EXHIBIT 15

DEER POPULATION SURVEY PROPOSALS 2008

Deer Density Survey

Proposals to provide deer density surveys were solicited from seven qualified service providers, and responses were received from Micro Management Resource Consultants, LLC, from Wellsboro, PA, Eccologix Biodiversity Consulting Group from Bedminister, PA, and Vision Air, Boise, Idaho. Micro Management submitted two proposals, one using the same Forward Looking Infrared (FLIR) technique utilized by USDA Wildlife Services in 2006, and an infrared-triggered remote camera survey method. Micro Management also included an option to use in-house personnel to bait the camera locations and check the cameras. Eccologix proposal includes the FLIR technique, and both firms will provide for four (4) distinct and separate survey events. The surveys will be conducted between mid-October and mid-November 2008, and a final report will be issued to the Commission by November 19th and the contractor will discuss findings with the Commission during the Discussion Session on November 24th 2008.

Firm	Survey Method	Cost
Micro Management	Baited Camera Survey	$16,575
Micro Management	Baited Camera Survey*	$9,903
Micro Management	FLIR Survey	$7,398
Eccologix	FLIR Survey	$8,984
Vision Air	Airborne FLIR	$5,406

*Municipality would furnish technicians to bait sites and check cameras.

Proposals Were Sent To:

1. Micro Management
2. Eccologix
3. Dropia Wildlife
4. Airscan
5. Microflight
6. Vision Air
7. Wildlife Specialists

Tom Kelley

From: Tom Kelley
Sent: Friday, September 26, 2008 4:05 PM
To: [redacted]
Cc: [redacted]
Subject: FW: Request for Proposal
Attachments: deer survey 2006 USDA.pdf; Deer Management Plan 012007.pdf; Annual Report for 2007.pdf; USDA Report for 2008.pdf

You are respectfully requested to submit a proposal to the Municipality of Mt. Lebanon for the following professional service:

Whitetail Deer Population Density Survey

Proposals may be faxed to: **Municipality of Mt. Lebanon**
Attention Tom Kelley
412-343-3753, or
E-mailed to: tkelley@mtlebanon.org

Mailing Address: Municipality of Mt. Lebanon
710 Washington Rd.
Pittsburgh, PA 15228

Deadline: Proposals should be submitted before 4:30 P.M., on October 7th 2008

Questions: Tom Kelley, Director Public Works
Municipality of Mt. Lebanon
710 Washington Rd.
Pittsburgh, PA 15228
412-343-3869
tkelley@mtlebanon.org

Background:
The Municipality of Mt. Lebanon is a suburban community located six miles southwest of the City of Pittsburgh. Mt. Lebanon has several commercial areas including the central business district, two smaller business districts, some unique commercial pockets and a specialty mall. Mt. Lebanon is spread across more than six square miles of Western Pennsylvania hills. Of the six square miles of land area, 63% or 3.8 square miles are classified as residential; the remaining 37% is comprised of commercial, recreational, community facilities, transportation or vacant land. Single family dwelling comprise 91% of the residential land use category. Mt. Lebanon has eighteen distinctive neighborhoods offering houses in a variety of architectural styles and prices ranges. The average household size is 2.37 and the community is made up of 14,089 housing units of which 75.3% is owner occupied. Although the municipality has a high majority of owner occupied housing, rental units are available as well. The 2000 census indicates that the municipality's population is 33,017.

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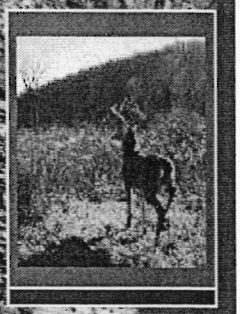
Deer Management and Surveys



Custom Deer Surveys
We can tailor a custom deer survey to meet your needs using the most appropriate technology.

