

Analysis of the Woody and Herbaceous Deer Browse Data from Griffy Lake Nature Preserve 2018-2021

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. Woody plant species mean height and mean root collar diameter (rcd) were analyzed by samples year (2018,2019,2020,2021) 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

The one-way ANOVA revealed significant differences for data for height and root collar diameter in certain comparisons for the woody sapling data. Root collar diameter showed significant difference between 2018 and both 2020 ($p < 0.05$) and 2021 ($p < 0.001$). Other comparisons of root collar diameter yielded non-significant increases. For height, there were also significant difference between 2018 and both 2020 ($p < 0.05$) and 2021 ($p < 0.05$). Likewise, other comparisons of height yielded non-significant increases.

On the herbaceous data, the height of Solomon's seal showed significant increases between both 2018-2021 ($p < 0.00005$) and 2019-2021 ($p < 0.000005$). The height of the Jack-in-the-pulpit showed a significant increase from 2019-2021 ($p < 0.05$) and non-significant increase when 2021 was compared with 2018 and 2020.

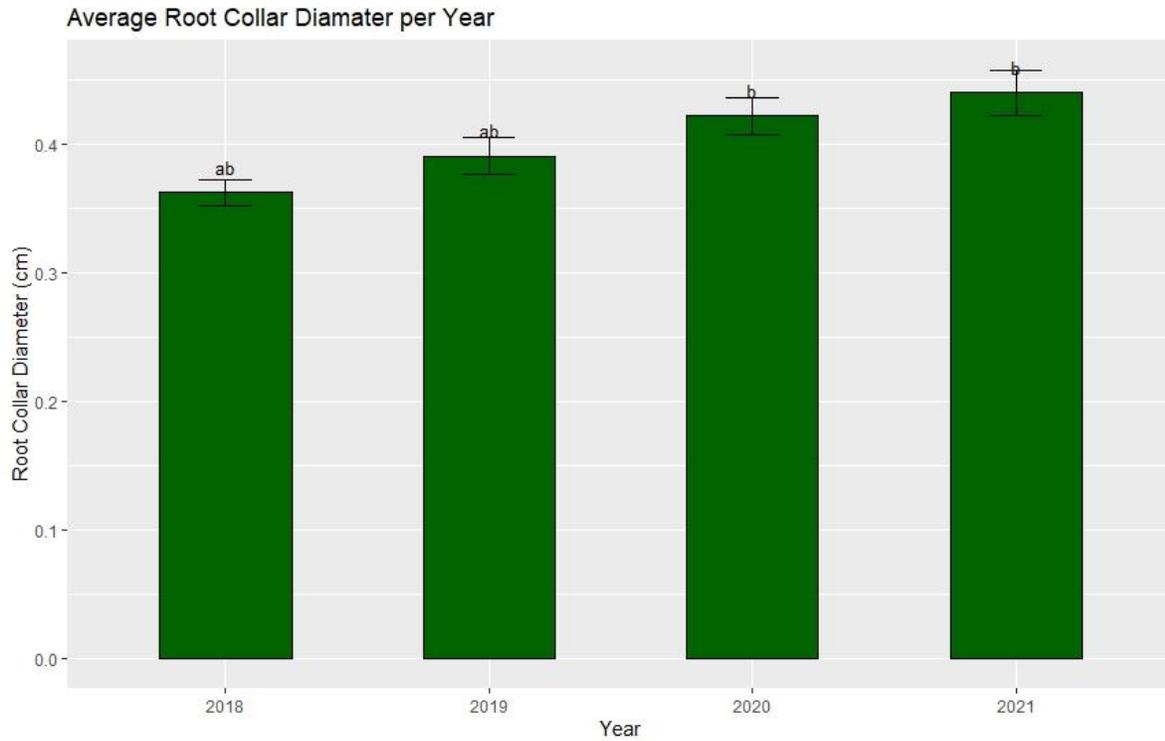


Figure 1: Sapling Root Collar Diameter. Letters indicate significant differences for 2020 and 2021

