

# Vernal Pool Resources of the Huston-Brumbaugh Nature Center

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## Introduction

- This project gathered baseline water quality data from the 7 vernal pools located at the Huston-Brumbaugh Nature Center (HBNC).
- Vernal pools are temporary water bodies located in forest ecosystems and serve as habitat for many organisms.
- Monitoring seasonal changes and inundation periods were the main goals of this project.

## Materials and methods

- Water quality data were collected as the seasons changed, and consisted of temperature, pH, dissolved oxygen, and water depth.
- The inundation periods, where water was present in the pools were recorded.
- Data was collected as the weather changed over the semester, at least once per month.
- The project originally intended to collect additional water quality data related to agricultural pollution, but this collection could not take place due to the Covid-19 outbreak.

## Results

- Table 1 shows the variation in average values for depth, dissolved oxygen, temperature, and pH between the Visitors Center Pool, which is man-made, and two naturally occurring pools, the Pothole and Ruby Kinglet Pool, as the seasons changed.
- The Visitors Center Pool and Button Bush Pool were the only pools to fill prior to winter.
- As data collection took place with the meter, some discrepancies were noticed, indicating the YSI Meter may have been faulty.
- Figures 1.1, 1.2 and 1.3 show the seasonal changes undergone by the vernal pools.

Pool	Season	Avg. Dissolved Oxygen (in mg/L)	Avg. Depth (in inches)	Avg. Temperature (in °C)	Avg. pH
Ruby Kinglet	Winter	1.43	4.25	1.35	6.39
Ruby Kinglet	Spring	3.68	6.67	11.77	6.63
Visitors Center	Fall	1.86	9.10	15.00	7.11
Visitors Center	Winter	4.61	7.58	1.37	6.39
Visitors Center	Spring	9.86	16.00	9.63	6.69
Pothole	Winter	1.40	4.25	1.83	6.46
Pothole	Spring	6.36	6.67	10.57	6.62

Table 1 Average dissolved oxygen, depth, temperature, and pH for 3 pools, giving insight into the general conditions of all pools on the property, and some of the differences between natural and man-made pools.



Figure 1.1 The Visitors Center Pool, the only man-made pool on the property, during August 2019.



Figure 1.2 Ruby Kinglet Pool in February 2020, showing the ice that often covered the surface of the pools in winter.



Figure 1.3 The Pothole, named after the prairie pothole form of vernal pool it most resembles, in March 2020

## Conclusions

- The water quality in the pools was good based on the average dissolved oxygen levels and average pH values.<sup>2,3</sup>
- The Visitors Center Pool may be better habitat based on the average dissolved oxygen levels, average depth, and inundation period.<sup>1, 3, 4</sup>
- Inundation periods were shorter for the natural pools, likely due to the soil composition.<sup>5</sup>

## Literature cited

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