ARIW islands. Included among those values is a very tall sycamore at 140 feet tall. In addition the tallest known silver maple at 128.9 feet tall is found here. The entire lower end of the island is overrun by Japanese knotweed. It is unlikely that there is any significant regeneration of sycamore or silver maple within this area of the island. The woody tree and shrub diversity of 25 species in 67 acres is the highest among any of the ARIW islands and second only to Hemlock Island in the current focus area.

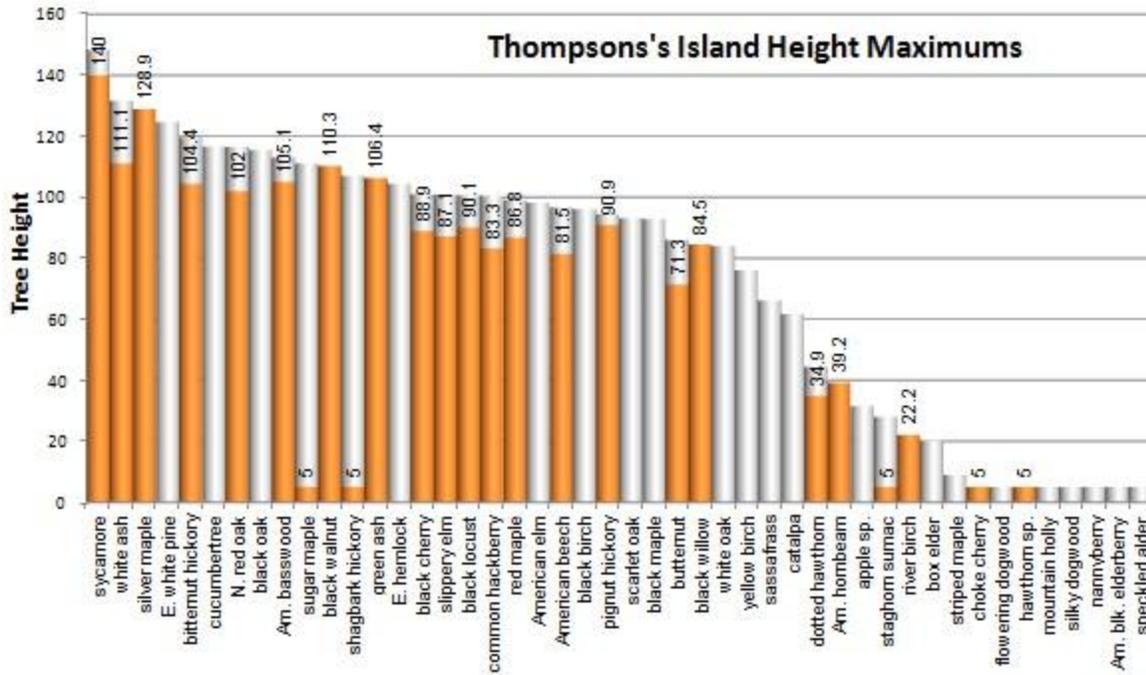


Figure 65: Tree height profile for Thompson’s Island. The orange bars represent the maximum height of trees found on Thompson’s Island compared against the light gray background profile for the Allegheny River Islands as a whole.



Figure 66: Japanese Knotweed jungle on southern end of Thompson’s Island (photo by Edward Frank 2007).

Thompson's Island			
Species	CBH (ft)	height (ft)	Date
sycamore	10.6	140	9/3/2007
silver maple	10	128.9	4/2/2009
sycamore	14	123.7	4/2/2009
white ash	7.3	111.1	9/3/2007
black walnut	7.7	110.3	9/3/2007
green ash	7.8	106.4	4/2/2009
Am. basswood	7.8	105.1	9/3/2007
bitternut hickory	6.8	104.4	9/3/2007
silver maple	12.7	103.9	9/3/2007
N. red oak	13.5	102	9/3/2007
white ash	9.3	98.5	9/3/2007
Am. basswood	11.3	94.4	9/3/2007
pignut hickory	4.3	90.9	9/3/2007
black locust	7.2	90.1	9/3/2007
black cherry	4.3	88.9	9/3/2007
slippery elm	11.2	87.1	4/2/2009
red maple	8.8	86.8	9/3/2007
black willow	9.9	84.5	9/3/2007
common hackberry	7.2	83.3	9/3/2007
Am. beech	7.2	81.5	4/2/2009
butternut	3	71.3	4/16/2003
Am. hornbeam	1.2	39.2	4/2/2009
Am. hornbeam	2.5	35.6	9/3/2007
dotted hawthorn	5	34.9	9/3/2007
river birch		22.2	4/2/2009
sugar maple	7.8	5	9/3/2007
staghorn sumac		5	4/2/2009
choke cherry		5	4/2/2009
hawthorn sp.		5	9/26/2007
shagbark hickory		5	9/3/2007
vitus sp.	1.6		9/3/2007
<b>Rucker Height Index 5</b>		<b>119.34</b>	
<b>Rucker Height Index 10</b>		<b>108.92</b>	
<b>Rucker Height Index 20</b>		<b>88.45</b>	
<b>Rucker Girth Index 5</b>		<b>12.54</b>	
<b>Rucker Girth Index 10</b>		<b>10.63</b>	
<b>Rucker Girth Index 20</b>		<b>8.08</b>	

Figure 67: Rucker Indices and Maximum Height Table for Thompson's Island.



Figure 68: triple trunked sycamore on upper end of Thompson's Island (photo by Edward Frank 2007)



Figure 69: Clark's Island (PA DCNR 3/31/2005).

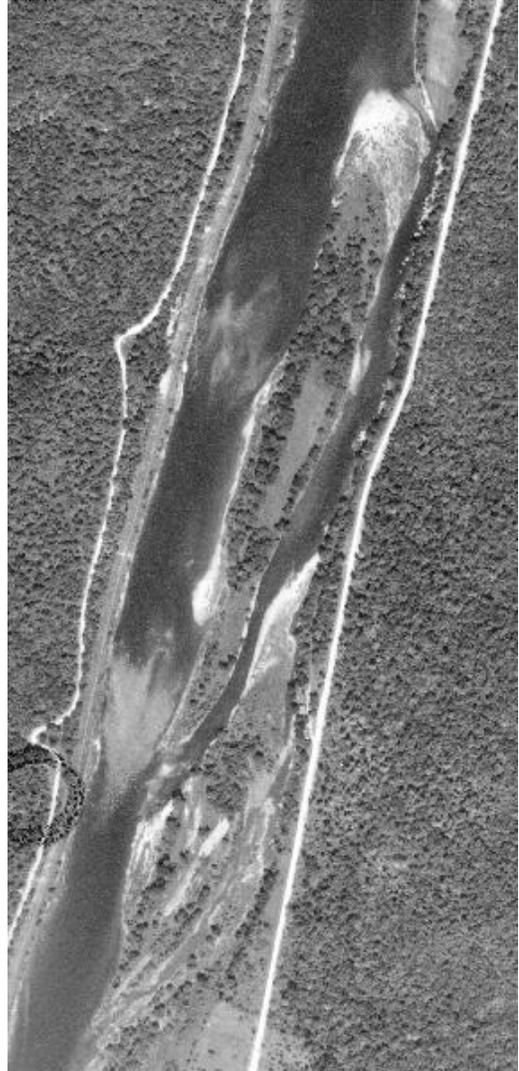


Figure 70: Clark's Island taken June 7, 1939 (Penn Pilot).

## Clark's Island

41° 46 359'N x 79° 17.210'W elevation 1128

Babbitt (1855) calls the largest island in this complex Clark's Island. He offered advice on piloting log rafts past Clark's Island: "Chanel to the right. Enter the chute about midway between the Island and the right shore, then incline a little to the right to avoid a bar that makes out from the Island a little below the head, and from this point keep near the right shore till

Below Thompson's Island are a series of smaller low profile islands and bars before the next major island, R. Thompson' Island, is reached.

down to the foot. There is no channel to the left; it is cut to pieces by willow bars at the foot of the Island." There were shrubby willows and perhaps a few other species present on the island, but no landing was made on the September 2007 trip and no trees were measured. These islands and sand bars were non-descript and did not appear to have any large trees.

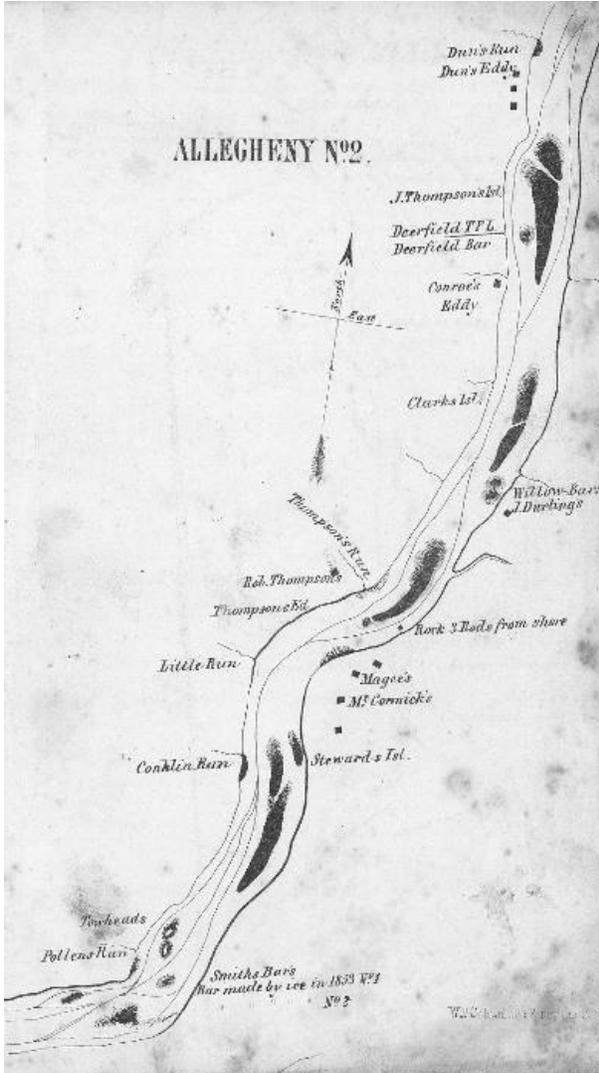


Figure 71: Maps from Babbitt (1855) of the river stretch from Thompson's Island in the north, through Clark's Island, R. Thompson's Island, and Steward's Island at the southern end of the map.

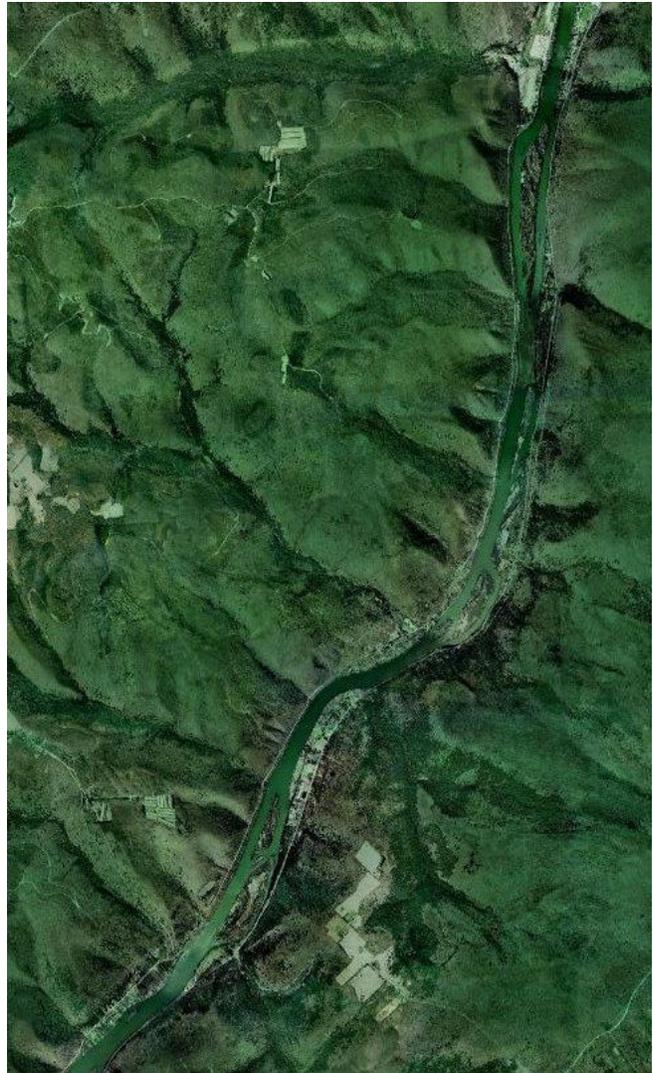


Figure 72: Aerial photos (PA DCNR 2005) of the river stretch from Thompson's Island in the north, through Clark's Island, R. Thompson's Island, and Steward's Island at the southern end of the map.

Figure 63: Comparison of maps from Babbitt (1855) and aerial photos (PA DCNR 2005) of the river stretch from Thompson's Island in the north, through Clark's Island, R. Thompson's Island, and Steward's Island at the southern end of the map.

## R. Thompson's Island

41° 45.336'N x 79° 17.643'W elevation 1129 ft.

R. Thompson's Island is located 1.8 miles downstream from Thompson's Island at river mile

175.5. It's about 30 acres in size, a half a mile long and a tenth of mile wide. The island was scouted on September 4, 2007 by Dale Luthringer, Edward Frank, and Anthony Kelly.



Figure 73: Aerial photo of R. Thompson's Island (PA DCNR 3/31/2005).

Luthringer (2007b) recounts the trip:

We beached at the top of the island and worked our way downstream, spreading out to recon the island as we went. It wasn't long before we were working our way along an old river channel within the heart of the island. It appeared we weren't going to find anything of note until we got along the eastern shore where we picked up some decent single stem silver maples, see below.

A little farther down the island an old bitternut hickory came into view that appeared to have some age that I would classify as having "old growth" stature (buttress basing, 'crooked arm' branching, and thick moss layered trunk). I was beginning to think we weren't going to find any trees over 120ft. That's when Tony came across a nice stand of



Figure 74: View of the interior of R. Thompson's Island (photo by Edward Frank, 2007).

sycamore in the western central part of the island. Tony's find, was a pleasant surprise, with his clump of sycamore coming in at the upper 120's to low 130's. The center of the island had a nice stand of young white ash dominating the canopy. Many of these islands were logged probably decades ago, if not over 150 years ago, to varying extent. Others have been flooded many times over the years keeping the overall age of the majority of the trees fairly young. It always seemed though, that the more we

looked, there were always some trees of age, albeit scattered, on virtually every island we came to. These islands were an ecosystem constantly in transition from pioneer species to mature to old trees, then being washed our scoured out in places, starting the process over again. It was quite interesting to view a "snapshot" of how these islands were forming, eroding, and reforming by the creative forces of the river over decades. Species present but not measured = black locust, slippery elm, *Vitus* sp., white ash, Invasives = garlic mustard, Japanese barberry, Japanese knotweed, and multiflora rose. There were insufficient numbers of tree species measured to generate any Rucker Indices for the island.

R. Thompson's Island			
Species	CBH (ft)	height (ft)	Date
sycamore	10.7	131.3	9/4/2007
sycamore	12	122.7	9/4/2007
sycamore	9.1	114.1	9/4/2007
bitternut hickory	8.5	108.1	9/4/2007
sycamore	6.6	103.2	9/4/2007
silver maple	13.4	102.1	9/4/2007
silver maple	11.6	102	9/4/2007
silver maple	13.1	91.5	9/4/2007
black locust		5	9/4/2007
slippery elm		5	9/4/2007
black willow		5	9/4/2007
dotted hawthorn		5	9/4/2007

Figure 75: Measurement Listing for R. Thompson's Island.



Figure 76: Aerial photo of R. Thompson Island taken on June 7, 1939 (Penn Pilot).

Examination of the 1939 aerial shows that much of the island was being farmed at that time. The only potential for older trees are those found on the upstream and eastern edges of the island where trees were shown to be present in this photo. If the farm areas were abandoned immediately after the photo was taken and trees established themselves at that time, the maximum age for any trees within that area would be 70 years. Much of the open field area on the 1939 photo is still open area. In addition a sand bar adjacent to the island in the upstream end on the western side is now forested. Similarly a sandbar off the western downstream end of the island is now two small forested islands

### Steward's Island

41° 44.090' N x 79° 19.310' W elevation 1132 ft.

