

Analysis of the Woody and Herbaceous Deer Browse Data from Griffy Lake Nature Preserve 2018-2024

Analysis

For the woody plant data, spicebush was excluded due to non-preference by deer. Additionally, all heights above 1m were not included because they were above deer browse height. While some browse was evident on taller individuals and spicebush, it was a small percentage of the total foliage and unlikely to significantly affect the overall vigor. The mean height and mean root collar diameter (rcd) of woody species were analyzed by samples year (2018,2019,2020,2021,2022,2023,2024) using a repeated measures one-way ANOVA ($\alpha = 0.05$) test. For herbaceous data (Solomon's seal and Jack-in-the-pulpit), mean height was also analyzed by sample year using a repeated measure one-way ANOVA ($\alpha = 0.05$) test. If significant differences were found within the data, Holm-Sidak multiple comparison tests ($\alpha = 0.05$) were used to compare individual years. All data was evaluated for and met assumptions of normality.

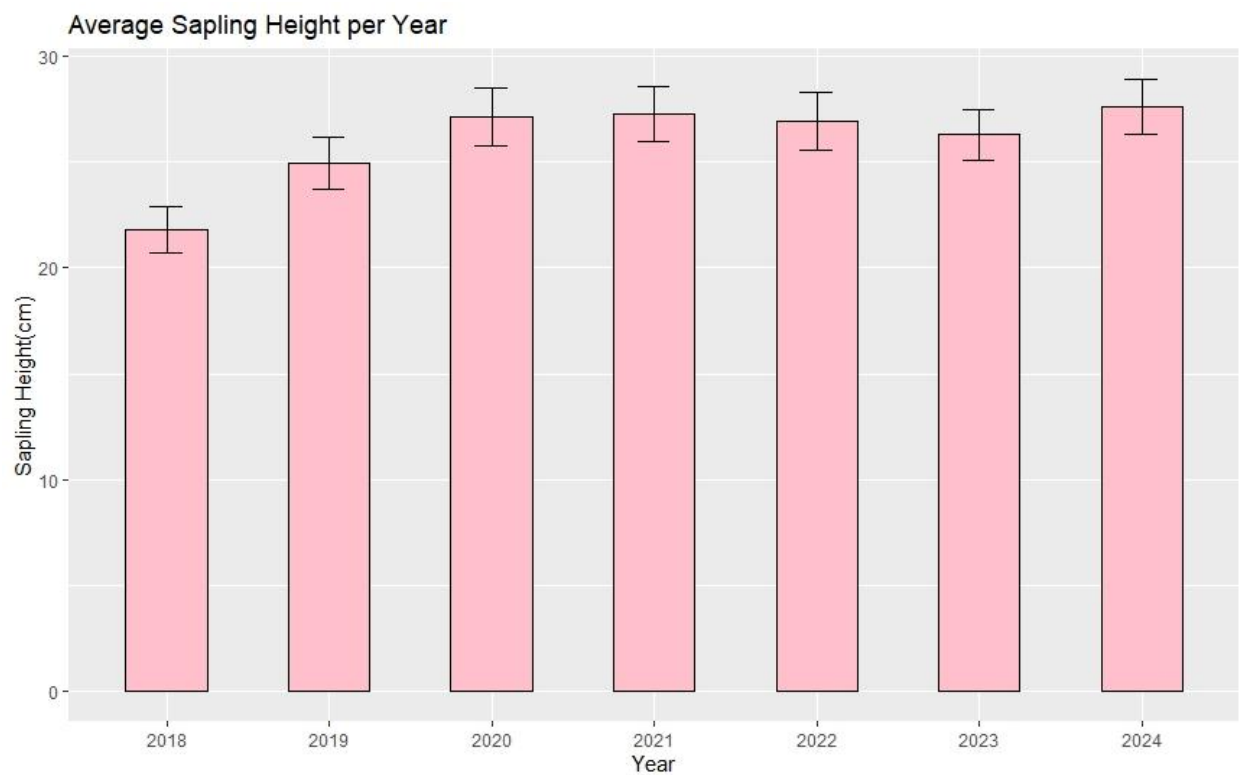
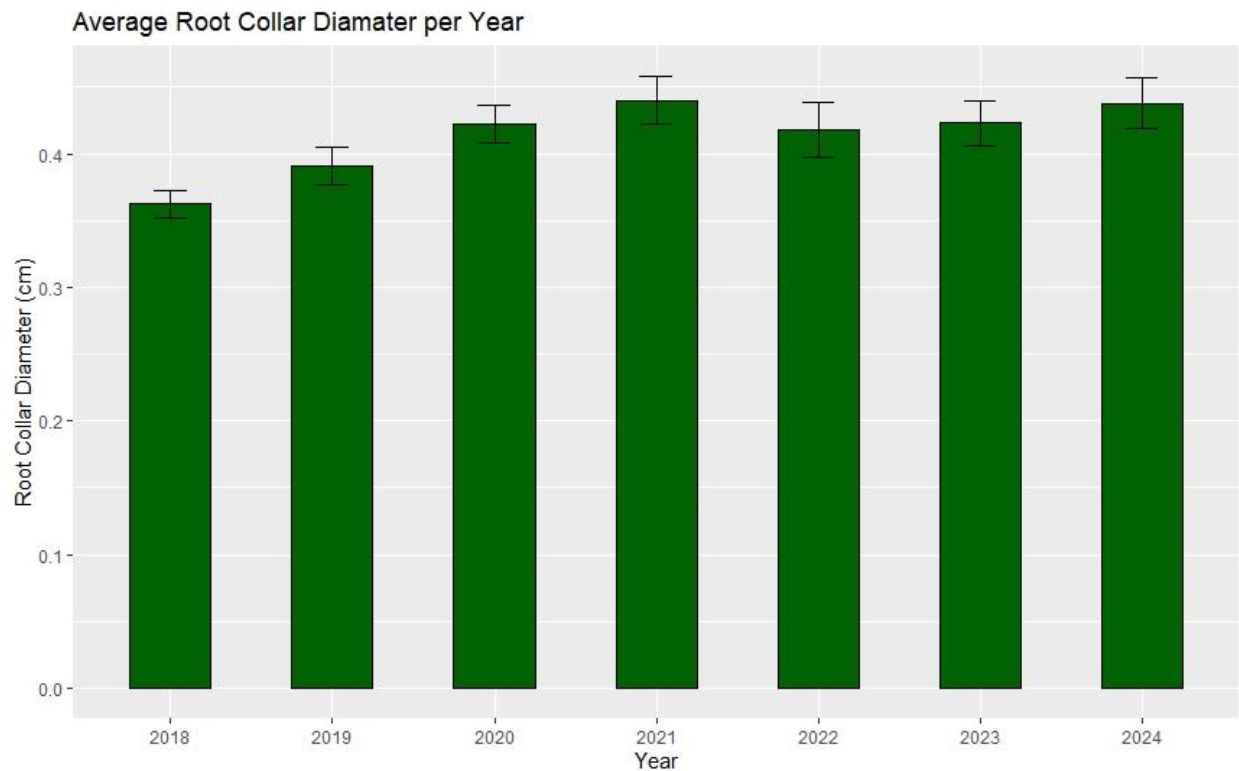
Results – Woody Sapling Data

