

INTERIM SUMMARY REPORT

Year 4 - 2016 Deer Research Program

Village of Cayuga Heights, New York

by

White Buffalo, Inc.

29 March 2016

INTRODUCTION

The Village of Cayuga Heights (VCH) contains a matrix of suburban and commercial development, parks, and other open-spaces. The absence of any deer management, combined with fertile soils and good-quality habitat, allowed the local deer population to increase to a level incompatible with some land-use and human activities prior to our involvement. Although deer physical condition is not an issue, there is ongoing concern regarding numerous deer/vehicle collisions, Lyme disease risks, and damage to garden and landscape plantings. This is the fourth year of the Village deer research program has been implemented. In the first year of the experimental sterilization project 137 females were sterilized in December 2012. Camera surveys were used to estimate deer abundance at the conclusion of capture efforts in Year 1, resulting in a projected density of ~125 deer/mile². They also verified ~6 females were not captured during December 2012. In Year 2, December 2013, 12 females were captured and sterilized with no untagged females remaining. The population had decline by 30% after the first year based on Cornell's camera survey. During the third year, 48 deer were culled using archery equipment, and no deer were sterilized, reducing the population to ~100 deer in March 2015; a 55% reduction since Year 1. In Year 4, a second archery culling effort was implemented and 24 deer were removed, reducing the population to ~70 based on Cornell's most recent population estimate. The intent of this initiative was to capture all remaining untagged female deer.

METHODS

Deer capture activities were conducted from 26-27 March 2016 resulting in five females sterilized. We followed the operations protocol outlined in the proposal, contract, and NYSDEC License to Collect and Possess (LCP) deer. All deer were captured using remote immobilization equipment at night from a vehicle with collaboration from the VCH Police Department staff. Remotely-immobilized deer were

administered 250 mg Telazol (tiletamine HCl + zolazepam HCl) and 175 mg xylazine HCl. Masks were placed over the eyes, and ophthalmic ointment was applied to prevent ocular desiccation. After deer were sufficiently anesthetized, they were retrieved from the field and transported to a temporary surgical facility.

All surgically sterilized females were medicated with flunixin meglumine at a dosage of 1-3 mg/kg IM, and a long-acting antibiotic (ceftiofur - Excede) at 3-6 mg/kg also IM. To maintain anesthesia, supplemental doses of ketamine HCL were given intravenously at dosages up to 5 mg/kg as needed. Pre-pubic, ventral midline laparotomy exposed the uterine horns and ovaries. All deer had bilateral ovariectomies using a combination of clamping, electro-cautery, and excision for removal and coagulation to prevent hemorrhage. Routine three-layer closure of the abdomen was performed to complete the procedure. All animals were returned to the area where they were captured, given a reversal agent of tolazoline HCl at 2 mg/kg intravenously, and monitored during recovery. All does were observed upon release until ambulatory.

RESULTS AND DISCUSSION

The deer capture data are contained in Appendix A – “Village of Cayuga Heights – Capture History 1 December 2012 – 27 March 2016”. We expended ~33 person-hours for the capture efforts, and the same for surgical sterilization procedures (5 deer sterilized).

We captured eight deer with remote-injection tranquilizer darts; three were male fawns. All deer were captured at night from a vehicle. No mortalities were recorded prior to, or after, surgical procedures. We captured all female deer known to be present based on recent camera data and law enforcement personnel observations.

We accounted for 3 females (#137, 139, 140) that immigrated and establish home ranges in the core of the Village from December 2012 to December 2013. In winter of 2014-15 14 females entered the Village and were lethally removed during the archery culling program. No sterilization efforts were conducted. In winter of 2015-16, 8 females entered the Village and were lethally removed during the archery culling program. The females we captured this year were ones that we missed during the archery efforts on the very edge of the Village boundary, indicating that their home ranges are primarily Ithaca (eastern and southern boundaries) and partially overlap with the Village. In conjunction with Cornell University, we will continue to monitor immigration and determine the best way to address these deer that may negate any population reduction gains in the future.

ACKNOWLEDGEMENTS

We would like to thank the following individuals and organizations for assistance provided prior to and during the sterilization project; Mayor Kate Supron for her effort to organized and administer the research project, Chief James Steinmetz and his staff from the Village of Cayuga Heights Police Department without whom this project would not have been feasible, and the Department of Public Works. Finally, we thank NY State Department of Environmental Conservation for their continued permitting and support.