Steward's Island is located about 1.5 miles downstream of R. Thompson's Island at river mile 173. It is owned by the U.S. Forest Service, but is not part of the Allegheny River Islands Wilderness itself. Babbitt (1855, p. 12) describes Stewards Island as consisting of two separate islands. He writes: "The first of these Islands contains 15 acres and is owned by Mrs. Magee, a widow lady. The other 20 acres belongs to Peter Smith."

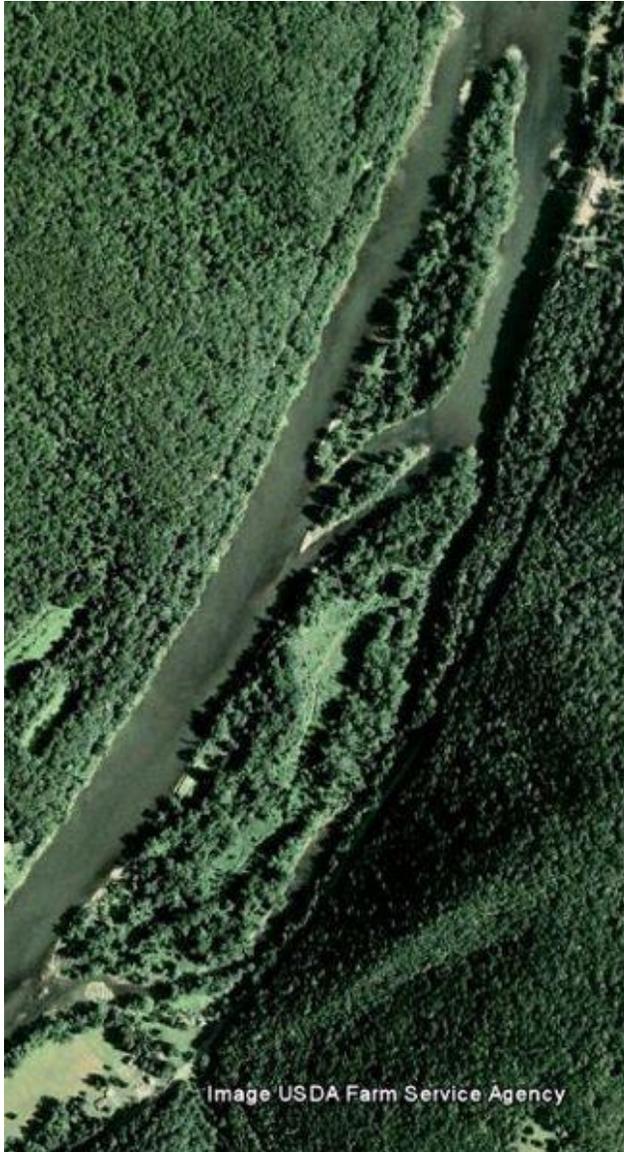


Figure 77: Steward's Island in 2008 (USDA Farm Service Agency).



Figure 78: Steward's Island on June 7, 1939 (Penn Pilot).

The configuration of the present day Steward's island has changed since 1855. The upper island is 19 acres in size, at half a mile long by one tenth of a mile wide. The lower island, just a stone's throw downstream is the larger main portion of Steward's Island, 51 acres in size, at 0.7 miles long by 0.2 miles wide. On September 4, 2007 Dale Luthringer, Edward Frank, and Anthony Kelly scouted the upper of the two islands.

Upper Steward's Island			
Species	CBH (ft)	height (ft)	Date
black walnut	6.2	85.3	9/4/2007
bitternut hickory	6.4	84.1	9/4/2007
Am. hornbeam		5	9/4/2007
black birch		5	9/4/2007
black willow		5	9/4/2007
silver maple		5	9/4/2007

Figure 79: Measurement Listing for Upper Steward's Island.

Luthringer (2007b) writes: "We searched for noteworthy trees on the [upper] island, but were

soon confronted with a wall of invasives (multiflora rose & knotweed).”

A handful of trees were measured on this upper island, but time constraints forced us to leave in order to complete the planned scouting route for the day. As we canoed down the eastern channel beside Stewards, we noted a number of decent silver maple and sycamore that would most likely have made it into the 12x100 class. Another trip to the actual Stewards Island would likely prove fruitful. The main portion of Steward’s Island is located at 410 43.744’ N x 790 19.473’ W elevation 1120 ft.

It can be seen that much of the lower island was being farmed in 1939 and that the forest in the present day photograph is encroaching on the former fields. The square feature on the lower Steward’s Island is a farm field and not any type

of building. Also on the western side of the island in the 1939 photo is what appears to be a scour area around a central wooded higher level. Perhaps this was a former island that has merged into the larger Steward’s Island.

It is interesting to note that Babbitt (1855, p. 12) commented on Charley Smith's Bars immediately below Steward Islands. He writes: "The ice gorge in 1853 nearly ruined this portion of the river for running rafts in low water. There are no less than four different channels and none of them sufficiently deep, wide and straight to run large rafts through with safety. The usual and best of these in a fair running stage is the left shore channel over bar No. 2; this bar having been formed by the ice, extends across the channel in the form of what is known by rivermen as a "pocket" or "fish basket" and is the one on which rafts are frequently stopped in low running.”

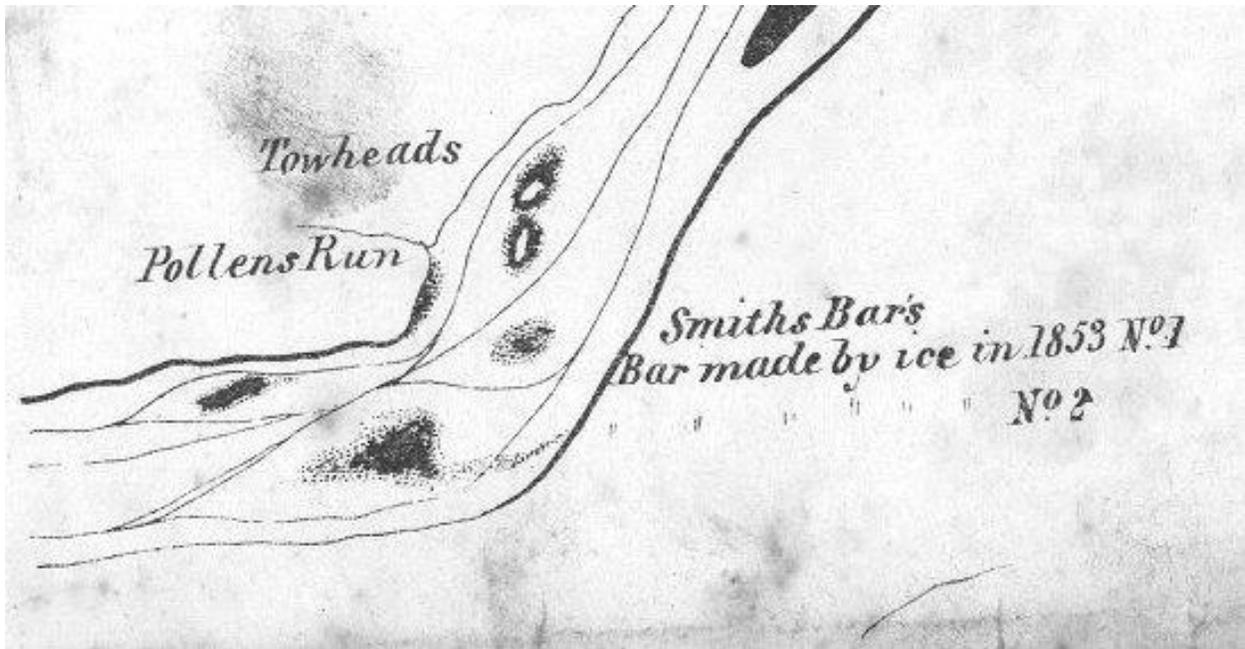


Figure 80: Map from Babbitt (1855) showing Charlie Smith’s bars. The lower edge of Steward Islands is at the upper edge of the image.

## Millstone Island

41° 42.630'N x 79° 20.924'W elevation 1103 ft.

Millstone Island is a small narrow island owned by the U. S. Forest Service located at river mile 171. It reaches a few meters in elevation above the river and is well populated by trees. The island has not yet been visited.



Figure 81: Aerial photo of Millstone Island taken March 31, 2005 (PA DCNR PAMAP/USGS).

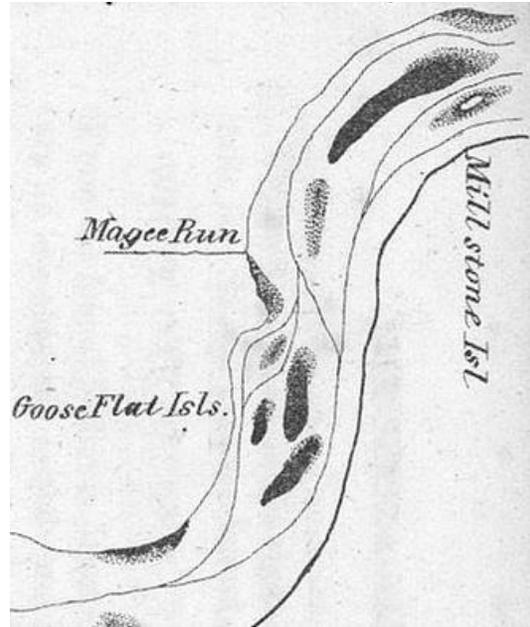


Figure 82: The map by Babbitt (1865) shows Millstone Island and Goose Flat Island.

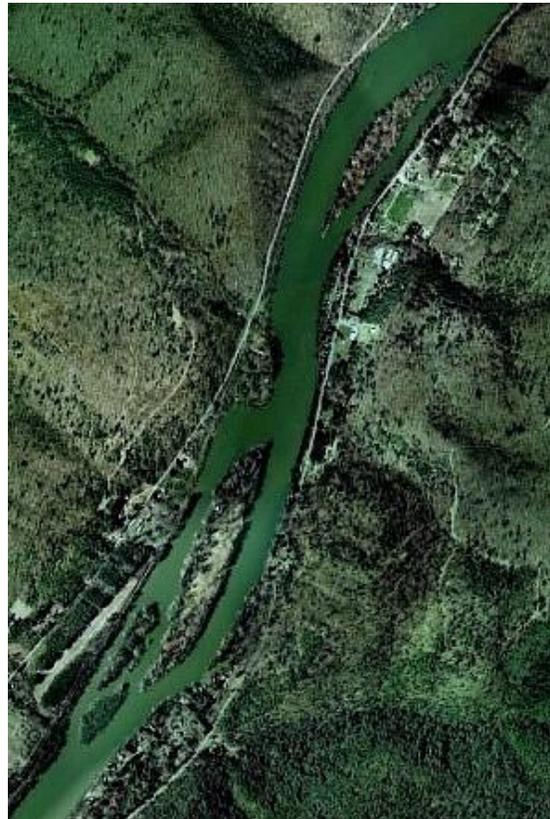


Figure 83: The aerial photo on the right shows present day Millstone Island and Fuelhart Island (PA DCNR PAMPA/USGS March 31, 2005).



Figure 84: Fuelhart Island taken on June 7, 1939 (Penn Pilot).

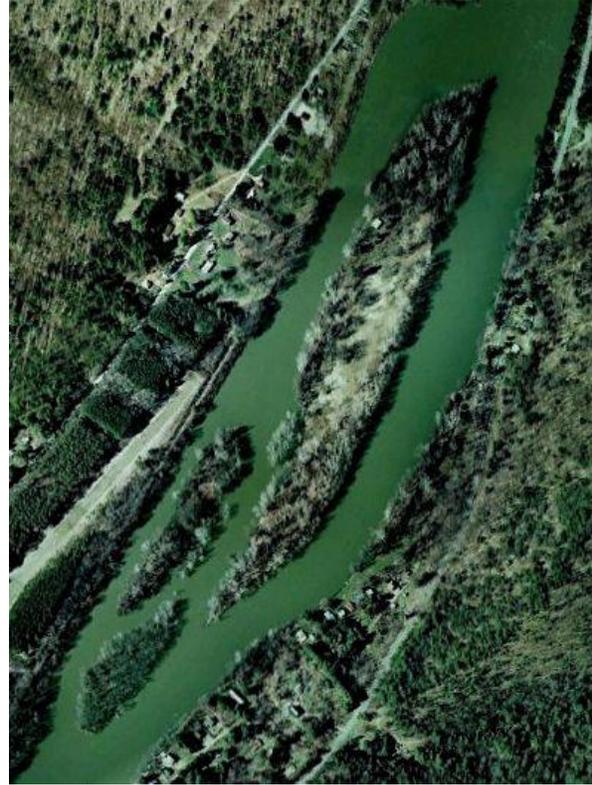


Figure 85: Fuelhart Island (PA DCNR 3/31/2005).

## Fuelhart Island

41° 41.848'N x 79° 21.322'W elevation 1117 ft.

Fuelhart Island is a series of three narrow islands located at river mile 170. The largest is 25 acres in size, 0.6 miles long by 0.1 miles across. The island was skirted on the canoe trip of September 4, 2007 made by Dale Luthringer, Edward Frank, and Anthony Kelly. The island is privately owned and has a cabin near the upper end.

We did not land the canoe and explore the island because it was private property and time constraints. There was a very nice sycamore and fat black walnut beside the private cabin. It also sported the only white pine we saw on any of the islands during the four day trip. Ed got some rough laser measurements from

the canoe for the white pine as we floated by and put it to around 115ft. The largest sycamore sited would likely have been over 12 feet in girth. Because of the presence of the white pine and large black walnut we plan to contact the owner and measure these trees on our next trip through that stretch of the river.



Figure 86: Courson Island taken March 31, 2005 (PA DCNR PAMPA/USGS).

## Courson Island

41° 40.844'N x 79° 23.004'W elevation 1099 ft.

Courson Island is located just upstream of the town of Tidioute at river mile 168. It is 62 acres in size, 0.9miles long by 0.1miles across.

The island was the last stop of the September 04, 2007 scouting trip by Dale Luthringer, Edward Frank, and Anthony Kelly. Luthringer (2007b) writes:

[We] found our first catalpa here, just inside the tree-line. We thoroughly worked this entire island which was another island dominated by silver maple, bitternut hickory, and slippery elm. We made our way diagonally across the island until we hit another solid patch of knotweed then had to bump out on

the eastern edge again. We then made our way down an internal dry riverbed channel cutting across the island and were almost ready to throw in the towel. Then I looked off into the knotweed forest and saw a nice sycamore about 30 yards in... It was definitely the biggest tree we found that day at 15.2ft CBH x 129ft+ high - a very nice addition to our 12x100 trees. We continued to follow the old river channel which took a 90 degree turn west across the island. We shimmied up a steep bank of knotweed to a nice little flat of white ash, basswood, and bitternut hickory. Ed soon found another fat hawthorn that went to 4.9ft CBH x 42.5ft high x 45.9ft average crown for 112.8AF Points, one of the largest documented in the state. While Ed & I were measuring the hawthorn,



Figure 87: View of Courson Island from the overlook on Highway 62 (photo by Edward Frank 2008).

Tony ventured on and came back with news of a fat butternut ahead. Turned out to be the largest I've personally seen in the field at 8ft CBH (above branching) x 63.8 ft high. It was 9ft circumference just below branching. Regrettably, it's been affected by the butternut canker, but is still producing nuts.

On April 20, 2010 a follow-up trip was made to Courson Island by Carl Harting and Edward Frank. Frank (2010) writes:

The first target of the day was Courson Island. This is the fourth of seven islands that make up the wilderness. It is 62 acres in size, 0.9 miles in length, and 0.1 miles in width, and generally paramecium shaped. The goal for the day was to look for new larger trees than had been previously documented and to try and measure additional species that were not

documented on the previous trip. Because of limited time and the goal of visiting several different islands today, Carl and I decided to put in at a Fish Commission access point named Bonnie Brae immediately upstream of Courson Island... The river level was down and flowing slowly. The water surface was still and mirror-like. The island was but a short paddle and soon we reached the upstream end of the island. Debris from the winter flooding formed a barrier across the tip of the island and behind it laid a mass of multiflora rose briars.

Just beyond the flood debris barrier is a catalpa tree we found on the first trip.

This is the only one we have encountered on any of the islands and seems out of place here. Unfortunately the leaves had not yet opened and I am still unsure if it is a northern or southern

catalpa. If native it must be a northern catalpa, but on the other hand southern catalpas are commonly planted as ornamentals. We continued down the main portion of the island. Carl located a slippery elm another addition for the species list. I added a nice black willow, another unmeasured species, near the downstream end of the island. The black willow was a respectable specimen at 8.4 feet in girth and 74.5 feet in height. We measured a few other tree specimens along the way. Carl pushed the height of the previously measured white ash a couple of more feet.



