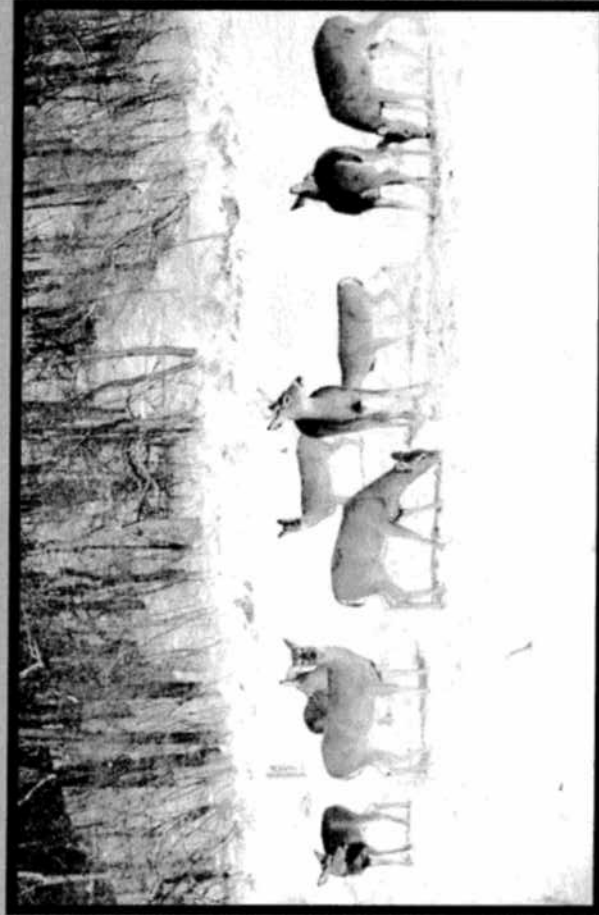


# Suburban Deer Management

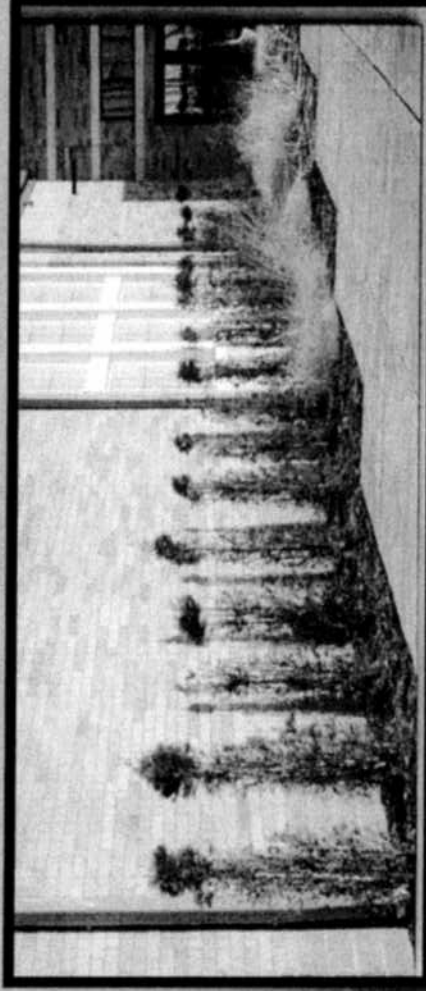


By  
Dr. Anthony J. DeNicola  
President, White Buffalo, Inc.

