

2019 Deer Monitoring Review



LaDue Monitoring Plot

Rockwell Monitoring Plot

Purpose

In 2019, Watershed staff monitored two selected 1-acre sites, one at Lake Rockwell and one at LaDue, for comparative purposes to better understand deer populations in these regions.

Introduction

Deer are browsers of buds, leaves, and twigs of woody and herbaceous plants within a forest. However, when deer are overpopulated and over-browse, they can damage our forest ecosystems. Over-browsing by deer can affect the ability of a forest to regenerate and reduce diversity of plant and wildlife species. Studying the browse rates of deer on plants and their defecation rates is one way to learn about the local deer population.

The ability of forests surrounding Lake Rockwell to regenerate is of concern to the Watershed Division in order to minimize erosion and sediment challenges to the lake as well as provide the greatest possible buffering capacity by having healthy, forested buffers. As Lake Rockwell and surrounding property is off-limits to the public for the protection of the drinking water supply for the City of Akron, no hunting is allowed at Lake Rockwell. Public hunting is allowed at other City of Akron properties managed by the Ohio Department of Natural Resources within the watershed. The amount of hunting in a region drastically affects the deer populations and correspondingly forest health. For the above reasons, Watershed staff began to study deer populations and forest health throughout the watershed in late 2018 and 2019.

Monitoring Locations

Two monitoring plots were established. The first plot is located within the interior of Lake Rockwell in Streetsboro, OH and the second is located on the Akron-owned parcel of land (RT-037) which borders the southern edge of Eldon Russell Park in Burton, OH. The plots are delineated with pink flagging ribbon wrapped around trees with sides approximately 208 ft. x 208 ft. (1 acre). The locations of the monitoring plots are shown on Figure 1 below.



Figure 1. Monitoring Site Locations

These two plots were chosen because of several similarities and one key difference. Each plot exists in a closely-monitored NO HUNTING zone – Eldon Russell Park being patrolled by Geauga Park Rangers and Rockwell by City of Akron staff. The tree species composition and landscape of each plot are similar, consisting of mature hardwood cherry, beech, maple, and oak trees growing on a slightly undulating terrain with wetlands nearby. However, whereas no hunting is allowed within Rockwell or the hundreds of acres surrounding the lake on either side, the RT-037 parcel plot near Eldon Russell **does** allow hunting on the surrounding private lands as well as the 8,856 acres included in the LaDue Public Hunting Area on Akron-owned lands. Due to this fact, the Watershed Division feels that comparing the vegetation and browse intensities of the plot at Rockwell to the RT-037 plot will provide a good comparison of similar areas where

the only major difference is whether or not deer populations are actively managed on the surrounding lands.

Methods

Monthly, Watershed staff took photos at four standard locations within each plot and noted observations about the general health of the forest layers in each plot, mostly regarding browse rates.

At the end of winter 2019 from March to April, Watershed staff conducted a woody stem browse survey and a fecal pellet survey to quantify browse rates and observe deer pressure within the plot. Within each 1-acre plot, three 10 meter-radius plots were randomly established for survey purposes for stem counts. For the woody stem browse survey, a full assessment of browse intensity on each woody stem up to a height of 2 meters, the typical maximum browsing height for deer, was recorded. Species were identified to at least the genus level when possible.

A fecal pellet survey was also conducted in the 1-acre plots. Fecal pellet events are defined as ≥ 10 pellets when the centroid of an event falls within the plot boundary. Rabbit pellets were excluded from the survey.

Parameters measured:

- Browse rate (0-100%) of living twigs of all woody plant species within the browse zone (0-2m tall) of each plot.
- Quantity of pellet groups in each plot.

Results

LaDue

Based on the stem count data, the approximate estimated number of stems/acre in the LaDue plot was **10,799 stems/acre**. The average browse rate at the LaDue plot was **13.24%**. Sixteen pellet groups were observed in the plot during the fecal pellet count on February 22nd, 2019.

Rockwell

Based on the stem count data, the approximate number of stems/acre in the Rockwell plot was **573 stems/acre**. The average browse rate at the Rockwell plot was **96.71%**. Thirty-two pellet groups were observed in the plot during the fecal pellet count on March 27th, 2019.