Figure 88: False Hellebore (photo by Edward Frank, 2009).

We measured a nice fat butternut not located on the previous trip as well. This tree turned out to be just over 86 feet tall

- the tallest yet found on any of the islands.



Figure 89: Butternut and Carl Harting, Courson Island - at 86 feet it is the tallest butternut measured on the Allegheny River Islands (photo by Edward Frank, 2009).

Exploration in the early spring is much easier than in the autumn after a season of growth. We found ourselves hiking across open areas of newly opened Skunk cabbage (*Symplocarpus foetidus*).

Intermixed with the native skunk cabbage were masses of False hellebore (*Veratrum viride*). Scattered here and there were Virginia bluebell flowers (*Mertensia virginica*) and likely are white-flowering Cutleaf toothwort (*Cardamine [Dentaria] concatenata*).



Figure 90: Cluster of large trees in new section, Courson Island. Carl is standing beside the 136.5 foot tall sycamore (photo by Edward Frank, 2009).

Invasive plants were pervasive on the island. There were large open areas of matted down invasive fields of reed canary grass (*Phalaris arundinacea*). Japanese barberry (*Berberis thunbergii*) was present. We pushed through clumps of multiflora roses (*Rosa multiflora*), some of these roses reached twenty feet or more as they climbed into the trees. Tatarian honeysuckle (*Lonicera tatarica*) bushes were ever present. Fortunately for us the 12 – 15 foot high barrier of Japanese knotweed (*Fallopia japonica*) that thwarted much of our travel on the first trip, had been knocked down by the winter season and we were able to explore several new areas.

One of these newly accessible areas was a small semi-island section that intermittently separated from the main portion of the island during periods of high flow. On this occasion a shallow stream a few inches deep was all we needed to cross to see this section.

There were some really nice sycamores and silver maple trees here. Carl measured one sycamore to just over 135.5 feet, while I simultaneously found a top in another 43 yards straight up, from a position 7.5 feet above the base of the tree. From the side I achieved a similar result for this tree with a height of 135.8 feet. There were several others in the 130 foot class. These two trees were ten feet taller than any we found on the initial trip two years ago. Immediately adjacent to these trees was a nice silver maple Carl found at 123.2 feet in height.

In 2005 Dale documented a silver maple near King Island at 123.3 feet tall making it the tallest known in the northeast at the time. This was a silver maple of almost the same height. However on April 02, 2009 Dale and I found a taller silver maple at 128.9 feet on Thompson Island, a few miles upstream and also part of the Allegheny River Island Wilderness, but this specimen is still an exceptionally tall silver maple. From this point we headed back to the canoe.

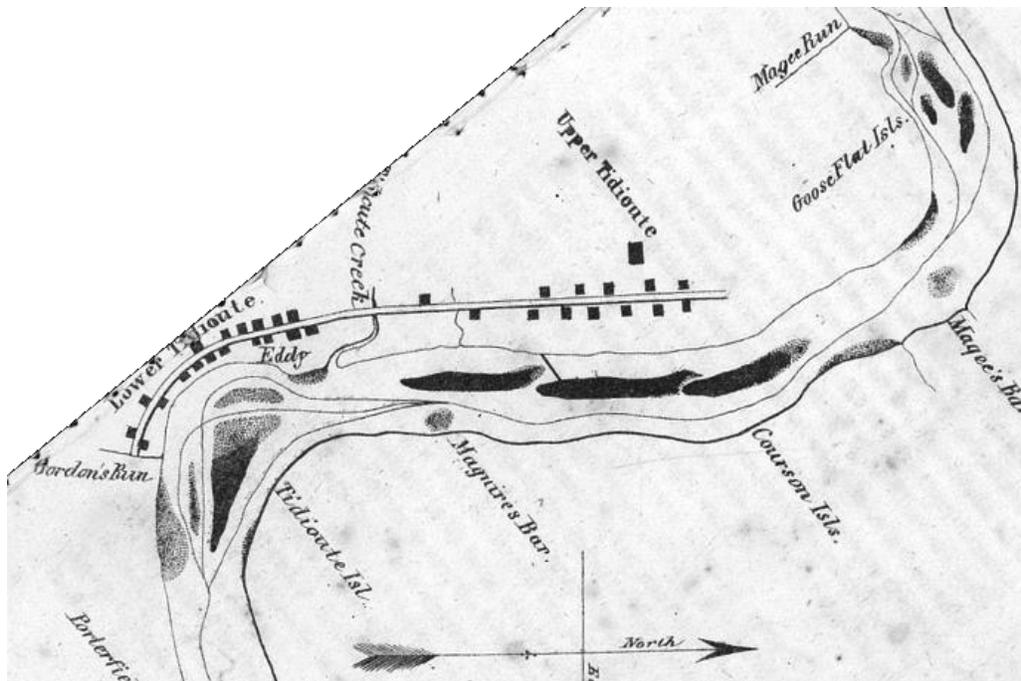


Figure 91: Map of the Allegheny River near Tidioute by Babbitt (1855) Allegheny No. 3 map.

Note the north direction is off by 90 degrees. Babbitt (1855, p. 13) writes: "Courson Islands - Channel to the left. There is no navigable channel to the right in consequence of a mill dam which crosses it."

### **Courson and McGuire Islands, Tidioute, Pennsylvania**

Examples of changes in the river islands can be illustrated by comparing an 1855 map by Babbitt, a map from 1865 (Beers et. al. 1865a) with air photos from 1939, and the present day (PADCNR 2005) of the islands and the Allegheny River as it flows through Tidioute, Pennsylvania. The 1855 map of the area shows three islands collectively marked Courson Islands. The 1865 map (Beers et. al) of the Allegheny River adjacent to Tidoute also shows three islands in the immediate area, today there are only two.

The upstream island on the Beers 1865 map was Church Island, followed by McGill & McGee Island, and McGuire Island. McGuire Island today

located immediately downstream of present day Courson Island is essentially the same size as on the older map and subdivided into two islets. McGill & McGee Island on the 1865 map corresponds to downstream end of modern day Courson Island. The best interpretation of the evolution of Courson Island is that over time Church Island and McGee and McGill Islands shown on the 1865 map grew larger as a result of floods and other river processes. Eventually Church Island merged into the upper end of Courson Island forming a single larger island. This structure is reflected in the topographic structure of the island as it exists today. High areas near the upstream end of Courson Island and the upper portion of the central portion of the island represent the original islands that existed. Also on the photo is a bulge shaped piece of land on the north bank of the river upstream of Courson Island. It is a remnant island that became attached to the shoreline at some time in the past. Similar changes can be seen on many of the

larger and smaller islands along this stretch of the river.

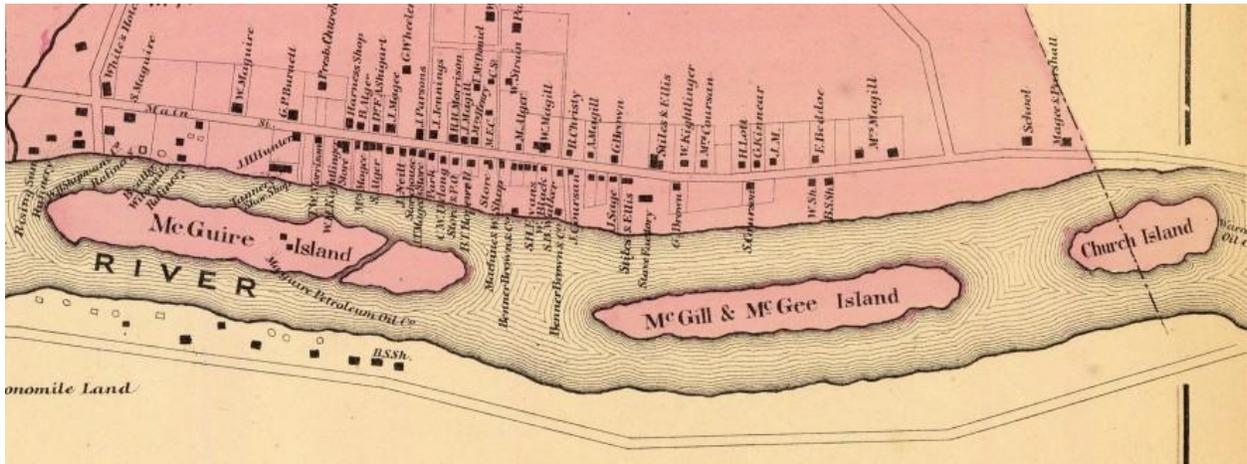


Figure 92: Detail of Allegheny River at Tidioute, Pennsylvania (Beers 1865).



Figure 93: Courson and McGuire Islands as seen on an aerial photo from June 7, 1939. Note the large open areas indicative of farming activity (Penn Pilot).



Figure 94: Courson and McGuire Islands as seen on an aerial photo from May 27, 2008 (USDA Farm Service Agency).

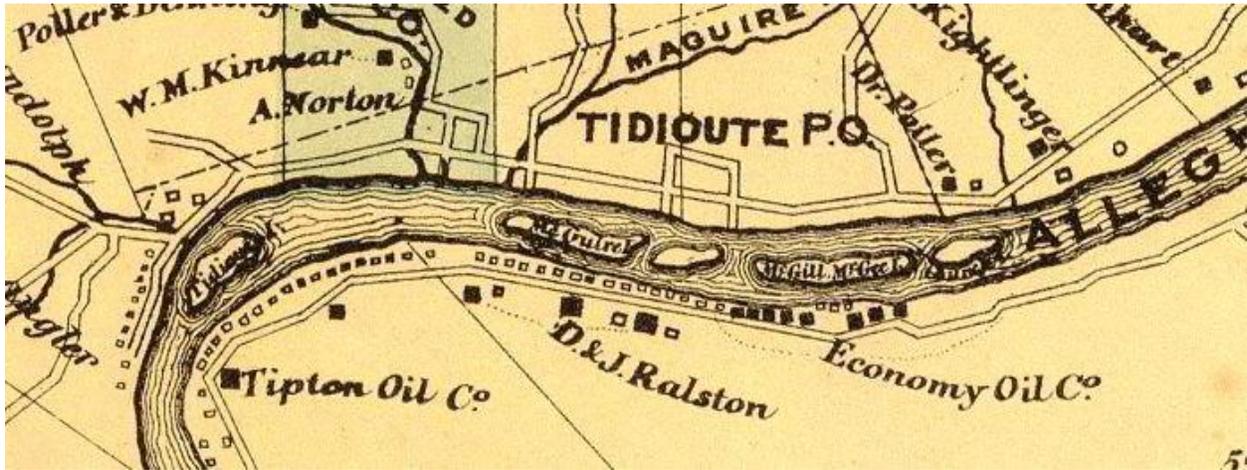


Figure 95: A section of the larger scale portion of the Beers (1865) map showing the “Plan of Oil Territory in Warren County” shows a slightly different configuration for the islands with Church Island much closer to McGill and McGee Island than on the map showing a more detailed view of Tidioute.

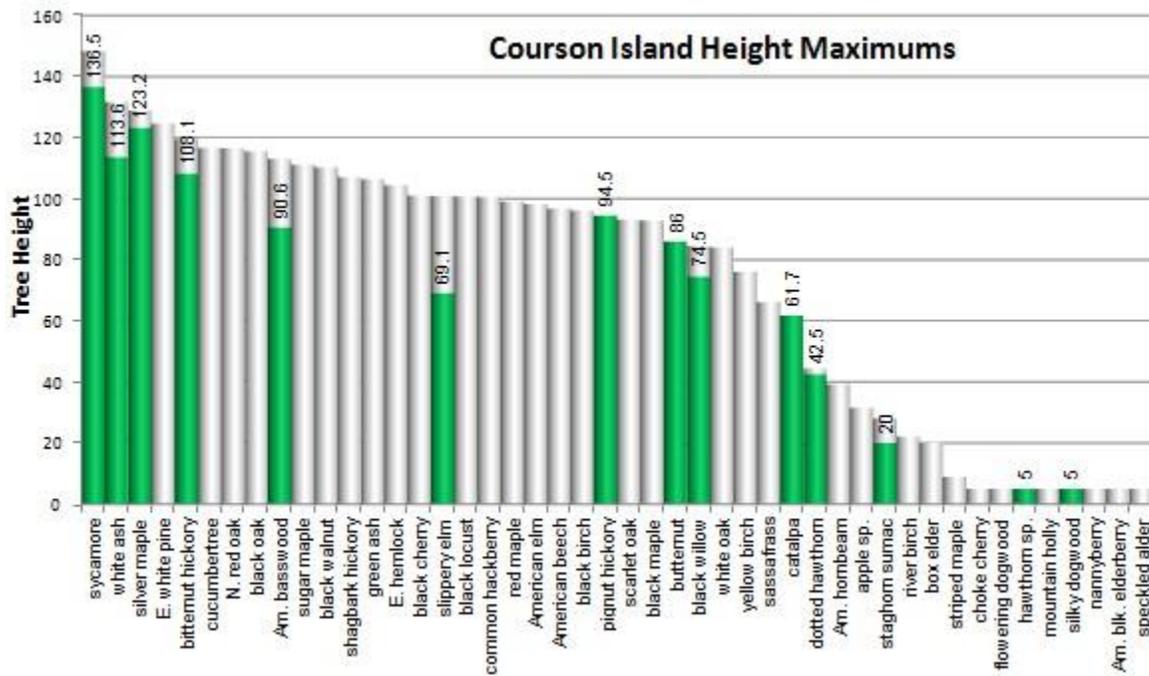


Figure 96: Tree height profile for Courson Island. The green bars represent the maximum height of trees found on Courson Island compared against the light gray background profile for the Allegheny River Islands as a whole.

Courson Island			
Species	CBH (ft)	height (ft)	Date
sycamore	11.4	136.5	9/4/2007
sycamore	15.2	129	9/4/2007
silver maple	8.9	123.2	9/4/2007
white ash	9.2	113.6	4/20/2010
bitternut hickory	5.1	108.1	4/20/2010
bitternut hickory	7.6	105.3	9/4/2007
silver maple	12.2	97	4/20/2010
pignut hickory	7.2	94.5	9/4/2007
pignut hickory	5.5	94.5	9/4/2007
Am. basswood	7.9	90.6	9/4/2007
butternut	9.2	86	9/4/2007
black willow	8.4	74.5	4/20/2010
slippery elm	9.3	69.1	4/20/2010
catalpa sp.	5.9	61.7	9/4/2007
dotted hawthorn	4.9	42.5	4/20/2010
staghorn sumac	1.5	20	9/4/2007
silky dogwood		5	9/4/2007
<b>Rucker Height Index 5</b>		<b>115.18</b>	
<b>Rucker Height Index 10</b>		<b>95.78</b>	
<b>Rucker Girth Index 5</b>		<b>11.02</b>	
<b>Rucker Girth Index 10</b>		<b>9.21</b>	

Figure 97: Rucker Indices and Maximum Height Table for Courson Island.

It was difficult to find an adequate number of tree and shrub species to generate a strong Rucker Index for height or girth. Only 14 species have been identified at this time. The island does have some tall sycamore trees, but toward the bottom of the Rucker Index listings the tree height quickly drops off. Much of the island was being farmed in 1939 and little forest older than that date exists on the island. With additional trips the number of species will likely increase and as the limited areas of older forests still present on the island are better documented, the Rucker height and Girth Indices should increase as well.