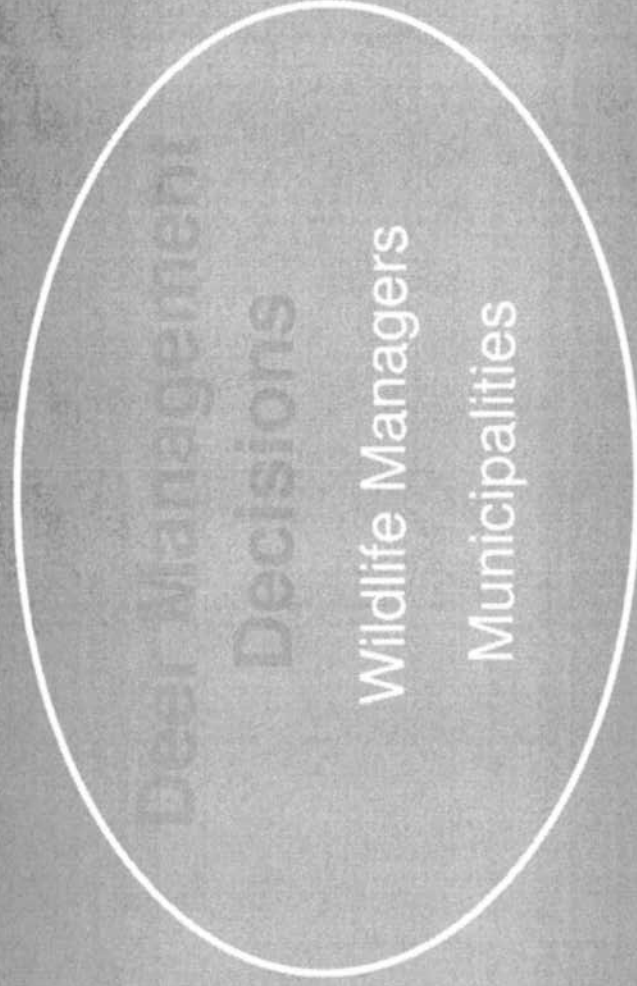


# CONFLICTS

- ◉ Ecological degradation
- ◉ Vehicle collisions
- ◉ Agricultural damage
- ◉ Home landscape/garden damage
- ◉ Decline in herd health
- ◉ Lyme disease



General Public



Animal Rights



Hunters



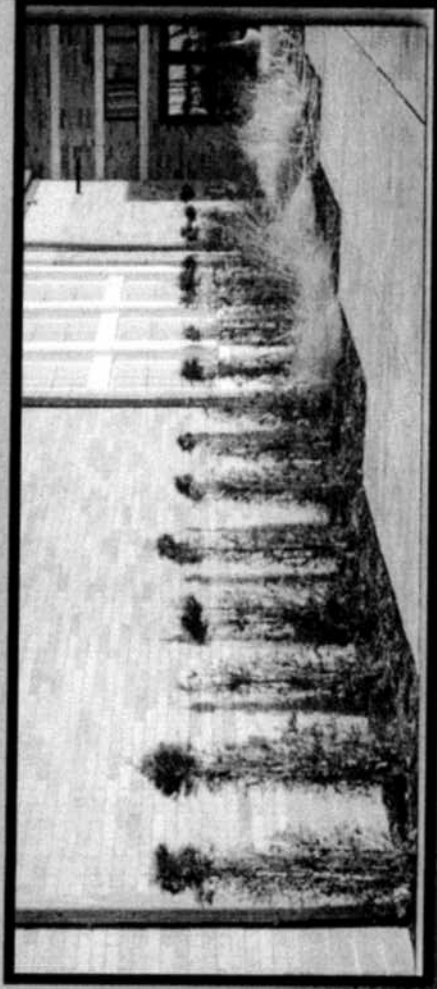
Agriculture



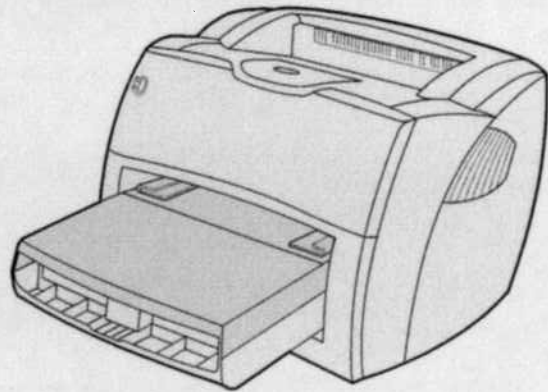


# CONFLICTS

- ◉ Ecological degradation
- ◉ Vehicle collisions
- ◉ Agricultural damage
- ◉ Home landscape/garden damage
- ◉ Decline in herd health
- ◉ Lyme disease

