White Buffalo Inc.

Conserving Native Species and Ecosystems

White Buffalo Inc. is a 501(c)(3) nonprofit wildlife management and research organization dedicated to conserving native species and ecosystems through damage and population control. We also sponsor, support and conduct scientific research and educational efforts to improve the understanding of natural resources for the purpose of conservation. Our approach is unique, in that we generate funding for conservation research by providing management alternatives in non-traditional settings.

CONTACT INFORMATION

26 Davison Road
Moodus, CT 06469

860.385.4725

www.whitebuffaloinc.org
tony.denicola@whitebuffaloinc.org

Dr. Anthony J. DeNicola, Co-founder, and President, received his Ph.D. from Purdue University in wildlife ecology. His dissertation was entitled "Control of reproduction in overabundant white-tailed deer populations." In addition to being certified as a wildlife biologist by the Wildlife Society, he holds research affiliate positions with Rutgers University, University of Illinois, Trinity College of Hartford, and the Denver Zoological Society. Dr. DeNicola has 30+ publications in reputable scientific journals and has presented at numerous professional conferences.

Ryan Rodts, Wildlife Biologist, received his Bachelor's degree in wildlife science from Purdue University in 1997. Before joining WBI, he spent two years on Santa Catalina Island working on a feral goat and pig eradication program. Ryan has been with WBI for 15 years, and his field experience is critical to the success of all our programs.

POPULATION REDUCTION PROGRAMS

To date, White Buffalo Inc. personnel have lethally removed over 10,000 deer. As a result of these programs, more than 200,000 pounds of venison have been donated to various food shelters.

Brookhaven National Laboratory, Upton, NY:
February 2015 - 300 deer harvested over 3.5 days

Burnsville, Minnesota (38 square miles)**:**
November 2001 - 21 deer harvested in 2 days
November 2002 - 67 deer harvested in 7 days
January 2003 - 24 deer harvested in 7 days
March 2004 - 36 deer harvested in 4 days

Crystal Airport, Minnesota:
October 2000 - 11 deer removed at regional airport in 2 days, to eliminate deer strikes

Dune Acres, Indiana (1 square mile)**:**
February 1998 - 50 deer harvested over 5 days

Eden Prairie, Minnesota (36 square miles)**:**
November 1997 - 160 deer harvested over 15 days
November 1998 - 124 deer harvested over 11 days
November 1999 - 125 deer harvested over 8 days
November 2001 - 125 deer harvested over 7 days
November 2002 - 154 deer harvested over 14 days
March 2004 - 135 deer harvested over 11 days
November 2004 - 115 deer harvested over 8 days
November/December 2005 - 115 deer harvested over 14 days
November 2007 - 106 deer harvested over 11 days
November 2010 - 115 deer harvested over 14 days
November 2012 - 110 deer harvested over 14 days
November 2014 - 120 deer harvested over 12 days

Edina, Minnesota:
December 1999 - 40 deer harvested in 1 day
November 2001 - 30 deer harvested over 3 days
November 2002 - 26 deer harvested over 4 days

Fairfax County, Virginia: (Pilot program - 2 County-owned Parks)
January - February 2014 - 98 deer harvested, reduced densities below 20/mile^2
February 2015 - 40 deer harvested, reduced densities below 20/mile^2

George Reserve (University of Michigan), Pinckney, Michigan (2 square miles enclosed)**:**
March 2001 - 103 deer harvested over 3 days for tuberculosis testing.

Greenwich, Connecticut: (Pilot program - 3 town-owned parcels)
March 2005 - 80 deer harvested over 4 days

Iowa City, Iowa (6 square mile area)**:**
January 2000 - 360 deer harvested over 10 days
December/January 2001 - 340 deer harvested over 21 days
December 2001 - 250 deer harvested over 18 days
November 2003 - 200 deer harvested over 14 days
February 2005 - 154 deer harvested over 9 days
January/February 2006 - 150 deer harvested over 11 days
January 2007 - 199 deer harvested over 14 days
January 2008 - 89 deer harvested over 8 days
February 2009 - 69 deer harvested over 15 days (2 Biologists only)
February 2010 - 57 deer harvested over 11 days (2 Biologists only)

Long Island, New Hampshire (2 square mile peninsula)**:**
November 1996 - 90 deer harvested over 3 days

Lower Makefield, Pennsylvania (Pilot program - 6 town-owned parcels)
February/March 2010 - 94 deer harvested over 9 days

Monhegan Island, Maine (1 square mile)**:**
April 1997 - 52 deer harvested over 3 days
April 1998 & March 1999 - remaining 27 deer harvested*
* Successful eradication of all deer on the island

Northern Indiana Public Service Company, Wheatfield, Indiana:
March 1996 - 100 deer harvested over 4 days from a 2500 acre enclosed facility *
* Population estimated at 130 deer prior to reduction.

Peaks Island, Maine (1 square mile)**:**
February/March 2000 - 223 deer harvested over 8 days*
* Population was estimated at 240 before reduction.

Princeton Township, New Jersey:
February/March 2001 - 322 deer harvested over 15 days
January/February 2002 - 303 deer harvested over 27 days
February/March 2003 - 280 deer harvested over 21 days
January/February 2004 - 276 deer harvested over 27 days
January 2005 - 124 deer harvested over 13 days

February 2006 - 150 deer harvested over 15 days
February 2007 - 126 deer harvested over 14 days
February 2008 - 107 deer harvested over 15 days
January/February 2009 - 154 deer harvested over 19 days (2 Biologists only)
February/March 2010 - 148 deer harvested over 16 days (2 Biologists only)
February/March 2012 - 116 deer harvested over 16 days (2 Biologists only)
February/March 2013 - 159 deer harvested over 17 days (2 Biologists only)
February/March 2014 - 127 deer harvested over 18 days (2 Biologists only)
February/March 2015 - 250 deer harvested over 28 days (2 Biologists only)

Ramsey County, Minnesota (Maplewood, St. Paul):

November/December 2005 - 200 deer harvested over 12 days

Roanoke, Virginia:

January 2005 - 109 deer harvested over 7 days

Solon, Ohio:

March 2005 - 602 deer harvested over 37 days.
January/March 2006 - 400 deer harvested over 40 days
January/February 2007 - 150 deer harvested over 15 days
March 2008 - 175 deer harvested over 22 days
January/March 2009 - 250 deer harvested over 33 days (2 Biologists only)

Swarthmore College, Swarthmore, Pennsylvania:

December 2009/January 2010 - 31 deer harvested over 4 days
December 2010/January 2011 - 21 deer harvested over 4 days
December 2011/January 2012 - 9 deer harvested over 4 days
January-March 2013 - 21 deer harvested over 8 days
January-March 2014 - 19 deer harvested over 8 days
January-March 2015 - 29 deer harvested over 8 days

Town and Country, Missouri:

December 2009 - 112 deer harvested over 7 days
December 2010 - 75 deer harvested over 7 days
December 2011- Jan 2012 - 288 deer harvested over 28 days
December 2012 - 115 deer harvested over 11 days
January 2014 - 87 deer harvested over 8 days
January 2015 - 100 deer harvested over 9 days

Tuxedo Park, New York:

February 2012 - 98 deer harvested over 9 days

Vassar College, Poughkeepsie, New York:
January 2010 - 64 deer harvested over 2 days

CAPTURE

We are experienced and fully equipped to provide capture services (i.e., drop-nets, rocket-nets, darting equipment). Using various techniques, White Buffalo Inc. personnel have captured over 3000 deer.

Bald Head Island, North Carolina: We captured 18 deer using darting techniques for a GonaCon research project. In addition, we trained employees of the Conservancy and local volunteers in deer capture and handling techniques (January-March 2014).

Bedford and Lewisboro, New York, USDA-ARS 4 Poster Lyme Disease Research*:
May 1998 - 8 deer captured using darting techniques over 3 days
October 1998 - 12 deer captured using darting techniques over 3 days
Oct. /November 1999 - 40 deer captured using darting techniques over 8 days
*All deer captured were checked for number and distribution of ticks.

Bluff Point/Mumford Cove, Groton, Connecticut: Urban white-tailed deer habitat use and home range study - We volunteered our service and equipment to assist in capturing white-tailed deer as part of a state-conducted research project. Deer were captured using darting equipment (Winter 1995-96).

Bridgeport, Connecticut: We captured 18 deer using a combination of drop nets and darting techniques to apply an experimental Amitraz-impregnated collar to control ticks as part of a CDC Lyme disease research project (March 1999).

Carlisle, Massachusetts: We captured 27 deer using darting techniques and applied radio transmitter collars as part of a state organized research project to assess mortality rates of suburban deer populations in eastern Massachusetts (March 1999).

Connecticut College Arboretum: We removed deer completely to prevent damage to native plant collections and research plots. We inspected and repaired the perimeter fence to ensure it was deer-proof. We then captured the 3 remaining deer enclosed in the 100-acre arboretum using darting techniques. Deer were released outside the fence on Connecticut College property (January 1996).

George Reserve, Pinckney, Michigan: We captured 25 deer over 3 days using darting techniques for a doctoral research project (University of Michigan). In addition, we trained a doctoral student and technician in deer capture and handling techniques (November 1997).

Lake Gaillard Reservoir, Connecticut, Connecticut Agricultural Experiment Station:
We captured, tagged, and radio-collared 35 deer for a research project (November 2000).

Michigan DNR, Midland, Michigan: Captured feral pigs to deploy GPS collars to assess their movements and habitat usage. (August 2015).

Old Lyme, Connecticut, USDA-ARS 4 Poster Lyme Disease Research:
We captured 11 deer using darting techniques to apply radio-transmitter collars and to assess the number and distribution of ticks (April 1999).

Point Reyes National Seashore, California: Captured elk to deploy GPS collars to assess elk movements relative to conflicts with ranches. (October 2012).

Towson, Maryland, USDA-ARS 4 Poster Lyme Disease Research:
We captured 11 deer using darting techniques over 3 days to assess the number and distribution of ticks (November 1998).

RESEARCH

We are committed to further understanding causes and solutions to wildlife/human conflicts. We will continue to assess alternative management techniques for a variety of species.

Fertility Control Research

"Field sterilization of white-tailed deer," Mt Storm Park, Cincinnati, Ohio: We captured 41 females over 6 days using darting techniques and performed ovariectomies (December 2015).

"Field sterilization of white-tailed deer," Village of East Hampton, New York: We captured 114 females over 12 days using darting techniques and performed ovariectomies (January 2015). We captured 46 females over 8 days using darting techniques and performed ovariectomies. We also performed 50 vasectomies on males. (November 2015).

"Field sterilization of white-tailed deer," National Institutes of Health, Bethesda, Maryland: We captured 24 females over 3 days using darting techniques and performed ovariectomies (December 2014). We captured 5 females in 1 day using darting techniques and performed ovariectomies (December 2015).

"Field sterilization of white-tailed deer," Fairfax City, Virginia: We captured 18 females over 6 days using darting techniques and performed ovariectomies/tubal ligations (January/February 2014). We captured 18 females over 5 days using darting techniques and performed ovariectomies/tubal ligations (January 2015). We captured 6 females over 3 days using darting techniques and performed ovariectomies/tubal ligations (December 2015).

"Field sterilization of black-tailed deer," The Villages Golf and Country Club, San Jose, California: We captured all females (99) over 9 days using darting techniques and performed ovariectomies/tubal

ligations (January/February 2013). We captured 9 females using darting techniques and performed ovariectomies (October 2013). Population estimates were derived using local demographics and the known number of females in conjunction with Distance sampling surveys. Detailed data on immigration and survival rates also were collected (Nov 2014).

"Field sterilization of white-tailed deer," Cayuga Heights, New York: We captured 137 females (>97% of females present) over 14 days using a combination of drop nets and darting techniques and performed ovariectomies (December 2012). We captured all remaining females (n = 12) using darting techniques and performed ovariectomies. (December 2013). Population estimates were derived using local demographics and the known number of females in conjunction with camera surveys at baited locations. Detailed data on immigration and survival rates also were collected.

