

# **FINAL SUMMARY REPORT**

## **2012 Deer Research Program**

### **Village of Cayuga Heights, New York**

**by**

**White Buffalo, Inc.**

## **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 first year in which a Village deer research program has been implemented since the sterilization of just over 20 does between 2002 and 2004 and a failed immuno-contraceptive program in 2005. Follow-up camera surveys and the number of known, tagged deer will be used to estimate deer abundance, and verify the proportion of female deer surgically sterilized in the Village.

## **METHODS**

Deer sterilization activities began on 1 December and continued through 15 December 2012. We worked every day and night during the capture and sterilization period to sterilize 137 females (see Table 1). We followed the operations protocol outlined in the proposal, contract, and NYSDEC License to Collect and Possess (LCP) deer. All changes were agreed to verbally prior to the onset of field activities. Eleven drop net sites were used throughout the area of operation (approx. 1.8 square miles). Deer not captured under drop nets were remotely immobilized using darting equipment from a vehicle with collaboration from the VCH Police Department staff. Deer were immobilized under drop nets with an intramuscular injection of 400 mg ketamine hydrochloride (HCl) and 150 mg xylazine HCl <2 minutes after capture. Fawns were administered 300 mg ketamine HCl and 100 mg xylazine HCl. Masks were placed over the eyes, and ophthalmic ointment was applied to prevent ocular desiccation. Remotely-immobilized deer were administered 250 mg Telazol (tiletamine HCl + zolazepam HCl) and 175 mg xylazine HCl. After deer were sufficiently anesthetized, they were removed from the net, or 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) at 3-6 mg/kg also IM. To maintain anesthesia, supplemental doses of ketamine and xylazine HCL were given intravenously at dosages up to 5-10 mg/kg and 1.5-3.0 mg/kg respectively, 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

The deer capture data are contained in Appendix A – “Village of Cayuga Heights – Capture History 1 – 15 December 2012”. We expended ~651.5 person-hours for the preparation (i.e., site selection, baiting, net set-up) and capture efforts, and ~185 person-hours for surgical sterilization procedures (137 deer sterilized).

We captured 172 deer with both drop nets and remote-injection tranquilizer darts. A total of 143 females (110 adults and 33 fawns) and 29 males (2 adults and 27 fawns) were handled. We caught 75 deer under nets (54 females and 21 males), and we remotely immobilized 97 deer (89 females and 8 males). All females were delivered to a temporary veterinary sterilization site. Although four mortalities were recorded prior to surgical sterilization (two under drop nets, and two via remote immobilization), only one known post-surgery mortality occurred in deer undergoing sterilization procedures (i.e., #C116). It was too early to early in pregnancy to identify and count fetuses.

**Table 1.** Number of female deer sterilized by day during the 15 days of field operations.

DATE	# Captured
12/1/12	3
12/2/12	16
12/3/12	10
12/4/12	15
12/5/12	8
12/6/12	8
12/7/12	14
12/8/12	7
12/9/12	13
12/10/12	1
12/11/12	9
12/12/12	10
12/13/12	10
12/14/12	10
12/15/12	3

## **DISCUSSION**

We used a systematic approach to capture a very high percentage of the deer in the VCH. We first captured deer with drop nets, and then followed in netted areas with remote immobilization at night. This allowed for a rapid rate of capture with no recaptures. For a reference on our ability to detect deer in the landscape and on post-capture survival, all females captured and sterilized through 12 December (i.e., C1 - C112) were observed post-capture except: C33, C37, C43, C57, C80, and C81.

Two females died that were captured under drop nets, and two additional deer died that were captured using remote immobilization methods. One doe under the drop net had broken her neck and the other had an extensive abdominal abscess from a previous puncture injury that pre-disposed her to death. One of the darted females had a massive hernia, likely from a previous vehicle strike, and had to be euthanized. The other darted female fell down a steep hillside and aspirated some rumen content leading to compromised respiration. We were unable to determine the cause of death for the female (#C116) that died post-released.

