



**METROPARKS  
TOLEDO**

# **2021 End of Culling Report**

**SUBMITTED 3-31-2021**

## **A. BACKGROUND / INTRODUCTION**

Metroparks Toledo (Metroparks) submitted its 2020-2021 Deer Management Plan and Request for Deer Damage Control Permit to the Ohio Division of Wildlife (ODW) on 11/10/2020 to initiate the sixth season of its lethal deer culling program to continue addressing ongoing negative ecological impacts associated with overabundance of deer across the park district. This request was subsequently approved by the Ohio Division of Wildlife on 11/13/2020 under ODW deer damage control permit 7397, valid from December 7, 2020 until February 28, 2021. During this period of culling activities, Metroparks law enforcement staff (Ohio Peace Officer Training Academy Certified) served as marksmen. During this time, Metroparks also received assistance from marksmen with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) under Cooperative Services Agreement # 20-7239-5237-RA. Metroparks staff provided field support to marksmen and conducted all other deer management activities including removal of deer killed in the field, field dressing of deer, collection of biological data, transportation of deer carcasses to venison processing facilities, and disposal of remains not taken for venison processing. Each evening, culling activities commenced after Metroparks law enforcement personnel closed each park and determined that no park visitors remained after normal park hours.

## **B. ADHERENCE TO STIPULATIONS OF DEER MANAGEMENT CONTROL PERMIT**

Metroparks strictly followed the permit conditions mandated by ODW, including:

1. Wildlife Office Michael Ohlrich was notified by phone prior to each night when culling operations were conducted.
2. Wildlife Management Supervisor Bob Ford was notified by phone after the conclusion of each night of culling operations and provided a summary of the results.
3. A copy of Permit # 7397 was in the possession of Metroparks and APHIS-WS marksmen during the course of operations.
4. Antlered deer made up fewer than 25% of all deer taken. All antlers were removed and destroyed by Metroparks staff following culling operation.
5. A deer damage carcass tag was attached immediately to each deer in the field.
6. Each deer damage carcass tag featured a unique ID number assigned by Metroparks to insure accurate record keeping.
7. Each deer killed was reported online and assigned a permanent ODW tag number.
8. All venison processed as a result of culling operations was donated to charity.
9. Two heads from mature deer (2.5 years of age or older) were submitted to Ohio Division of Wildlife from each park area for chronic wasting disease surveillance.

This written report fulfills Metroparks' final obligation under Permit # 7397 and formally concludes all actions under the Metroparks 2020-2021 Deer Management Plan. All future deer management activities to be conducted by Metroparks will occur under a new request for deer damage control permit.

## **C. DEER MANAGEMENT / RESULTS OF OPERATION**

A total of 131 deer were culled over 12 separate nights between January 5<sup>th</sup>, 2021 and February 25<sup>th</sup>, 2021. A total of 114 deer culled were antlerless (87%) while 17 deer culled were antlered (13%). Table 1 provides a culling summary for each park area included in the 2020-21 deer management plan.

Table 1. **Culling summary by park area** for 131 deer culled by Metroparks from January 5, 2021 to February 25, 2021.

Park Area	Antlerless	Antlered	Total
Oak Openings Preserve	55	5	60
Swan Creek Preserve & Brookwood Area	28	5	33
Side Cut and associated parklands	19	2	21
Wildwood Preserve	5	5	10
Pearson	7	0	7
Toledo Botanical Garden	0	0	0
Middlegrounds	0	0	0
Total All Parklands	114	17	131

**D. BIOLOGICAL AND DEMOGRAPHIC DATA**

In addition to antlered status, biological data (weight, sex, reproductive status, general condition) were collected for all deer culled during the 2020-21 season. A summary of biological data collected by Metroparks staff during culling activities is provided as an appendix to this report.

Age and Sex Distribution

Out of 131 deer culled, 78 were females (60%) and 53 were males (40%). A total of 49 deer (37%) were fawns (<1 year of age), including 27% of all females culled and 53% of all males culled. A breakdown of the sex and age class of deer culled is shown in Table 2.

Table 2. **Sex and age distribution** of 131 deer culled by Metroparks from January 5, 2021 to February 25, 2021.

