



**Site Description (Date Located 4/8/2016):**

Site is located 47 feet east of the shore line in the Bay, and is indicated by a marker pole at the beach-vegetation edge. Access from both north and south is very difficult due to the many downed and washed up trees along the shore. Route requires climbing over many downed trees to get there, with access from the south taking up to 1 1/2 hours. Closer access is from the north, but still difficult, and should only be attempted at low tide. A general review of the near vicinity indicated no correlation with the 1990 plant survey, as the coast line has retreated westward in excess of 100 feet since that time. What was woodlands in 1990 is now downed trees, or, in many cases, still standing dead tree trunks. Comparative pictures taken just the previous year illustrate the dynamic erosion still taking place, with a large downed tree extending into the Bay totally disappearing.

G2 Species (Herbaceous)	1990	2016	2016 alt.
<i>Hibiscus moscheutos</i>	X		
<i>Lemna sp.</i>	X		
<i>Lemna trisulca</i>	X		
<i>Phragmites australis</i>	X	X	

G2 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Acer rubrum</i>	X	?	
<i>Fraxinus sp.</i>		?	
<i>Morella cerifera (formerly Myrica cerifera)</i>		?	

A/ G2

Latitude: 38 27.411N  
Longitude -76 27.818W



1990 - 2016 Grid Site

Views from Grid Point 4/8/2016



View North

View West



View South



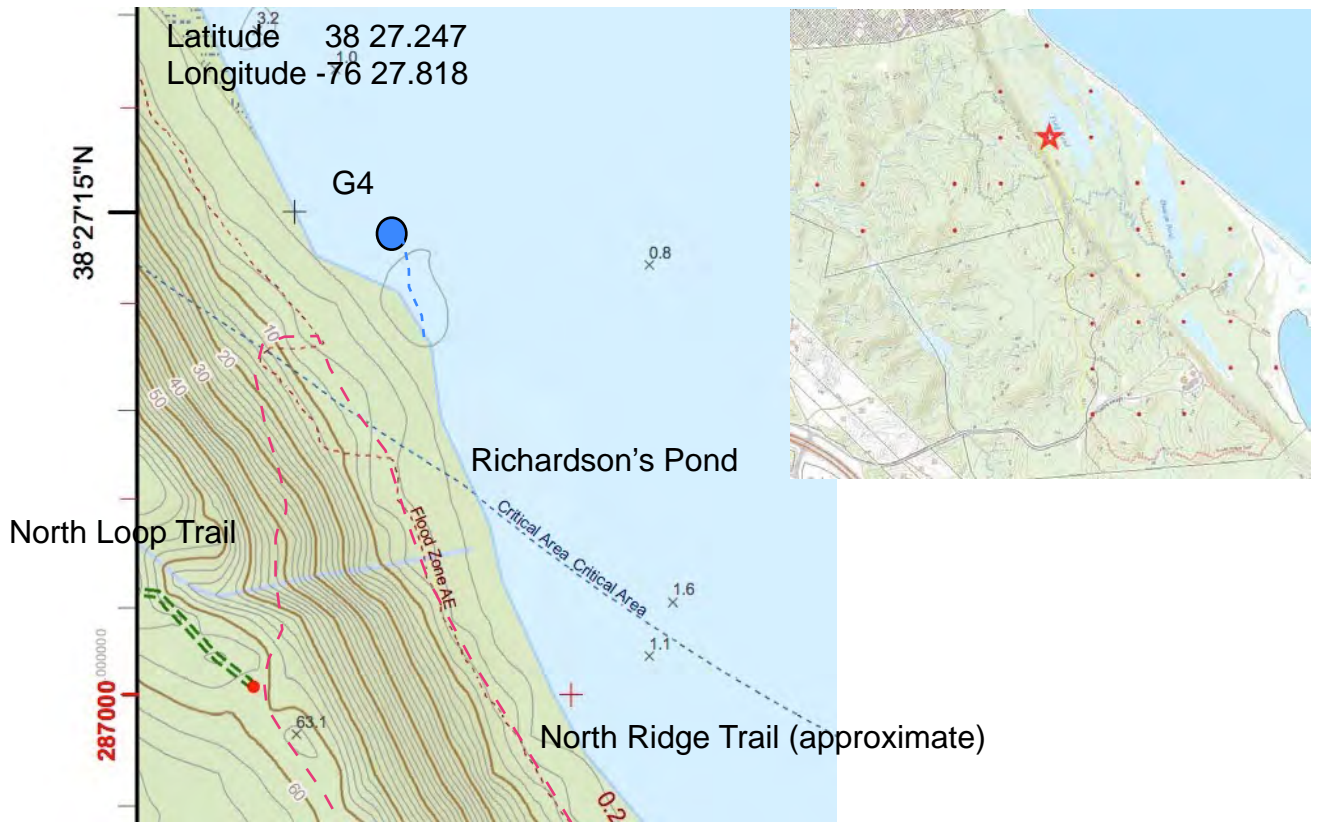
4/8/16

View East

3/13/15



A/G4 (1990-2016 Site)



**Site Description (Dates Located 3/16/2015, 3/6/2016):**

Follow the lower path of North Ridge Trail to its northern limit where it then ascends the cliff. Continue along the shoreline to its closest approach to Richardson's Pond. The site lies 90 feet east in the pond and is inaccessible. Using Google Earth to evaluate previous base maps, all have shown the site to be in a pond. In 2015 Karyn Molines conducted a 10-meter square habitat plot at the pond's edge. This survey data is not included here.

Habitat listed for 2016 as viewed through binoculars:

G4 Species (Herbaceous)	1990	2016	2016 alt.
<i>Hibiscus moscheutos</i>	X		
<i>Lemna sp</i>	X	X	
<i>Lemna triscula</i>	X	?	
<i>Phragmites australis</i>		X	
<i>Typha angustifolia</i>	X		

G4 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Cephalanthus occidentalis</i>	X		
<i>Acer rubrum</i>		X	

A/G4 Latitude: 38 27.247N  
Longitude -76 27.818W

1990 - 2016 Grid Site

View East from Marker Post at closest trail approach 3/6/2016



## A/H3 (1990-2016 Site)



### Site Description (Date Located 4/8/2016):

Site is located just west of the first dune on open sand at the north end of a pond. To the south an eagle's nest can be seen in the furthest visible tree line. Access from both north and south is very difficult due to the many downed and washed up trees along the shore. Route requires climbing over many downed trees to get there, with access in either direction taking up to 1 hour, to be attempted only at low tide. A general review of the near vicinity indicated a poor correlation with the 1990 plant survey as the coast line has been heavily eroded since the original 1990 survey. Comparative pictures taken on 3/13/2015 illustrate the dynamic erosion/deposition taking place.

Despite the extraordinary changes occurring along the coast, H3 represents one of the more compatible sites in plant life when compared with the 1990 survey. There were no woody plants listed in the 1990 survey and none were found in 2016. The original survey listed three herbaceous plants, *Hibiscus moscheutos*, *Lemna triscula* and *Typha angustifolia*. Neither the *Hibiscus*, nor the *Typha* were found in 2016; however there was an apparent *Lemna* species along the edges of the pond. (Identification was not determined.) Two major changes should be noted. First, the 1990 stake may have been located in the pond itself. Second, and related is the abundant presence of *Phragmites australis* which dominates the site and apparently was not present in 1990. (It must also be noted that the only herbaceous plants listed in 1990 were within the one meter squares and the survey may have therefore simply ignored the presence of *Phragmites*.)