"Field sterilization of white-tailed deer," Wildlife Rescue, Phoenix, Maryland: We captured 32 does over 8 days using darting techniques and performed ovariectomies (February 2011). We captured 14 does over 5 days using darting techniques and performed ovariectomies (February 2012). We captured 9 does over 3 days using darting techniques and performed ovariectomies. (February 2013 and 2014). We captured 11 does over 4 days using darting techniques and performed ovariectomies. (February 2015). Population estimates were derived using local demographics and the known number of females in conjunction with direct observations at baited locations. Data on immigration and survival rates also were collected.

"Evaluation of hand-injection versus dart administered GonaCon in female white-tailed deer," Bridgeport, Connecticut: A research project to determine the relative efficacy of the GonaCon vaccine when administered via two different approaches (Jan. 2013 – Feb. 2014).

"Field sterilization of white-tailed deer," Town and Country, Missouri: We captured 100 does using a combination of drop nets and darting techniques and performed ovariectomies. (December 2009). We captured 30 does over 6 days using darting techniques and performed ovariectomies. (December 2010). Population estimates were derived using Distance sampling methods.

"Feasibility and efficiency of field sterilizations via tubal ligation/ovariectomy in female white-tailed deer," Bridgeport, Connecticut: A research project to determine the relative efficiency of sterilization procedures compared to immunocontraceptive vaccines (2008 - 2011).

"Efficacy evaluation of the GonaCon™ immunocontraceptive vaccine in fallow deer: an EPA pivotal field study," Point Reyes National Seashore, California: This study is to be conducted as a requirement of the EPA authorization process for a New Animal Drug. The primary objective is to verify the magnitude and duration of a single shot of GonaCon™ on female fallow deer. Seventy does were captured and treated. (July 2007 – 2009).

"Efficacy evaluation of the GonaCon™ immunocontraceptive vaccine in white-tailed deer: an EPA pivotal field study," Giralda Farms, Madison, New Jersey: This study is to be conducted as a requirement of the EPA authorization process for a New Animal Drug. The primary objective is to verify

the magnitude and duration of a single shot of GonaCon™ on female white-tailed deer. Sixty-six does were captured and treated. (July 2005 – 2009).

"Experimental density maintenance using infertility agents of a suburban population of white-tailed deer following a reduction using sharpshooting techniques," Newark, Delaware: A research project to assess the utility of combining fertility control methods with lethal management options within a 600 acre privately owned facility. Twenty-one deer were captured and 100 harvested. (August 2005 – 2008).

"Experimental control of a suburban population of white-tailed deer using immunocontraception," Princeton Township, New Jersey: A research project to assess the practicality and feasibility of reducing, then maintaining the local deer population, within a 3-mile^2 area of town, at approximately 40/deer/mile^2 using SpayVac and GonaCon™. To date, 105 does have been captured and treated. The first year's funding was provided by White Buffalo, Inc. (March 2003 – 2008).

"Evaluation of alternative PZP immunocontraceptive formulations in female white-tailed deer," Bridgeport, Connecticut: A research project to determine the relative efficacy and longevity of various formulations of the PZP vaccine (June 2000 - 2007).

"Cost-effectiveness of maintaining an enclosed deer population using anti-fertility agents after an initial population reduction using sharpshooting techniques," Duke Farms, Hillsborough, New Jersey: A research project to assess the utility of combining fertility control methods with lethal management options within a 2700 acre privately owned facility. Forty deer were captured and 221 harvested. (November 2004 – 2006).

"Experimental control of an urban population of white-tailed deer using contraception," Cleveland, Ohio: A research project to assess the feasibility and practicality of using a contraceptive agent to reduce herd size in the Ohio and Erie Canal Reservation. Over 300 deer captured. Funding provided by the Cleveland Metroparks (March 2001 - 2005).

"Experimental control of an enclosed suburban population of white-tailed deer using contraception," Bridgeport Connecticut: Designed and implemented a research protocol to assess the feasibility and practicality of using a contraceptive agent to maintain herd size (June 1999 - June 2000).

<u>Lyme Disease Research</u>

" An Integrated and Individual Tick Management Program to Reduce Risk of Lyme Disease in a Residential Endemic Area," Redding, Connecticut: A collaborative effort between White Buffalo, Inc. and the Connecticut Agricultural Experiment Station to evaluate whether localized deer population reductions can reduce *Ixodes* tick abundance and subsequent risk of Lyme disease. Funding provided by the Center for Disease Control (September 2012 - August 2015).

"Control of the tick, Ixodes scapularis Say, on white-tailed deer at a suburban Lyme disease focus," Old Lyme, Connecticut: A collaborative effort between White Buffalo, Inc., the Connecticut Agricultural Experiment Station, Yale University, and the United States Department of Agriculture-Agricultural Research Service to evaluate a four-poster feeder system to control deer ticks on free-ranging white-tailed deer in a suburban community. Funding provided by the United States Department of Agriculture (USDA). (August 1997 - July 2002).

"Control of the tick, Ixodes scapularis Say, on white-tailed deer at an urban Lyme disease focus," Bridgeport, Connecticut: A collaborative effort between White Buffalo, Inc. and the Connecticut Agricultural Experiment Station to evaluate an experimental Amitraz-impregnated collar to control ticks on an enclosed white-tailed deer population. Funding provided by the Center for Disease Control (March 1999 - February 2000).

"Control of the tick, Ixodes scapularis Say, on white-tailed deer at an urban Lyme disease focus," Bridgeport, Connecticut: A collaborative effort between White Buffalo, Inc. and the Connecticut Agricultural Experiment Station to evaluate a four-poster feeder system to control deer ticks on an enclosed white-tailed deer population. Funding provided by the Center for Disease Control (CDC) (May 1997 - February 1999).

Other Research

"Infant survival and den site selection of female raccoons following removal and exclusion from residences," Hartford County, Connecticut: A research project designed to assess the management implications of on-site release of female raccoons during the infant-rearing season (April 1998 - 2000).

"White-tailed deer herd health assessment," Purdue University: We coordinated and conducted deer harvest and capture operations and data collection to assess morphological and physiological parameters as indicators of individual deer condition. These data were then used to assess herd health of deer in hunted versus unhunted areas in Indiana. Research sites included Brown County State Park, Crane Naval Surface Warfare Center, Pigeon River State Fish and Wildlife Area, and Pokagon State Park (March 1996).