Age	Female	Male	Total
0.5	21	28	49
1.5	12	11	23
2.5	21	5	26
3.5	11	3	14
4.5	6	3	9
5.5	2	2	4
6.5	5	1	6
Total	78	53	131

### Weight

Whole body weights of harvested deer ranged from 61 to 178 pounds for females (mean of 116 pounds) and 61 to 187 pounds for males (mean of 113 pounds). A breakdown of the mean weight by sex and age class of deer culled is shown in Table 3.

Table 3. **Mean whole body weights** (pounds) of 131 deer culled by Metroparks from January 5, 2021 to February 25, 2021.

Age (years)	Female	Male
0.5	76.6	82.7
1.5	117.3	133.4
≥2.5	136.2	158.8
All age classes	116.3	113.3

### Reproductive Status

Across all age classes, 58 of 78 females evaluated (74%) from January 5, 2021 to February 25, 2021 were pregnant. Across all age classes, 26% of females carried a single fetus, 71% carried twins, and 3% carried triplets. A breakdown of additional reproductive characteristics of female deer culled by Metroparks from January 5, 2021 to February 25, 2021 is shown in Table 4.

Table 4. **Pregnancy rates** (%), mean fetus count per pregnant female, and mean fetus count per female among deer culled by Metroparks from January 5, 2021 to February 25, 2021.

Age (years)	pregnancy rate (%)	mean fetus count per pregnant female	mean fetus count per female
All	74.4		
0.5	19.0	1.25	0.24
1.5	83.3	1.60	1.33
≥2.5	97.8	1.86	1.82

## **E. EVALUATION OF CULLING RESULTS / IDENTIFICATION OF FUTURE MANAGEMENT NEEDS**

Culling results: Deer removed through Metroparks culling operations during the 2020-21 season appeared generally to be in good health with no obvious signs of biological stress. Of the 205 tags requested by Metroparks under permit #7397, 131 (64%) were filled. Overall annual reduction goals were achieved for Oak Openings Preserve (60 of 60 permits filled) and Wildwood Preserve (10 of 10 permits filled). For Swan Creek Preserve and the Brookwood Area, 33 of 50 permits (66%) were filled with reduction goals considered largely achieved based on population counts completed on February 2, 2021 (see Figure 1 below). For Pearson, only 7 of 15 permits were filled (47%) which can be attributed to strong avoidance behavior exhibited by deer at this park during culling operations. For Side Cut and associated parklands, only 21 of 50 permits were filled (42%) due in large part to limited access to many floodplain areas as well as heavy use by deer of adjacent residential areas during culling operations. However, population reduction goals for Fallen Timbers Battlefield (when considered in isolation from other nearby park areas) appear to have been largely met in contrast to Side Cut and Blue Grass Island based on population estimates and browse data collected in 2021. No culling operations were conducted at Toledo Botanical Garden or Middlegrounds during the 2020-21 season. A summary of culling operations from 2015 to 2021 are shown in Table 5.

Table 5. **Summary of culling by park** carried out by Metroparks Toledo between 2015 and 2021.

<b>Culling Summary by Park</b>	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	<b>Total</b>
Oak Openings Preserve	165	150	50	71	73	60	<b>569</b>
Swan Creek Preserve & Brookwood Area	-	50	64	58	40	33	<b>245</b>
Side Cut and associated parklands	-	-	106	54	46	21	<b>227</b>
Wildwood Preserve	30	-	19	13	10	10	<b>82</b>
Pearson	-	-	-	-	27	7	<b>34</b>
Toledo Botanical Garden	-	-	-	-	7	-	<b>7</b>
Middlegrounds	-	-	1	-	-	-	<b>1</b>
<b>Total All Parklands</b>	<b>195</b>	<b>200</b>	<b>240</b>	<b>196</b>	<b>203</b>	<b>131</b>	<b>1165</b>

Deer population status: Annual population reduction goals for each park area (as described above) were set to maintain peak population densities for each park area at ~15 to 25 deer per square mile. Helicopter snow count surveys completed by Metroparks staff on February 2, 2021 provide additional insight into the current status of deer populations at each park area following completion 2021 culling operations (Figure 1). Snow counts completed at Oak Openings Preserve, Wildwood Preserve, and Swan Creek Preserve / Brookwood Area show current population densities are within the acceptable range, although for Swan Creek Preserve and the Brookwood Area, large groups of deer were observed during the snow count immediately outside the count area suggesting that culling operations may have driven resident deer into nearby areas. For Pearson, deer numbers remained slightly above the desired level (27 deer per square mile). For Side Cut and associated parklands, deer densities remain at nearly twice the desired level (38 deer per square miles) but have been reduced by nearly 60% compared to pre-culling densities observed in 2016-17 (92 deer per square mile). Collectively, these count data, along with the deer browse survey data that follows, will be used to set reduction targets for the 2021-22 deer management season.