<b>H3 Species (Herbaceous)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Hibiscus moscheutos</i>	X		
<i>Lemna triscula</i>	X	?	
<i>Typha angustifolia</i>	X		
<i>Phragmites australis</i>		X	
Unknown SAV		X	

<b>H3 Species (Trees, Shrubs, &amp; Vines)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
None	X	X	

A/H3 Latitude: 38 27.329N  
Longitude -76 27.719W



1990 - 2016  
Grid Site

Views from  
Grid Point  
4/8/2016



View North



View West



View East

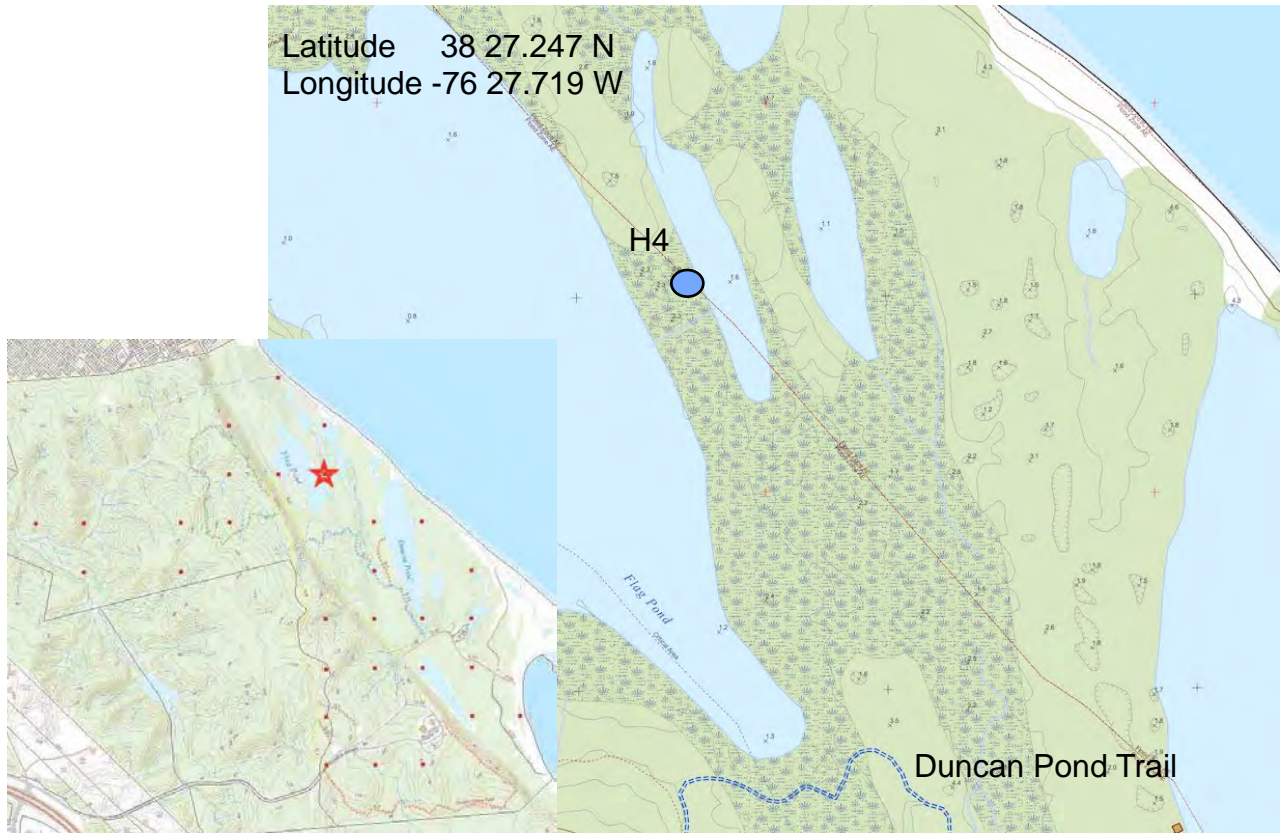


View South 4/8/16



View South 3/13/15

A/H4 (1990-2016 Site)



**Site Description (Date Located 2015-2016):**

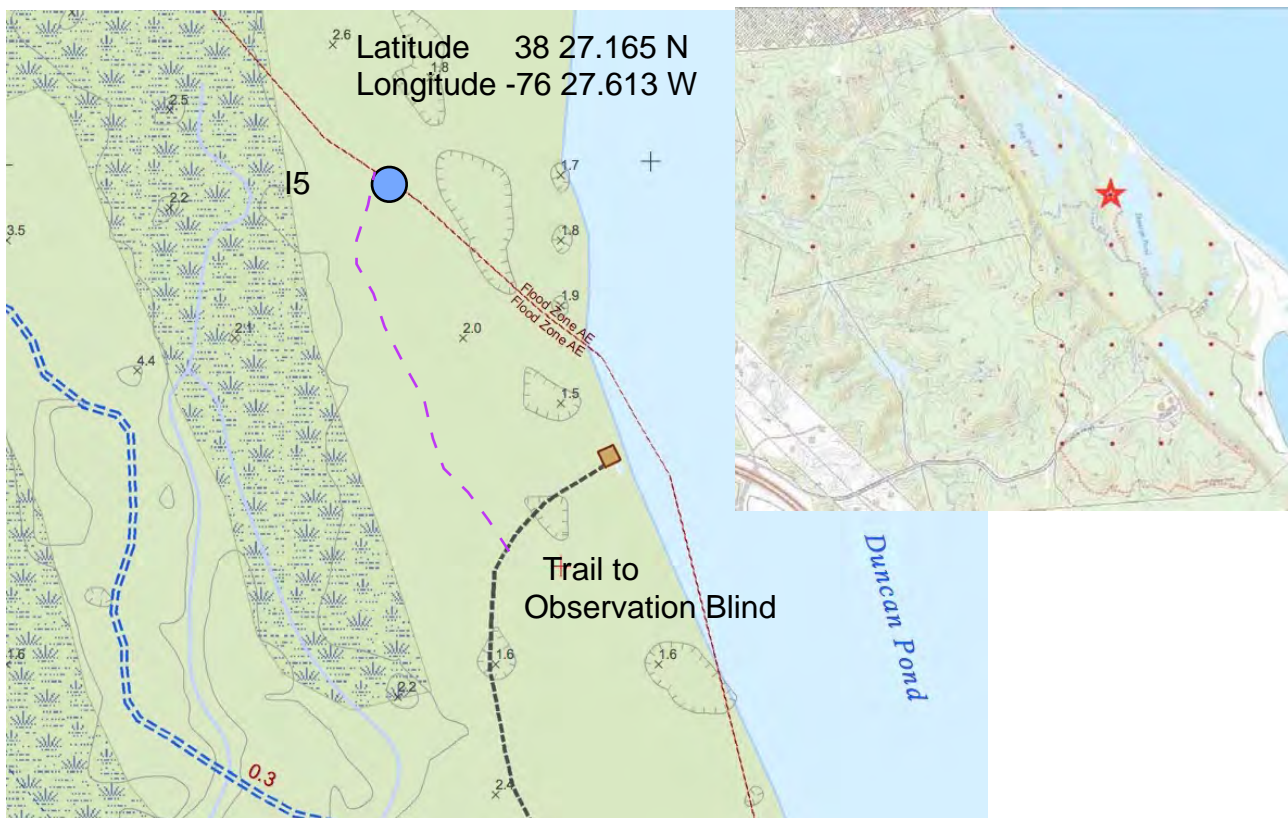
After repeated reconnaissance over two years from all directions, the site remains unaccessible. It is surrounded by ponds, dense undergrowth, and impenetrable walls of *Phragmites* (which did not exist in 1990). Using Google Earth to evaluate previous base maps, all have shown the site to be on land, and not in a pond.