### McGuire Island

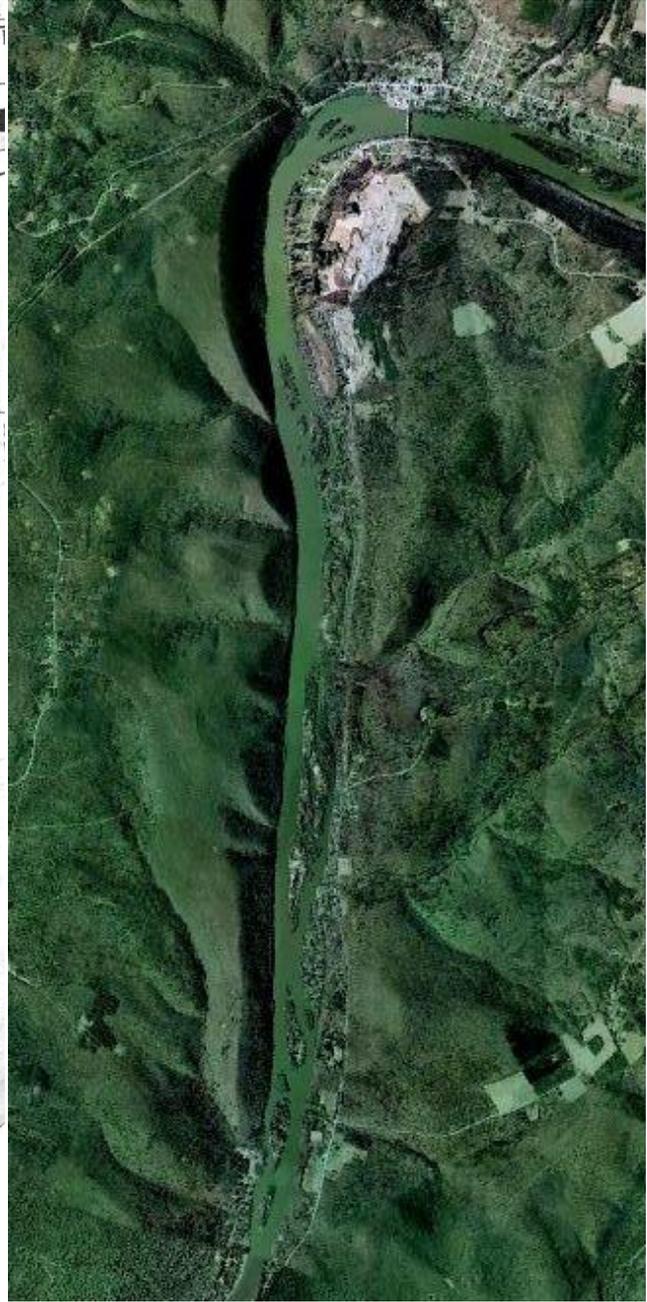
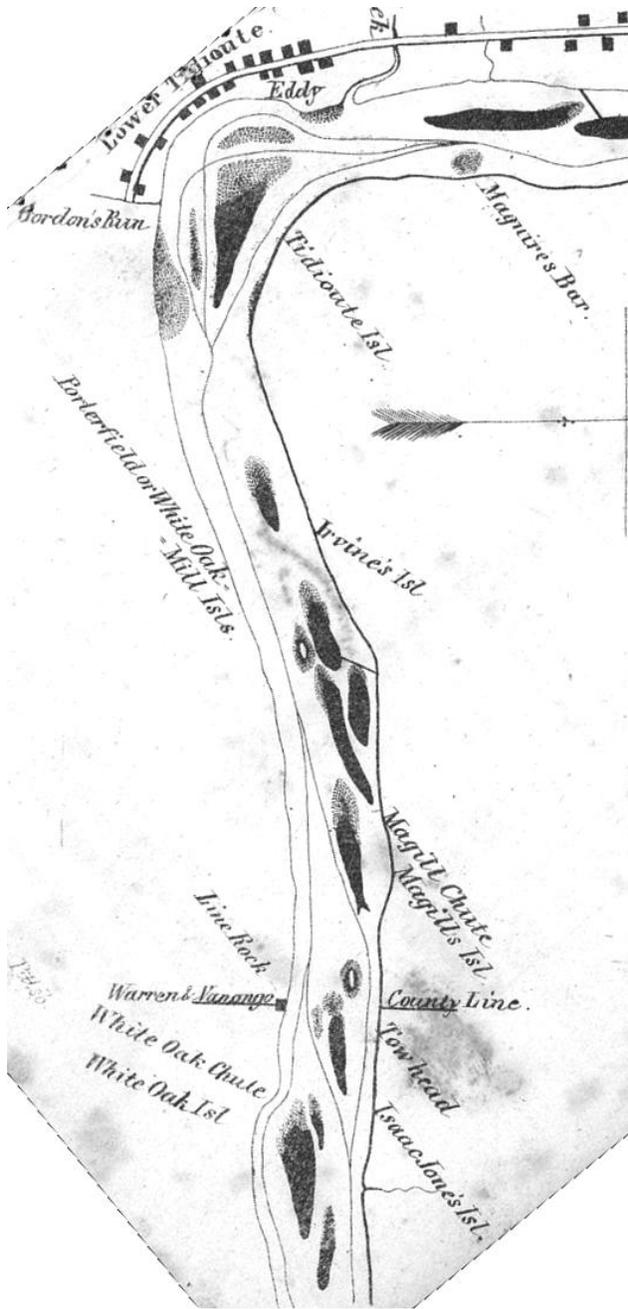
The name of McGuire Island has changed from map to map over time. McGuire Island appears as the name on the current topographic map (Tidioute 1995/07/01) of the area. In the Babbitt (1855) map McGuire Island is the downstream-most of three islands forming Courson Islands.

There is a smaller bar near the eastern (southern) bank of the river named Maguire Bar. The Beers (1865) map of Tidioute shows the island as McGuire Island. Two buildings are marked on the island with the notation Maguire Petroleum Oil Co. There is a stream flowing into the Allegheny River from the north at the headwater named Maguire Run. The Warren County Atlas (1878) Tidioute Plate shows the island named as Maguire Island with the notation "now belonging to J. Hunter." Curiously Courson Island is shown as three islands on the map, but these islands are not named there. The name McGuire Island, as shown on the current topographic map, is used in this report.

### Tidioute Island to White Oak Island

Below Courson Island, essentially from Tidioute and West Hickory is a nine mile stretch of river, running from river mile 167 downstream to 158. This section of the river contains a series of islands that have not yet been examined as part of this investigation. The sole exception is Hemlock Island just upstream of West Hickory at river mile 160. The islands in this stretch include from upstream to downstream: McGuire Island, Tidioute Island, a series of smaller islands and bars, Siggias Island, White Oak Island, several more smaller islands and bars, and Hemlock Island. Tidioute Island lies in the sharp bend in the river immediately downstream of Tidioute. Babbitt (1855, p. 14) describes the islands downstream Tidioute Island as follows:

White Oak Island: From the foot of Tidioute Island to White Oak Island there are no less than ten Islands and bars which gives the river a ragged appearance. From the center to the left shore, it is literally cut to pieces with islands, bars and tow-heads; all of which the channel is to the right.



Figures 98 and 99: Comparison of the map from Babbitt (1855) with an aerial photo (PA DCNR 05/27/2008) of the river downstream of Tidioute, Pennsylvania to immediately above Hemlock Island. Tidioute Island is located in the bend in the river at the north of the images. Present day Siggias Island is adjacent to the east shore of the river in the center of the map. It was marked as the uppermost of the Porterfield or White Oak Mills Islands on the Babbitt (1855) map.

Examination of present day aerial photos shows at least 27 islands in the stretch from McGuire Island to West Hickory. Siggias Island is the uppermost of the Porterfield Islands on the Babbitt

(1855) map. Of those 27 islands, four are attached or nearly attached to the shore at the present time, and two of those are inhabited with subdivisions.

## Hemlock Island

41° 35.627'N x 79° 24.425'W elevation 1077 ft.

Hemlock Island is a large privately owned island just upstream from West Hickory located along the eastern bank of the river. The island is about 0.8 miles in length and 0.1 miles across, with acreage of 42 acres. "Approximately one-third of Hemlock Island was cultivated for crops from the late 1860s until the 1930s and is now composed of successional fields. Upland mesic forest located on the highest elevation on the eastern flank of the island, comprises another one-third of the island. Riparian forest comprises the remaining lowland area and extends along the western flank of the island." (Walters and Williams, 1999, pp. 82-83)

On Wednesday July 16, 2008 a trip to the island was made by Dale Luthringer and Edward Frank. Frank (2008b) writes:

One stretch of the river between Tidioute and West Hickory, a distance of 8 miles, was not canoed during the trip as it did not contain any of the islands that were part of the wilderness. It does, however, contain a number of islands owned by the US Forest Service and some private

islands. The most prominent of these islands is Hemlock Island. Dale had been past the island on canoe trips down the river years ago, but had not actually been on the island before. From the riverbank we could see some emergent pines growing from the island. We had not encountered any white pines on any of the wilderness islands. Looking at the air photos a number of dark blotches could be seen on the upstream eastern side of the island that we believe represented evergreens on the island... Some larger deciduous tree could be seen around the perimeter of the island, likely silver maples and sycamore trees. Looking at the structure of the island it consists of a series of s-shaped ridges originating as a sequential series of sand and gravel bars deposited by flood and ebb stages in the Allegheny River. I am not sure of the specific age structure or geologic series of these bar deposits. In general the deposits at the upper end and tail end of the island are the youngest. The oldest deposits are likely the higher elevation deposits in the central and eastern side of the island.



Figure 100: Hemlock Island (PA DCNR 5/31/2008).

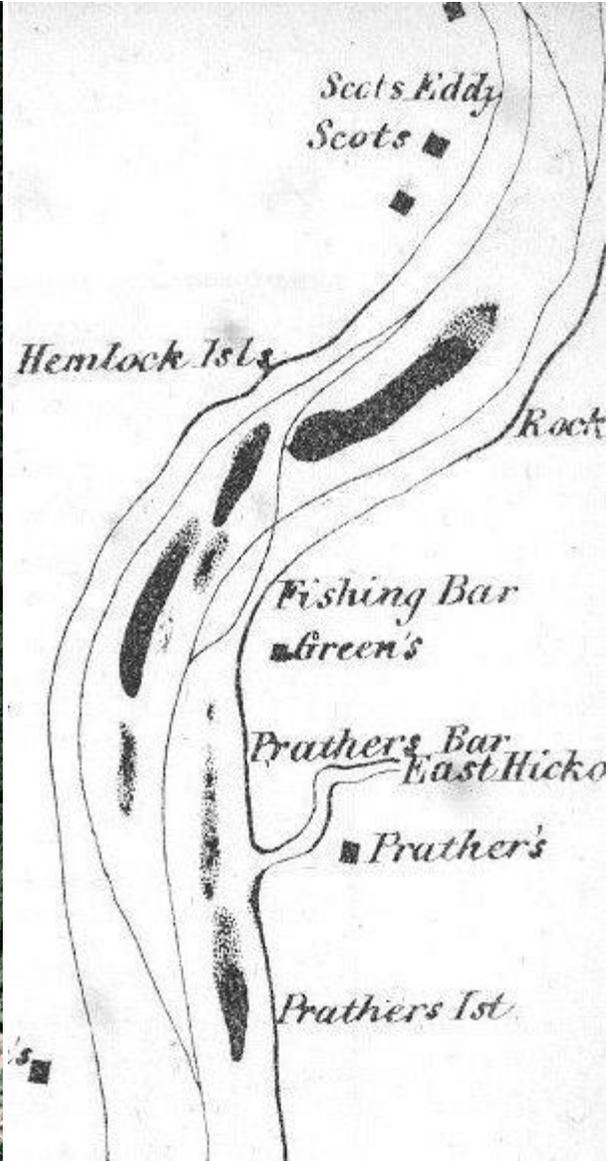


Figure 101: Hemlock Island's as shown by Babbitt (1855).

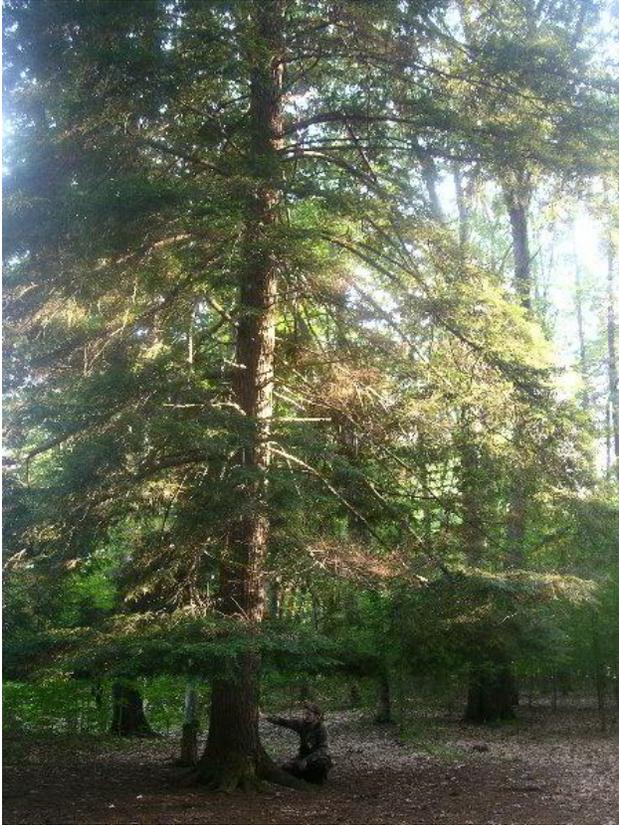


Figure 102: A hemlock tree from Hemlock Island (photo by Edward Frank, 2008).



Figure 103: Black locust patch with an understory of sensitive fern (photo by Edward Frank, 2008).

We opted to take my small inflatable raft rather than one of the park canoes to the island because of the steep bank leading from the parking area down to the river. We soon landed on the far side and pulled the raft onshore. The bank rose for about 15 feet to a nice camping area ringed by pines and hemlock. We had not found hemlock on any of the islands we had previously visited. With that we were off and running measuring trees. Dale immediately started measuring the white pines and hemlocks. It was exciting to find species we had not documented previously. After measuring a number of trees in the immediate area of the informal campsite we headed upstream/northward. The next area was a lower level terrace a few feet above the

current river level. The area was heavily vegetated with masses of sensitive fern forming the forest floor and scattered sycamore, black locust, white ash, and hawthorn. We measured a few trees here and then we split up. Dale continued to measure the pines, hemlocks, oaks, and hickories on the upper terrace, while I headed toward the northern end of the island.

The northern end of the island was at the lower terrace level and became brushier with frequent patches of multiflora rose. The trees here were not that large. The biggest were a few sycamores in the seven to eight foot girth range and 70 to 80 feet tall. There were also some silver maples in the same size range. One of the



Figure 104: Multitrunk silver maple near the upper end of Hemlock Island (photo by Edward Frank, 2008).

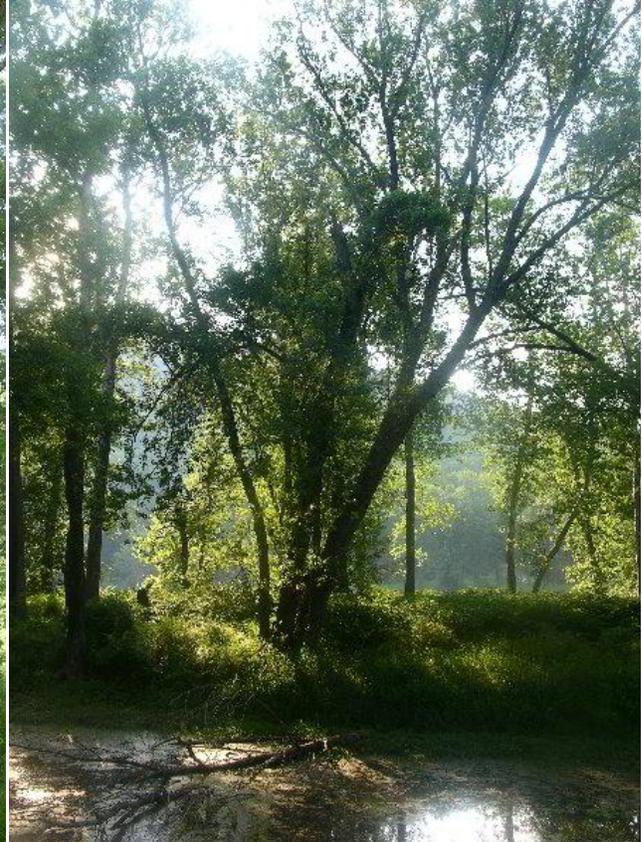


Figure 105: A large 116 foot tall silver maple located along the edge of a pond channel in the center of Hemlock Island (photo by Edward Frank, 2008).

silver maples was a multitrunk specimen with perhaps ten separate stems each about a foot in diameter. These multitrunk specimens form as a result of damage to the original stem from flood debris and are a common occurrence with the species. In this setting I would say for trees of any size a multitrunk silver maple is more common than a single trunk specimen.

The very top of the island was grassy and open covered with Reed Canary Grass, an invasive grass to wetland areas. I rounded the top of the island and headed back down the western side of the island. One tree worth noting was a large Black

Willow that I did not measure. It was easily the fattest willow and likely the tallest found in the river islands complex. I would guess it was over ten feet in girth and 70 feet high at a minimum.

Looking at the air photo of the island above a large channel with water can be seen cutting into the right (upstream) end of the island. Going down the west side (top of photo) along the finger formed by the channel I found several good sized silver maples. The largest was 9 ft. 11 inches in girth, and measured 116 feet tall. It was located in a small patch of knotweed - one of the few significant patches found on the island. I crossed the

channel on a fallen log and rejoined Dale. By this time Dale had measured several species of oak, maple, hickory, and many assorted species. I called him over to measure the large silver maple across the channel. We also measured basswood, and documented sassafras, flowering dogwood, Am. hornbeam, and cucumber tree in this immediate area.