Deer browse damage assessment: Following 2020-21 culling operations, overwinter deer browse damage surveys were conducted between March 9 and March 26, 2021. A summary of browse survey results is shown in Figures 2 and 3 below. Overall trends in deer browse damage are consistent with population trends described above, with most park areas seeing declines in observed browse damage. For example, percent of survey plots experiencing heavy to severe browse damage for Sidecut / Bluegrass Island, Fallen Timbers Battlefield, Swan Creek Preserve, and Brookwood all declined in 2021 (see Figure 2).

For Oak Openings Preserve and Wildwood Preserve, where oaks are the dominant woodland species, response of understory oaks to reductions in browsing pressure over the past five years is especially pronounced (see Figure 3). Percent of survey plots experiencing heavy to severe browse damage of oaks decreased from a high of 66% and 100% (for Oak Openings Preserve and Wildwood Preserve, respectively) in 2015 down to 0% for both parks in 2021. Percent of survey plots experiencing no oak browse damage increased from a low of 13% and 0% (for Oak Openings Preserve and Wildwood Preserve, respectively) in 2015 to 68% and 95% (for Oak Openings Preserve and Wildwood Preserve, respectively) in 2021. Finally, percent of survey plots experiencing oak regeneration increased from a low of 20% and 1% (for Oak Openings Preserve and Wildwood Preserve, respectively) in 2015 and have remained above 30% for both parks since 2020.

Future management needs: The Metroparks long term goal is to maintain deer populations at or below levels that ensure the protection of native plant and animal diversity and the development of high quality habitat for a variety of native wildlife species. As a general rule, Metroparks managers intend to keep peak deer population densities at no greater than 15 to 25 deer per square mile for parklands throughout the park district wherever possible. However, future population reduction goals will take into account actual browse damage (in established woodlands as well as newly planted sites) along with estimates of population recruitment during the spring fawning season.

**F. VENISON DONATION**

Deer culled by Metroparks during the 2020-21 season were processed into 6,340 pounds of ground venison donated to three charities in the Toledo region who distributed this venison to those in need. Table 6 provides a summary of venison donations since Metroparks initiated its deer culling program during the 2015-16 season.

Table 6. **Pounds of venison donated** by Metroparks Toledo between 2015 and 2021.

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Pounds	6,744	9,940	11,284	9,598	10,332	6,340	54,238