H4 Species (Herbaceous)	1990	2016	2016 alt.

H4 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.



A/I5 (1990-2016 Site)



**Site Description (Date Located 3/5/2016):**

Site is located about 200 feet northwest of the observation blind on Duncan Pond. Just west of blind, follow narrow deer trail northward roughly paralleling Duncan Pond. Stake lies a few feet west of deer trail. Route is through heavy brush and greenbrier. A general review of the near vicinity indicated no correlation with the 1990 plant survey.

I5 Species (Herbaceous)	1990	2016	2016 alt.
<i>Lemna triscula</i>	X		

I5 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Acer rubrum</i>	X	X	
<i>Cornus stolonifera</i>	X	?	
<i>Diospyros virginiana</i>		X	
<i>Fraxinus pennsylvanica</i>	X		
<i>Ilex opaca</i>		X	
<i>Juniperus virginiana</i>		X	
<i>Liquidambar styraciflua</i>	X		
<i>Morella cerifera</i> (formerly <i>Myrica cerifera</i> )		?	
<i>Smilax rotundifolia</i>		X	

A/I5  
Latitude: 38 27.165N  
Longitude -76 27.613W



1990 - 2016 Grid Site  
Views from Grid Point 3/6/2016



View North



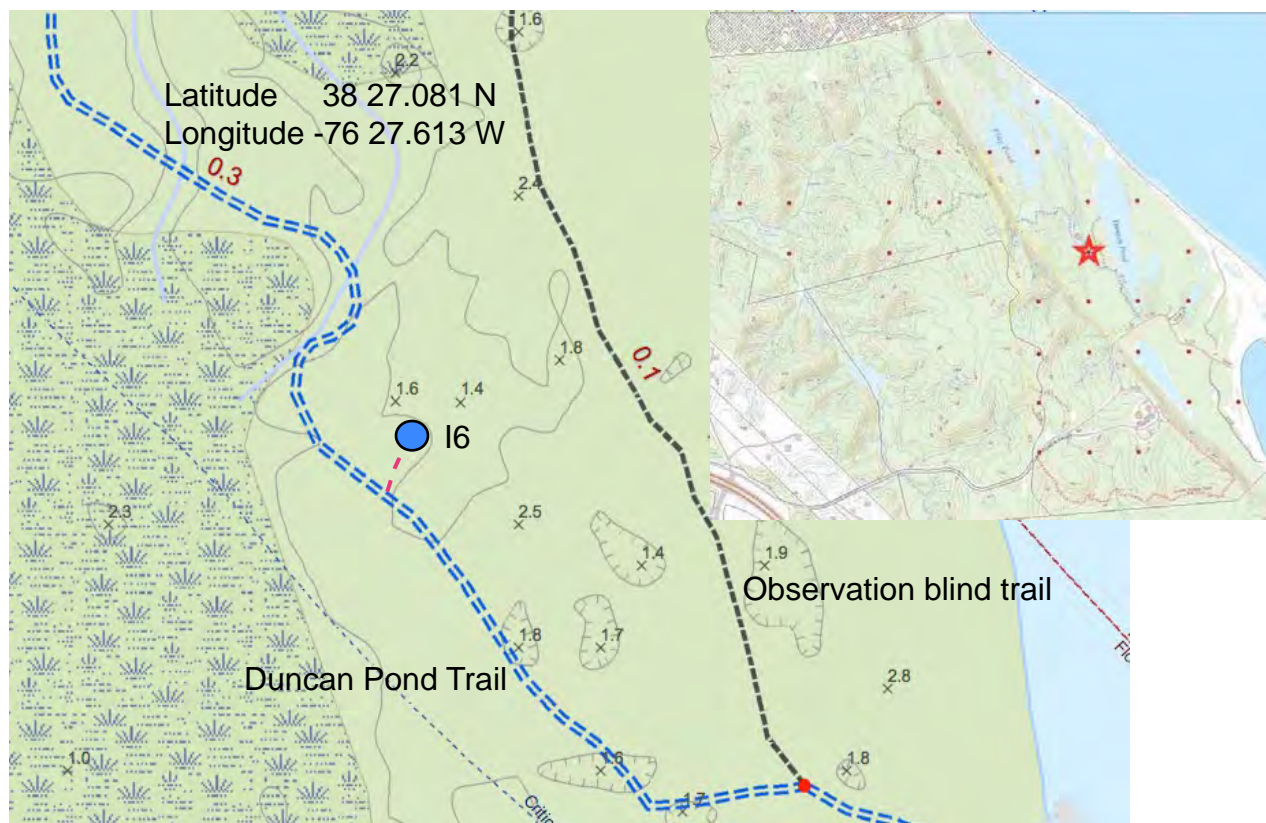
View West



View East

View South





**Site Description (Date Located 2/21/16):**

Follow Duncan Pond Trail past the junction with the path to the observation blind. The site lies about 17 feet north of the trail surrounded by dense greenbrier. Due to lateness of day, habitat was not surveyed. In 2015 Karyn Molines conducted a 10-meter square habitat plot in the vicinity of this site. The data from that survey are not included in this report. There are no other data available.

I6 Species (Herbaceous)	1990	2016	2016 alt.
None	X	X	

I6 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Acer rubrum</i>	X		
<i>Fraxinus pennsylvanica</i>	X		
<i>Liquidambar styraciflua</i>	X		
<i>Ulmus americana</i>	X		

A/16  
Latitude: 38 27.081N  
Longitude -76 27.613W



1990 - 2016 Grid Site  
Views from Grid Point (2/21/2016)