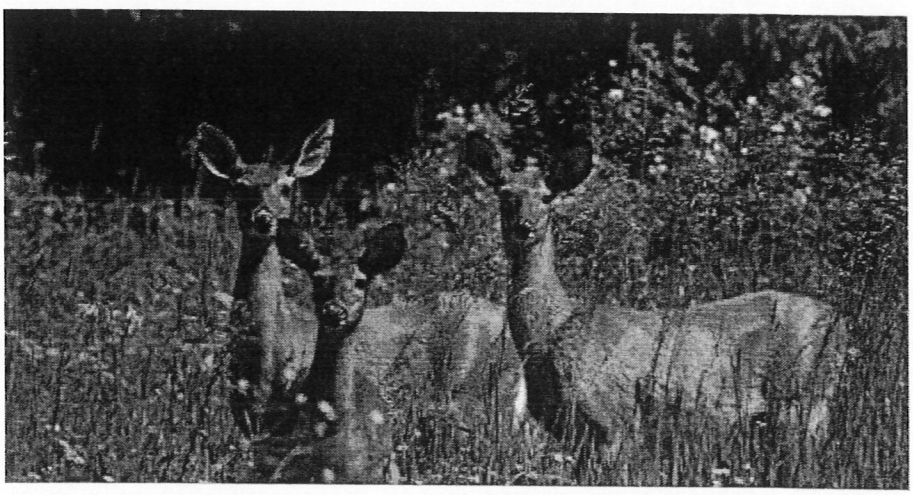
Full Spectrum Deer Management Services

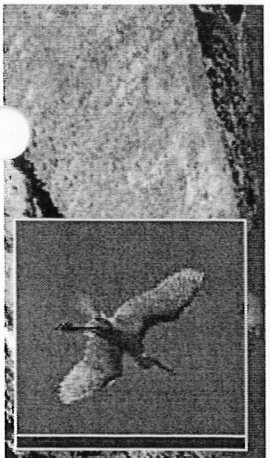
Custom deer management is designed specifically to meet the project goals, whether the client is an individual landowner or a community. We can help select and conduct the appropriate surveys, generate GIS maps, hold public meetings, design habitat enhancements, assess management options, and develop site-specific plans. Our recommendations are based on the principles of Quality Deer Management.

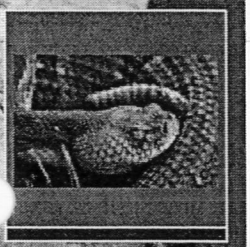
We have coordinated some of the largest-scale surveys in the history of deer and habitat management. Specifically, we've designed and implemented aerial FLIR surveys and habitat browsing surveys. Our experts actually developed the protocols considered the state-of-the-art today in deer density estimation by the pellet group technique and in habitat browsing and regeneration surveys. We've also coauthored numerous reports and publications on the subject.

Some of the techniques we use:

- Aerial surveys for deer using daytime or infrared technologies
- Baited Camera Surveys
- Distance Sampling (Spotlight or Daylight)
- Pellet Group Surveys
- Browsing and Habitat Surveys
- Deer Condition Assessment from Check Stations
- Deer Aging







Timber Rattlesnake
The rattlesnake is one example of a sensitive species throughout much of the eastern United States.

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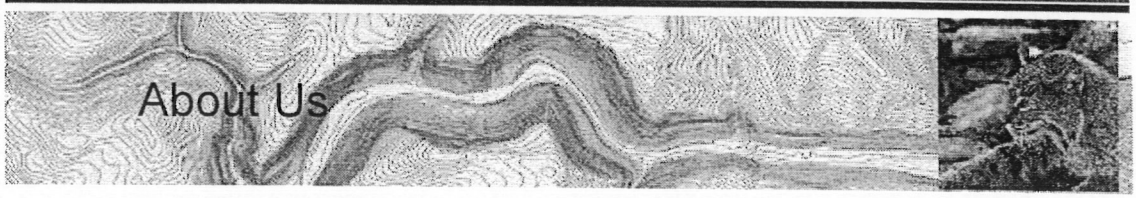


Our Expertise

Deer Management and Planning

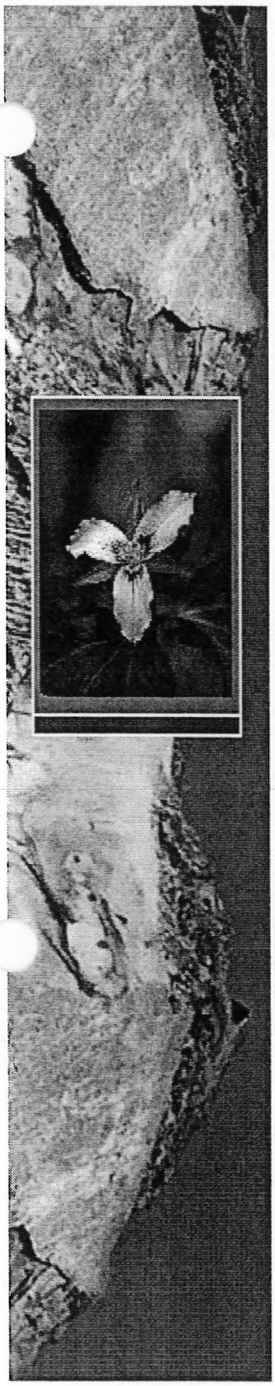
We have been highly involved in deer management for 15 years, with experience ranging from scientific studies to on-the-ground management. We have designed and coordinated statewide deer habitat monitoring systems, a multi-year large-scale FLIR deer survey, and localized management systems.