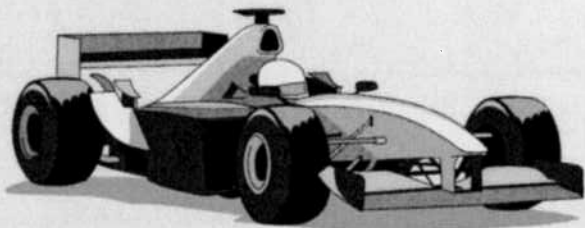


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# WHITE BUFFALO, TNC

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

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**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.

**Deborah Cuddy**, Co-founder and Secretary, received her Masters in the Studies of Environmental Law from Vermont Law School. She has 11+ years of field experience managing and assisting in research projects and reduction programs. Ms. Cuddy also is responsible for the majority of the administrative component of our organization including the writing and distribution of our quarterly report and the web site design.

**Ryan Rodts**, Wildlife Biologist, received his Bachelor's degree in wildlife management from Purdue University in 1997. Prior to coming to WBI he spent 2 years on Santa Catalina Island working on a feral goat and pig eradication program. Ryan has been with WBI for 10 years and his field experience also contributes to the success of all our programs.

**Talmadge Robinson**, Wildlife Biologist, received his Bachelor's degree from University of Georgia in 2003, and his MS from University of Georgia in 2008. Tal had been working with USDA's Wildlife Services in Georgia before joining WBI in the fall of 2005.

## **POPULATION REDUCTION PROGRAMS**

We have a 100% success rate for deer reduction programs. To date, WHITE BUFFALO, INC. personnel have 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.

### **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 were removed regional airport, over 2 days,  
to eliminate the chance of deer strikes on the runway

### **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

### **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

### **George Reserve (University of Michigan), Pinckney, Michigan (2 square miles enclosed):**

March 2001 - 103 deer harvested over 3 days for tuberculosis testing of an enclosed research population

### **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

**Iowa City, Iowa (Continued):**

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 Technicians only)

**Long Island, New Hampshire (2 square mile peninsula):**

November 1996 - 90 deer harvested over 3 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 Technicians 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)

**Town and Country, Missouri:**

December 2009 - 112 deer harvested over 7 days



## **CAPTURE and SURGICAL STERILIZATION PROGRAMS**

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 1000 deer.

### **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).

### **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).

**Town and Country, Missouri:** We captured 100 does using a combination of drop nets and darting techniques and performed ovariectomies. (December 2009).

### **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**

**“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 (June 2008 - present).

**“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<sup>2</sup> area of town, at approximately 40/deer/mile<sup>2</sup> 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 – present).

**“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).

### **Lyme Disease Research**

**"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).

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

**Mongolia:** Assisted the Denver Zoological Society and the Mongolian Academy of Sciences in capturing threatened Argali Sheep. 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 including a lethal component to be implemented in Fall 2003. (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**

**Point Reyes National Seashore, California:** Conducted 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 during the day and at night. 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 tubal ligations and ovariectomies (on 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).

**Santa, Cruz, California:** Implemented in an island wide turkey eradication program. Turkeys were removed using trapping, as well as ground and aerial shooting techniques (Nov – Dec 2006).

**Santa, Cruz, California:** 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 during the day and at night (June - September 1998).

**Sikorsky Airport, Stratford, Connecticut:** We captured and removed 48 geese, which were creating a bird air strike hazard, from the airport grounds. We also trained airport personnel to properly haze and/or dispatch other bird species creating air strike hazards. All control and dispersal efforts were authorized by the USFWS and USDA-WS. All carcasses were processed and donated to a local food shelter (June 1997).