INTERNATIONAL RESEARCH/MANAGEMENT PROJECTS

Haida Gwaii, British Columbia: Participated in an international workshop to evaluate the feasibility of non-native deer eradication from isolated islands in the archipelago (May 2015). Designed an eradication program for non-native black-tailed deer and provided Parks Canada staff training (September 2015).

Guam: Developed a research project to assess the impacts and optimal control/eradication methods for non-native ungulates (Philippine deer and feral pigs) (September 2014 – May 2015).

Botswana: Assisted the Denver Zoological Society in capturing vultures to study their ecology and to determine causes of their decline. Vultures were captured with remotely launched nets and GPS units were attached (June 2012)

Japan: Consulted for the Japanese Ministry to establish a program to address Sika deer overpopulation issues. Designed a management and training program for government and university biologists (July 2010).

Mongolia: Assisted the Denver Zoological Society and the Mongolian Academy of Sciences in capturing threatened Argali Sheep and Ibex. The intent of the research is to study Argali ecology and to determine feasibility of repopulating areas where numbers have declined. Argali were remotely captured with darting equipment and drive nets, and radio-collars were attached (September 2002, April 2003, September 2003, 2004, and 2006).

Bhutan: Consulted for the Bhutan Ministry of Agriculture and the Bhutan Trust Fund to assess techniques and equipment used for wild pig control. Designed a research program that incorporated lethal components to address subsistence agricultural damage in remote villages (May 2003, October 2003).

Galapagos National Park, Ecuador: Participated in an international workshop to design a program for the eradication of feral goats on Isabela Island (9-18 September 1997).

MISCELLANEOUS MANAGEMENT PROJECTS

Andersen Air Force Base and Navy Base, Guam: Efficiently and safely completed an intensive non-native ungulate (Philippine deer and feral pigs) control program. We removed over 600 deer and feral pigs using ground–based shooting techniques. To assess deer behavior we capture and administered GPS collars. We also sampled 200 animals for disease surveillance research. (March – May 2015).

Channel Island National Park, Santa Rosa Island, California: Successfully completed an Island-wide non-native ungulate (mule deer and elk) eradication program. We removed deer and elk using ground and aerial shooting techniques. Some deer were captured from a helicopter using a net gun to serve as Judas animals. (October 2011 - November 2013).

Point Reyes National Seashore, California: Successfully completed a Park-wide non-native deer (Fallow and Axis deer) eradication program. We first implemented an EPA pivotal study using the GonaCon vaccine on 80 female Fallow deer. Deer were then live-trapped followed by euthanasia to reduce large group sizes. We then removed deer using ground and aerial shooting techniques. Some deer then were captured from the ground and from a helicopter using a net gun and dart rifle to serve as Judas animals. Finally, Fallow deer were captured and sterilized using ovariectomies (females) and vasectomies (on males) (June 2007 - April 2009).

Desecheo Island, Puerto Rico: Participated in an island-wide rhesus macaque eradication program. Feral macaques were removed using ground-shooting techniques during the day and at night (March 2009/April 2010/March 2011).

Santa Cruz Island, California: Implemented in an island wide turkey eradication program. Turkeys were removed using trapping, as well as ground and aerial shooting (Nov – Dec 2006).
Assisted in an island-wide feral pig eradication program. Pigs were removed using trapping, as well as ground and aerial shooting techniques (May – July 2005).

Catalina Island, California: Participated in an island-wide feral pig and goat eradication program. Feral goats were captured from the ground and from a helicopter using a net gun and dart rifle to serve as Judas goats. Pigs were live-trapped followed by euthanasia. Feral goats and pigs were removed using ground-shooting techniques (June - September 1998).

POPULATION ASSESSMENTS

White Buffalo Inc. can conduct estimates of population size using helicopter snow counts, spotlight surveys (distance sampling), or mark/resight techniques.

Bedford and Lewisboro, New York: We conducted helicopter snow counts to determine deer densities in study sites as part of the USDA-ARS 4-poster Lyme disease research project (February 2001/February 2000/March 1999).

Chatham, New Jersey: Distance sampling estimates to determine deer densities (January 2007).

Dune Acres, Indiana: We conducted a white-tailed deer population estimate using spotlighting techniques and consulted with the community regarding the feasibility of implementing a white-tailed deer population reduction program (December 1996).

Ellisville, Missouri: We conducted Distance sampling estimates to determine deer densities (January 2015).

Helena, Montana: Distance sampling estimates to determine deer densities (October 2009).

Kingston, Rhode Island: We conducted helicopter snow counts to determine deer densities in study sites as part of the USDA-ARS 4-poster Lyme disease research project (January 2001/ February 1999).

Manchester, Missouri: We conducted Distance sampling estimates to determine deer densities (March 2014).

New Canaan, Connecticut: We conducted a white-tailed deer population estimate using helicopter snow counts to determine deer densities throughout the community (February 2001).

Old Lyme and Old Saybrook, Connecticut: We conducted helicopter snow counts to determine deer densities in study sites as part of the USDA-ARS 4-poster Lyme disease research project (February 1999).

Princeton Township, New Jersey: A helicopter snow count was conducted to determine deer densities throughout the community (December 2002). We conducted distance sampling estimates to determine deer densities (February 2011, April 2014).

San Jose, California: We conducted distance-sampling estimates to determine deer densities in a private association – The Villages Golf and Country Club (September 2010, October 2012, November 2014).

Sunset Hills, Missouri: Distance sampling estimates to determine deer densities (December 2012 and January 2014).

Town and Country, Missouri: We conducted a white-tailed deer population estimate using spotlighting techniques. We also provided an assessment of deer management options for potential implementation in the community (February 1997, December 2010-15).

Town and Country, Missouri: We conducted a white-tailed deer population survey using spotlighting techniques. We estimated deer densities using Distance sampling methods and mark-recapture techniques (December 2009).

Upper Makefield, Pennsylvania: We conducted Distance sampling estimates to determine deer densities (March 2010).