Appendix A - Village of Cayuga Heights - Capture History 1 December 2012 – 27 March 2016. Green highlighted individuals are known mortalities of various causes. Red highlighted are archery culling harvest. Yellow and magenta highlights represent deer not observed during 2015 and 2016 camera surveys, respectively.

Tag#	Age at Capt	Radio Freq.	Treat	Capture Date	Capt Method	Capture Location	Comments
C01	A		OV	12/01/12	DN	Hanshaw	Euthanized 6/19/14
C02	F		OV	12/01/12	DN	Hanshaw	
C03	3.5		OV	12/01/12	Dart	Spruce	Hunter 10/13/15
C04	A		OV	12/02/12	DN	Highgate	C08 DVC 1/13/14
C05	A		OV	12/02/12	DN	Highgate	3/11/2015
C06	F		OV	12/02/12	DN	Highgate	Not seen 2015
C07	F		OV	12/02/12	DN	Highgate	Not seen 2015
C08	5.5		OV	12/02/12	DN	Highgate	w/C04 Not seen 2015
C09	3.5		OV	12/02/12	DN	Highgate	3/11/2015
C10	F		OV	12/02/12	DN	Highgate	DVC 6/6/14
C11	4.5		OV	12/02/12	DN	Highgate	3/11/2015
C12	F		OV	12/02/12	DN	Highgate	DVC 6/6/14
C13	F		OV	12/02/12	DN	Highgate	Hunter 1/30/13
C14	5.5		OV	12/02/12	DN	Highgate	Euth 1/26/15 Fence
C15	A	151.523	OV	12/02/12	DN	Lexington	Hunter 10/7/14 Dryden
C16	4.5		OV	12/02/12	Dart	Winthrop	3/6/2015
C17	3.5		OV	12/02/12	Dart	Winthrop	w/C19
C18	F		OV	12/02/12	Dart	Winthrop	Not seen 2015
C19	1.5		OV	12/02/12	Dart	Winthrop	w/C17 3/6/2015
C20	6.5		OV	12/03/12	Dart	Texas	3/8/2016
C21	10+		OV	12/03/12	Dart	Winthrop	w/H06 DVC 4/25/13
C22	2.5		OV	12/03/12	Dart	Texas	3/18/2016
C23	A		OV	12/03/12	DN	The Parkway	w/C24, DVC 7/29/13
C24	2.5		OV	12/03/12	DN	The Parkway	w/C23, 25, 103
C25	0.5		OV	12/03/12	DN	The Parkway	w/C23, 24, 103
C26	A		OV	12/03/12	DN	Highgate	w/C72 3/6/2016
C27	6.5		OV	12/03/12	Dart	Texas	w/C53 3/8/2015
C28	3.5	151.503	OV	12/03/12	Dart	Upland/Highland	C118114 DVC 3/17/15
C29	3.5		OV	12/04/12	Dart	Parkway/Comstock	w/C30-C33 and bb
C30	3.5		OV	12/04/12	Dart	Parkway/Comstock	w/C29, Not seen 2016
C31	1.5		OV	12/04/12	Dart	Parkway/Comstock	w/C29, 30, 32, 33 bb
C32	F		OV	12/04/12	Dart	Parkway/Comstock	w/C29-C31, C33, bb
C33	F		OV	12/04/12	Dart	Parkway/Comstock	C29 Not seen 2015
C34	A		OV	12/04/12	DN	Highland	w/H10 3/13/2015
C35	F		OV	12/04/12	DN	Highland	Not seen 2015
C36	A		OV	12/04/12	DN	Highland	
C37	A		OV	12/04/12	DN	Highland	Not seen 2015