## **POPULATION ASSESSMENTS**

WHITE BUFFALO, INC. can conduct estimates of population size using helicopter snow counts, spotlight surveys (distance sampling), or mark/re-sight 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:** We conducted 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).

**Helena, Montana:** We conducted 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).

**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).

**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).

**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).

**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.

- ◆ **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
- ◆ **Milburn, 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 2005-07).

**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).

**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).

**Saint Elizabeth, Convent Station, New Jersey:** Designed, organized, and managed a controlled archery hunt on a 180-acre private girls 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).

## **EDUCATIONAL EFFORTS**

- ◆ Participated in a workshop organized by the University of Nebraska, Lincoln focused on immobilization and sharpshooting training. August 2009.
- ◆ Participated in the Wildlife Society's summer course providing classroom lecture and field training in wildlife immobilization. June 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 63<sup>rd</sup> 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 at Rutgers University, Animal Sciences Department Seminar Series. Presented "*The Future of Fertility Control in White-tailed Deer Management*". February 2004.
- ◆ Presented at the 10<sup>th</sup> 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 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 Mid-west 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.
- ◆ 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 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.
- ◆ Guest lecturer at Yale School of Forestry and Environmental Studies. Discussed the social, biological and political issues involved when managing wildlife populations. New Haven, Connecticut. April 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 5<sup>th</sup> 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 5<sup>th</sup> Annual Wildlife Society Conference held in Buffalo, New York September 1998.
- ◆ Guest lecturer at Yale School of Forestry and Environmental Studies. Discussed the social, biological and political issues involved when managing wildlife populations. New Haven, Connecticut. April 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.
- ◆ Visited the 6th grade class at the Bennett Middle School, Manchester, Connecticut to discuss deer biology and management. Alternative deer management options and techniques were presented and discussed. Spring 1996
- ◆ One day field session with a science class from the Hyde Leadership School, New Haven, Connecticut. Students were taught basic ecological and wildlife management principles followed by field demonstrations. Fall 1995.

## **REFERENCES**

### **Population Reduction Programs**

#### **Eden Prairie, Minnesota**

Stuart Fox, Manager of Parks and Natural Resources - (952) 949-8445  
City of Eden Prairie  
8080 Mitchell Road  
Eden Prairie, MN 55344-2230

Sgt. James DeMann - (952) 949-6200  
Eden Prairie Police Department  
8080 Mitchell Road  
Eden Prairie, MN 55344-2230

#### **Edina, Minnesota**

Vince Cockriel, Park Maintenance Supervisor - (612) 826-0305  
City of Edina  
4801 West 50<sup>th</sup> Street  
Edina, Minnesota 55424-1394

#### **Iowa City, Iowa**

Mr. Dale E. Helling, Assistant City Administrator - (319) 356-5010  
City of Iowa City  
Civic Center  
410 East Washington Street  
Iowa City, Iowa 52240

#### **Metroparks Serving Summit County**

Mike Johnson, Chief of Natural Resources – (330) 865-8046  
Metroparks Serving Summit County  
975 Treaty Line Road  
Akron, Ohio 44313

#### **Long Island, New Hampshire**

Steve Weber, Chief of Wildlife - (603) 271-2461  
New Hampshire Fish and Game Department  
2 Hazen Drive  
Concord, NH 03301

Captain Jeff M. Gray - (603) 271-3127  
New Hampshire Fish and Game Department - Law Enforcement Division  
2 Hazen Drive  
Concord, NH 03301

## **Princeton Township, New Jersey**

Mayor Phyllis Marchand - (609) 924-5176  
Municipal Complex  
400 Witherspoon Street  
Princeton, NJ 08540

Captain Robert Buchanan - (609) 921-2100  
Princeton Township Police  
1 Valley Road  
Princeton, NJ 08540