Westport and Weston, Connecticut: We conducted helicopter snow counts to determine deer densities in 2 communities as part of a CDC Lyme disease research project (February 2000).

CONSULTATIONS, TRAINING, and HUNT MANAGEMENT

Initial consultations are conducted to provide site-specific cost and feasibility assessments for all management/research options. In addition, a comprehensive report can be prepared that details all organizational aspects (social, legal, and technical) necessary for implementation of any management technique. We design sharpshooting programs, specify equipment requirements, and train participants in sharpshooting methods. We also design, organize, and oversee suburban hunting programs.

- **Catalina Island Conservancy** – June 2015
- **Mt Lebanon, PA** – August 2013; June 2015
- **NYSDEP; New York City watershed** – June 2015
- **North Haven, Long Island, NY** – August 2013
- **Binghamton University, NY** – January 2012
- **Village of Cayuga Heights, NY** – November 2011
- **The Villages Golf and Country Club, San Jose, California** – September 2010/October 2012/November 2014
- **Hudson, Ohio** – July 2010
- **Warrensburg, Missouri** – February 2009
- **Town and Country, Missouri** – July 2008
- **Shawnee Mission Parks, Kansas City, Kansas** – March 2008
- **Locust Hill Association, Cincinnati, OH** – January 2007
- **Chatham, New Jersey –** January 2007
- **Millburn, NJ** – August 2005
- **Bryn Gwyled, Pennsylvania –** April 2005
- **Lake Metroparks, Concord Township, Ohio -** March 2004
- **Columbia Heights, Minnesota –** November 2003
- **Summit County Metroparks, Akron Ohio –** July 2003
- **Roanoke, Virginia –** March 2003
- **Bald Head Island, Wilmington, North Carolina –** December 2002
- **Ramsey County, Minnesota –** November 2002
- **Hamilton County Parks, Cincinnati, Ohio –** July 2002
- **Five Rivers Metroparks, Dayton Ohio –** July 2002
- **Biltmore Forest, North Carolina –** May 2001 and July 2002
- **Armand Bayou Nature Center, Houston, Texas -** October 2000
- **Maryland National Capital Park and Planning Commission -** July 2000
- **Barton Creek, Texas -** June 2000
- **Lakeway, Texas -** June 2000
- **Silver Springs, Maryland -** February 2000
- **Marinette, Wisconsin -** January 2000
- **George Reserve, Pinckney, Michigan -** November 1999
- **Goddard Space Flight Center, NASA, Greenbelt, Maryland -** November 1999
- **Iowa City, Iowa -** August 1999
- **Massachusetts Water Resource Authority, Weston, Massachusetts -** June 1999

- **Peaks Island, Maine -** June 1999
- **Detroit Metroparks, Michigan -** December 1998
- **Princeton, New Jersey -** September 1998
- **Reeves-Reed Arboretum, Summit, New Jersey -** September 1998
- **Amherst, New York -** May 1998
- **Fairmount Park, Philadelphia, Pennsylvania -** May 1998
- **Kinnelon, New Jersey -** February 1998
- **Edina, Minnesota -** December 1997
- **Gaithersburg, Maryland -** November 1997
- **Darien, Connecticut -** October 1997
- **Block Island, Rhode Island -** August 1997
- **Groton Long Point, Connecticut -** August 1996

Bluff Point/Mumford Cove, Groton, Connecticut: Collaborated with Connecticut DEP to design and oversee a community-based controlled archery/shotgun hunt (November/December 2000).

Cleveland Metroparks, Cleveland, Ohio: Designed a deer population reduction program using sharpshooting techniques for the Cleveland Metroparks. Trained Park Rangers in field methods including shot selection and proper shooting techniques (December 1998/January 1999).

Duke Farms Foundation, Hillsborough, New Jersey: Designed, organized, and managed a controlled archery/shotgun hunt successfully reducing deer densities from >150 deer /mile squared to ~20 deer/mile squared (Fall 2005-present).

Island Conservation, Santa Cruz, California: Developed and administered a professional training program for biologists involved in wildlife population control, particularly non-native species eradication. (November 2009/February 2010).

Maryland National Park and Planning Commission, Maryland: Designed a deer population reduction program using sharpshooting techniques for the Park Commission. Trained Park personnel in field methods including shot selection and proper shooting techniques (October 2000/January 2001/September 2007).

Metroparks Serving Summit County, Akron, Ohio: Designed a deer population reduction program using sharpshooting techniques for the Metroparks serving Summit County. Trained park rangers in field methods including shot selection and proper shooting techniques (November 2003/February 2004).

Mt Lebanon, Pennsylvania: Organized and managed a controlled archery hunting program in a 6 mile^2 community. Volunteer archers harvested 81 deer without incident (August 2015 – January 2016).

North Haven, New York: Designed, organized, and managed a deer depredation program in a ~3 mile^2 community (Winter 2014).

Ram Island, New York: Designed, organized, and trained local hunters for a deer depredation program (Winter 2016).

Saint Elizabeth, Convent Station, New Jersey: Designed, organized, and managed a controlled archery hunt on a 180-acre private school campus (Fall 2009).

Shawnee Mission Park, Kansas: Designed a deer population reduction program using sharpshooting techniques for the Johnson County Parks. Trained Park and law enforcement personnel in field methods including shot selection and proper shooting techniques. We removed 313 deer in 3 nights using sharpshooting techniques (September/November 2009).

Teatown Lake Reservation, Ossining, New York: Designed and organized a controlled archery hunt on an 875-acre private nature preserve (Fall 2014).

Tokyo and Hokkaido, Japan: Provided workshops and seminars on wildlife damage management techniques and advised on management options for sika deer. Conducted preliminary training for wildlife professionals on sharpshooting techniques and concepts. (July 2010).

Tuxedo Park, New York: Designed a deer population reduction program using sharpshooting techniques for the Village of Tuxedo Park. Trained law enforcement personnel in field methods including shot selection and proper shooting techniques. We removed 98 deer in 9 nights using sharpshooting techniques (February 2012).