The woody data showed small improvements in both height and root collar diameter from 2023. The mean root collar diameter went from 0.4228 cm in 2023 to 0.4375 cm in 2024. The mean sapling height went from 26.2947 cm in 2023 to 27.6159 cm in 2024. While deer browse was still substantial on heavily favored species such and roundleaf greenbrier and mapleleaf viburnum, browse seemed observationally lower on less favored species.

Here are the mean and standard deviation of the sapling root collar diameter and height since 2018:

Root Collar Diameter	Year	Mean RCD	Standard Deviation		Sapling Height	Year	Mean Height	Standard Deviation
1	2018	0.3623902	0.1475175		1	2018	21.80488	15.71127
2	2019	0.3908663	0.2017444		2	2019	24.96535	17.28554
3	2020	0.4220969	0.2011416		3	2020	27.13776	19.03375
4	2021	0.4398011	0.2373297		4	2021	27.28977	17.37588
5	2022	0.417617	0.2812969		5	2022	26.92553	18.73499
6	2023	0.4227579	0.2268097		6	2023	26.29474	16.46473
7	2024	0.4375366	0.2435167		7	2024	27.61585	16.48959

Here are the graphs for the Root Collar Diameter and Sapling Height



Results – Herbaceous Data

After small declines in height in 2023, both the Jack-in-the-Pulpit and Solomon's Seal showed small increases in 2024. The mean height of Solomon's Seal went from 14.429 cm in 2023 to 15.667 cm in 2024. The mean height of Jack-in-the-Pulpit went from 9.398 cm in 2023 to 10.254 cm in 2024. The Jack-in-the-Pulpit reached its tallest average height since 2018 while the Solomon's Seal was slightly below its peak height established in 2022.

Here are the mean and standard deviations of the Jack-in-the-Pulpit and Solomon's Seal height since 2018:

Solomon's Seal	Year	Mean Height	Standard Deviation		Jack-in-the Pulpit	Year	Mean Height	Standard Deviation
1	2018	8.863636	3.398816		1	2018	8.950758	4.035187
2	2019	8.7	2.878577		2	2019	8.57971	4.025034
3	2020	11.238095	3.845839		3	2020	8.837838	4.1293
4	2021	13.827586	4.456688		4	2021	9.507937	4.11536
5	2022	15.894737	5.848977		5	2022	9.610879	4.126575
6	2023	14.428571	4.272838		6	2023	9.39834	4.151184
7	2024	15.666667	3.834825		7	2024	10.254464	5.490512

Here are the graphs for the height of Solomon’s Seal and Jack-in-the-Pulpit