We are aware of only one yearling female that we were not able to capture. She was affiliated with a radio-collared adult female (#C112). Also, there are likely a few female fawns that were not captured in the southern part of the VCH due to restricted access to the Cornell Campus lands for darting deer. In addition, there will likely be some females that immigrate into VCH during the next year that should be captured and sterilized next fall (2013).

## **ACKNOWLEDGEMENTS**

We would like to thank the following individuals and organizations for assistance provided prior to and during the sterilization project; Mayor Kate Supron and Trustee Beatrice Szekely for their tireless effort to organize and administer the research project, Chief James Steinmetz and officers David Lanning, Jerry Wright, James Manning, Chad Lansing, David Amaro, and Pete Hughes from the Village of Cayuga Heights Police Department without whom this project would not have been feasible, and Jeff Frisbie and his staff from the Department of Public Works. We also are grateful for the veterinary support from Lauren Schnabel, DVM and Kyla Ortved, DVM. In addition, Paul Curtis, Coordinator of the Wildlife Damage Management Program at Cornell University, and Mike Ashdown, Wildlife Technician, were instrumental in the organizational and implementation phases. We cannot thank Steve Joule, Wildlife Biologist, Region 7, NY State Department of Environmental Conservation, and his colleagues enough for their patience and guidance during the permitting process. Finally, to all the homeowners that allowed us to capture deer on their properties, your selflessness is not overlooked.