Sensitive Species Surveys

We have designed and coordinated large studies to survey species of birds, reptiles, amphibians, fish, and mammals, including specific research focused on bats and timber rattlesnakes.

General Wildlife Consulting

Our wildlife expertise also includes extensive land management planning and inventory work in forested ecosystems. This involved development of management guidelines to ensure the principles of wildlife stewardship were being followed.



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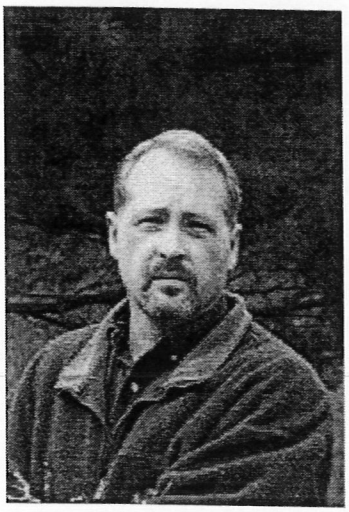
Our Experts

J. Merlin Benner



Merlin Benner has a broad range of experience as a professional wildlife biologist, both in research, management, and instruction. He received his Bachelor's degree from Unity College in Maine, and his Master's from Tennessee Technological University. Merlin has worked for Tennessee State Parks, Pennsylvania Game Commission, the Pennsylvania Department of Conservation and Natural Resources, and the Savannah River Ecology Laboratory. Animals he worked with include deer, elk, turkeys, bats, alligators, feral pigs, turtles, bass, waterfowl, raccoons, rattlesnakes, herps, and songbirds. His primary expertise is in the relationships between wildlife and their habitats. Other interests include photography and writing.

Publications

Latham, R. E., J. Beyea, M. Benner, C. A. Dunn, M. A. Fajvan, R. R. Freed, M. Grund, S. B. Horsley, A.
F. Rhoads, and B. P. Shissler. 2005. Managing deer from an ecosystem perspective: Pennsylvania case study. Report by the Deer Management Forum for Audubon Pennsylvania and Pennsylvania Habitat Alliance, Harrisburg, Pennsylvania.

Brisbin, I. L., Jr., J. M. Benner, L. A. Brandt, R. A. Kennamer, and T. M. Murphy. 1992. Long-term population studies of American alligators inhabiting a reservoir: initial responses to water level drawdown. Proceedings of the 11th Working Meeting of the IUCN/SSC Crocodilian Specialist Group.

McGuiness, J. H., J. M. Benner, and W. P. Smith. 1990. Survival and nesting success of late winter wild turkey introductions. Proceedings of the Southeastern Association of Fish and Wildlife Agencies, 44:171-181.

Benner, J. M., and W. P. Smith. 1989. Comparative survival and reproductive ecology of resident and introduced eastern wild turkey on Natchez Trace Wildlife Management Area, Tennessee. Tennessee Wildlife Resources Agency Technical Report 89-8, 31 pp.

Smith, W.P.; Benner, J. Merlin; Endres, Keith M.; Borden, Diane L. 1989. Use of geographic information systems in determining movement patterns and home range of terrestrial vertebrates. Bull. Ecol. Soc. Am. 70(2): 269.

Smith, W. P., J. M. Benner, D. Borden, A. Bailey, Y. Robinet-Clark, and K. M. Endres. 1989. Evaluating a three-dimensional world with two dimensions: how much difference can it make? Proceedings International Symposium on Biotelemetry, 10:679-684.

Benner, J. M., and R. T. Bowyer. 1988. Selection of trees for rubs by white-tailed deer in Maine. J. Mammal. 69(3):624-627.

Christina S. Voorhees

Christina Voorhees has strong experience in the fields of wildlife management, human dimensions of natural resources, and recreation management. She received her Bachelor's degree in Wildlife Science from Virginia Tech, her Master's in Forest Resources from Penn State, and her PhD in Recreation, Park, and Tourism Management from Penn State. Her education and professional experience has focused on both biological and social research associated with game species and hunting. Christina has worked for the Pennsylvania Department of Conservation and Natural Resources, Penn State University, and Devine, Tarbell, & Associates. Wildlife she worked with include deer, elk, bats, and herps. Her primary expertise is the social aspects of natural resource management. Other professional and personal interests include writing and nature tourism.