The northern, southern and western sides of the island represent bar deposits that are raised above the river level, but not to any great height, likely less than 10 feet on average. It is evidenced that these areas flood periodically. The lowest tiers flood every spring, while the higher levels flood every few years. These areas are the same in character as was found on any of the other islands we visited. The eastern side was something completely different. This area was raised from 15 to 20 feet above the current river level. It looked as if it had not been flooded for an extremely long time. The trees were spaced and open as if they were a section of a forest typically found in a dry upland setting. The species diversity for the island was very high because species were found in this upland area which were not typically found in areas frequently flooded. We found 32 woody species on our less than four hour stay on the island, by far the highest of any island we have explored along the river. The only area at all similar was a short section of ridge along Thompson Island inhabited by some big red oaks.

The final prong of exploration of the day was a walk down a path toward the

southern (downstream) end of the island. The upland forest setting gave way to a large open field of reed canary grass with a few scattered trees. We waded through the tall grass and measured a black walnut and a butternut poking their heads above the field. We had encountered this same character on other islands. Across the field of reed canary grass were some other large looking trees. We waded through the grass to find some more sycamores, and silver maples of good, but not great size. Off toward the western side of the island I could see a large single stem silver maple. I pushed forward and Dale followed. Between us and the trees was a massive moat of multiflora rose bushes. Eventually we found, worked, and pushed our way through being wounded in the process. Dale saw and measured the height of a slippery elm - the only one of the trip, but it was buried by brush and briars to the point we could not get a girth. I would guess a diameter of around 2 feet. From here we pushed on to the large silver maple. This one was 14.7 feet in circumference and 102.1 feet high from underneath. We pushed through the multiflora roses to reach a more open area along the western side of the island. Working our way back toward our raft as it was getting dark we came across several large sycamores with girths greater than 10 feet and a couple other larger silver maples.

Species observed, but not measured =  
Black willow  
Flowering dogwood  
Mountain holly  
Sugar maple

Total Woody Species = 32 (most out of any Allegheny River Island surveyed to date)

Invasive species =

- Japanese barberry
- Reed Canary Grass
- Japanese Knotweed
- Multiflora rose

barberry, Japanese Knotweed, multiflora rose, and reed canary grass. I am sure there are others, but they were not noted. I am not sure how much the forests of Hemlock Island have been altered by human activities. Some of the trees I would estimate to being over 150 years old. A nice black cherry with balding found by Dale is one example. Many of the trees had evidence of wind damage in the past. The fattest basswoods and sassafras all had their tops blown off at some time in the past. I would guess winds related to the tornados of 1985.

As noted above we identified a number of prominent invasive species on the trip: Japanese

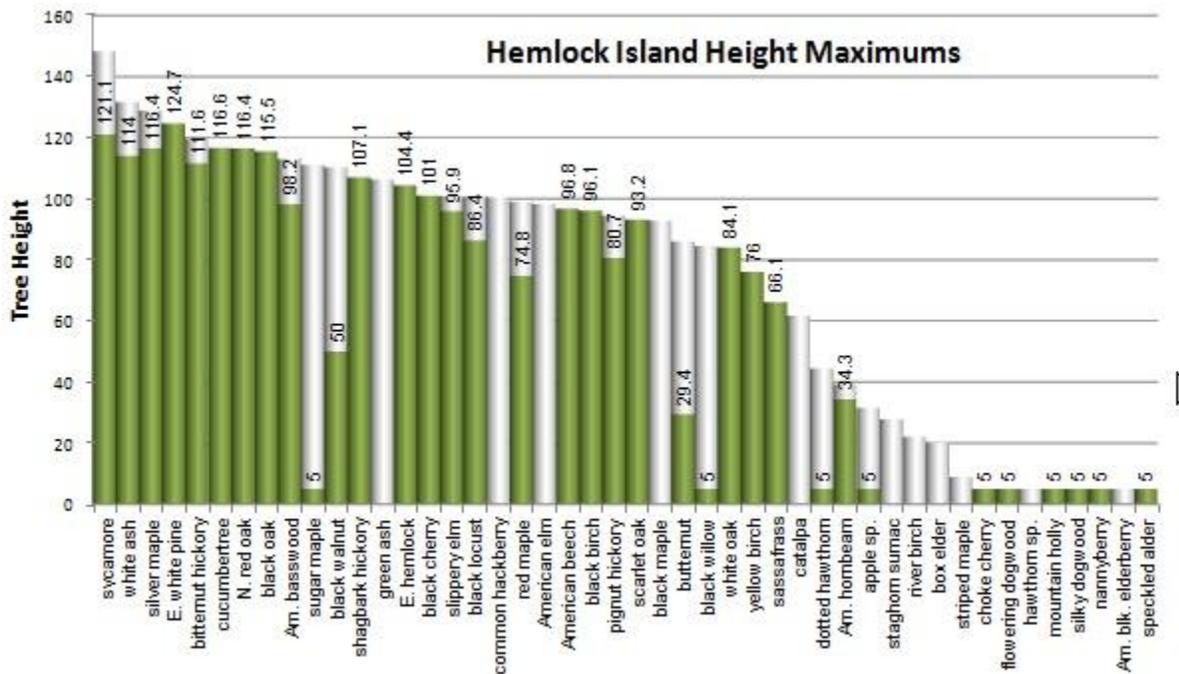


Figure 106: Tree height profile for Hemlock Island. The olive green bars represent the maximum height of trees found on Hemlock Island compared against the light gray background profile for the Allegheny River Islands as a whole.

Hemlock Island			
Species	CBH (ft)	height (ft)	Date
E. white pine	8.6	124.7	7/16/2008
sycamore	7.8	121.1	7/16/2008
cucumbertree	3.9	116.6	7/16/2008
silver maple	9.9	116.4	7/16/2008
N. red oak	9.2	116.4	7/16/2008
silver maple	9.9	116.4	7/16/2008
black oak	7.1	115.5	7/16/2008
sycamore	10.5	115	7/16/2008
white ash	8.7	114	7/16/2008
E. white pine	10.3	113	7/16/2008
bitternut hickory	7.3	111.6	7/16/2008
cucumbertree	4.9	110.1	7/16/2008
N. red oak	10.9	108	7/16/2008
shagbark hickory	5.7	107.1	7/16/2008
bitternut hickory	7.6	105.1	7/16/2008
E. hemlock	7.8	104.4	7/16/2008
silver maple	14.7	102.1	7/16/2008
black cherry	6.7	101	7/16/2008
Am. basswood	8.3	98.2	7/16/2008
Am. beech	6.3	96.8	7/16/2008
black birch	6.4	96.1	7/16/2008
Am. beech	7.6	96	7/16/2008
slippery elm		95.9	7/16/2008
scarlet oak	7.4	93.2	7/16/2008
black cherry	6.8	87.1	7/16/2008
black locust	4.3	86.4	7/16/2008
white oak	4.2	84.1	7/16/2008
pignut hickory	3.3	80.7	7/16/2008
yellow birch	2.7	76	7/16/2008
red maple	3	74.8	7/16/2008
sassafras	4.8	66.1	7/16/2008
black walnut	3.3	50	7/16/2008
Am. hornbeam	1.5	34.3	7/16/2008
butternut		29.4	7/16/2008
flowering dogwood		5	7/16/2008
mountain holly		5	7/16/2008
apple sp.	4.7		7/16/2008
dotted hawthorn	1.3		7/16/2008
vitus sp.	1.8		7/16/2008
<b>Rucker Height Index 5</b>		<b>119.04</b>	
<b>Rucker Height Index 10</b>		<b>114.78</b>	
<b>Rucker Height Index 20</b>		<b>102.81</b>	
<b>Rucker Girth Index 5</b>		<b>11.26</b>	
<b>Rucker Girth Index 10</b>		<b>9.63</b>	
<b>Rucker Girth Index 20</b>		<b>7.63</b>	

Figure 107: Rucker Height Index and Maximum Height Table for Hemlock Island and Rucker Girth Index and Maximum Girth Table for Hemlock Island.

The island certainly needs to be revisited and more time spent there that we were able to do in a single evening. There are several big sections of the island we did not see at all, let alone measure. I know there is a nice black willow to

measure, and I believe we can get our species count higher. As a final note there were some fat grapevines on the island. The largest was a respectable 1.8 feet in girth. There are several smaller islands immediately downstream of Hemlock Island. Two of these might be considered part of the Hemlock Island complex. The others are near shore islands related to the floodplain deposits and the small stream entering the river in this area.

Hemlock Island was one of two islands that were studied by Walters and Williams (1999). The other was King Island, the next major island downstream. Hemlock Island had by far the greatest diversity of any island in the focus area with 35 species indentified. This is likely because it also has the highest maximum elevation of any of the islands visited. Many of the species found on the highest regions of the area have only been found on this island. This is in spite of the fact that it has only been visited one time on an afternoon trip. Further exploration will surely increase the number of species located and the Rucker Index for the island, already the highest documented at 114.78 of any islands in the focus area. It is curious that the tallest tree located on the island was only 124.7 foot tall white pine. Most of the islands have sycamore trees over 130 feet tall, while the tallest yet found on Hemlock is only 121.1 feet tall. Further exploration will likely find a specimen of similar height on Hemlock Island, and this increase alone would push the Rucker Index up by a foot.

### West Hickory through King Island /King Peninsula

Another example of the dynamic and changing nature of the river is shown by comparing aerial photos from 2008 and a map of the river produced in 1881 in the area of present day King Island a few miles south of West Hickory. King Island is located in the corner of the lower bend on the modern aerial photo next to a large floodplain deposit designated in this report as King Peninsula.

Both the 1855 Babbitt map and the Smith 1881 show an island in the same area as the present day King Island. The island is unnamed on the 1855 map itself but is referred to as Hickory Town island in text, with the instructions being for rafters to steer to the right of the island and to the left of Dale's (upper) Island immediately downstream.

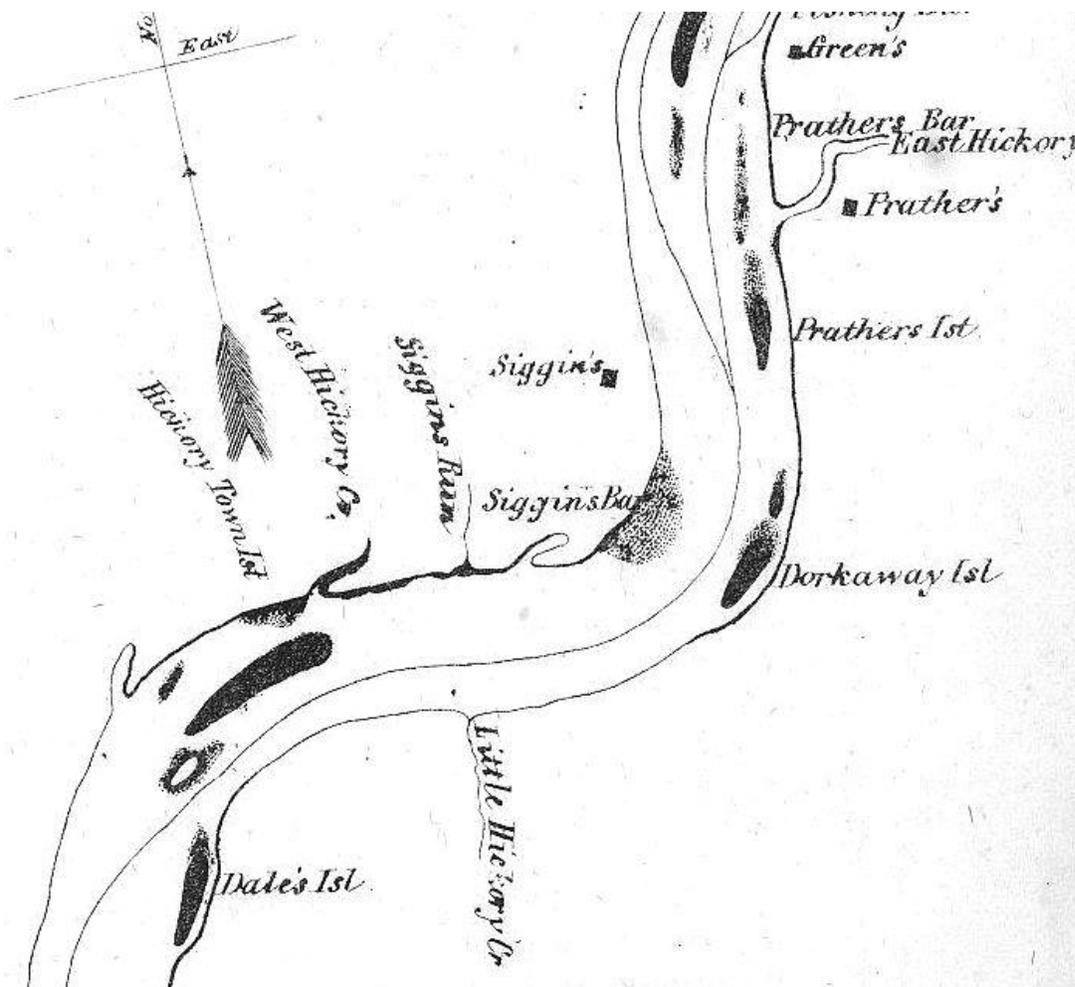


Figure 108: Section of Allegheny River Map #4, from Babbitt (1855) showing the reach of the river from Hickory to Dale's island. The unnamed island on his map immediately below the text Hickory Town Isl. is present day King Island. In the text he refers to this island as Hickory Town Island.

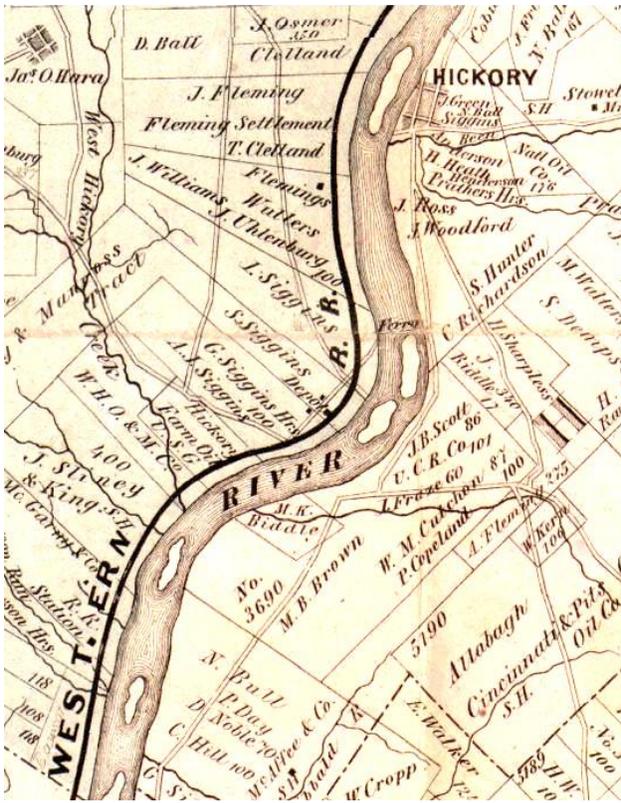


Figure 109: Excerpt from "Irwin's Map of Forest County," published by J. L. Smith, 1881.

The 1881 map shows only a very small island where King Island is presently located. It is located immediately east of the N in western on the west side of the river. The floodplain adjacent to present day King Island on the west side of the river is either absent or much reduced. The currently existing channel between King Island and the onshore floodplain also appears to be much smaller today than it appeared on the older maps. In addition several of the smaller islands just upstream of this area, marked as Dorkaway Islands on the Babbitt 1855 map and unnamed on the 1881 map are no longer present or much reduced on the modern aerial photo. This area is located immediately

below the bridge on the aerial photo. It is possible they were dredged as part of the construction of the bridge over the river at West Hickory. Dale's (upper) Island is located



Figure 110: Section of Aerial photo taken May 27, 2008 showing the Allegheny River from West Hickory to just below King Island (USDA Farm Service Agency).

immediately below King Island along the eastern side of the river on the Babbitt 1855 map.



Figure 111: King Island and King Peninsula (USDA Farm Service Agency August 4, 2006).

### **King Island**

41° 33.330'N x 79° 25.687'W elevation 1061 ft.

King Island is a 36 acres in size and is located along the western bank of the Allegheny River at river mile 156.5 about two miles south of West Hickory. The USDA Forest Service (2006) describes it as a good riverine forest with many trees 35-50 inches in diameter. It is adjacent to a

relatively broad floodplain nestled in a bend of the river which we have designated the King Island Peninsula.