Village of Cayuga Heights, New York: Organized and managed a controlled archery culling program (crossbow only) in a 1.8 mile^2 community. Forty-eight deer culled over 8 days with zero deer wounded or lost (March 2015).

EDUCATIONAL EFFORTS

- Texas Parks and Wildlife Urban Deer Conference. San Marcos, TX. May 2015
- Presented at the AVMA conference on Humane Endings. Considerations when euthanizing wildlife with firearms. November 2014.
- NWCOA Sharpshooting training, Roanoke, VA. September 2014
- Presented at a deer management forum on surgical sterilization for the Village of East Hampton (NY) Preservation Society. July 2013
- Presented at the North American Deer Farmers Association Annual Conference. Chemical Immobilization of Captive Cervids. March 2011.
- Presented at the The Wildlife Society 17th Annual Conference. Suburban Hunter Education. October 2010.
- Presented at the 46th Annual Northeast Deer Technical Committee Meeting. Suburban Hunter Education. September 2010.

- Participated in a workshop organized by the University of Nebraska, Lincoln focused on sharpshooting training. August 2010.
- Presented at the 66th Annual Northeast Fish and Wildlife Conference. Suburban Hunter Education. April 2010.
- Participated in the Wildlife Society's summer field techniques course providing classroom lecture and field training in wildlife immobilization. June 2009 and May 2010.
- Provided a seminar on career development for high school students at Nonnewaug High School, Woodbury, Connecticut. April 2010.
- Presented for the Newtown, CT Lyme Disease Action Committee on deer management options and the potential effects on tick abundance. January 2010.
- Participated in a workshop organized by the University of Nebraska, Lincoln focused on immobilization and sharpshooting training. August 2009.
- Presented at the 65th Annual Northeast Fish and Wildlife Conference. Usage of a digital aerial sketch mapper for conducting aerial snow counts of deer. April 2009.
- Presented at the 64th Annual Northeast Fish and Wildlife Conference. GonaCon in Perspective. April 2008.
- Presented at Trinity College's Senior Biology Major Seminar. Discussions focused on contraception technologies and career options for Biology Majors. September 2007.
- Presented at the 63rd Northeast Fish and Wildlife Conference on the present status of infertility technology for deer. April 2007.
- Presented 2 seminars at Texas State University that summarized management techniques and the human dimensions of suburban deer management. October 2006.
- Spoke at 3 lectures for the "Connections Committee" of Cedar Rapids, Iowa. Discussed urban deer management, and the development and application of fertility control. October 2004.
- Presented data from the on-going fertility control research project in Princeton, N.J. to the Northeast Deer Technical Committee. September 2004.
- Guest lecturer, Rutgers University, Animal Sciences Department Seminar Series. Presented "*The Future of Fertility Control in White-tailed Deer Management.*" Feb 2004.
- Presented at the 10th Annual Wildlife Society Conference held in Burlington, Vermont September 2003.
- Spoke at a public forum to discuss the use of immunocontraception as a method of white-tailed deer population management. Princeton Township, NJ. March 2003.
- Guest lecturer at Yale School of Forestry and Environmental Studies. Discussed the social, biological, technical, and political issues involved when managing wildlife populations. New Haven, Connecticut. April 1998, 1999, 2000, and 2001.
- Presented data from the 3-year urban raccoon study entitled *"Den site selection and movement patterns of female raccoons following removal and exclusion from residences"*, conducted in Hartford County, CT, at the Northeast Fish and Wildlife Conference held in Saratoga Springs, NY. April 2001.
- Presented data from the 3-year urban raccoon study entitled *"Den site selection and movement patterns of female raccoons following removal and exclusion from residences"*, conducted in Hartford County, CT, at the Eastern Wildlife Damage Conference held at the University of Pennsylvania. October 2000.

- Presented *"The Art and Science of Sharpshooting: one professional's perspective after five years"* at the joint Midwest and Northeast Deer Technical Meeting held in Alpena, Michigan. August 2000.
- Spoke at a town meeting to discuss deer biology and management. Alternative deer management options and techniques were presented and discussed. Westport, Connecticut. May 2000.
- Participated in a Coe College Biology Seminar and Issues Discussion regarding the technical and social aspects of deer management. Cedar Rapids, Iowa. November 1999.
- Presented data from the Monhegan Island, Maine eradication program at the Northeast Deer Technical Committee Meeting in Greenville, Maine. September 1999.
- Taught the wildlife euthanasia portion of the Connecticut Nuisance Wildlife Control Operator's training course. Focused on approved euthanasia techniques for use on nuisance wildlife. Burlington, Connecticut. October 1998.
- Supervised 2 Yale University graduate students during internships with White Buffalo Inc. Activities included contraceptive delivery, home range assessment using radio-telemetry equipment, and capture techniques. In addition, 11 deer were captured, radio-collared, and movements monitored as part of the USDA-ARS 4-poster research project in Old Lyme, Connecticut. September 1998 – June 2000.
- Presented data from Long Island, New Hampshire, Eden Prairie, Minnesota, and Monhegan Island, Maine reduction programs at the 5th Annual Wildlife Society Conference held in Buffalo, New York. September 1998.
- Participated in the "Status and Future of Wildlife Fertility Control" Workshop and Panel Discussion at the 5th Annual Wildlife Society Conference held in Buffalo, New York September 1998.
- Presented at the annual National Nuisance Wildlife Control Operator's Conference. Discussed the social and political issues surrounding white-tailed deer population control. Bridgeport, New Jersey. February 1998.
- Presented data from Long Island, New Hampshire, and Monhegan Island, Maine deer reduction programs at the Midwest Fish and Wildlife Conference held in Milwaukee, Wisconsin. December 1997.
- Presented data from Long Island, New Hampshire deer reduction program at the Northeast Fish and Wildlife Conference held in Framingham, Massachusetts. April 1997.
- Presented data from Long Island, New Hampshire reduction program at the Southeast Deer Study Group Meeting held in Charleston, South Carolina. March 1997.