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

## **Solon, Ohio**

Dave Hromco, Assistant Public Works Director – (440) 248-1155  
City Hall  
34200 Bainbridge Road  
Solon, OH 44139

Chief Wayne E. Godzich – (440) 248-2932  
City of Solon Police Department  
33000 Solon Road  
Solon, OH 44139

## **Sharpshooting Training Programs**

### **Cleveland Metroparks, Cleveland, Ohio**

Thomas Stanley, Chief of Natural Resources - 440-829-5643  
Cleveland Metroparks  
4101 Fulton Parkway  
Cleveland, OH 44144

### **Maryland National Park and Planning Commission, Maryland**

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

### **Metroparks Serving Summit County, Ohio**

Mike Johnson, Chief of Natural Resources – (330) 865-8046  
Metroparks Serving Summit County  
975 Treaty Line Road  
Akron, Ohio 44313

## **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**

Gene Huntington, Park & Farm Manager – (908) 243-3645  
Duke Farms  
80 Route 206 South  
Hillsborough, NJ 08844

## **Fertility Control Research**

### **Cleveland Metroparks, Cleveland, Ohio**

Thomas Stanley, Chief of Natural Resources - 440-829-5643  
Cleveland Metroparks  
4101 Fulton Parkway  
Cleveland, OH 44144

### **Duke Farms Foundation, Hillsborough, New Jersey**

Gene Huntington, Park & Farm Manager – (908) 243-3645  
Duke Farms  
80 Route 206 South  
Hillsborough, NJ 08844

### **Giralda Farms, Madison, New Jersey**

Lorraine Suarez, Vice-President-General Manager – (973) 635-0303 ext 105  
GRC Management Corp.  
14 Fairmount Ave.  
Chatham, NJ 07928

### **Princeton Township, New Jersey**

Mayor Phyllis Marchand - (609) 924-5176  
Municipal Complex  
400 Witherspoon Street  
Princeton, NJ 08540



## **Capture Programs**

### **Bedford, New York**

Dr. Thomas Daniels - (914) 273-3078  
Louis Calder Ecology Center, Fordham University  
53 Whippoorwill Road  
Armonk, NY 10504

### **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

### **Carlisle, Massachusetts**

John E. McDonald, Jr., Ph.D. - (413) 253-8675  
Wildlife Research Specialist  
Division of Federal Aid  
US Fish & Wildlife Service--Region 5  
300 Westgate Center Drive  
Hadley, MA 01035

## **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

Dr. Harmon P. Weeks - (765) 494-3567  
1159 Forestry Building  
Purdue University  
West Lafayette, IN 47907

### **Point Reyes National Seashore – Fallow and Axis deer eradication**

Dr. Natalie B. Gates - (415) 464-5189  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, CA 94956

## **REDUCTION PROGRAM PRICING**

### **ORGANIZATIONAL PHASE - \$110.00/hour plus expenses**

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\*\* - \$110.00/hour plus expenses for Senior Scientist \$75.00/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 - \$110.00/hour plus expenses for Senior Scientist \$75.00/hour plus expenses for Technicians**

Removal effort, data collection, etc.  
Report writing

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

### **ADDITIONAL COSTS**

Court testimony - \$250.00/hour plus expenses  
Cost of delay (e.g., temporary injunctions, animal rights protests) – \$1000.00/day  
Early termination costs (covers time and expense to date of termination)

*(Fees charged are valid until 31 December 2010)*

## **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 and the cooperating state agency. Each site is selected based on safety concerns 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) All deer carcasses are transported and dressed with the highest degree of discretion;
- 7) 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.

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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 15 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 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 (>9000 deer) and capturing deer (>1000 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.