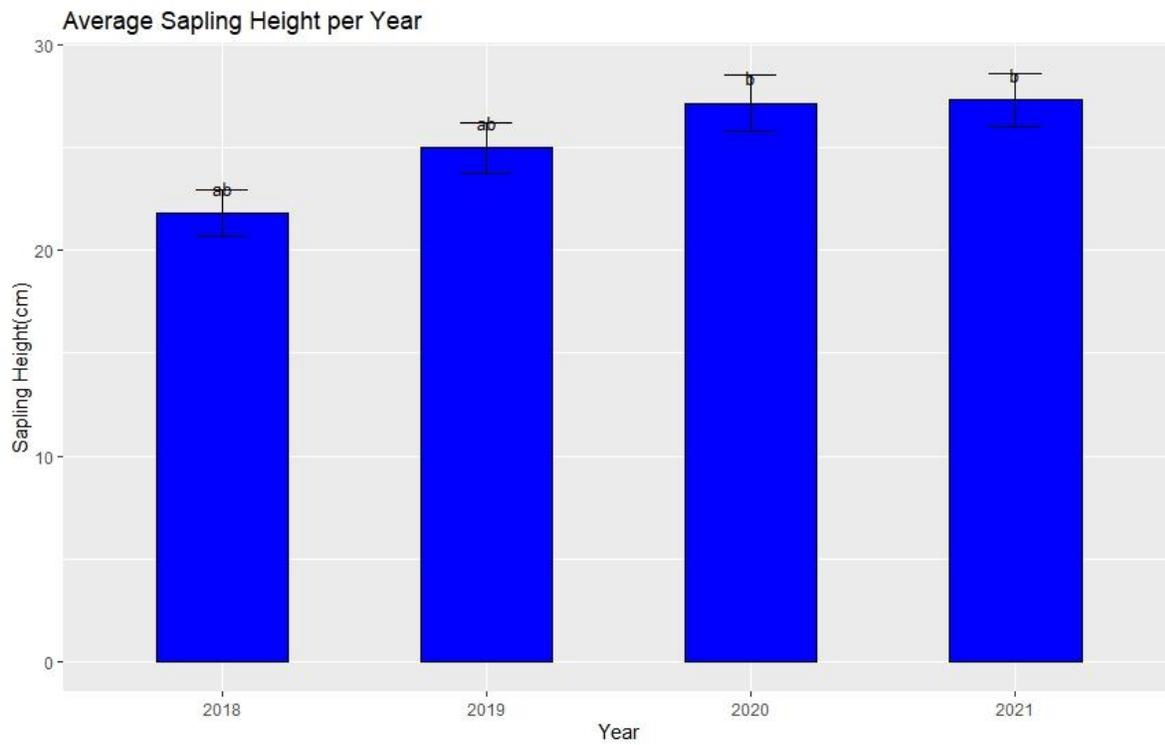


Figure 2: Sapling height. Letters indicate significant differences for 2020 and 2021