View North



View West

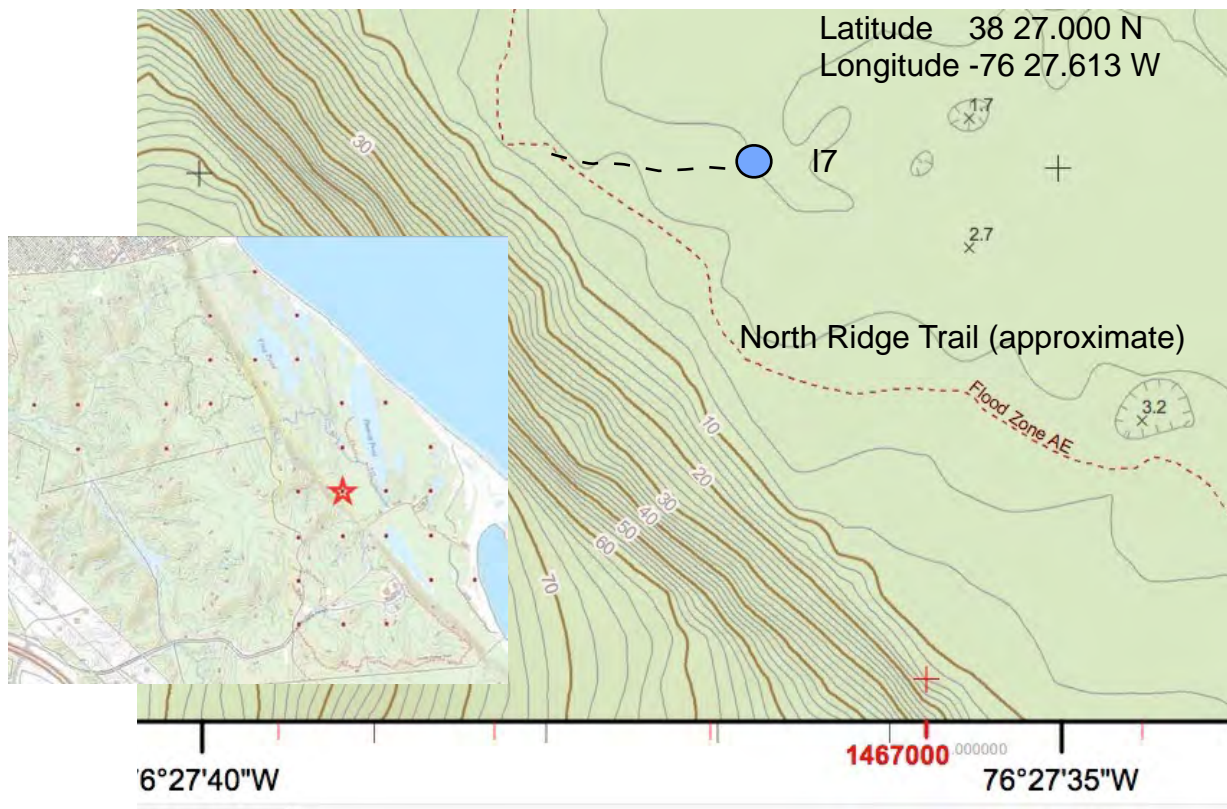


View East

View South



A/I7 (1990-2016 Site)



**Site Description (Dates Located: 3/16/2015-3/6/2016):**

Follow lower North Ridge Trail to a sharp bend a bit south of a ravine to the west. The site lies about 100 feet east of the trail.

I7 Species (Herbaceous)	1990	2016	2016 alt.
None		X	

I7 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Acer rubrum</i>	X	X	
<i>Asimina triloba</i>		X	
<i>Fraxinus pennsylvanica</i>	X	?	
<i>Ilex verticillata</i>	X	?	
<i>Liquidambar styraciflua</i>	X	X	
<i>Lonicera japonica</i>		X	
<i>Smilax sp.</i>		X	
<i>Ulmus americana</i>	X		

A/I7  
Latitude: 38 27.000N  
Longitude -76 27.613W



1990 - 2016 Grid Site  
Views from Grid Point (3/6/2016)



View North



View West

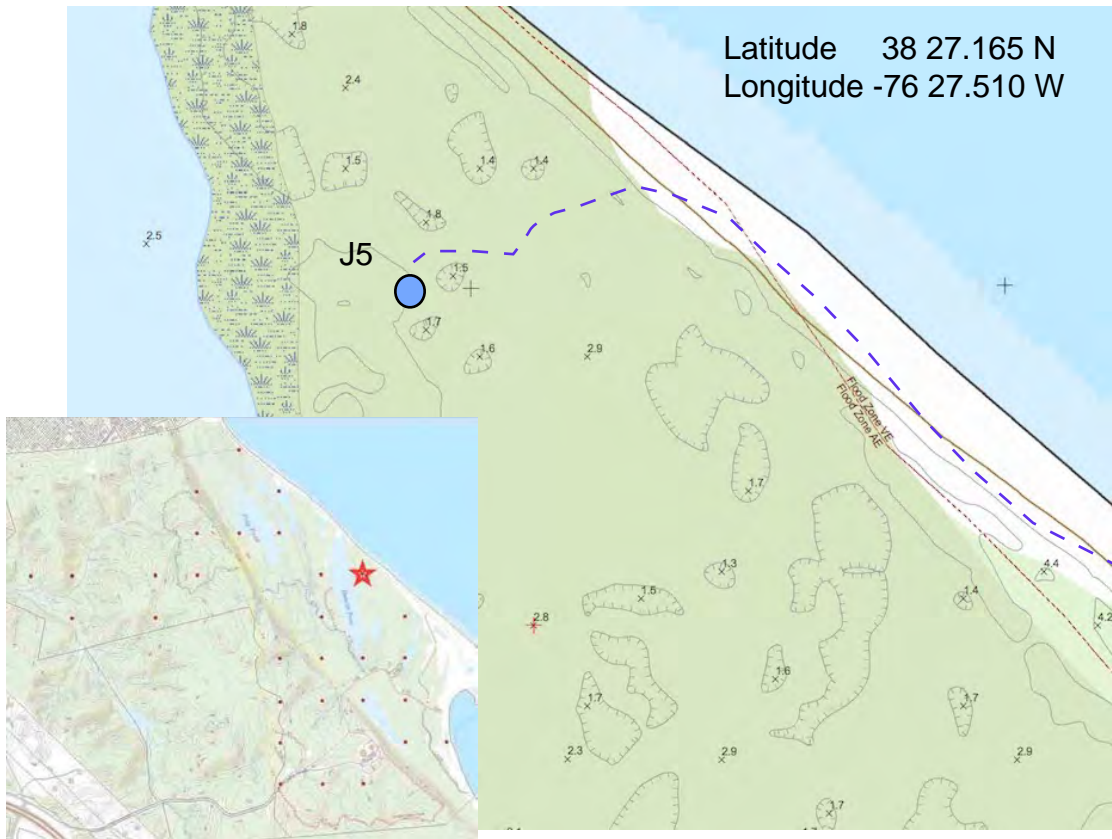


View East

View South



A/J5 (1990-2016 Site)



**Site Description (Dates Located 3/9/2015, 3/28/2016):**

Site is located about 100 feet east of Duncan Pond, and about 200 feet west of beach. Route is through heavy brush, downed trees, with greenbrier common. A general review of the near vicinity indicated no correlation with the 1990 plant survey. Although there was no *Phragmites* found on the site in 2016, the area was surrounded by the invasive.

J5 Species (Herbaceous)	1990	2016	2016 alt.
<i>Phragmites australis</i>	X		
<i>Krigia sp</i>		X	

J5 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Cornus florida</i>		X	
<i>Fraxinus pennsylvanica</i>		?	
<i>Ilex opaca</i>		X	
<i>Morella cerifera</i> (formerly <i>Myrica cerifera</i> )		X	
<i>Smilax sp.</i>		X	

A/J5  
Latitude: 38 27.165N  
Longitude -76 27.510W



1990 - 2016 Grid Site  
Views from Grid Point (3/28/2016)



View North



View West



View East

View South







**Site Description (Dates Located 3/9/2015 - 2/21/16):**

Follow Duncan Pond Trail northward for 250 feet. Site lies in Duncan Pond 60 feet to the east, with heavy brambles between trail and pond. There is no correlation with the 1990 survey. In 2015 Karyn Molines conducted a 10-meter square habitat plot in the vicinity of this site along the shoreline. The data from this habitat plot are not included in this report.