Hemlock Island and King Islands were previously investigated by Walters and Williams (1999). They provided an overview of the cover on the island(p. 83):

King Island is located 4 km downstream of Hemlock Island and is part of the Allegheny River Islands Wilderness Area of Allegheny National Forest. Evidence of past cultivation is lacking but two abandoned oil wells are present on the island. A graminoid meadow occurs near the center of the eastern third of the island and riparian forest covers the remainder. Unlike Hemlock Island, which has somewhat greater topographic relief, upland mesic forest is absent on King Island.



Figure 112: Silver maple and fern dominate the downstream end of King Island (photo by Edward Frank, 2007).

Luthringer (2005b) first scouted King Island on June 22, 2005. He writes:

King Island has a nice river bottom forest that would be characteristic of much of the Allegheny River watershed directly along its banks. The most abundant and canopy dominant tree was silver maple, followed closely by sycamore, along with a scattering of white ash, American basswood, bitternut hickory, and black locust that occasionally made it to the upper canopy level. Slippery elm and *Crateagus* sp. could be found sporadically under the canopy dominants, with butternut out in open field like settings. King Island floods periodically. Soils are rich and depositional in nature throughout with a cobble stone-like base. Literature states that the island is 36 acres in size with numerous 3-4ft DBH trees. I was not disappointed.

I crossed over a shallow channel in the river and gained access to King Island. Whoever named it, named it well. This island is full of “king size” river bottom trees, at least for northwestern Pennsylvania. I started to get excited when I found a full single stem silver at 12.1ft CBH x 102.1+ft, then another at 12.5ft CBH x 106.2+ft. I thought it would end here... then found a whopper single at 16ft CBH x 114.3+ft.

The next silver I almost walked by because it was an obvious multi-stem fuse, but as I got closer the sheer size of this bulbous, fused, burly mass deserved closer inspection. All fuses were above DBH. There were at least 6 stems, 4 large ones, but all appeared to originate above the heavily burlled base. The base of this thing looked like a plant bulb from all the



Figure 113: Large multitrunk silver maple 20.8 ft CBH x 103 feet tall (photo by Edward Frank, 2007).

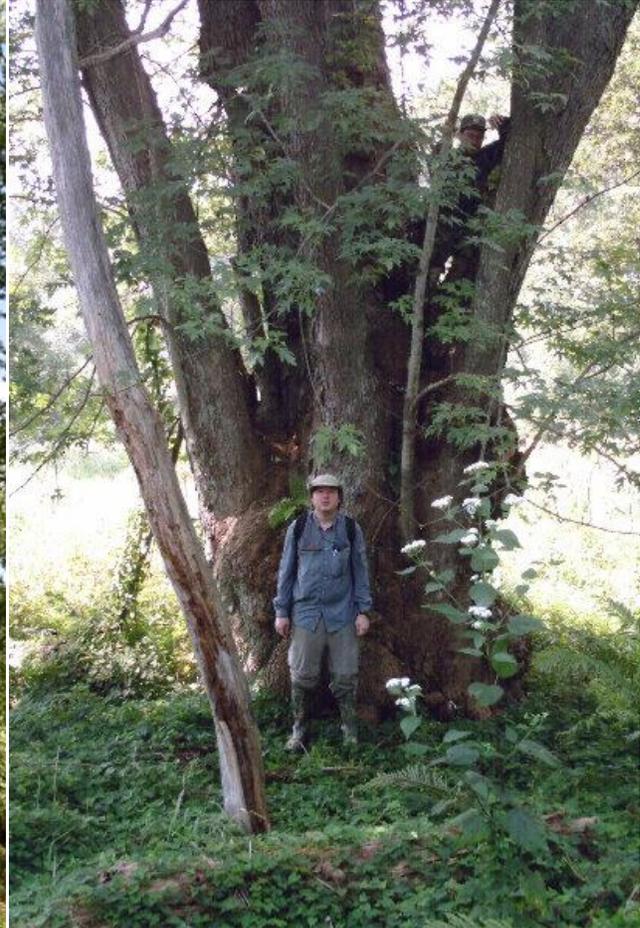


Figure 114: Base of a large multitrunk silver maple 20.8 ft CBH x 103 feet tall (photo by Frank, 2007).

damage it had taken over the years from ice flows and flood damage. I could actually walk up the side of this thing. I ran out of DBH tape measuring this one... 21ft CBH x 84.1+ft tall!

The fused silver maple was nice, but still wasn't as impressive as the huge 16 footer a couple dozen yards away. Then I found a true monster single about 60 yards away, 17.7ft CBH x 101.5ft high. The center of the tree was hollow. I could've stood up inside it if I wanted to. After this, I found another nice sycamore at 14.1ft CBH x 119.5+ft, and a dandy

bitternut hickory at 10.8 ft CBH x 105.9+ ft high before I ran out of island.

King Island was also visited on September 5, 2007 by Dale Luthringer, Edward Frank, and Anthony Kelly. Luthringer (2007c) wrote:

I didn't want to spend a lot of time here, since I had fairly well saturated this island earlier with measurements, but I did want to show Tony & Ed some of the exceptional sycamore and silver maple on the island. We re-measured the old bulbous 6 stem silver maple I first measured back on 6/21/05. It now stands at 20.8ft CBH x 103ft tall x 79.5avg



Figure 115: Large silver maple 18.1 feet in girth and 104.3 feet tall on King Island (photo by Edward Frank, 2007).

spread. Also re-measured a sweet single stem silver maple to 18.1ft CBH x 104.3ft high x 70.5ft average spread for a total of 339 AF Points.

I remeasured a previous sycamore that only grew 1tenth of foot in over two years. In June of 2005 I had it at 14.1ft CBH x 119.5+ft high, two years later it came in at 14.2ft CBH x 120ft high. A number of the sycamore here have the potential for great age, but I've yet to core or count rings on any large trees of this species. Ed and Tony spent a good



Figure 116: Carl Harting at the base of the largest single trunk silver maple (photo by Edward Frank, 2009).

bit of time tracking down hawthorn and measuring butternut.

A follow-up trip was made to King Island on September 26, 2007 by Edward Frank and Dale Luthringer. Frank (2007c) writes:

A short distance up the river is a gated side road that leads down to the river and the central portion of Kings Island just offshore. When we arrived there were people down the road working by some fields. We were concerned that if the land was being used by local residents, that we might not be able to

access the island from this point anymore. We gathered our gear and headed down the road. The people we saw were US Forest Service people surveying and laying out vegetation plots on the floodplain of the river. Several field sized patches had been cleared for planting, and even a few bat boxes had been installed on poles. We spoke to them briefly and headed on down to the river. On this side of the island the river channel is less than 70 feet wide and no more than knee deep. We waded across and began our exploration.

I had visited the island a couple of weeks previously with Dale and Anthony Kelly. The southern end of the island had been explored, but we had not yet visited the upper end. In addition a major goal was to photograph some of the trees we had previously measured. We started up the island. The central portion of the island was essentially flat and open, with a ground cover of an unidentified vine (invasive). We took some shots of the general forest and of floodwater channels cutting across the island. We soon came to the larger butternut we had measured on the previous trip. Here Dale and I split up. I went to photograph the butternut and then on to the big hawthorn. Unless there has been a bigger one submitted since last year, this tree points out to be the new National Champion for the dotted hawthorn at 122 points. I wanted to get some better photos of the tree and some close-ups of the leaves and fruit. Dale continued to measure trees in the southern portion of the island. I know he found several more 12 x 100 class sycamores. From here I

went northward to photograph a very large single stem silver maple and an even bigger multi-stem specimen. Dale was still busy measuring so I continued to the north end of the island. Just past this area was another large multi-stem silver maple, and a very nice bitternut hickory.



Figure 117: Large dotted hawthorn with a girth of 6.4 feet, 39.3 ft tall, and an average crown spread of 43.5ft for a total of 122 AF Points (photo by Edward Frank 2007).

There also were a few more modest sized butternuts and some black locust. A survey of the island had described some of the willows present in the islands as "peach-leaf willow," however as far as I could find the only species I could identify was black willow. Certainly the few we measured were black willow. Perhaps there are peach-leaf willows present, but we did not find them or at least identify them as such. Continuing northward are a few nice trees, but nothing of any great size. I rounded the upper end of the island and headed back to the central area with the biggest silver maples and the hawthorn. Grapes were fruiting on the vines growing through the trees. I

paused under the shade of the silvers for a bite of lunch and Dale soon rejoined me. We shot a series of photos of the multitrunked silver maple, and then went back to measure the couple of larger trees I had found just a short distance north. The multitrunked silver here consisted of five distinct trunks. We measured the cbh of the trunk containing the tallest top, at 108 feet. The next tree was a black willow at 7.8 feet cbh, and height of 60.1 feet. Not spectacularly tall, but the largest I had seen on the island and therefore worth noting. The bitternut hickory was one Dale had measured previously at just over 105 feet. I measured one top to 108 feet on this trip. Obviously this island had at some time in the past suffered from wind damage, with numerous trees blown down. There are large sections of open grassland with few trees growing.

On April 20, 2010, Carl Harting and Edward Frank revisited King Island to collect additional measurement data. Frank (2010) writes:

In spite of several trips to King Island we had not yet collected enough tree species to generate a R10 Height Index. The main goal of hitting King Island today was to locate and measure at least a tenth species for the index, and hopefully to replace the relatively short dotted hawthorn on the list with a taller species.

Carl and I put into the island about midway down the east side.

The trees across most of this island are nice, but not particularly tall. The island can easily be reached by wading during times of low water, so I did not want to

spend large amounts of time remeasuring already documented trees. The goal was to add a couple of species to those already documented from the island so that a Rucker Index could be calculated.

With the wide variety of species found on these islands I was optimistic we could add several new species to the list. Carl and I made a quick circuit of the island and looked pretty hard, but unfortunately the only new species we managed to add to the list was black locust. A cluster of trees in the 100 foot range was located near the upper end of the island. This made ten species for the island, but the last species - the dotted hawthorn - was still only 39.5 feet tall and the resulting RH10 will be depressed in relation to those of the other major islands. I will need to return again sometime and find another taller species.

Whitney (2001, p. 2) also described the vegetation on King Island:

King's Island is one of the more accessible islands of the Wilderness area. It is situated downstream from a publicly owned boat launch site, set amidst a riparian forest of large, multitemed, silver maple (*Acer saccharinum*) one mile south of West Hickory. Silver maple is a rapidly growing, fairly shade intolerant species that is largely confined to riparian areas. Like most other riparian species it can tolerate long periods of inundation. Its multitemed nature has been attributed to resprouting following ice damage and flooding. The ground layer is dominated by sensitive fern (*Onoclea sensibilis*). Ninebark (*Physocarpus opulifolius*), silky dogwood (*Cornus*

ammomum), and buttonbush (*Cephalanthus occidentalis*) are common shrubs. Note the abundance of lianas (riverbank grape (*Vitis riparia*) and wild cucumber (*Echinocystis lobata*)... Major threats to the integrity of the islands include the establishment of a number of number of invasive aliens ( multiflora rose (*Rosa multiflora*), Japanese knotweed (*Fallopia japonica*), garlic mustard (*Alliaria petiolata*), dames rocket (*Hesperis matronalis*), purple loosestrife (*Lysimachia thyriflora*) and stinging nettle (*Urtica dioica*).

King Island			
Species	CBH (ft)	height (ft)	Date
sycamore	11	136.1	9/26/2007
sycamore	14.1	120	6/21/2005
silver maple	16	114.3	6/21/2005
bitternut hickory	11.1	108	6/21/2005
bitternut hickory	10.8	105.9	6/21/2005
silver maple	17.7	101.5	6/21/2005
black locust	4.7	100.72	4/20/2010
slippery elm	6.4	94.7	9/26/2007
Am. basswood	7.2	90.1	6/21/2005
white ash	4.3	81.1	9/26/2007
butternut	6.5	69.1	9/26/2007
black willow	7.8	60.1	9/26/2007
dotted hawthorn	6.1	39.3	9/5/2007
black cherry		5	9/26/2007
<b>Rucker Height Index 5</b>		<b>110.34</b>	
<b>Rucker Height Index 10</b>		<b>89.35</b>	
<b>Rucker Girth Index 5</b>		<b>11.52</b>	
<b>Rucker Girth Index 10</b>		<b>8.56</b>	

Figure 118: Rucker Height Index and Maximum Height Table for King Island and Rucker Girth Index and Maximum Girth Table for King Island.

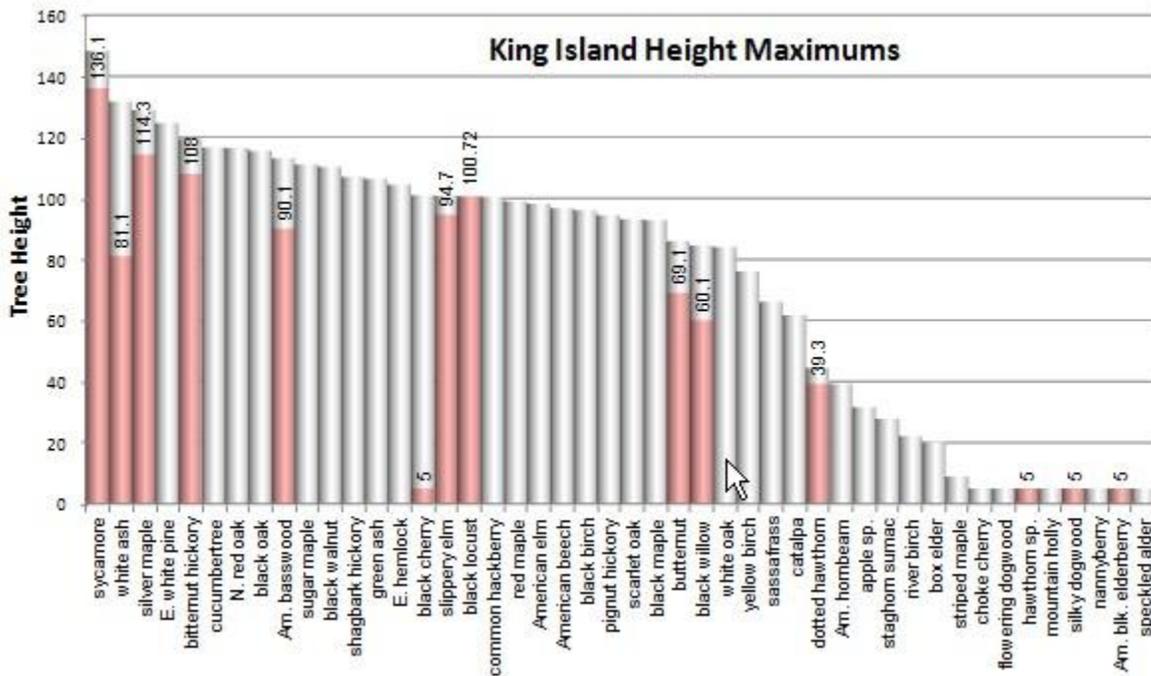


Figure 119: Tree height profile for King Island. The maroon bars represent the maximum height of trees found on King Island compared against the light gray background profile for the Allegheny River Islands as a whole.



Figure 120 and 121: Channel changes between the southern end of King Island and King Peninsula. The photo on the left was taken on August 5, 1939. The photo on the right is from August 28, 1958. The channel widened in the period between the two photos with King Island becoming more distinct from the floodplain of the peninsula attached to the western bank of the river (Penn Pilot Historical Aerial Photo Library).

### King Peninsula

41° 33.166'N x 79° 26.105'W elevation 1063 ft.

An area along the west bank of the Allegheny River just south of West Hickory, at river mile 156.5, had been called in previous reports by Dale Luthringer the “King Peninsula” because it is adjacent to King Island, part of the Allegheny River Islands Wilderness. King Peninsula is

interesting as a riverine feature. At one time this had been a river island, but the upper end of the channel separating the peninsula from the bank had silted shut. At the southernmost end the open segment of the old channel is blocked by a beaver dam. Crossing here allows access to the trees along the river edge without wading. Dale Luthringer had scouted this peninsula two years ago as part of his initial reconnaissance of the area and measured some trees.



Figure 122 and 123: Changes in the channels cutting across the surface of the King Peninsula between the 1958 photo on the left and the April 17, 1993 photo on the right. The swales that appear in the earlier photo have been enlarged by a flood sometime between the dates of the two photos. The highest stage of the river in 1993 occurred on April 4, 1993 just a couple weeks before the 1993 photo was taken.

The vegetation here, like most of the islands is dominated by silver maple and sycamore.