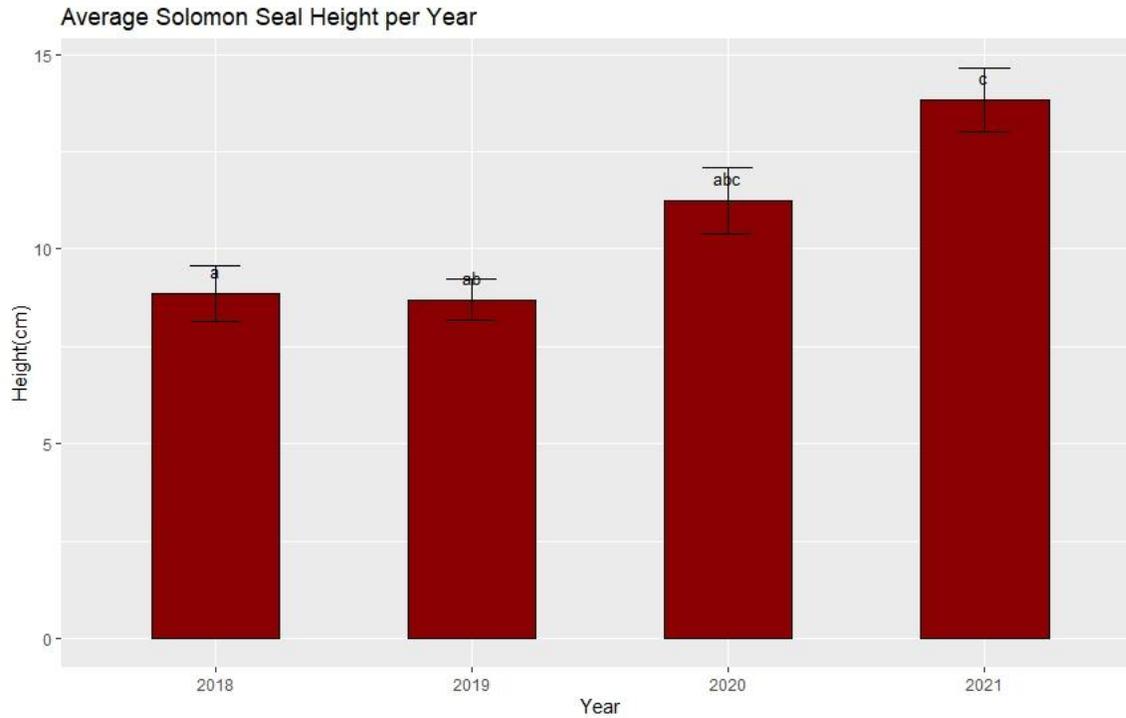


Figure 3: Solomon's seal height. Letters indicate significant differences for 2020 and 2021

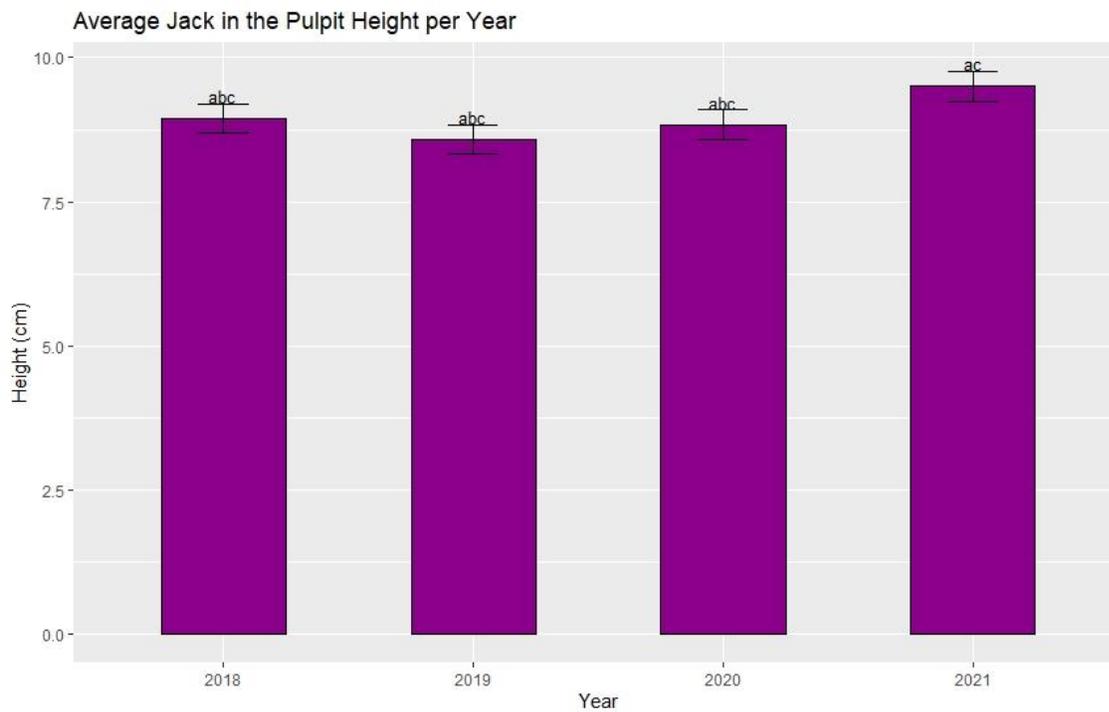


Figure 4: Jack_in_the_Pulpit height showing a significant difference in 2021