J7 Species (Herbaceous)	1990	2016	2016 alt.
<i>Eupatorium sp.</i>	X		
<i>Hibiscus moscheutos</i>	X		
<i>Lemna triscula</i>	X		
<i>Typha angustifolia</i>	X		
<i>Typha latifolia</i>	X		

J7 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Acer rubrum</i>	X		
<i>Cephalanthus occidentalis</i>	X		
<i>Fraxinus pennsylvanica</i>	X		
<i>Liquidambar styraciflua</i>	X		
<i>Morella cerifera</i> (formerly <i>Myrica cerifera</i> )		X	
<i>Nyssa sylvatica</i>	X		
<i>Salix nigra</i>	X		
<i>Viburnum prunifolium</i>	X		

A/J7 (nearest approach)

Latitude: 38 27.000N

Longitude -76 27.510W



1990 - 2016 Grid Site

Views from Grid Point (2/21/2016)



View North



View West

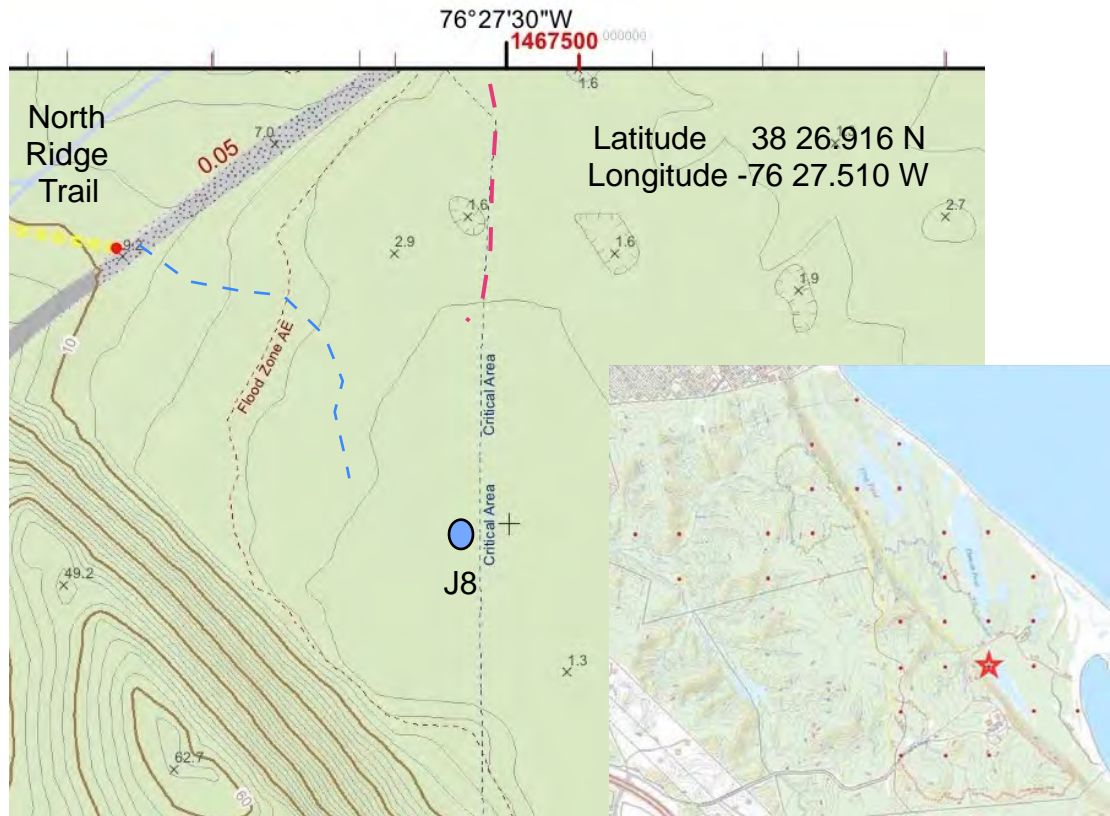


View East

View South



## A/J8 (1990-2016 Site)



### Site Description (Dates Located 3/4/2015 - 2/27/2016 and probably March 2016):

The site may have been accessible in 1990, but it is now flooded woodland, with many dead trees still standing, but with others downed or submerged. Rubber boots are necessary to even reach the closest vantage point, but the water quickly becomes too deep for ordinary waders. The nearest access was attained in March 2015 over a frozen surface. The route marked in blue permits the closest practical approach, but in the summer requires maneuvering around or through areas abundant with Japanese wineberry. Large downed unidentified trees are encountered in the area. A third try was made with Karyn Molines when the water was lower and we were able to more nearly access the site and were able to identify more plants in or near the site.

<b>J8 Species (Herbaceous)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Lemna triscula</i>	X		
<i>Phragmites australis</i>		X	
<i>Saururus cernuus</i>		X	
<i>Carex sp.</i>		X	
<i>Microstegium vimineum</i>		X	

<b>J8 Species (Trees, Shrubs, &amp; Vines)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Acer rubrum</i>	X	X	
<i>Asimina triloba</i>		X	
<i>Campsis radicans</i>	X		
<i>Fraxinus pennsylvanica</i>	X	X	
<i>Liquidambar styraciflua</i>	X	X	
<i>Nyssa sylvatica</i>	X		
<i>Platanus occidentalis</i>		X	
<i>Toxicodendron radicans</i> (formerly <i>Rhus radicans</i> )	X	X	
<i>Smilax rotundifolia</i>	X		
<i>Ulmus rubra</i>		X	
<i>Viburnum prunifolium</i>		X	

A/J8 (closest approach)  
Latitude: 38 26.916N  
Longitude -76 27.510W

1990 - 2016 Grid Site

Views from Grid Point (2/27/2016) is unavailable as we were unable to reach site. Pictures are near determined site.