On a broad scale the area we have designated King Peninsula is the southern tip of the larger floodplain that extends from West Hickory along the western side of the river to just beyond the downstream end of King Island (Figure 108).

Until historic times this area was likely an intermittent island - sometimes it was an island, sometimes it was a piece of floodplain attached to the shore. At the present time much of the area along the westernmost edge of the floodplain contains either open water or swampy ground in the channel bottom. This intermittent

channel would fill with water during periods of high flow in the past.

The area has been severely affected by past farming activities. Most of the central portion of the peninsula has been cleared. An old road in the center of the picture runs from left to right from Dawson Road to what is an abandoned farmstead in the center of the open area. The channel is blocked by this road. It is likely the water continued to flow through this cut-around channel during high-water until this road filled that central portion of the water course.

Around what must have been the farmstead are a clump of planted trees including arborvitae, E.

white pine, and pear trees. Currently, the open area is being maintained by the U. S. Forest Service, Allegheny National Forest, by annual cutting to serve as open areas for game management purposes. In addition there are plantings of still young and small white pines and spruce trees in the former field areas.



Figure 124: Relief map showing the extent of the floodplain along the west bank of the Allegheny River near West Hickory, Pennsylvania.

Frank (2009b) outlined areas of former flow channels that are still visible on present day photos that correspond to the channels from the

1993 aerial photos. Some of this area is still swampy.

Not all of the area has been altered drastically by the farming operations. A band of trees runs along the edge of the Allegheny River on the east side of the peninsula. In general the central open area is flat. Between the area being mowed by the USFS and the trees is a narrow band of fallow field that is beginning to grow up in weeds and some hawthorn (sp.). At the edge of this area there is a bank that drops to a lower level running along the river. This is the area populated by a band of trees. As far as I can tell the farming operations has had little impact on this area.

Perhaps some trees have been removed and the area may have been grazed, but it does not appear to have ever been completely cleared.

This area is subject to flooding during periods of high water. These periods of high flow are generally lower in height and less violent since the construction of the Kinzua Dam upstream in 1965. It is still far enough downstream, even with few major side streams, that it floods more so than areas farther up river (Frank 2009b).

On June 21, 2005, Luthringer (2005b) measured a tall silver maple along the road that runs down the west side of the river from West Hickory to Tionesta. He writes:

The tall silver maple about 80 yards from the road fleshed out to be 9.7ft CBH x 123.3ft high. Not bad, but couldn't find any others that would go into the 120ft class the rest of the day. Near the tall silver maple was a nice sycamore that went to 13ft CBH x 117.1+ft high. Many silver maples were fused trunks. I initially got excited with a 12.4ft CBH x 114.1+ft high silver maple, but at closer inspection found an old fuse line. I soon had to put

my blinders on and zero in on the 'good stuff' ... 9-10ft CBH sycamores were common as were 10-11ft (single stem) CBH silver maples.



Figure 125: Silver maple measured to be 123.3 feet tall in June 2005 on King Peninsula. By the September 2007 trip, the tree had lost two feet of height, likely due to wind damage (photo by Dale Luthringer, 2007).

At the time this was the tallest recorded silver maple in the northeastern United States. On Sept 26, 2007 Dale Luthringer and Edward Frank (Frank 2007c) revisited the peninsula to remeasure the tall silver maple previously documented. The tree was found to have lost a couple feet in height, likely from wind damage since the previous measurement. Overall the lower end of the peninsula was forested by silver maples of various sizes from saplings to the large specimens measured.



Figure 126: Flooding along the edge of King Peninsula in November 2007. King Island lies across the flowing channel (photo by Edward Frank, 2009).

Edward Frank made another trip to the peninsula on Nov 2, 2009 to better explore the peninsula area and to locate and measure any additional species of trees found in the area. A narrow band of fallow field is found along the far side of the area being mowed by the USFS. It is beginning to grow up in weeds and some hawthorn (sp.) bushes (Frank 2009b).

At the edge of this flat area there is a bank that drops to a lower level running along the river. This is the area populated by the band of trees. As far as I can tell this area has had little impact by the farming operation. Perhaps some trees have been removed and the area may have been grazed, but it does not appear to have ever been completely cleared. This area is subject to flooding during periods of high water. These periods of high are generally lower in height and less violent since the construction of the Kinzua Dam upstream in 1965. It is still far enough downstream, even with few major side streams, that it floods more so than areas farther up river.

My goal was to try and measure some additional tree species from the area.

Unfortunately, I only had a couple of hours and was not able to measure enough to generate a full ten species Rucker Height Index, but did add several new species to the list.

“The black cherry pulls the Rucker Height Index total down being only 48 feet tall, but there is potential for finding a taller example in the areas I have yet to explore. This is an area that is frequently flooded, so there is generally a limited number of tree species that might be expected to be present. Of these expected species, I have yet to find black locust, black willow, and basswood.

There is a good chance that slippery elm might also be lurking in this area. The hawthorn (sp.) listed above appears to be physically different from the larger ones we have been listing as dotted hawthorn.

The same unidentified species was noted on the trips to Crull’s Island and

Thompson’s Island this past March and April. It is not uncommon for several species of hawthorn to co-exist..There are many large dotted hawthorn's present in the line of trees along the river. Many of them are over 3 feet in girth, making them comparable in size to some of the larger ones on the island in the ARIW itself.

King Penninsula			
Species	CBH (ft)	height (ft)	Date
silver maple	9.7	123.3	6/20/2005
Sycamore	12.6	119	11/2/2009
Sycamore	13.6	117.5	11/2/2009
silver maple	12.4	114.1	6/21/2005
white ash	7.3	105.5	11/2/2009
sugar maple	10.4	87	11/2/2009
black cherry	3.2	48	11/2/2009
hawthorn, dotted	3.3	27.2	11/2/2009
hawthorn (sp.)		10	11/2/2009
vitus sp.			11/2/2009
<b>Rucker Height Index 5</b>		<b>96.56</b>	
<b>Rucker Girth Index 5</b>		<b>10.68</b>	

Figure 127: Measurement listing for King Peninsula showing Rucker Height and Girth Indices.

## Dale's Island

Immediately below King Island on the east side of the river on the Babbitt (1855) map was the uppermost island of the Dale's Islands group. On this map King Island was marked as Hickory Town Island. The bar just off the tip of Hickory Town Island may be the tip of King Island.

The other islands of the Dale's Island group form present day Baker Island just downstream. The upper Dale's Island is no longer an island in the river but has become attached to the eastern bank of the river.

Babbitt (1855, pp. 17) describes this stretch of the river:

### HICKORY TOWN ISLAND

Channel to the left; keep a little to the left of the middle till past the large tow-head at the foot of the Island, then make a long crossing to the right shore, to prepare for Dale's Gap. This will carry you clear of the bar at the head of Dale's upper Island, which lies close to the left shore. The channel to the right of the Island is very shallow and frequently dry.

Dale's Island currently appears as a peninsula on maps but is still an island during periods of high flow. The island is owned by the US Forest Service. The island is wooded and undeveloped. Trees present include sycamore, silver maple, black willow other species expected to be found on the river islands. A measurement trip has not yet been made to Dale's island, but the area will be included in a future measurement trip.

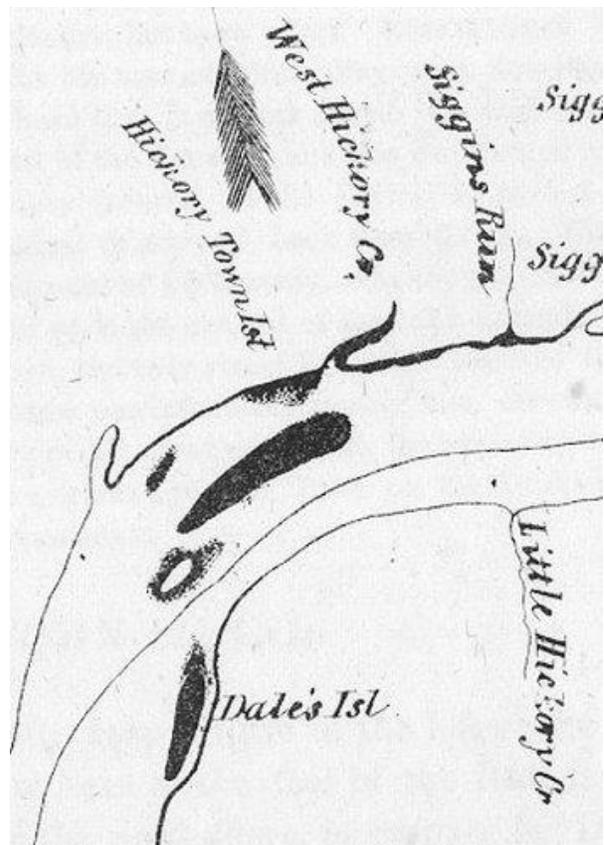


Figure 128: Hickory Town Island and upper Dale's Island (Babbitt 1855)

Frank 2011 visited the island:

The final stop of the day was an island on the 1855 map marked as "Dale's Island." Actually it is the uppermost of three islands in the Dale's Island's group. The lower two of the islands have since that time merged to form Baker Island. Present day maps shows the island to now be a peninsula. During the high flows present today, it was once again an island. It is on US Forest service land behind a school.



Figure 129: Dale's Island looking toward the river. Photo taken in April 2011 during a period of high flow. (photo by Edward Frank)



Figure 130: Looking south along the inner edge of Dale's Island taken in April 2011. (photo by Edward Frank)

I stopped and spoke to some of the homeowners that live on the adjacent property and we talked about our river Islands project and Dale's Island. There were some good sized silver maple trees, and sycamore trees, but nothing of exceptional size. Under normal flow conditions the channel between the island and shore is dry and these trees could be easily measured at that time. I also saw black willow, basswood, and white ash trees on the island area proper. I am sure a 10 species Rucker Height Index could be generated fairly easily. The lower end of the peninsula floodplain adjacent to King Island could be seen across the river.

A sequence of photos showing the progressive attachment of Dale's Island to the eastern bank of the river is shown below as Figure 131 through 135.



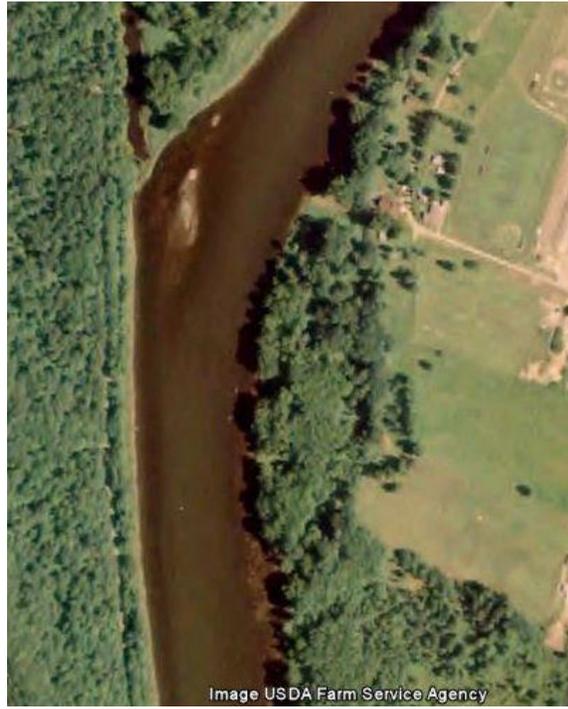
Dale's Island, August 5, 1939 (Penn Pilot)



Dale's Island, April 17, 1993



Dales Island April 21, 2001 (US Geological Survey)



Dale's Island August 4, 2006 (USDA Farm Service Agency)

Figures 131 through 135: The attachment of the uppermost of Dale's islands to the eastern bank of the Allegheny River.

## Baker Island

41° 31.593'N x 79° 26.375'W elevation 1056 ft.

Baker Island is one of the seven islands making up the Allegheny River Islands Wilderness. It is located at river mile 154, two miles north of Tionesta.

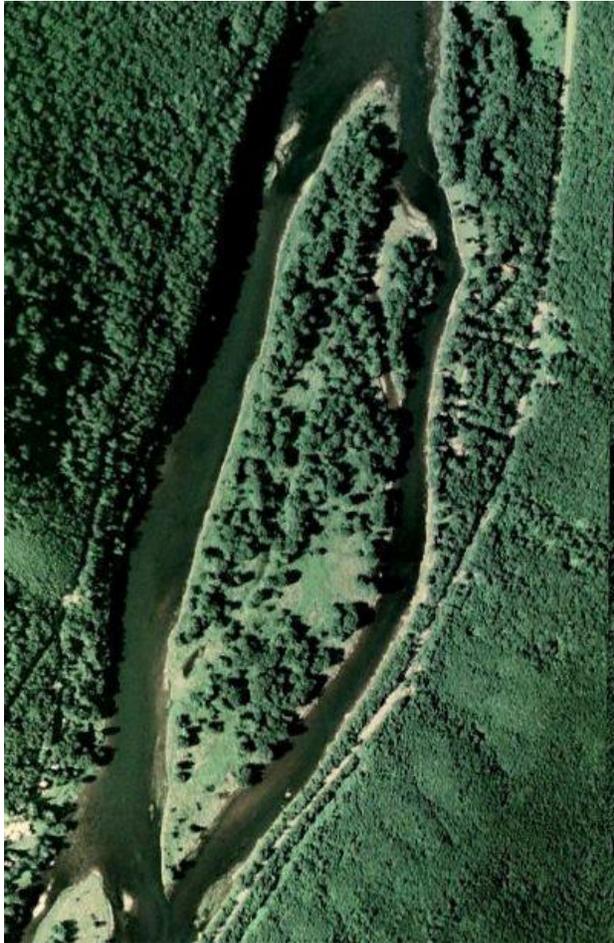


Figure 136: Baker Island (USDA Farm Service Agency May 27, 2008).

The US Forest Service (2006) describes it as: “Baker Island (67 acres) stood in the path of one of the two tornadoes which crossed the Forest on May 31, 1985. Most of the trees were blown over in the storm.” The tornado that struck Baker Island on May 31, 1985 was one of 43 that occurred on that late afternoon and evening in

northeastern Ohio, northwestern Pennsylvania, and southern New York. The number of tornadoes is unclear as some reports say there were as few as 27 tornadoes, but even if these wind storms were not all tornadoes they still caused significant destruction. During these storms 88 people were killed, over 1000 injured, 1340 homes were destroyed, and with damage estimates totaling \$530 million dollars. The Tionesta tornado path length was 48 kilometers in length and 800 meters in width. It was on the ground from 6:30 to 7:10 pm. This is the tornado that struck Baker Island (Dornsife 2011; Carpenter 2005).

Another F4 tornado started just west of the Venango/Forest county line, a few miles west-northwest of Tionesta. It moved east for about 29 miles, ending near Pigeon...or about 7 miles northeast of Marienville. Places like Starr, Crystal Springs, Whig Hill, and Kellettsville were also affected. 14 of the 17 trailers at a drug and alcohol rehabilitation center were destroyed. Throughout the path, more than 700 buildings were damaged, and 125 of them were destroyed. A car traveling on Highway 36 was blown 300 feet off the road, killing all three people inside. 4 other people were killed by this tornado, making a total of 7 dead. All were killed within a few miles of Tionesta. At least 30 other people were injured along the path of this violent tornado. (Drollinger 2011)

Just upstream another tornado occurred in the vicinity of Tidioute. This tornado's path was 27 kilometers in length, 800 meters wide, and it occurred between 7:30 and 7:55 pm that same evening (Dornsife 2011).

An F3 tornado moved east, starting 3 miles west of Tidioute and ending 3 miles



Figures 137 through 139: Comparison of the lower end of Baker Island from August 28, 1958 (far left), April 17, 1993 (center) and June 6, 2005 (right) showing the area of the island affected by the May 31, 1985 tornado. The 1993 photo is somewhat deceptive as it was taken in the spring prior to leaf out, but it does show some of the intermittent flow channels that cut through the island at that time.

south of Cherry Grove. 32 buildings were damaged or destroyed, and 8 people were injured along the 17 mile long track. Almost all of the track was in the Allegheny National Forest, thus reducing injury, death, and building damage. However, many trees were snapped and uprooted in the heavily wooded area. (Drollinger 2011)

The island was visited as part of this survey on Sept 5, 2007 by Dale Luthringer and Edward Frank. Luthringer (2007c) writes:

Baker Island was a complete surprise to me in terms of tall sycamore and bitternut hickory. Previous descriptions stated that Baker Island was hit by the major category IV or V tornado that

swept through the state in 1985. Now that I think back, I remember riding the high water that was associated with this storm on a canoe race two days after the storm had passed. We made record time due to the high water, but barely made it to the race on time due to being re-routed around blocked roads from storm damage. The towns of West & East Hickory and Tidioute had major damage with homes and lives lost. Baker was definitely hit hard, pretty much the entire bottom half of this island was devoid of any intact large trees, and dominated by a sprawling grassland with young butternut coming up like patches of staghorn sumac. The up-stream half of the island was much more impressive.