**Appendix A - Village of Cayuga Heights - Capture History 1-15 December 2012**

<b>Tag#</b>	<b>Age 12'</b>	<b>Radio Freq.</b>	<b>Treat 12'</b>	<b>Capture Date</b>	<b>Capture Method</b>	<b>Capture Location</b>	<b>Comments</b>
C01	A		OV	12/01/12	DN	Hanshaw	
C02	F		OV	12/01/12	DN	Hanshaw	
C03	3.5		OV	12/01/12	Dart	Spruce	
C04	A		OV	12/02/12	DN	Highgate	w/C08 and H18
C05	A		OV	12/02/12	DN	Highgate	
C06	F		OV	12/02/12	DN	Highgate	
C07	F		OV	12/02/12	DN	Highgate	
C08	5.5		OV	12/02/12	DN	Highgate	w/C04 and H18
C09	3.5		OV	12/02/12	DN	Highgate	
C10	F		OV	12/02/12	DN	Highgate	
C11	4.5		OV	12/02/12	DN	Highgate	
C12	F		OV	12/02/12	DN	Highgate	
C13	F		OV	12/02/12	DN	Highgate	
C14	5.5		OV	12/02/12	DN	Highgate	
C15	A	151.523	OV	12/02/12	DN	Lexington	w/C123, H06, H07
C16	4.5		OV	12/02/12	Dart	Winthrop	
C17	3.5		OV	12/02/12	Dart	Winthrop	w/C19
C18	F		OV	12/02/12	Dart	Winthrop	
C19	1.5		OV	12/02/12	Dart	Winthrop	w/C17
C20	6.5		OV	12/03/12	Dart	Texas	
C21	10+		OV	12/03/12	Dart	Winthrop	w/H06
C22	2.5		OV	12/03/12	Dart	Texas	
C23	A		OV	12/03/12	DN	The Parkway	w/C24, 25, 103
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
C27	6.5		OV	12/03/12	Dart	Texas	w/C53
C28	3.5	151.503	OV	12/03/12	Dart	Upland/Highland	w/C118 2bb C114
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, C31-C33, bb
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	w/C29-C32 and bb
C34	A		OV	12/04/12	DN	Highland	w/H10
C35	F		OV	12/04/12	DN	Highland	w/H10
C36	A		OV	12/04/12	DN	Highland	
C37	A		OV	12/04/12	DN	Highland	w/bb
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	
C44	6.5		OV	12/05/12	DN	Hanshaw	w/H16
C45	4.5	151.643	OV	12/05/12	DN	The Parkway	w/C46, C47 H12 H01
C46	3.5		OV	12/05/12	DN	The Parkway	w/C45, C46 H12 H01
C47	F		OV	12/05/12	DN	The Parkway	w/C45, C47, H12
C48	2.5		OV	12/05/12	Dart	Texas	
C49	1.5		OV	12/05/12	Dart	Forrest	
C50	2.5	151.302	OV	12/06/12	Dart	Highland/Highgate	w/C54 and C128
C51	1.5	151.623	OV	12/06/12	Dart	Highland	w/C88 and C87
C52	4.5		OV	12/06/12	Dart	Highland	
C53	2.5		OV	12/06/12	Dart	Texas	w/C27
C54	6.5		OV	12/06/12	Dart	Highgate	3 legs w/50W C128
C55	3.5	151.323	OV	12/06/12	Dart	Lexington	w/92 94 95 122 H26
C56	4.5		OV	12/06/12	DN	Triphammer	w/bb
C57	8.5		OV	12/06/12	Dart	Texas	w/ 2 F
C58	5.5	151.422	OV	12/07/12	Dart	Berkshire/Highgate	w/H19 and bb
C59	4.5		OV	12/07/12	Dart	Upland/Tripham	w/C83 and C109
C60	1.5	151.403	OV	12/07/12	Dart	Upland/Tripham	w/C84
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, C127
C63	1.5		OV	12/07/12	DN	Highland	w/C64 and H20
C64	3.5		OV	12/07/12	DN	Highland	w/C63 and H20
C65	6.5	151.363	OV	12/07/12	DN	Triphammer	w/C66, C98 and H14
C66	6.5		OV	12/07/12	DN	Triphammer	w/C65, C98 and H14
C67	3.5		OV	12/07/12	Dart	Highland	w/H??
C68	5.5		OV	12/07/12	Dart	Parkway/Highland	w/H15 and C78
C69	F		OV	12/07/12	Dart	Comstock	w/C70 and bb
C70	6.5		OV	12/07/12	Dart	Comstock	w/C69 and bb
C71	3.5		OV	12/07/12	Dart	Lenox	w/unmk bb
C72	F		OV	12/08/12	Dart	Highland	w/C26
C73	3.5		OV	12/08/12	DN	Cayuga Heights	w/C74 H24 C111, bb
C74	4.5	151.443	OV	12/08/12	DN	Cayuga Heights	w/C73, H24 C111 bb
C75	5.5		OV	12/08/12	Dart	Comstock	Solo
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 and H15
C79	3.5	151.382	OV	12/09/12	Dart	Sunset	w/C96 and C77
C80	F		OV	12/09/12	Dart	Texas	w/C81 and H21
C81	8.5		OV	12/09/12	Dart	Texas	w/C80 and H21
C82	3.5		OV	12/09/12	Dart	Upland/Tripham	w/C60, C62, 2 bb
C83	F		OV	12/09/12	Dart	Upland/Tripham	w/C59, C109
C84	2.5		OV	12/09/12	Dart	Upland/Tripham	w/C60 and C62
C85	F		OV	12/09/12	Dart	Winthrop	w/C20 and bb