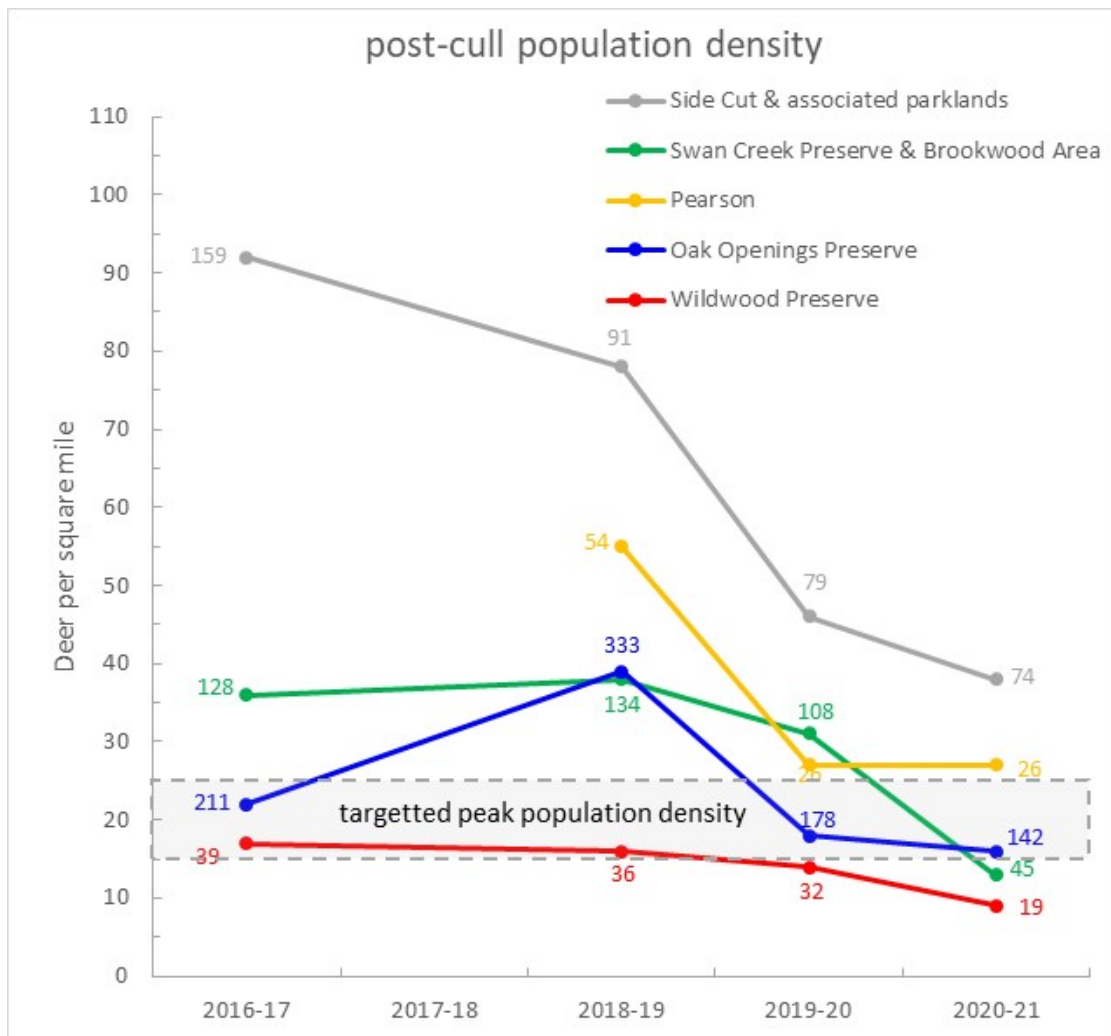


Figure 1. **Post-cull population densities** for five park areas based on population surveys completed between 2016 and 2021. Actual population numbers observed for each park area are shown next to each density data point. Deer culled from the population during the same season, but after counts were completed were subtracted from the count (for example, on 2/2/2021, 27 deer were counted at Pearson, however 1 additional deer was culled at Pearson on 2/25/2021, therefore the population count is shown as 26). For Side Cut and associated parklands, Audubon Island is not included in the reported population numbers shown above (in contrast to previously submitted reports).