Publications

Voorhees, C. S. (2007). A mixed-method examination of factors related to hunting participation. Dissertation, The Pennsylvania State University, University Park PA.

Voorhees, C. S. (2002). An Assessment of Landowner Attitudes Toward Deer in Milford, Pennsylvania. Unpublished master's thesis. The Pennsylvania State University, University Park PA.

Wickham, T., Mueller, T. Karnash, P., Zinn, H., and Voorhees, C. 2005. The Future of Hunting in Pennsylvania: Final Report. Center for Rural Pennsylvania.

Zinn, H.C., Voorhees, C.S., & Shen, S.X. Social assessment for the Allegheny National Forest. USDA Forest Service Project Report, Allegheny National Forest. University Park, PA: The Pennsylvania State University, Department of Recreation, Park & Tourism Management.

James A. Hart

James Hart is a highly-qualified field and museum mammalogist. He is involved in several statewide and international committees in the field of mammalogy. Jim's work experience includes time with the Pennsylvania Natural Heritage Program, the Western Pennsylvania Conservancy, the Nature Conservancy, the Pennsylvania Game Commission, the Pennsylvania State Museum, the Shippensburg University Vertebrate Museum, and as an independent consultant to FUNDAECO (Guatemala). He's most known for his bat expertise, including Indiana Bats, but Jim is equally adept at the field and museum identification and handling of all small mammals of northeastern North America.

Publications

James A. Hart, Thomas Wampler, Philip Krutzsch. A recent occurrence of the Seminole bat (Lasiurus seminolus) in Pennsylvania with notes on a previously unreported record for the Virginia big-eared bat (Corynorhinus townsendii virginianus). Bat Research News. (In Prep)

Sorex palustris albibarbis, S. p. punctulatus, S. dispar, Cryptotis parva and Microtus chrotorrhinus species accounts for "The vertebrate species of special concern in Pennsylvania" (Currently under review for publication in 2009)

James A. Hart and Dr. Walter Meshaka. Curator of the State Museum of Pennsylvania. A Manual of

Procedures and Techniques for the Preparation and Installation of Vertebrate Specimens. (In prep. For the State Museum of PA).

Calvin Butchkoski, James A. Hart and Jerry Hassinger. An update on the status and conservation of Pennsylvania's cave-dwelling bats. (In prep.).

James A. Hart, Timothy McCarthy. Analysis of barn owl (Tyto alba) pellets from the island of Dominica. (In prep.)

Gordon L. Kirkland, Jr., and James A. Hart. 1999. Recent distributional records for ten species of small mammals in Pennsylvania. The Northeastern Naturalist 6:1-18.

Felbaum, F., B. Mitchell, K. McKenna, J. Hassinger, A. Shiels, J. Hart, and D. Brauning. 1995. Endangered and Threatened Species of Pennsylvania. Wild Resource Conservation Fund, Harrisburg, PA. 80 pp.

James A. Hart, G.L. Kirkland, Jr., and S.C. Grossman. 1993. Relative abundance and habitat use by tree bats, Lasiurus spp., in Southcentral Pennsylvania. Canadian Field Naturalist, 107 (2):208-212.

micro Management
Resource Consultants

Municipality of Mount Lebanon
710 Washington Road
Pittsburgh, PA 15228
Phone (412) 343-3869

eccologix

BIODIVERSITY CONSULTING GROUP

September 30, 2008

Introduction

This Statement of Work (SOW) outlines a proposal between Eccologix (Contractor) and the Township of Mount Lebanon (Municipality), to determine the density of White-Tailed Deer via a predetermined methodology published by James Knoll, PhD. in 1992.

Background

In accordance with "A Review of White-Tailed Deer Management Options and Recommendations for Long-Term Population Control" (DMP), Eccologix will assist the Municipality with conducting a scheduled deer density survey to "measure the success of current management strategies and make adjustments where necessary."

Objectives

- Determine deer density estimates via a series of methodic surveys.
- Prepare all reports.
- Present findings.