In conclusion, although safety is the primary issue to be considered when implementing a sharpshoot 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 7 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 BA from Colgate in Political Science and his JD from Quinnipiac School of Law. Gary also has obtained a 6<sup>th</sup> 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) 873-2782 Email: wbuffaloinc@aol.com

Dr. DeNicola is co-founder and President of White Buffalo, Incorporated. In 1988, Tony received a B.S. in Biology from Trinity College of Hartford, CT, and an 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 working with the Royal Government of Bhutan to establish a wild pig management program.

**Deborah Cuddy**

18 Maple Street, East Hampton, CT 06424

Phone: (860) 267-0753 Email: wbuffaloinc@aol.com

Co-founder and Secretary of White Buffalo, Inc., Ms. Cuddy has 10+ years of field experience managing and assisting in white-tailed deer research projects and reduction programs. In 1989, Deb received a BS in Environmental Studies from the University of Vermont with an emphasis in Land Use Planning and Law. She worked for the Chittenden County Regional Planning Commission in Vermont for 3 years before moving to Connecticut. Deb returned to Vermont to attend Vermont Law School and received a Masters in the Studies of Environmental Law in 1995. Since the organization's inception, Deb has been involved in the day-to-day office and field operations.

## Landowner Consent Agreement

This Agreement is made by and between \_\_\_\_\_,  
whose address is \_\_\_\_\_, hereinafter  
referred to as "Landowner", and White Buffalo, Inc., a Connecticut nonprofit corporation with its  
principal place of business at 26 Davison Road, Moodus, Connecticut 06469, hereinafter referred  
to as "Provider".

Subject to all of the terms and conditions of that certain Agreement between Provider and  
the City of Iowa City, Iowa dated \_\_\_\_\_ and the specific conditions  
outlined below, Landowner hereby gives its permission for Provider to place bait and remove  
deer on its property from January 1, 2010 through March 31, 2010.

### Specific Conditions

1. Services as described in said \_\_\_\_\_ Agreement between  
Provider and the City will be carried out on Landowner's property designated as Block \_\_, Lot\_\_\_\_  
on the Iowa City tax map, and also known as \_\_\_\_\_ (the "Property"), within  
the areas described as follows: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. The dates and times of these services will be determined in consultation with  
Landowner in advance.

3. Provider will use said property for the purposes of baiting and culling deer.

4. Provider agrees to indemnify, defend and save Landowner and its officers,  
employees, and agents forever harmless from and against and to promptly make payment for any  
and all losses, damages, expenses (including, without limitation, court costs, amounts paid in  
settlement, judgments, reasonable attorneys fees or other expenses for investigating and  
defending including without limitation, those arising out of the enforcement of this  
Agreement), suits, actions, claims, deficiencies, liabilities or obligations sustained or incurred by  
Landowner as a result of Provider's performance of the services described herein, except for those  
sustained or incurred based on allegations the services provided herein are unauthorized or illegal.

5. Provider shall furnish Landowner with a Certificate of Insurance evidencing the  
coverage required under its Agreement with the City.

## LANDOWNER AUTHORIZATION FORM

I, \_\_\_\_\_, represent that I own the property located at \_\_\_\_\_ ("the Property"). I hereby give permission to White Buffalo, Inc., by and through Dr. Anthony J. DeNicola, or his designee, to place bait and sharpshoot deer on my Property.

I understand that Dr. DeNicola will explain the baiting process to me and answer any questions that I may have in reference to the removal of deer from the bait site located on my Property. I further represent that the dates(s) and time(s) of such baiting and removal activities will be discussed with and agreed to by me in advance.

I further understand that no liability will be incurred by me as a cooperating landowner, as a result of the activities of White Buffalo, Inc. on my Property, and that any and all such liability will be the sole responsibility of White Buffalo, Inc., who will protect me from such liability.

\_\_\_\_\_  
LANDOWNER SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
LANDOWNER SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
LANDOWNER ADDRESS

\_\_\_\_\_  
PHONE NUMBER

\_\_\_\_\_  
Anthony J. DeNicola  
WHITE BUFFALO, INC.

\_\_\_\_\_  
DATE