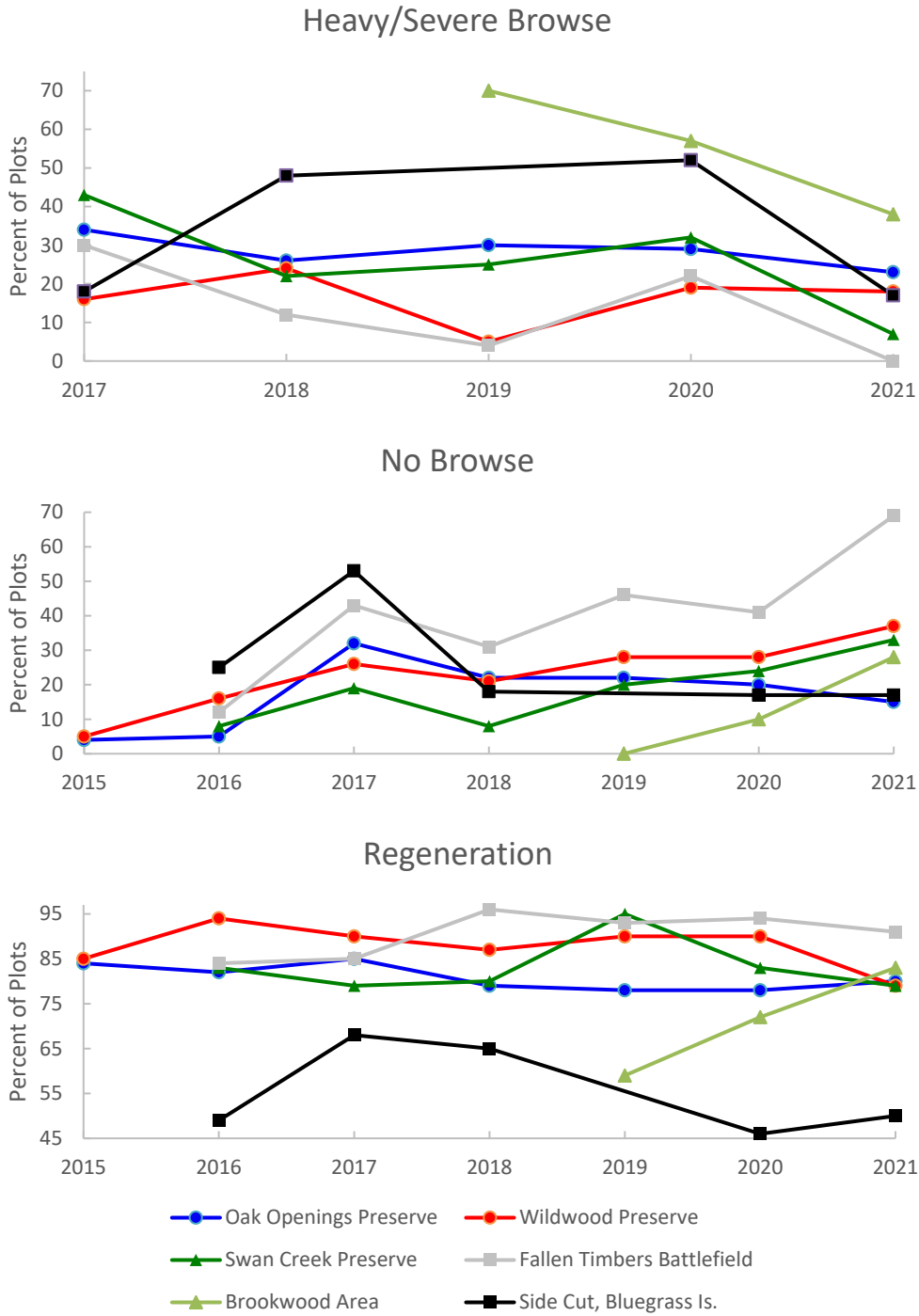


Figure 2. **Overall overwinter deer browse damage** observed between 2015 and 2021 for six park areas. Browse damage surveys were conducted in March/April each year prior to leaf-out. Note that in 2017 persistent overwinter snow cover protected many seedlings from direct browse damage. Data were not collected at Side Cut in 2019 due to persistent spring flooding which likely contributed to the decline in regeneration observed in 2020.