Provider and Client

Eccologix, LLC

PO Box 6
Bedminster, PA 18910

215-723-8000

contact@eccologix.com
eccologix.com

Provider Contacts

Wildlife Management Director
Jody Maddock
E-mail: jody@eccologix.com
Voice: 267-446-0191

Project Manager
Glen Campbell
E-mail: glen@eccologix.com
Voice: 267-221-4497

Municipality of Mount Lebanon

710 Washington Road
Pittsburgh, PA 15228

Phone (412) 343-3869
Fax (412) 343-3753

Client Contacts

Municipal Manager
Steve Feller
E-mail: sfeller@mtlebanon.org
Voice: 412-343-3620

Director of Public Works
Tom Kelley
E-mail: tkelley@mtlebanon.org.org
Voice: 412-343-3753

Project Description and Scope

The Contractor agrees to utilize a combination of Thermography and Passive Infrared Enhanced Night Vision to locate and identify an estimated population of White-Tailed Deer within the limits of the Municipality. The methodology requires a systematic pattern of travel on a pre-determined route encompassing a representative sample of the entire habitat available to the resident deer herd. The Contactor shall provide experienced technicians to make observations and record data. Technicians utilize a consistent and scientifically acceptable format and make every effort to identify and estimate the quantity, age classification, and sex of each deer observed during the survey event for calculations executed by a certified Wildlife Biologist. The Contractor will provide the Municipality with a survey route prior to commencing any survey events. The survey route shall encompass a representative sample of habitat; however every effort should be made to avoid repetition of any previous survey events conducted prior to this current survey window to ensure randomness. The Municipality shall work closely with the Contractor to identify appropriate roadways and pertinent information related to artificially high deer population observations in order to reduce the possibility of contaminating the results of the survey events.

The Contractor shall execute four (4) distinct and separate survey events. The survey events shall commence when the deciduous trees have released the majority of leaves. The Municipality shall provide pertinent weather observations to the Contractor prior to the commencement of any survey events to avoid conditions that may affect the collection of qualitative data and promote delays in data collection. The Municipality shall be responsible for providing the Contractor with any intelligence that may affect the safety and security of the technicians at any time during the survey events.

The Contractor shall provide the Municipality with updates during the survey events by oral or written communications. The Contractor shall commence survey events when the survey route traffic patterns have been observed to permit a survey vehicle to operate at an optimal sample speed not to exceed ten (10) miles per hour. The survey vehicle(s) shall be identified by a magnetic sign and the physical description and all insurance and registration information and occupant identification shall be provided to the Municipality prior to commencement of survey events. The survey vehicle shall

follow predetermined survey protocol determined by the Contractor in order to obtain the necessary data to perform the density calculations.

The Contractor shall provide the Municipality with a professionally prepared report no later than November 19, 2008, indicating the estimated number of adult males, adult females, juvenile deer and the projected fawn crop.

The Contractor shall provide a qualified representative(s) at a discussion session of the Mount Lebanon Commission on November 24, 2008 to qualify any statistical information or inquiries related to the findings of the survey events or the report.

Itemized Costs

Staffing Costs

Item	Staff	Frequency	Hours	Total
Technicians	3	4 Survey Events	96	$ 5,760
Biologist	1	1 Data Analysis	20	$ 1,500
Total	4	5	116	$ 7,260

Transportation Costs

Item	Visits	Travel Cost	Vehicles	Total
Air Transportation	3	$ 2,250	N/A	$ 2,250
Vehicle Rental	2	$ 380	1	$ 380
Total	5	$ 2,630	1	$ 2,630

Miscellaneous Costs

Item	Staff	Frequency	Cost	Total
Lodging (Deer Surveys)	3	4 Nights/2 Rooms	$ 120/room	$ 960
Meals Surveys	3	4 Visits	$16/meal L,D*	$ 384
Printing	N/A	As Designated	$ 250	$ 250
Total	6	N/A	N/A	$ 1,594

* L, D: *Denotes Lunch and Dinner Meals.*

Total: $ 11,484
$ 2,500
$ 8,984

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

micro Management
Resource Consultants

Proposal to Conduct a Deer Density Survey for the Municipality of Mount Lebanon

Micro Management Resource Consultants, LLC

Baited Survey 16,575

20 day survey

22 sites

Camera Information

Introduction:

The white-tailed deer is a highly adaptable animal that has successfully adjusted to living in the suburban habitats also occupied by large numbers of people. In this situation, they often create negative interactions with the people by browsing on landscape and garden plants and the overbrowsing of native habitats, through collisions with automobiles, and by increasing the incidence of Lyme disease. In 2005 many residents approached the Mt. Lebanon Municipal Commission with complaints about the growing deer population in their community. Mt. Lebanon has, as a result, decided to take steps to mitigate this issue.

