#### Wetland Delineation Report for OSU Wetlands Oxbow Southeast Section

### Cade Capper

October 5, 2021

# Site description

The site is a predominantly emergent shrub/scrub wetland located about a mile north of Ohio State's campus (40.018120, -83.017687). It is located next to the Olentangy River, which provides the primary source of water during the rainy season. The site is mostly flat, with slight inclines towards the surrounding upland area. The area immediately surrounding the oxbow is riparian forest, while more broadly the surrounding area is developed urban.

### **Methods**

The delineation team consisted of Cade Capper, Allison Patrick, Deirdre Wetmore, and Annie Wolodzko. The delineation was conducted on September 21<sup>st</sup>, 2021. We delineated the southeastern portion of the oxbow. To determine the wetland boundaries, we observed the soil, vegetation, and hydrology of the site, using indicators such as water lines and soil erosion to help us determine what portion is usually inundated. The study followed the methods of the Midwest Supplement.

First we surveyed the site for evidence of water inundation. We looked for markers such as water lines on the trees, erosion and drifting of the soil, and overall topography of the site to determine whether the site often experienced inundation.

To evaluate the soil, a core was taken at the center of our plot. We looked for indicators such as iron deposits from oxidation (indicated by orange veins in the soil) and hydrogen sulfide presence (indicated by a rotten egg smell) to tell whether it was a hydric soil. We also did rudimentary texture class and Munsell color analyses. We repeated this process for cores taken around where we predicted the boundary of the wetland would be to determine where the soil shifted to an upland, non-hydric soil. We marked the line where the soil shifted from hydric to non-hydric with flags as the boundary of the wetland. The center of our site and the location of our upland soil sample are shown in Figure 1.

Finally, we examined the vegetation and listed the species we found along with their wetland indicator status (obligate wetland, facultative wetland, facultative, facultative upland, and obligate upland). Based on the vegetation community in our site, we marked where wetland vegetation began and where upland vegetation ended to support our findings of where the wetland boundary was.

# **Findings**

We observed several markers that indicated that our site was a wetland. When surveying for hydrology, we noted water marks on trees, presence of reduced iron, and oxidized rhizospheres on living roots. We also found a snail in the soil, a true aquatic fauna, indicating recent water inundation. The soil core from the center of our site was a silty clay with a color of 7.5YR 4/2 for the top 2.5 inches, and a silty clay loam with a color of 7.5YR 4/3 for a depth of 2.5-6 inches. We observed a redox dark surface in the soil, indicating that it is a hydric soil.

We found several obligate wetland vegetation species in our site. There were specimens of black willow (*Salix nigra*), a woody species indicative of a wetland. We also observed water pepper (*Persecaria hydropiper*) and American three-square (*Schoenoplectus americanus*) at the site, which are also obligate wetland plants. In addition, we found facultative wetland species at the site, including green ash (*Fraxinus pennsylvanica*) and silver maple (*Acer saccharinum*). These support our findings that it is a wetland vegetation community. Given these findings, along with those of the hydrology and soils, we determined that the site is indeed a wetland. We used these indicators to mark the boundary of the wetland (Figure 1).

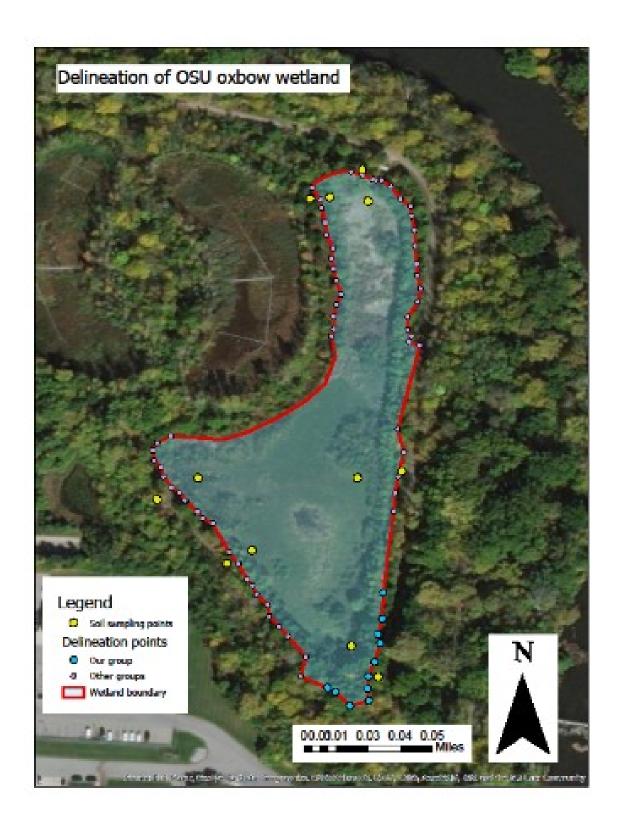


Figure 1. Map showing the boundary of the wetland and the locations of soil samples.

## **Conclusions**

Based on the finding of obligate wetland plants, hydric soils, and wetland hydrology, we conclude that the oxbow is indeed a wetland. The estimated size based on our delineated boundaries is 5 acres. The site is most likely to be flooded in the spring when it is rainy and the Olentangy River is at its highest since the river is the primary source of water for the site. Based on the geomorphology and the water marks on the trees, we expect the flooding to be not very deep, reaching a maximum depth of about six inches in the center, where the lowest point is. The overall quality of the wetland seemed to be fairly good. There were a number of native plants that all appeared healthy, despite the presence of some invasive species (described below).