C38	2.5		OV	12/04/12	DN	Highgate	
C39	1.5		OV	12/04/12	DN	Highgate	
C40	F		OV	12/04/12	DN	Highgate	
C41	2.5		OV	12/04/12	DN	Highgate	
C42	6.5		OV	12/04/12	DN	Highgate	
C43	4.5		OV	12/05/12	DN	Hanshaw	3/8/2015
C44	6.5		OV	12/05/12	DN	Hanshaw	w/H16 3/14/2015
C45	4.5	151.643	OV	12/05/12	DN	The Parkway	w/C46, Not seen 2015
C46	3.5		OV	12/05/12	DN	The Parkway	45 C46 Not seen 2016
C47	F		OV	12/05/12	DN	The Parkway	w/C45, C47, H12
C48	2.5		OV	12/05/12	Dart	Texas	3/6/2015
C49	1.5		OV	12/05/12	Dart	Forrest	
C50	2.5	151.302	OV	12/06/12	Dart	Highland/Highgate	C54,C128 DVC 6/6/14
C51	1.5	151.623	OV	12/06/12	Dart	Highland	w/C88 and C87
C52	4.5		OV	12/06/12	Dart	Highland	3/6/2016
C53	2.5		OV	12/06/12	Dart	Texas	w/C27 Not seen 2015
C54	6.5		OV	12/06/12	Dart	Highgate	50 C128 Not seen 2015
C55	3.5	151.323	OV	12/06/12	Dart	Lexington	w/92 94 95 3/12/2015
C56	4.5		OV	12/06/12	DN	Triphammer	Hunter 3/7/14
C57	8.5		OV	12/06/12	Dart	Texas	3/8/2015
C58	5.5	151.422	OV	12/07/12	Dart	Berkshire/Highgate	w/H19 DVC 2/4/13
C59	4.5		OV	12/07/12	Dart	Upland/Tripham	w/C83 C109 3/4/2016
C60	1.5	151.403	OV	12/07/12	Dart	Upland/Tripham	w/C84 3/13/2015
C61	3.5		OV	12/07/12	Dart	Upland/Tripham	w/C62, C127
C62	8.5	151.603	OV	12/07/12	Dart	Upland/Tripham	w/C61, DVC 7/26/13
C63	1.5		OV	12/07/12	DN	Highland	w/C64 3/13/2015
C64	3.5		OV	12/07/12	DN	Highland	w/C63 Not seen 2015
C65	6.5	151.363	OV	12/07/12	DN	Triphammer	66 C98 Not seen 2015
C66	6.5		OV	12/07/12	DN	Triphammer	w/C65 Coyote 9/30/14
C67	3.5		OV	12/07/12	Dart	Highland	3/11/2015
C68	5.5		OV	12/07/12	Dart	Parkway/Highland	w/H15 C78 3/7/2016
C69	F		OV	12/07/12	Dart	Comstock	w/C70 3/19/2016
C70	6.5		OV	12/07/12	Dart	Comstock	w/C69 3/6/2016
C71	3.5		OV	12/07/12	Dart	Lenox	Not seen 2015
C72	F		OV	12/08/12	Dart	Highland	w/C26
C73	3.5		OV	12/08/12	DN	Cayuga Heights	74 111 Not seen 2016
C74	4.5	151.443	OV	12/08/12	DN	Cayuga Heights	73 C111 DVC 11/6/15
C75	5.5		OV	12/08/12	Dart	Comstock	Solo Not seen 2016
C76	2.5		OV	12/08/12	Dart	Cayuga Heights	w/bb
C77	4.5		OV	12/08/12	Dart	Devon and Sunset	w/C79
C78	F		OV	12/08/12	Dart	Comstock/Parkway	w/C68 Not seen 2015
C79	3.5	151.382	OV	12/09/12	Dart	Sunset	96 C77 Not seen 2015
C80	F		OV	12/09/12	Dart	Texas	w/C81 3/12/2015
C81	8.5		OV	12/09/12	Dart	Texas	w/C80 3/8/2015
C82	3.5		OV	12/09/12	Dart	Upland/Tripham	w/C60, DVC 2/26/13