The results from the woody browse survey at the Rockwell and LaDue monitoring plots are shown in Table 1 and Figure 2 below. Data from the studies is available within the Deer Management folder.

	Eldon Russell	Rockwell
Stem Count		
Total Stems Plot 1	573	25
Total Stems Plot 2	854	64
Total Stems Plot 3	1088	32
Total Average	838	40
Stems/Acre	10,799	520
Browse Rates		
Total Browse Plot 1	11.94%	96.00%
Total Browse Plot 2	17.13%	95.70%
Total Browse Plot 3	10.66%	98.44%
Average	13.24%	96.71%

Table 1. Deer Browse Results

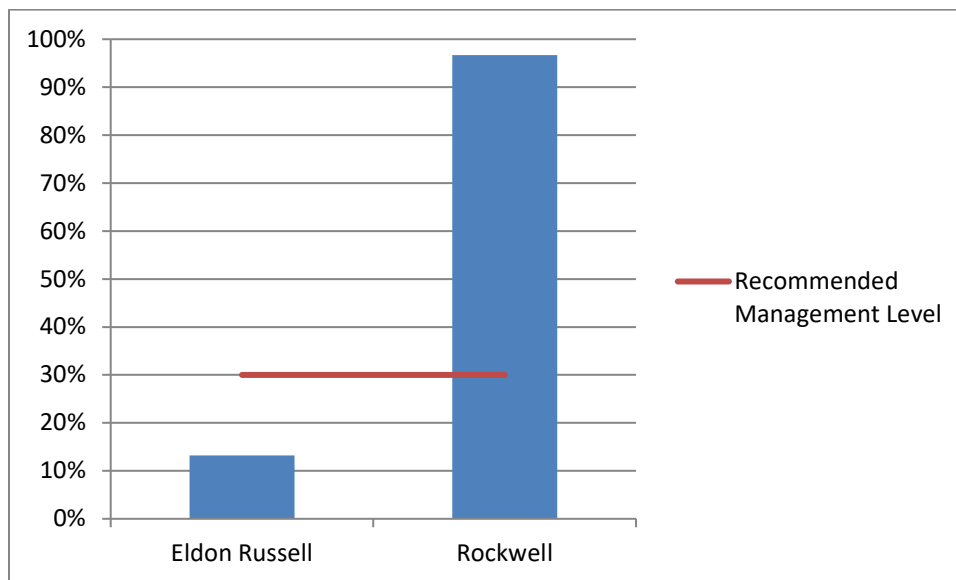


Figure 2. Average Woody Browse Rates

Discussion

The average woody stem browse rate at the Lake Rockwell plot compared to the LaDue plot was significantly higher – **96.71%** compared to **13.24%**. High browse rates at Lake Rockwell made identification of what few woody species were present nearly impossible. Figure 2 shows the browse rates at the monitoring plots graphically with a recommended management level line on the graph. This recommended management level of 30% browse was based upon what other local groups that have deer management programs use as the action level where they begin deer management actions. Thank you to Summit Metro Parks for kindly sharing their experiences with their deer management program. If a 30% browse rate is considered the action level, the average browse rate of **13.24%** at the LaDue monitoring plot shows action is not needed, likely due to the surrounding public hunting areas keeping the deer population at healthy levels. Comparatively, the average browse rate of **96.71%** at the Lake Rockwell monitoring plot indicates that intervention is needed.

The pellet count results of **16** groups at the LaDue monitoring plot and **32** groups at the Lake Rockwell monitoring plot were lower than expected at both sites. These results could have been due to an unusually warm winter with little snowfall, human error, or due to the sample size. In order to get a better understanding of deer populations by using fecal pellet counts, having a greater sample size of studied sites would lead to more accurate results.

Future Monitoring

To continue the deer monitoring program, future studies could include other comparison studies as well as deer density estimate studies. In 2020, Watershed staff will perform a comparative study between a selected site at East Branch reservoir and a new site at Lake Rockwell.