The vegetation community is a wetland shrub/scrub with an herbaceous understory that is dense in the center of the site but sparse around the edges where there are more tall, woody species present. There were several non-native and invasive species noted at the site, including flowering rush (*Butomus umbellatus*) and common reed (*Phragmites spp.*). While they covered a sizeable portion of the site, they did not appear to prevent growth of native plants such as those listed above.

While we did not observe any wildlife during our delineation, in past visits to the wetlands we have observed many animals visiting the wetlands. Notable species included great blue herons (*Ardea herodias*), white tailed deer (*Odocoileus virginianus*), and a viceroy butterfly (*Limenitis Archippus*).

#### Literature cited

Environmental Laboratory. January 1987. Corps of Engineers Wetlands Delineation Manual. Retreived from <a href="https://www.lrh.usace.army.mil/Portals/38/docs/USACE/82087%20Wetland%20Delineation%20Manual.pdf">https://www.lrh.usace.army.mil/Portals/38/docs/USACE/82087%20Wetland%20Delineation%20Manual.pdf</a>

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# Appendix 1: Sample plot data forms

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Site photos



Figure 2. Black willow (Salix nigra)



Figure 3. Flowering rush (Butomus umbellata)

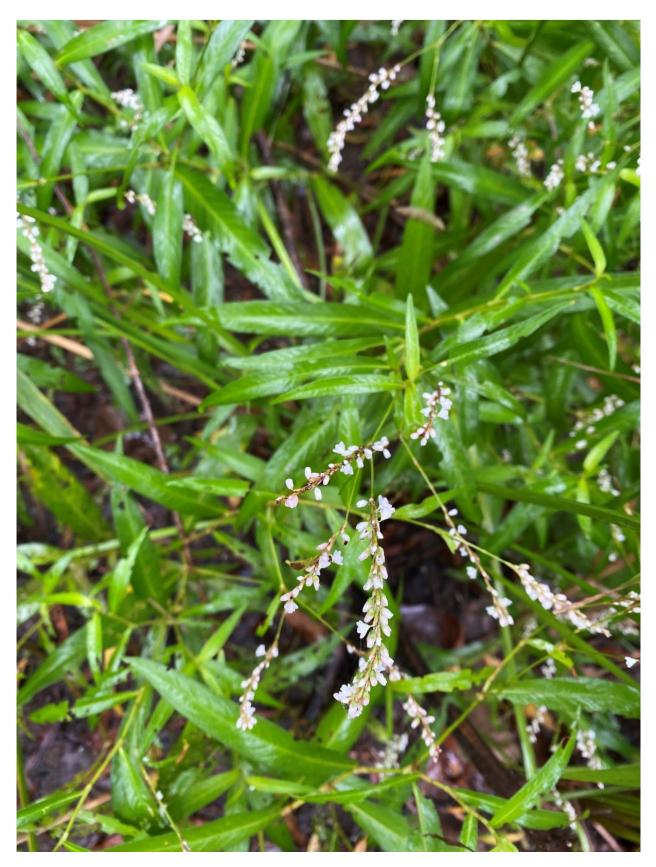


Figure 4. Water pepper (Persecaria hydropiper)

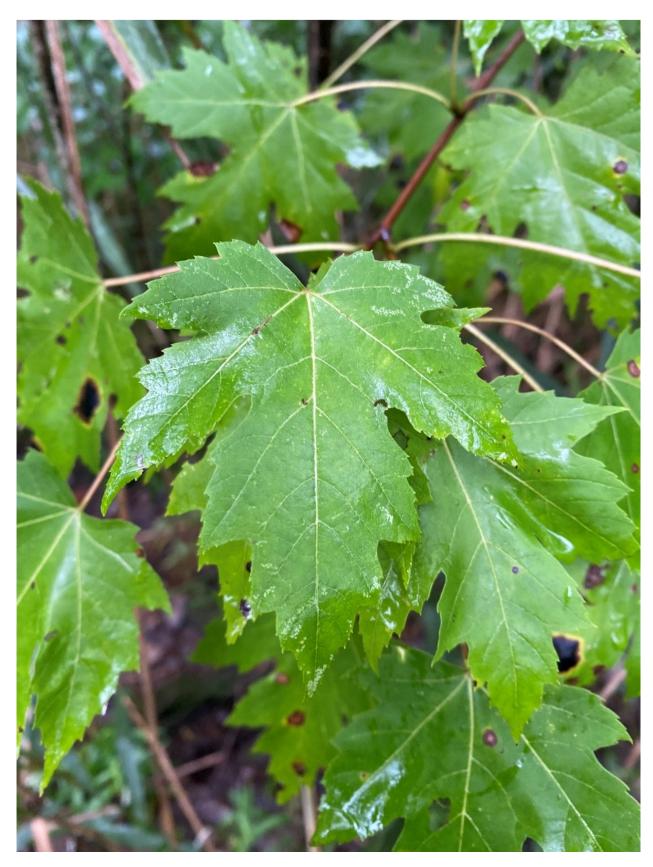


Figure 5. Silver maple (Acer saccharinum)



Figure 6. A snail of unknown species found at the site



Figure 7. Soil core dug at the center of the site demonstrating a hydric soil



Figure 8. Overview of a portion of the site with flags marking wetland boundary