View North



View West

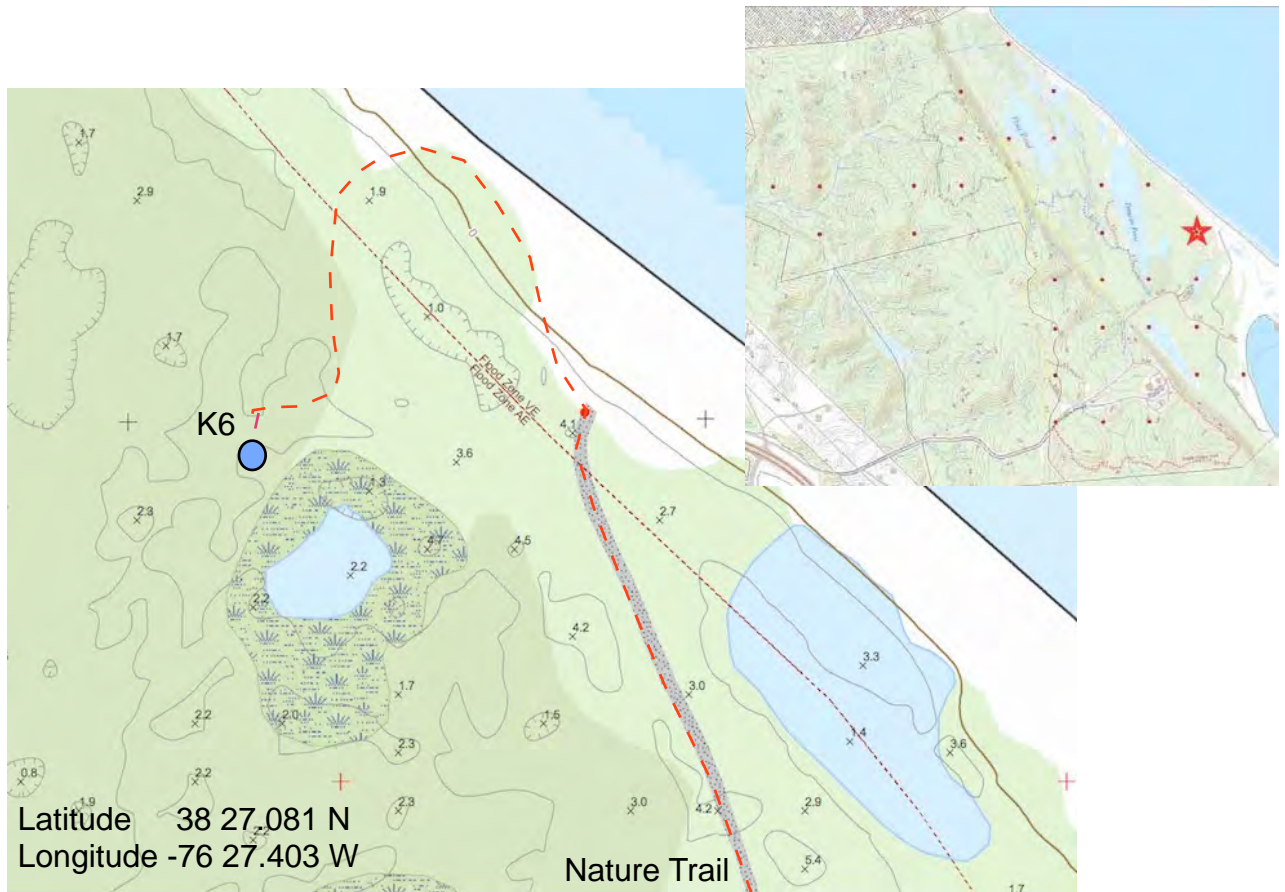


View East

View South



A/K6 (1990-2016 Site)



**Site Description (Dates Located 3/9/2015- 2/7/2016):**

Site is located about 150 feet west of beach, but is extremely difficult to get to because of heavy brush and downed trees, with greenbrier common. Follow the Nature Trail to the beach and continue along beach to a bit of clearing into the brush (a sign is posted to a tree). A general review of the near vicinity indicated no correlation with the 1990 plant survey. Herbaceous plants may not be identified as 2016 survey was done in February and March.

K6 Species (Herbaceous)	1990	2016	2016 alt.
<i>Allium sp.</i>	X		
<i>Galium sp.</i>	X		
<i>Menispermum canadense</i>	X		

<b>K6 Species (Trees, Shrubs, &amp; Vines)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Campsis radicans</i>	X		
<i>Cornus florida</i>	X		
<i>Fraxinus pennsylvanica</i>	X	?	
<i>Liquidambar styraciflua</i>	X		
<i>Morella cerifera</i> (formerly <i>Myrica</i> <i>cerifera</i> )	X	X	
<i>Nyssa sylvatica</i>	X	X	
<i>Parthenocissus</i> <i>quinquifolia</i>	X		
<i>Pinus taeda</i>	X		
<i>Toxicodendron radicans</i> (formerly <i>Rhus radicans</i> )	X		

A/K6  
Latitude: 38 27.081N  
Longitude -76 27.403W



1990 - 2016 Grid Site  
Views from Grid Point (2/27/2016)



View North



View West

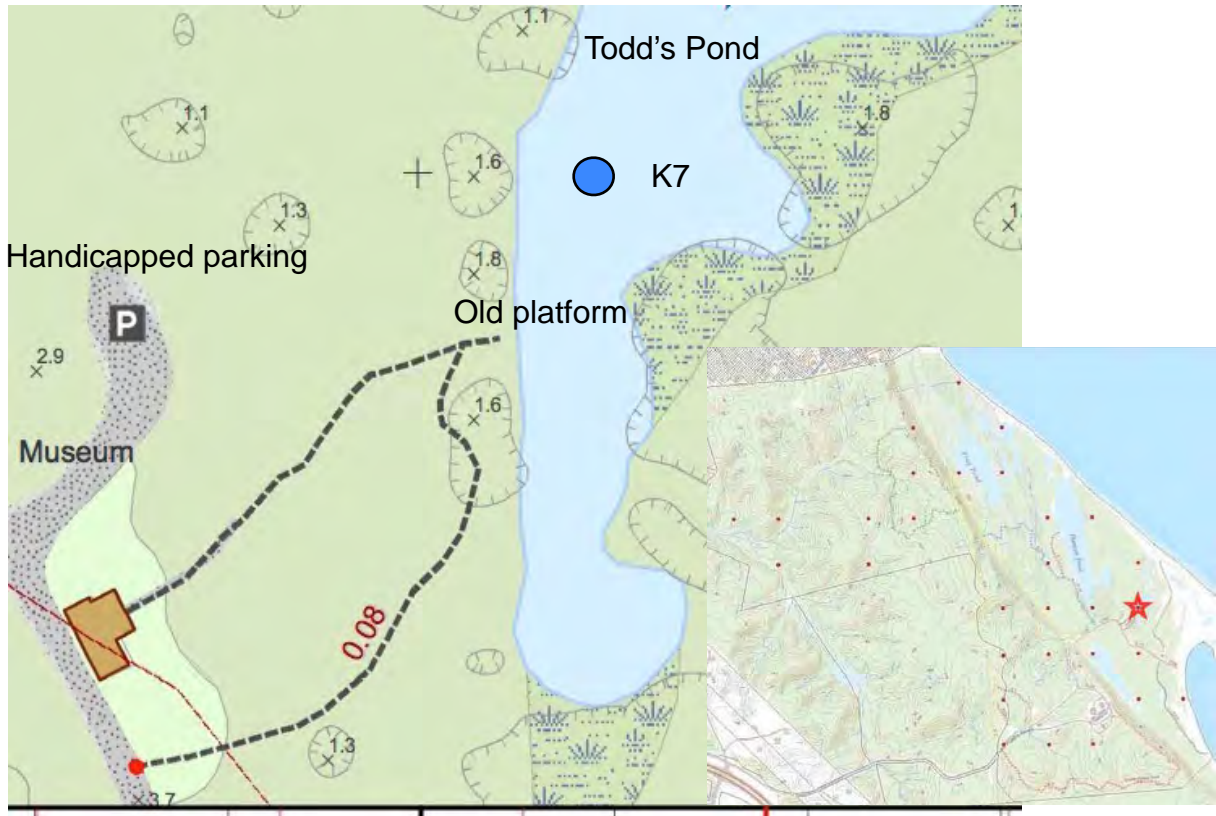


View East

View South







**Site Description (Date Located 2/27/16):**

Site lies in Todd's Pond about 70 feet northeast of the old platform at the eastern end of the boardwalk east of the old fishing hut museum.