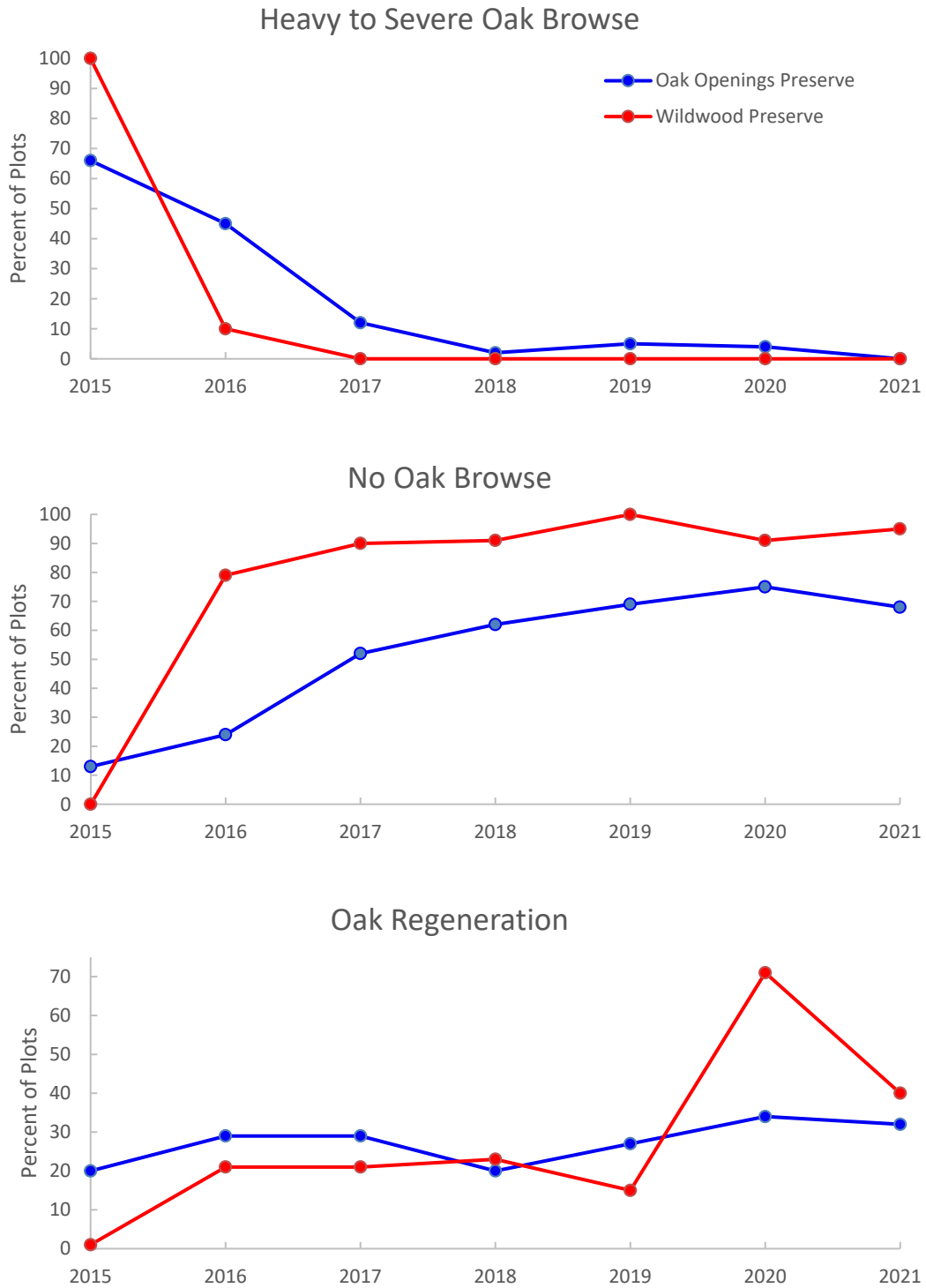


Figure 3. **Overwinter deer browse damage of oak seedlings** observed between 2015 and 2021 for two park areas. Browse damage surveys were conducted in March/April each year prior to leaf-out. Note that heavy acorn production was observed in fall of 2018, likely contributing to increased oak regeneration observed at Wildwood Preserve in 2020.