C83	F		OV	12/09/12	Dart	Upland/Tripham	w/C59, C109 3/6/2015
C84	2.5		OV	12/09/12	Dart	Upland/Tripham	ArcheryCripp 10/2/14
C85	F		OV	12/09/12	Dart	Winthrop	w/C20 and bb
C86	F		OV	12/09/12	DN	Highland	Not seen 2015
C87	A		OV	12/09/12	DN	Highland	w/C88 3/6/2016
C88	F		OV	12/09/12	DN	Highland	87 C51 Not seen 2015
C89	A		OV	12/09/12	DN	Highland	w/C90 C91 3/5/2016
C90	A		OV	12/09/12	DN	Highland	C89 C91 DVC 1/2/16
C91	2.5		OV	12/09/12	DN	Highland	C89 C90 3/25/2016
C92	1.5		OV	12/11/12	Dart	Winthrop	C55 Mort 1/21/14 HK
C93	1.5	151.584	OV	12/11/12	Dart	Lexington	Mort 10/19/13 HK
C94	1.5		OV	12/11/12	Dart	Winthrop	Mort 4/16/13
C95	1.5		OV	12/11/12	Dart	Winthrop	w/C55, Mort 3/24/13
C96	1.5		OV	12/11/12	Dart	Cayuga Heights	w/C79 Not seen 2015
C97	1.5		OV	12/11/12	Dart	Comstock	Not seen 2015
C98	F		OV	12/11/12	Dart	Sheldon	65 C66 Not seen 2015
C99	2.5		OV	12/11/12	Dart	Parkway Place	w/C100 Not seen 2015
C100	F		OV	12/11/12	Dart	Parkway Place	w/C99 Not seen 2015
C103	3.5		OV	12/12/12	Dart	The Parkway	w/C23
C105	1.5		OV	12/12/12	DN	Triphammer	2/4/14 Hunter
C106	F		OV	12/12/12	DN	Triphammer	w/105,107, 108, 126
C107	F		OV	12/12/12	DN	Triphammer	w/105,106, 3/14/2015
C108	2.5	151.464	OV	12/12/12	DN	Triphammer	2/4/14 Hunter
C109	3.5		OV	12/12/12	Dart	Sheldon	w/C59 DVC 11/21/13
C111	F		OV	12/12/12	Dart	Cayuga Heights	73 C74 DVC 6/24/15
C112	5.5	151.483	OV	12/12/12	Dart	Cayuga Heights	3/5/2016
C113	F		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C115 Not seen 2015
C115	3.5		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C113, DVC 8/19/13
C116	5.5		OV	12/13/12	Dart	Wychoff/Cay Hght	Mortality 12/15/2012
C117	F		OV	12/13/12	Dart	Wychoff/Cay Hght	C113 Not seen 2015
C118	F		OV	12/13/12	Dart	Cay Circle/Upland	w/C28 Not seen 2015
C119	1.5		OV	12/13/12	Dart	Triphammer	3/20/13 Hunter
C120	3.5		OV	12/13/12	Dart	Pleasant Grove	w/C121
C121	F		OV	12/13/12	Dart	Pleasant Grove	w/C120 3/9/2015
C122	F		OV	12/13/12	Dart	Lexington	C55 92 Not seen 2015
C123	2.5		OV	12/13/12	Dart	Lexington	w/C15 Not seen 2016
C124	2.5		OV	12/14/12	Dart	Sheldon	w/C107 DVC 3/26/13
C125	3.5		OV	12/14/12	Dart	Sheldon	Hunter 3/7/14
C126	2.5		OV	12/14/12	Dart	Sheldon	w/C106
C127	F		OV	12/14/12	Dart	East Upland	w/C62 and C61
C128	4.5		OV	12/14/12	Dart	North Triphammer	w/C50 C54 3/11/2015
C129	3.5		OV	12/14/12	Dart	Triphammer	Not seen 2015
C130	F		OV	12/14/12	Dart	Pleasant Grove	Hunter 3/30/14
C131	2.5		OV	12/14/12	Dart	Pleasant Grove	w/fawn
C132	2.5		OV	12/14/12	Dart	Pleasant Grove	Hunter 1/5/14