K7 Species (Herbaceous)	1990	2016	2016 alt.
<i>Lemna sp.</i>	X		
<i>Phragmites australis</i>		X	

K7 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
<i>Fraxinus pennsylvanica</i>	X		

A/K7

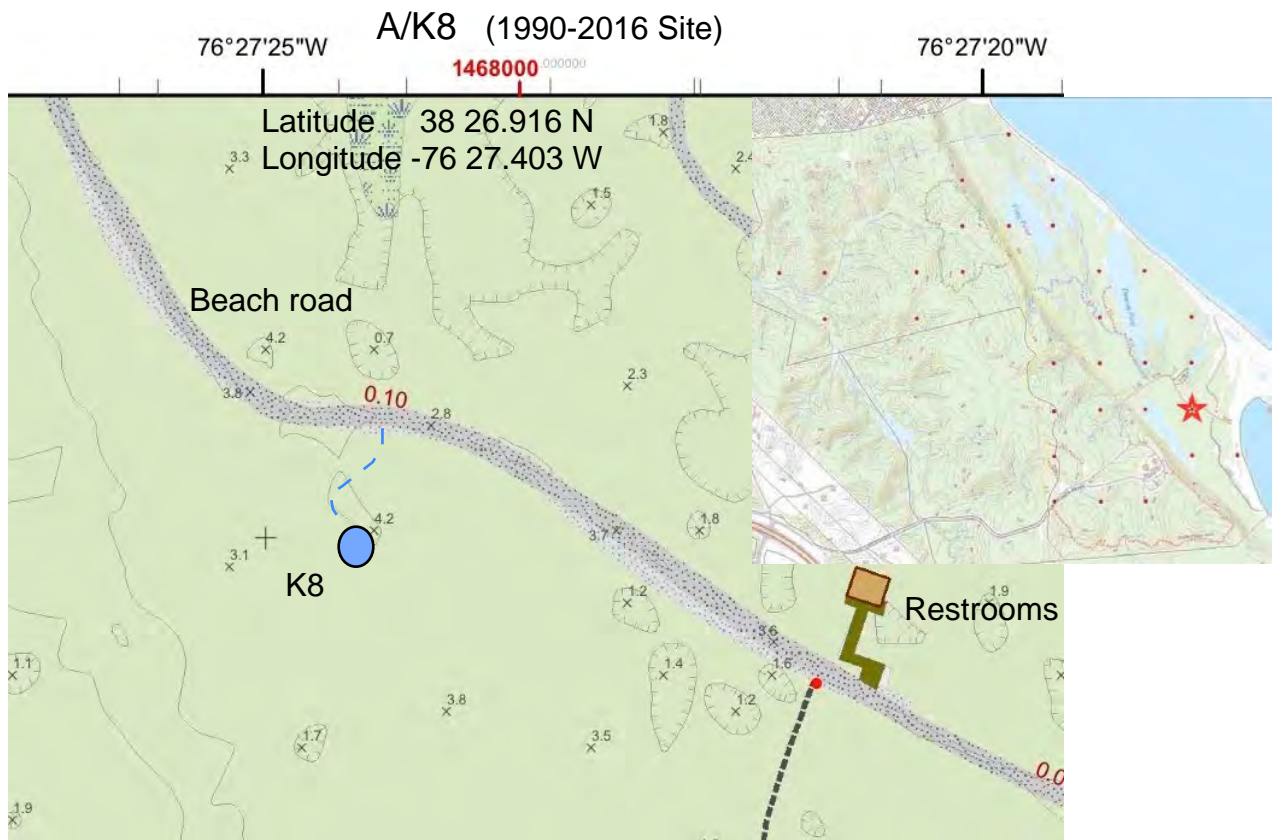
Latitude: 38 27.0001N  
Longitude -76 27.403W

1990 - 2016 Grid Site

View from old platform at edge of Todd's Pond; 1990 site now located in middle of Todd's Pond (2/27/2016).

View Northeast





**Site Description (Dates Located 3/21/2015 - 2/7/2016)**

This site is easily accessible from the beach road. Just east of the picnic table, the stake is found 95 feet south of the road on the south side of the foundation remains of an old building. In 2015 Karyn Molines conducted a 10-meter square habitat plot in the nearby vicinity. The data from this survey are not included in this report.

K8 Species (Herbaceous)	1990	2016	2016 alt.
<i>Carex sp.</i>	X		
<i>Chimaphila maculata</i>		X	
<i>Galium sp.</i>	X		

<b>K8 Species (Trees, Shrubs, &amp; Vines)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Asimina triloba</i>	X		
<i>Carya sp.</i>		X	
<i>Fagus grandifolia</i>	X		
<i>Ilex opaca</i>		X	
<i>Liquidambar styraciflua</i>	X	X	
<i>Lonicera japonica</i>		X	
<i>Morella cerifera</i> (formerly <i>Myrica perifera</i> )	X	X	
<i>Nyssa sylvatica</i>	X	X	
<i>Pinus rigida</i>	X		
<i>Pinus taeda</i>	X	X	
<i>Quercus falcata</i>	X	?	
<i>Toxicodendron radicans</i> (formerly <i>Rhus radicans</i> )		X	
<i>Smilax sp.</i>		X	

A/K8  
Latitude: 38 26.916N  
Longitude -76 27.403W



1990 - 2016 Grid Site  
Views from Grid Point (2/7/2016)



View North



View West

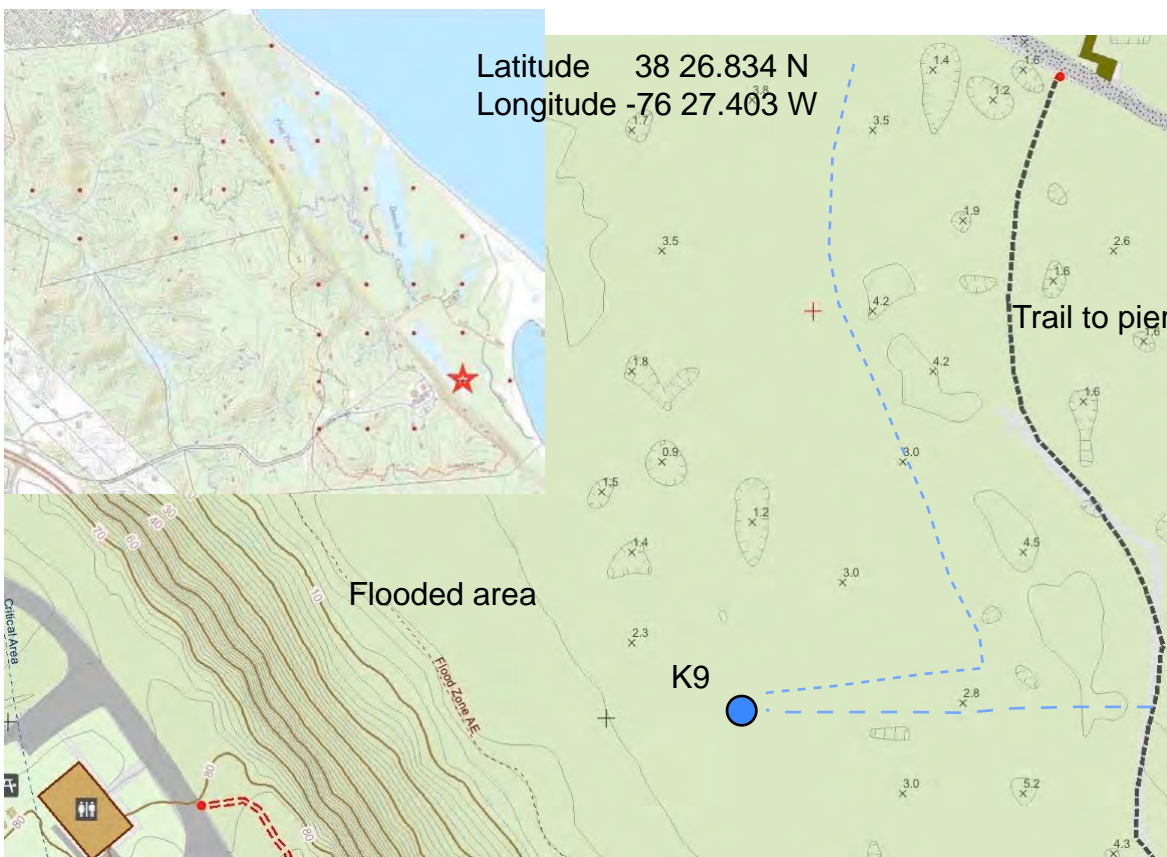


View East

View South



A/K9 (1990-2016 Site)