**APPENDIX – SUMMARY OF BIOLOGICAL DATA**

ODW Tag #	Date Culled	Time (A or P)	Location <sup>1</sup>	Sex	Weight (lbs)	Age (years)	Antlers (N=no)	Fetus Count (#)
1	1/5/2021	P	BW	F	68	0.5		0
2	1/5/2021	P	SCPM	F	68	0.5		0
3	1/5/2021	P	SCPM	M	69	0.5	N	
4	1/5/2021	P	SCPM	F	85	0.5		0
5	1/5/2021	P	SCPM	M	125	2.5	N	
6	1/5/2021	P	SCPM	M	155	6.5	8	
7	1/5/2021	P	SCPM	M	166	3.5	8	
8	1/5/2021	P	SCPM	F	73	0.5		0
9	1/5/2021	P	SCPM	F	66	0.5		0
10	1/5/2021	P	SCPM	F	130	3.5		2
11	1/5/2021	P	SCPM	F	82	0.5		0
12	1/5/2021	P	SCPM	F	153	2.5		1
13	1/5/2021	P	SCPM	F	97	0.5		0
14	1/5/2021	P	SCPM	M	80	0.5	N	
15	1/5/2021	P	SCPM	F	114	1.5		0
16	1/5/2021	P	SCPM	M	145	1.5	8	
17	1/5/2021	P	SCPM	M	98	0.5	N	
18	1/5/2021	P	SCPM	M	85	0.5	N	
19	1/5/2021	P	SCPM	M	86	0.5	N	
20	1/5/2021	P	SCPM	F	150	2.5		2
21	1/5/2021	P	SCPM	F	118	1.5		1
22	1/5/2021	P	SCPM	M	76	0.5	N	
23	1/5/2021	P	SCPM	M	137	1.5	4	
24	1/6/2021	P	PM	F	121	1.5		2
25	1/6/2021	P	PM	F	134	1.5		0
26	1/6/2021	P	PM	F	135	2.5		3
27	1/6/2021	P	PM	M	100	0.5	N	
28	1/6/2021	P	PM	M	99	0.5	N	
29	1/6/2021	P	BW	M	82	0.5	N	
30	1/6/2021	P	BW	F	134	3.5		2
31	1/6/2021	P	BW	M	83	0.5	N	
32	1/6/2021	P	BW	M	157	1.5	6	
33	1/12/2021	P	BW	F	130	2.5		2
34	1/12/2021	P	WWPM	F	146	6.5		2
35	1/12/2021	P	WWPM	M	155	1.5	4	
36	1/12/2021	P	WWPM	M	139	1.5	2	
37	1/12/2021	P	WWPM	M	130	1.5	4	
38	1/12/2021	P	WWPM	F	128	2.5		2
39	1/12/2021	P	WWPM	F	132	2.5		2
40	1/12/2021	P	WWPM	M	151	1.5	7	

ODW Tag #	Date Culled	Time (A or P)	Location <sup>1</sup>	Sex	Weight (lbs)	Age (years)	Antlers (N=no)	Fetus Count (#)
41	1/12/2021	P	WWPM	M	187	2.5	7	
42	1/12/2021	P	WWPM	M	90	0.5	N	
43	1/12/2021	P	WWPM	F	143	2.5		2
44	1/13/2021	P	SiCu	M	169	5.5	N	
45	1/13/2021	P	SiCu	M	152	3.5	5	
46	1/13/2021	P	SiCu	M	84	0.5	N	
47	1/13/2021	P	SiCu	F	139	6.5		1
48	1/13/2021	P	SiCu	F	78	0.5		0
49	1/13/2021	P	SiCu	M	71	0.5	N	
50	1/13/2021	P	SiCu	F	112	1.5		2
51	1/13/2021	P	SiCu	F	110	2.5		2
52	1/13/2021	P	SiCu	F	123	1.5		2
53	1/13/2021	P	SiCu	F	155	4.5		2
54	1/13/2021	P	SiCu	M	161	2.5	4	
55	1/13/2021	P	SiCu	M	150	4.5	N	
56	1/19/2021	P	SCPM	F	154	6.5		2
57	1/19/2021	P	SCPM	M	88	0.5	N	
58	1/19/2021	P	SCPM	F	147	4.5		2
59	1/19/2021	P	SCPM	M	93	0.5	N	
60	1/19/2021	P	OOPM	F	78	0.5		0
61	1/19/2021	P	OOPM	F	141	3.5		2
62	1/19/2021	P	OOPM	M	94	0.5	N	
63	1/19/2021	P	OOPM	M	147	3.5	N	
64	1/19/2021	P	OOPM	F	67	0.5		0
65	1/19/2021	P	OOPM	F	129	4.5		2
66	1/19/2021	P	OOPM	F	132	3.5		2
67	1/19/2021	P	OOPM	F	135	2.5		2
68	1/19/2021	P	OOPM	F	119	2.5		2
69	1/20/2021	P	PM	F	123	2.5		2
70	1/20/2021	P	OOPM	F	65	0.5		0
71	1/20/2021	P	OOPM	F	138	3.5		2
72	1/20/2021	P	OOPM	F	128	2.5		0
73	1/20/2021	P	OOPM	M	74	0.5	N	
74	1/20/2021	P	OOPM	F	115	2.5		1
75	1/20/2021	P	OOPM	F	141	5.5		2
76	1/20/2021	P	OOPM	M	150	2.5	6	
77	1/20/2021	P	OOPM	M	117	1.5	8	
78	1/20/2021	P	OOPM	M	100	0.5	N	
79	1/20/2021	P	OOPM	F	151	4.5		2
80	1/20/2021	P	OOPM	F	136	2.5		1
81	1/20/2021	P	OOPM	F	94	0.5		1