Figure 140 and 141: Tallest sycamore known from the northeastern United States. The tree was originally measured at 145.5 feet tall, but a remeasure from October 2009 found the tree had grown to 148.3 feet in height (photos by Dale Luthringer, 2008).

We landed at the top of the island and worked down the west side. It wasn't long before we got into an impressive stand of sycamore. I glanced to my right and noticed a fat sycamore, then slowly looked up the trunk, it just kept going. It turns out it ended up being a new state height champ at 12.1ft CBH x 145.5ft high. I just find this height amazing since it was growing on completely flat terrain. I believe sycamore, growing in the right location with the right competition for sunlight, should be able to grow to even more impressive heights in Pennsylvania.

There were a number of sycamores here that would've made it into the 130ft class interspersed with 110ft class bitternut hickory. I had a nice hackberry in the center of the grove that went to 9.7ft CBH x 81.6ft high. By the end of the day we were able to add three more sycamore into the 12x100 club, one of which also being the new state sycamore height record. We did a thorough search of the island while wading through a foot snagging grassland coming back up to the top of the island on the east bank. Ed had point, but was taken out by a gramonoid booby trap that wrapped around his ankles. I almost disappeared

down a sizeable woodchuck hole. Tony had our “6”, and was the only one left unscathed. It was definitely difficult walking. Terrain soon tapered back into a shorter stand of silver maple and fat sycamore as we got closer to our starting point.



Figure 142: Leaning sycamore tree on Baker Island (photo by Edward Frank, 2007).

Frank (2008a) writes:

Late Wednesday afternoon, June 18, 2008, I met Dale Luthringer at Cook Forest for a quick trip to Baker Island. We had visited the island as part of a four day expedition to several islands in the Allegheny River Island Wilderness last fall. On the island we had documented the tallest sycamore in Pennsylvania. We wanted to get some better photographs of the tree and a new measurement. Dale had spent the afternoon doing a canoeing program at the park, so we did not get out till around 4:30 pm. The drive isn't far.

The plan was to wade the Allegheny River to the island. The water was not particularly high and it was doable. We drove along the dirt road paralleling the island until we reached the lower end, parked and looked for a place to cross. Unfortunately there was a pretty good sized cliff between us and the river shoreline. We walked back upstream finally finding a place where we could get to the river edge just above the upstream end of the island. We made our way to the river and started to wade across.

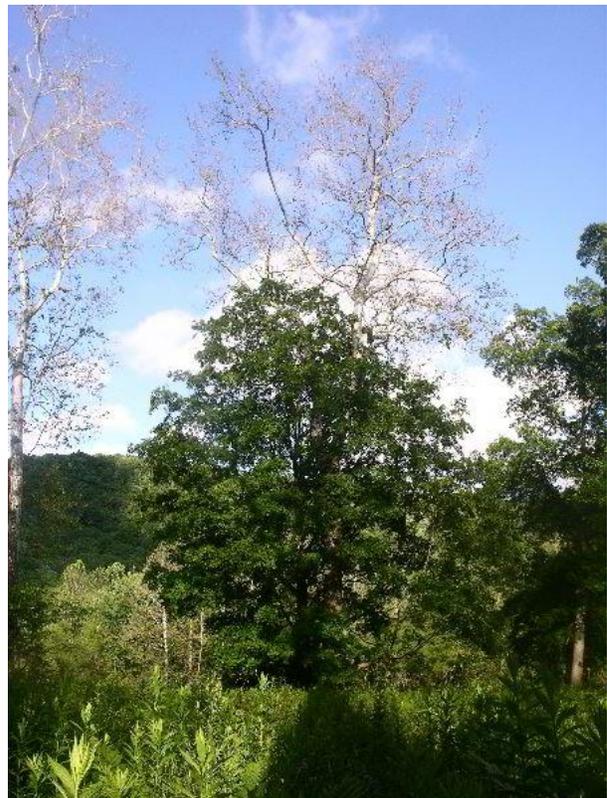


Figure 143: A large sugar maple with an adjacent sycamore in the background (photo by Edward Frank 2008).

Dale crossed a little lower than I did. There the water was shallower, but swifter. I went higher, but deeper. The current was a bit more than we

anticipated. I wobbled on my feet and dunked my rear into the water, but did not fall in. Fortunately the cameras and measuring gear were safely in double zip-locks in my backpack. Both of us made it across without further incident.

We walked along the shore down to where the larger trees were found. On the trip to the island Dale showed me a book containing accounts of the tornado that ripped across the area in 1985. Several people were killed in the towns along the Allegheny River. On Baker Island itself the entire lower end of the island was wiped clear of trees.



Figure 144: Basswood 10.7 feet in girth, but only 68 feet tall. The top likely was broken off during the tornado that hit the island in 1985 (photo by Edward Frank, 2007).

One of the trees we measured on our fall trip was a fat basswood, 10.7 feet girth,

which had its top ripped off by the wind. It reached a height of only 68 feet after the tornado damage.

One photograph showed the lower end of the island and we thought a tree shown in the photograph might be the broken basswood we had measured. The tall sycamore we were searching for was just upstream of the area destroyed by the tornado winds. I retook several photos of trees that had not come out well the first trip. Dale looked for the tall sycamore. The GPS location he had turned out to be off by some distance - I am unsure why, but he found the tree shortly. All of the sycamores on the island were suffering from Anthracnose, with a very thin canopy. The remeasure of the tree found it to be actually taller than the season before at 147.7 feet tall - again making it the tallest American sycamore in Pennsylvania. We also measured another nice American Basswood near the broken top specimen at 8.7 GBH (at 6.5 feet above the double trunk) and 72.1 feet tall.

Luthringer (2008b) also commented on this trip:

“The book containing the photo of Baker Island after the tornado was an excerpt from 'Tornado Tales'. It is a collection of small essays of Forest County folks who lived through the devastating 5/31/85 tornados. One picture was the devastation of Carpenter Lane and adjacent Baker Island on the Allegheny River as the tornado travelled from west-east. It was amazing to see the trees on the upstream side of the island still standing, but devoid of any vegetation. I am convinced that the tall sycamore we

measured there is the one crown that stands out in the picture. Yes, I agree that twisted basswood in the picture is the one we measured last September as well. The new sycamore height was probably closer to Anthony's measurement taken last September, but we couldn't confirm it then with a second shot. I believe last week's higher shot was due to one of the benefits of a thin crown from Anthracnose, giving us a better view of the top. The base was miserable to measure without help because of the 5ft layer of vegetation at its base.

On Oct 8, 2009 Dale Luthringer was able to return to Baker Island and remeasure the tallest sycamore found there. He writes:

Ed & I last measured it on 6/18/08 to 12.1ft CBH x 147.7ft high. On 10/8/09 I was able to re-measure it to 12.2ft CBH x 148.3ft high. I was also able to re-measure the tallest bitternut hickory on the island to 6ft CBH x 119.5ft high. We still don't have enough species on Baker Island to make a full Rucker Index, but this does bring the Allegheny River RI up to 120.93. (Luthringer 2009b)

On April 20, 2010, Carl Harting and Edward Frank revisited Baker Island for the purpose of measuring enough additional tree species to generate a ten species Rucker Index. Frank (2010) writes:

From King Island we pushed off and headed down to Baker Island... Again as with the other islands, the goal was to add some new tall trees and add some additional species to the data set for the island. We put in at the top end of the island. Almost immediately upon

entering the forest Carl came across a white ash. This was a species missing from the island listings. This was not so much the case of not seeing any on previous trips, but simply one of bypassing a modest specimen in anticipation of finding a larger one later.

The species simply was not measured... In the open areas covered by reed canary grass mats we commonly found bitternut hickory. These mostly were young specimens with relatively smooth bark. Butternut was also present.

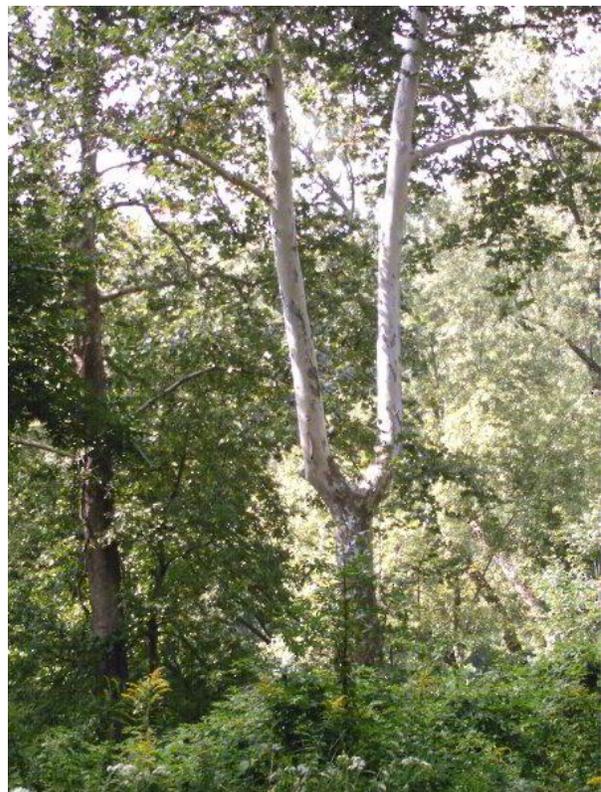


Figure 145: Slingshot sycamore on Baker Island (photo by Edward Frank 2007).

We headed down the length of the island adding a new tree here and there. I led us to the location of the tallest sycamore to show Carl. In the immediate area were several other trees noted on previous trips, including a slingshot



Figure 146: Hawthorn tree growing along the western side of Baker Island (photo by Edward Frank, 2007).

shaped sycamore, a very nice common hackberry, and a sugar maple. I directed us over to several basswoods along the western side of the island. Dale had a book with a nice photo of the damage to the downstream half of the island from the 1985 tornado. It turned out that Carl had given him the book. Near the edge of where the tornado winds had knocked down most of the trees, we had previously documented a fat 10.7 foot girth, 68 foot tall basswood which had had its top ripped off by the tornado. On this trip I found that again the tree had lost about half its remaining height to wind damage. The fallen tree top lay on the shore. There was a large spreading

hawthorn nearby. I am always impressed by the twisted trunks. In these larger specimens they look as if they are made of a series of thick ropes twisted together to form the trunk.

From here we headed down toward the downstream end of the island. There were several fallen trees I had noted on previous trips and wanted to photograph.

Carl measured a nice slippery elm along the way. I measured a black willow toward the end of the island at 57.1 feet.

This particular black willow had fallen over at some time in the past and branches grew upward along the fallen 10 foot trunk which lay on the ground forming new trunks.



Figure 147: A fallen sycamore has re-rooted in the areas below former branches that are now forming new upright trunks (photo by Edward Frank 2009).



Figure 148: A fallen sycamore in the downstream end of Baker Island (photo by Edward Frank 2009).

Also in the area were a series of fallen sycamores lying on the ground. These also had former branches growing upward from the fallen tree trunk to form new vertical trunks. One thing I had wanted to check out was whether or not these new trunks were growing new root systems or whether they were just feeding off the roots still remaining from the original tree. The first of several specimens examined did not appear to be regrowing roots; however one fallen tree had two large branches that did seem to be growing new roots from their base. I did not have a shovel to dig them up, but to all appearances these

secondary trunks were growing their own root systems. I had previously described these types of trees in my multitrunk and other tree form classification system as "Category 6: Fallen trees" (Frank 2007e). As we walked back to the canoe we passed several trees with shaggy bark and very fine branching. After some debate we decided these were simply willows that had not yet leafed out. In an old meander channel cutting across a portion of the island was a water pond complete with lily pads and many, many turtles. These dove into the water and hid upon our approach...

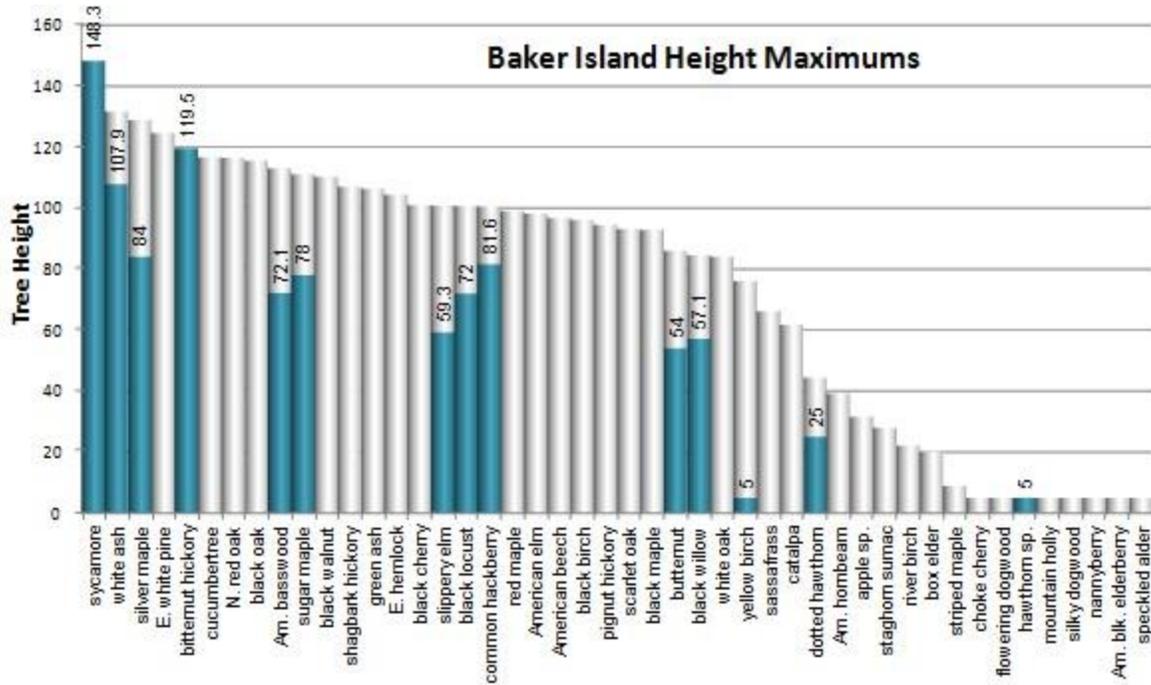


Figure 149: Tree height profile for Baker Island. The blue bars represent the maximum height of trees found on Baker Island compared against the light gray background profile for the Allegheny River Islands as a whole.

Baker Island			
Species	CBH (ft)	height (ft)	Date
sycamore	12.2	148.3	10/8/2009
bitternut hickory	8	119.5	10/8/2009
bitternut hickory	5.9	117.1	6/18/2008
sycamore	13.8	117	9/5/2007
white ash	5.3	107.9	
bitternut hickory	10.2	102.2	9/5/2007
silver maple	12.3 2x	84	9/5/2007
common hackberry	9.7	81.6	9/7/2007
sugar maple	7.9	78	9/5/2007
Am. basswood	8.7 at 6.5 ft	72.1	6/18/2008
black locust	4.5	72	9/5/2007
Am. basswood	10.7	68	9/5/2007
slippery elm	5.2	59.3	4/20/2010
black willow	8.7	57.1	4/20/2010
butternut	8.8	54	9/5/2007
dotted hawthorn	6.5 at 1.4 ft	25	9/5/2007
yellow birch	6	5	9/5/2007
<b>Rucker Height Index 5</b>		<b>108.26</b>	
<b>Rucker Height Index 10</b>		<b>87.98</b>	
<b>Rucker Girth Index 5</b>		<b>10.64</b>	
<b>Rucker Girth Index 10</b>		<b>8.82</b>	

Figure 150: Rucker Height Index and Maximum Height Table for Baker Island and Rucker Girth Index and Maximum Girth Table for Baker Island.

Baker Island is a single island occupying 67 acres on the modern air photo from 2008. Baker Island on the Babbitt (1855) map consists of a groups of islands marked as Dale’s Islands. Present day No Name Island is marked as Middleton Islands on the Babbitt (1855) map. The uppermost island of the Dales Island series is shown in the previous section and has since been incorporated as part of the floodplain on the eastern bank of the river just upstream of the map above. Baker’s Island (or Dale’s Islands) appears as only a tiny island on the 1881 map, likely a misrepresentation on that map.