**Site Description (Dates Located 3/8/2015 - 2/7/2016):**

The site can be accessed by coming south from K8 along an old trail observable as an opening through the woods along a slight raised ridge which parallels the trail to the pier. It can also be accessed by following the trail to the pier to a stake on the west side of the trail near the edge of vegetation\*, and then moving westward to the vicinity of the flooded area below the cliff line. The survey was done in February and March which may account for the absence of herbaceous plants and lack of clarity in identification of woody plants. Numerous attempts were made to confirm *Pinus rigida*. There were also many downed unidentifiable trees. In 2015 Karyn Molines conducted a 10-meter square habitat plot in the near vicinity. Data from that survey are not included in this report.

*\*Stake may no longer exist, may have been pulled as an object of hazard.*

K9 Species (Herbaceous)	1990	2016	2016 alt.
<i>Michella repens</i>	X		
<i>Viola sp.</i>	X		

<b>K9 Species (Trees, Shrubs, &amp; Vines)</b>	<b>1990</b>	<b>2016</b>	<b>2016 alt.</b>
<i>Carya sp.</i>		X	
<i>Diospyrus virginiana</i>	X	X	
<i>Euonymus americana</i>	X		
<i>Fagus grandifolia</i>	X	X	
<i>Fraxinus pennsylvanica</i>	X		
<i>Ilex opaca</i>		X	
<i>Juniperus virginiana</i>	X	X	
<i>Lindera benzoin</i>	X	?	
<i>Liquidambar styraciflua</i>	X	X	
<i>Lonicera japonica</i>		X	
<i>Morella cerifera</i> (formerly <i>Myrica cerifera</i> )	X	X	
<i>Nyssa sylvatica</i>	X	X	
<i>Pinus rigida</i>	X		
<i>Pinus taeda</i>	X	X	
<i>Quercus falcata</i>	X	?	
<i>Toxicodendron radicans</i> (formerly <i>Rhus radicans</i> )		X	
<i>Smilax sp.</i>		X	

A/K9  
Latitude: 38 26.834N  
Longitude -76 27.403W



1990 - 2016 Grid Site  
Views from Grid Point (2/7/2016)



View North



View West



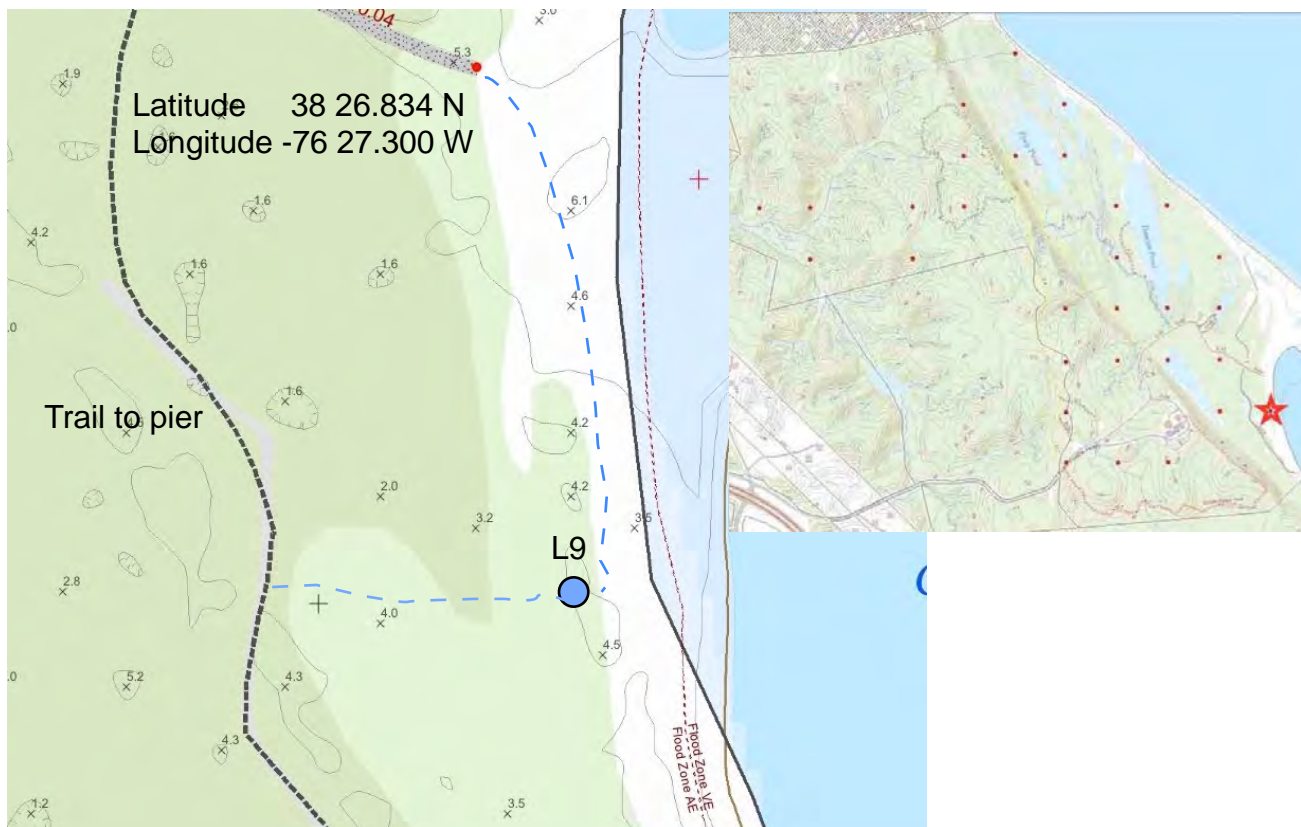
View East

View South





A/L9 (1990-2016 Site)



**Site Description (Dates Located 3/8/2015 - 2/7/2016):**

The site can be accessed by following the trail to the pier and then moving eastward to the last dune before the beach. It can also be accessed by following the trail to the beach and going southward to the end of an old wooden fence. The site is located on the first dune inside the vegetation line. Given that there were neither woody, nor herbaceous plants found in 1990 this site may well have been on the sandy coast. In 2015 Karyn Molines conducted a 10-meter square habitat plot at this site. An old metal post is located 120 feet south along the same dune, and possibly could relate to the 1990 survey.

L9 Species (Herbaceous)	1990	2016	2016 alt.
No herbaceous	X	X	

L9 Species (Trees, Shrubs, & Vines)	1990	2016	2016 alt.
No woody plants	X		
<i>Morella cerifera</i> (formerly <i>Myrica cerifera</i> )		X	
<i>Pinus sp.</i>		X	

A/L9  
Latitude: 38 26.834N  
Longitude -76 27.300W



1990 - 2016 Grid Site  
Views from Grid Point (2/7/2016)



View North



View West



View East

View South