C86	F		OV	12/09/12	DN	Highland	w/H23, H30, H31
C87	A		OV	12/09/12	DN	Highland	w/C88
C88	F		OV	12/09/12	DN	Highland	w/C87and C51
C89	A		OV	12/09/12	DN	Highland	w/C90 and C91
C90	A		OV	12/09/12	DN	Highland	w/C89 and C91
<u>C91</u>	2.5		OV	12/09/12	DN	Highland	w/C89 and C90
<u>C92</u>	1.5		OV	12/11/12	Dart	Winthrop	w/C55, C94, C95 122
C93	1.5	151.584	OV	12/11/12	Dart	Lexington	
C94	1.5		OV	12/11/12	Dart	Winthrop	w/C55, C92, C95 122
C95	1.5		OV	12/11/12	Dart	Winthrop	w/C55, C92, C94 122
C96	1.5		OV	12/11/12	Dart	Cayuga Heights	w/C79
C97	1.5		OV	12/11/12	Dart	Comstock	
C98	F		OV	12/11/12	Dart	Sheldon	w/C65, C66 and H14
C99	2.5		OV	12/11/12	Dart	Parkway Place	w/C100
C100	F		OV	12/11/12	Dart	Parkway Place	w/C99
C103	3.5		OV	12/12/12	Dart	The Parkway	w/C23
C105	1.5		OV	12/12/12	DN	Triphammer	w/C106-108
C106	F		OV	12/12/12	DN	Triphammer	w/105,107, 108, 126
C107	F		OV	12/12/12	DN	Triphammer	w/105,106, 108, 124
C108	2.5	151.464	OV	12/12/12	DN	Triphammer	w/C105 – 107
C109	3.5		OV	12/12/12	Dart	Sheldon	w/C59
C111	F		OV	12/12/12	Dart	Cayuga Heights	w/C73, C74, H24, bb
C112	5.5	151.483	OV	12/12/12	Dart	Cayuga Heights	w/H27, unmk YF, bb
C113	F		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C115, 116, 117 bb
C115	3.5		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C113, 116, 117 bb
C116	5.5		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C113, 115, 117 bb
<u>C117</u>	F		OV	12/13/12	Dart	Wychoff/Cay Hght	w/C113, 115, 116 bb
C118	F		OV	12/13/12	Dart	Cay Circle/Upland	w/C28 and 2bb
C119	1.5		OV	12/13/12	Dart	Triphammer	
C120	3.5		OV	12/13/12	Dart	Pleasant Grove	w/C121
C121	F		OV	12/13/12	Dart	Pleasant Grove	w/C120
C122	F		OV	12/13/12	Dart	Lexington	w/C55, 92 94 95 H26
C123	2.5		OV	12/13/12	Dart	Lexington	w/C15, H06, H07
<u>C124</u>	2.5		OV	12/14/12	Dart	Sheldon	w/C107
C125	3.5		OV	12/14/12	Dart	Sheldon	w/3 fawns
C126	2.5		OV	12/14/12	Dart	Sheldon	w/C106
C127	F		OV	12/14/12	Dart	East Upland	w/C62 and C61
<u>C128</u>	4.5		OV	12/14/12	Dart	North Triphammer	w/C50 and C54
C129	3.5		OV	12/14/12	Dart	Triphammer	w/Cornell 310
<u>C130</u>	F		OV	12/14/12	Dart	Pleasant Grove	
C131	2.5		OV	12/14/12	Dart	Pleasant Grove	w/fawn
C132	2.5		OV	12/14/12	Dart	Pleasant Grove	w/Cornell 316
C133	4.5		OV	12/14/12	Dart	Lexington	w/AD and DF
<u>C134</u>	4.5		OV	12/15/12	Dart	Triphammer	
C135	4.5		OV	12/15/12	Dart	Triphammer	w/fawn

C136	F		OV	12/15/12	Dart	Triphammer	
59	A		--	12/03/12	DN	The Parkway	Cornell OV
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	Cornell SpayVac
128	8.5		OV	12/05/12	Dart	Winthrop	Cornell SpayVac
131	8+		OV	12/12/12	Dart	Iroquois/Parkway	Cornell SpayVac
133	7.5		OV	12/03/12	Dart	Winthrop	Cornell SpayVac
H01	F		Male	12/03/12	DN	The Parkway	w/C45, C46, C47
H02	2.5		Male	12/04/12	DN	Highgate	
H03	F		Male	12/04/12	DN	Highgate	
H04	F		Male	12/04/12	DN	Highgate	
H05	F		Male	12/05/12	DN	Hanshaw	
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	
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	w/C65 and C66
H15	F		Male	12/07/12	Dart	Parkway/Highgate	w/C68 and C78
H16	F		Male	12/05/12	DN	Hanshaw	w/C44
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
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