C133	4.5		OV	12/14/12	Dart	Lexington	w/AD 3/7/2015
C134	4.5		OV	12/15/12	Dart	Triphammer	Hunter 3/17/14
C135	4.5		OV	12/15/12	Dart	Triphammer	Hunter 3/17/14
C136	F		OV	12/15/12	Dart	Triphammer	Not seen 2015
C137	3.5		OV	12/2/2013	Dart	Klinewood	w/MF
C138	6.5		OV	12/3/2013	Dart	Triphammer	Not seen 2016
C139	A	151.584	OV	12/3/2013	Dart	Triphammer	w/140
C140	0.5		OV	12/3/2013	Dart	Triphammer	w/139 3/11/2015
C141	4.5	151.603	OV	12/4/2013	Dart	Burleigh	w/adult doe 3/13/2015
C142	3.5		OV	12/4/2013	Dart	N. Sunset	3/27/16 Unknown
C143	3.5	151.422	OV	12/4/2013	Dart	Kline/Wycoff	2 fawns - 1FF 1?
C144	3.5		OV	12/4/2013	Dart	Burleigh	2 fawns Not seen 2015
C145	4.5		OV	12/5/2013	Dart	Lexington	w/FF Not seen 2015
C146	4.5		OV	12/6/2013	Dart	Pleasant Grove	w/FF
C147	4.5		OV	12/6/2013	Dart	Texas	w/C57 3/14/2015
241	2.5		OV	3/26/2016	Dart	Sunset/Wycoff	w/2bb, C143
242	6.5		OV	3/26/2016	Dart	Texas	w/C243, 2bb
243	8+		OV	3/26/2016	Dart	Texas	w/C242, 2bb
244	2		OV	3/27/2016	Dart	Sunset/Wycoff	Solo
245	2		OV	3/27/2016	Dart	Hanshaw	w/fawn
59	A		--	12/03/12	DN	The Parkway	Corn OV 2/27/13 Mort
103	A		--	12/03/12	DN	The Parkway	Cornell OV
C110	A		OV	12/10/12	Dart	Comstock	Failed Tub Lig w/118
C114	8+		OV	12/12/12	DN	Highland	Failed Tubal w/C28
127	10+		OV	12/04/12	Dart	Texas	3/20/2016
128	8.5		OV	12/05/12	Dart	Winthrop	Cornell SpayVac
131	8+		OV	12/12/12	Dart	Iroquois/Parkway	Mort 1/2/14
133	7.5		OV	12/03/12	Dart	Winthrop	Cornell SpayVac
H01	F		Male	12/03/12	DN	The Parkway	DVC 12/21/12
H02	2.5		Male	12/04/12	DN	Highgate	3/7/2015
H03	F		Male	12/04/12	DN	Highgate	Mort 5/7/14
H04	F		Male	12/04/12	DN	Highgate	
H05	F		Male	12/05/12	DN	Hanshaw	Hunter 11/5/13
H06	F		Male	12/02/12	DN	Lexington	
H07	F		Male	12/02/12	DN	Lexington	
H08	2.5		Male	12/02/12	DN	Lexington	DVC 2/17/13
H09	F		Male	12/04/12	DN	Highland	
H10	F		Male	12/04/12	DN	Highland	w/C34 and C35
H11	-		-	-	-	Tag Discarded	Tag Discarded
H12	F		Male	12/05/12	DN	The Parkway	
H13	F		Male	12/05/12	DN	Highland	
H14	F		Male	12/07/12	DN	Triphammer	C65,C66 Mort 2013
H15	F		Male	12/07/12	Dart	Parkway/Highgate	w/C68 and C78

H16	F		Male	12/05/12	DN	Hanshaw	w/C44 Hunter 11/18/13
H17	F		Male	12/05/12	DN	Hanshaw	
H18	F		Male	12/07/12	Dart	Highgate	w/C04 and C08
H19	F		Male	12/07/12	Dart	Berkshire/Highgate	w/C58
H20	F		Male	12/07/12	DN	Highland	w/C63 and C64
H21	F		Male	12/09/12	Dart	Texas	w/C80 and C81
H22	F		Male	12/09/12	Dart	Warrick	w/133
H23	F		Male	12/09/12	DN	Highland	w/C86
H24	F		Male	12/08/12	DN	Cayuga Heights	w/C73 and C74
H25	F		Male	12/09/12	DN	Highland	w/C89, C90, C91
H26	F		Male	12/13/12	Dart	Lexington	w/C55, 92 94 95 122
H27	F		Male	12/15/12	Dart	Overlook	w/C112 and bb
H28	F		Male	12/15/12	Dart	Triphammer	Solo Hunter 12/13/13
H29	-		-	-	-	-	Not Used
H30	F		Male	12/09/12	DN	506 Highland	w/C86
H31	F		Male	12/09/12	DN	506 Highland	w/C86
H32	F		Male	12/3/13	Dart	Triphammer	
6/6	F		Male	3/26/16	Dart	Sunset/Wycoff	w/241
7/7	F		Male	3/26/16	Dart	Sunset/Wycoff	w/241
8/9	F		Male	3/26/16	Dart	Texas	w/242 and 243