ODW Tag #	Date Culled	Time (A or P)	Location <sup>1</sup>	Sex	Weight (lbs)	Age (years)	Antlers (N=no)	Fetus Count (#)
82	1/21/2021	A	OOPM	F	119	2.5		2
83	1/20/2021	P	OOPM	F	122	1.5		1
84	1/20/2021	P	OOPM	M	122	1.5	N	
85	1/20/2021	P	OOPM	F	108	1.5		1
86	1/20/2021	P	OOPM	F	61	0.5		0
87	1/21/2021	A	OOPM	M	75	0.5	N	
88	1/26/2021	P	OOPM	F	145	3.5		2
89	1/26/2021	P	OOPM	F	115	2.5		1
90	1/26/2021	P	OOPM	F	128	2.5		1
91	1/26/2021	P	OOPM	F	95	1.5		2
92	1/26/2021	P	OOPM	F	144	3.5		2
93	1/26/2021	P	OOPM	F	70	0.5		0
94	1/26/2021	P	OOPM	F	131	2.5		1
95	1/26/2021	P	OOPM	F	77	0.5		0
96	1/26/2021	P	OOPM	F	89	0.5		0
97	1/26/2021	P	OOPM	M	144	4.5	N	
98	1/26/2021	P	OOPM	F	155	6.5		3
99	1/26/2021	P	OOPM	F	75	0.5		2
100	1/26/2021	P	OOPM	F	112	3.5		1
101	1/26/2021	P	OOPM	M	61	0.5	N	
102	1/26/2021	P	OOPM	F	128	2.5		2
103	1/26/2021	P	OOPM	M	83	0.5	N	
104	1/27/2021	A	OOPM	M	82	0.5	N	
105	1/27/2021	A	OOPM	F	81	0.5		0
106	1/27/2021	A	OOPM	F	141	3.5		2
107	1/27/2021	A	OOPM	M	71	0.5	N	
108	1/27/2021	A	OOPM	M	79	0.5	N	
109	1/27/2021	A	OOPM	F	124	2.5		2
110	1/27/2021	A	OOPM	F	129	2.5		2
111	1/27/2021	A	OOPM	M	175	5.5	9	
112	1/27/2021	A	OOPM	M	158	2.5	2	
113	1/27/2021	P	OOPM	M	127	1.5	2	
114	1/27/2021	P	OOPM	F	66	0.5		0
115	1/27/2021	P	OOPM	M	184	4.5	N	
116	1/27/2021	P	OOPM	F	137	3.5		2
117	1/27/2021	P	OOPM	F	147	5.5		2
118	1/27/2021	P	OOPM	M	75	0.5	N	
119	1/28/2021	A	OOPM	M	80	0.5	N	
120	1/28/2021	A	OOPM	F	132	1.5		2
121	1/28/2021	P	SiCu	F	178	4.5		2
122	1/28/2021	P	SiCu	F	91	0.5		1

ODW Tag #	Date Culled	Time (A or P)	Location <sup>1</sup>	Sex	Weight (lbs)	Age (years)	Antlers (N=no)	Fetus Count (#)
123	1/28/2021	P	SiCu	F	130	3.5		2
124	1/28/2021	P	SiCu	F	146	4.5		2
125	1/28/2021	P	SiCu	F	119	1.5		2
126	1/28/2021	P	SiCu	M	76	0.5	N	
127	1/28/2021	P	SiCu	F	148	6.5		2
128	2/2/2021	P	BW	M	82	0.5	N	
129	2/3/2021	P	SiCu	M	87	1.5	N	
130	2/3/2021	P	SiCu	F	110	1.5		1
131	2/25/2021	P	PM	F	-	0.5		1

<sup>1</sup>BW = Brookwood area, FTB = Fallen Timbers Battlefield, OOPM = Oak Openings Preserve, SCPM = Swan Creek Preserve, SiC = Side Cut & Blue Grass Island, PM = Pearson, WWPM = Wildwood Preserve