REFERENCES

Population Reduction Programs

Princeton Township, New Jersey

Trishka Waterbury, Township Attorney - 609-436-1211

Susan Predl, Wildlife Biologist – 908-735-7040
NJ Division of Fish, Game & Wildlife
Northern District Office
26 Rte 173 West
Hampton, NJ 08827

Town and Country, Missouri

Fred Meyland-Smith - 314-807-9746
Board of Aldermen
meyland@sbcglobal.net

Gary A. Hoelzer - 314-568-5812
City Administrator
HoelzerGA@town-and-country.org

Joel Porath, Wildlife Biologist – 636-300-1953, ext. 226
Missouri Department of Conservation
Joel.Porath@mdc.mo.gov

Sharpshooting Training Programs

Cleveland Metroparks, Cleveland, Ohio

Thomas Stanley, Chief of Natural Resources, Retired - 440-829-5643
Cleveland Metroparks

Island Conservation, Santa Cruz, CA

Chad Hanson, Program Manager- 541-760-7449
chad.hanson@islandconservation.org

Maryland National Park and Planning Commission, Maryland

Bill Hamilton, Wildlife Ecologist – 301-949-4149
2000 Shorefield Road
Wheaton, MD 20902

Shawnee Mission Parks and Recreation

Dan Field, Park Police Chief - 913-894-3361
Johnson County Park and Recreation District
Park Police Offices, Shawnee Mission Park
7900 Renner Road, Shawnee Mission, KS 66219-9723

Controlled Hunt Management

Bluff Point/Mumford Cove, Groton, Connecticut

Howard Kilpatrick, State Deer Biologist - 860-642-6528
Franklin Wildlife Management Area
391 Route 32
North Franklin, CT 06423

Duke Farms Foundation, Hillsborough, New Jersey

Thom Almendinger, Park & Farm Manager – 908-243-3656
Duke Farms
1112 Dukes Parkway West
Hillsborough, NJ 08844

Cayuga Heights, New York

Chief James Steinmetz - 607-257-2907
Village of Cayuga Heights Police Department
836 Hanshaw Road
Ithaca, NY 14850

Fertility Control Research

Cayuga Heights, New York

Chief James Steinmetz - 607-257-2907
Village of Cayuga Heights Police Department
836 Hanshaw Road
Ithaca, NY 14850

Cincinnati Metroparks, Cincinnati, Ohio

Laurie Briggs
Clifton Deer (nonprofit)
laurieabriggs@gmail.com

National Institutes of Health, Bethesda, Maryland

Charmaine Foltz, DVM, Director, Division of Veterinary Resources
phone: 301-451-8334/cell: 301-905-2965
9000 Rockville Pike, Bldg. 14A/103
Bethesda, Maryland 20892
foltzc@mail.nih.gov

The Villages Golf and Country Club, San Jose, California

Darren Shaw, General Manager – 408-223-4634
5000 Cribari Lane
San Jose, CA 95135

Capture Programs

Point Reyes National Seashore

Dr. Natalie B. Gates - natalie_gates@nps.gov
Haleakalā National Park
Makawao HI 96768

Bluff Point/Mumford Cove, Groton, Connecticut

Howard Kilpatrick, State Deer Biologist - 860-642-6528
Franklin Wildlife Management Area
391 Route 32
North Franklin, CT 06423

Other Wildlife Management and Research

Lyme Disease Research, Bridgeport and Old Lyme, Connecticut

Dr. Kirby C. Stafford III - 203-974-8485
The Connecticut Agricultural Experiment Station
123 Huntington Street - Box 106
New Haven, CT 06504

Purdue University - White-tailed deer herd-health assessment research project

Dr. Robert K. Swihart - 765-494-3566
1159 Forestry Building - Room 102
Purdue University
West Lafayette, IN 47907

Point Reyes National Seashore – Fallow and Axis deer eradication

Dr. Natalie B. Gates - natalie_gates@nps.gov
Haleakalā National Park
Makawao HI 96768

PROGRAM PRICING

CONSULTATIONS $150.00/hour, or $1,500/day, plus expenses for Senior Scientist
$95.00/hour, or $950/day, plus expenses for Biologists

ORGANIZATIONAL PHASE $150.00/hour plus expenses for Senior Scientist
$95.00/hour plus expenses for Technicians

- Site assessment
- Meetings with public, town officials, corporate executives
- Evaluation of management options - written report*

* Report includes an assessment of the feasibility, cost, project duration, and social acceptability of select management options.

PRE-IMPLEMENTATION PHASE** $150.00/hour plus expenses for Senior Scientist
$95.00/hour plus expenses for Technicians

- Attainment of access (private properties)
- Bait site selection
- Bait site preparation
- Prebaiting

****Total to be paid in advance of Implementation Phase

IMPLEMENTATION PHASE $150.00/hour plus expenses for Senior Scientist
$95.00/hour plus expenses for Technicians

- Removal effort, data collection, etc.
- Report writing

*** Meat processing costs for food shelter donation are separate

ADDITIONAL COSTS

Expert testimony - $350.00/hour plus expenses
Cost of delay (e.g., temporary injunctions, animal rights protests) – $1500.00/day
Early termination costs (covers time and expense to date of termination)

(*Fees charged are valid until 31 December 2016*)

SHARPSHOOTING PROTOCOL

Subsequent to a decision by the landowner/s and the state wildlife management agency to implement a controlled deer reduction using White Buffalo Inc. the following procedures are used:

1. Prior to initiating any field activities the target area/s and surrounding properties are thoroughly surveyed using digital aerial images followed by field confirmation. By knowing the location of every occupied structure and areas of human use we are better able to work safely, discretely, and efficiently;

2. Bait sites are selected with the involvement of the landowner/s, local law enforcement, and the cooperating state agency. Each site is selected based on safety concerns, discretion, and deer activity;

3. We conduct field operations during hours of lowest human activity. In addition, during the removal operation we search intensively for people and non-target animals to avoid mishaps;

4. Deer of all ages and sexes are harvested, however, adult does are prioritized. Deer are shot from a vehicle with a rifle during the night with the aid of spotlights. Some deer are shot over bait from a tree stand with a rifle during the day or at night. Night-vision equipment and suppressed firearms (only in states where they are legal to possess) are used to expedite field procedures and to ensure discrete operations;

5. During suburban deer reductions there will be continuous open communication between community members, municipality officials, and White Buffalo, Inc. to keep people well informed regarding field activities to avoid conflicts;

6. When in doubt, never shoot;

7. All deer carcasses are transported and dressed with the highest degree of discretion;

8. When desired, we are willing to be responsible for the disposal of all by-products and transport of deer carcasses to a USDA inspected facility for processing and subsequent donation to the needy.

The following are reasons why White Buffalo Inc. is on the leading edge of urban deer management:

1. We have the best available equipment with numerous hours of hands-on use to ensure precise shot placement. This results in safe use of equipment and humane treatment of target animals;

2. We have spent the last 20 years committed to improving both technology and techniques to maximize safety and efficiency for the management of white-tailed deer (i.e., ballistics testing, bullet development, baiting techniques, adaptation of other technologies for use in deer management, including thermal/night vision scopes and suppressors);

3. We have thoroughly tested and selected bullets, in addition to having developed specialized bullets. As a result of our extensive testing, we have found that no bullet fragments with significant size or inertia exit the target animal or ricochet;

4. We have extensive experience in both killing (>10,000 deer) and capturing deer (>3,000 deer) in a variety of human occupied environments without incident. We have used our discretion in the selection of shooting sites with complete satisfaction of both state officials and property owners;

5. We collect all pertinent data related to herd health, advancements in management techniques, and other aspects of each removal program which will be included in scientific journals, professional conferences, or written reports submitted to the landowner and cooperating state agency.

6. We have trained 6 law enforcement agencies how to professionally sharpshooting deer as part of State authorized deer management programs.

In conclusion, although safety is the primary issue to be considered when implementing a program to reduce deer numbers, with the above precautionary measures and the expertise of White Buffalo Inc., it need not be a concern.

BOARD OF DIRECTORS

Mr. Gary Aurora
26 Peck Lane, Hamden, CT 06514
Telephone: (203) 230-2768 Email: gmaurora@yahoo.com

Gary is currently employed by the New Haven Board of Education as a teacher at the Hyde Leadership School. He is certified to teach Social Studies (grades 7-12) and has done so for 15 years. He has served as Dean of Students for 3 years. In addition, Mr. Aurora has coached 4 varsity level sport teams over the last 10 years. He received a B.A. from Colgate in Political Science and his J.D. from Quinnipiac School of Law. Gary also has obtained a 6th Year Certificate in Educational Leadership from Southern Connecticut State University (SCSU), and is certified in school administration. He has conducted diversity workshops for the Anti-Defamation League and been a guest speaker in an Anti-Bias course held at SCSU the last 6 semesters. Gary also is licensed by the State of Connecticut as a foster and adoptive parent.

Mr. Eric Grant, Esq.
YAMIN & GRANT, LLC, 83 Bank Street, Waterbury, CT 06702
Telephone: (203) 574-5175 Email: egrant@yamingrant.com

Eric received his BA in Economics from Trinity College, and graduated from New York University, School of Law, cum laude in 1993. Mr. Grant worked for both Cummings and Lockwood and LeBoeuf, Lamb, Greene & MacRae, before establishing Yamin and Grant, located in Waterbury, CT. Attorney Grant focuses his practice on complex civil litigation in state and federal courts. He represents publicly and privately held companies in various industries, including manufacturing of industrial and consumer products, insurance, reinsurance, construction, commercial real estate, aerospace, tobacco, trash to energy, automobile dealerships, healthcare, banking and investment banking. Eric has litigated cases involving business torts, mergers and acquisitions, employment discrimination claims, breaches of restrictive covenants, executive compensation, factoring transactions, copyrights, trademarks, trade secrets, construction projects, medical malpractice and personal injuries. In addition, his practice includes the use of alternative dispute resolution procedures, including arbitration, mediation and formal settlement negotiations when such procedures are contractually required or in the interests of his clients. Eric also serves as counsel to White Buffalo, Inc., and assisted in the process of obtaining its tax-exempt status as a public charity.

Robert Swihart, Ph.D.
Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN 47907
Telephone: (763) 494-3566 Email: rswihart@purdue.edu

Rob conducted undergraduate work at Butler University and Purdue University, obtaining a B.S. in Wildlife Science from Purdue in 1979. He graduated from Minnesota with a M.S. in Wildlife in 1981 and then moved to the University of Kansas to work on a Ph.D. as an Honors Fellow. He received his Ph.D. in

Ecology in 1985. In 1986 Rob accepted a position as a research ecologist with the Connecticut Agricultural Experiment Station, where he investigated nonlethal methods for managing crop damage by wildlife in commercial nurseries and orchards. Since joining the faculty at Purdue in 1991, Rob and his students have conducted numerous studies examining the impact of agriculture and habitat loss/fragmentation on vertebrates. Rob has published over 100 manuscripts in scientific journals. He is presently the Dean of the School Forestry and Natural Resources at Purdue.

Anthony DeNicola, Ph.D.
26 Davison Road, Moodus, CT 06469
Phone: (860) 790-0224 Email: Tony@whitebuffaloinc.org

Dr. DeNicola is co-founder and President of White Buffalo Inc. In 1988, Tony received a B.S. in Biology from Trinity College of Hartford, CT, and a M.S. from the Yale School of Forestry and Environmental Studies in 1990. He completed his Doctorate work at Purdue University in wildlife ecology in 1996. His dissertation was entitled "Control of reproduction in overabundant white-tailed deer populations." He is a member of the National Animal Damage Control Association, the Society for Conservation Biology and The Wildlife Society. In addition to being certified as a wildlife biologist by the Wildlife Society, he holds research affiliate positions with Yale University, University of Illinois, Trinity College of Hartford, and the Denver Zoological Society. Dr. DeNicola has 30+ publications in reputable scientific journals and has presented at numerous professional conferences. Tony's professional interests are behavioral/ecological approaches to wildlife damage control, wildlife reproductive control, and control of introduced vertebrate species. Most recently he has been involved with international research efforts assisting colleagues with capturing endangered Argali Sheep in Mongolia and vultures in Botswana, and working with the Royal Government of Bhutan to establish a wild pig management program, and the Japanese Ministry to establish a program to address sika deer overpopulation issues.