The Municipality of Mt. Lebanon has been managing the white-tailed deer population within its boundaries for the past two years. Through consultation with the USDA Wildlife Services staff, deer density surveys were conducted from May through June of 2006. A Deer Management Plan was completed for the municipality. Mt. Lebanon entered into two Cooperative Service Agreements with Wildlife Services since 2006, and a Pennsylvania Game Commission Political Subdivision Permit to shoot deer was issued. Wildlife Services culled 69 and 146 deer in the 2006-7 and 2007-8 seasons, respectively.

The Municipal Commission of Mt. Lebanon has recently indicated that they would like another, third party, deer density survey to be completed before authorizing the USDA Wildlife Services to proceed with further deer culling within the municipality. They are requesting that this survey work be completed within the mid-October through mid-November 2008 timeframe.

Survey Area:

The Municipality of Mt. Lebanon is more than six square miles (about 3,890 acres) of suburban community located six miles southwest of the City of Pittsburgh. Of the six square miles of land area, 63% or 3.8 square miles are classified as residential; the remaining 37% is comprised of commercial, recreational, community facilities, transportation or vacant land. According to the 2000 census, the community is made up of 14,089 housing units with a population of 33,017 people. Throughout much of Mt. Lebanon, the houses are separated by strips of forest or brushland. The municipality has almost 200 acres of parks in 15 parks and numerous parklets ranging from 51 acres down, plus a 95 acre municipal golf course. Mt. Lebanon has several commercial areas including the central business district, two smaller business districts, some unique commercial pockets and a specialty mall.

Survey Methodology:

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

This proposal is to conduct a baited camera deer density survey to compare to the original methodology used by USDA Wildlife Services in their 2006 effort. The timing of this survey, from mid-October through mid-November 2008, is within a different season of the year and will not be directly comparable to the prior effort in all aspects as a result. Also, this survey methodology is more likely to detect larger sample sizes of deer and thereby provide a more reliable estimate of the deer density of Mt. Lebanon.

We propose to sample the area using infrared-triggered remote cameras at a minimum of 15 baited locations. The actual locations will be selected from the 22 locations shown in Figure 1.

Figure 1. Proposed Baited Camera Locations for Mt. Lebanon Deer Density Survey

At each bait location, a bait pile will be established using shelled corn for 10 days prior to camera installation. Bait will be refreshed on days 3, 6, and 10. On day 10, a camera will be installed at each site to record the deer use of the bait pile for the following 10 days. Cameras will be checked and bait refreshed on days 13, 16, and 20, at which time the cameras will be removed for analysis of the imagery.

Digital photographs from the cameras will be analyzed to determine the number of resightings of unique deer, from which a sightability index will be calculated. This will be applied to the total number of deer sightings to establish an estimate of the total deer population of the area.

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

The proposed camera locations were established in areas of potential deer habitat to ensure good coverage of the entire area, taking into account probable deer movements within the area. It should be noted that the mid-October to mid-November timeframe proposed is not optimum for a survey, since this is the peak of the breeding season and deer movements are at their highest level during this timeframe. For a more reliable survey, the end of August or the middle of December would be better. We still believe, however, that this survey method will produce a more reliable estimate of deer density than the vehicular-based distance sampling that was conducted in the past for Mt. Lebanon.

A $125 fee will be charged to replace stolen or vandalized cameras.

Tentative Work Schedule:

Field work on this survey would be completed in the mid-October to mid-November 2008 timeframe as required by the Municipality of Mt. Lebanon. A Final Report would be written and forwarded to the Municipal Commission by November 19, 2008. We will be prepared to present our findings at a Discussion Session of the Mt. Lebanon Commission on Monday evening, November 24, 2008.

Final Report Format (Draft):

The Final Report will include the following components: Introduction, Survey Area, Methodology, Results, and Discussion. GIS maps of the camera locations and deer observations will be included in the results section of the report. Tables showing the raw data will be included. A digital copy of all photos will be submitted for verification purposes.

Costs:

Option 1 – Micro Management Staff Conduct Entire Survey

Field Surveys

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

Biologist Daily Rate - 2 days @ $1,000/day		$2,000.00
Technician Daily Rate – 7 days @ $500/day		$3,500.00
Travel to/from Mt. Lebanon (4 trips - 230 miles each way)		
1840 miles @ $0.60/mile		$1,104.00
Travel while maintaining survey sites - 200 miles @ $0.60/mile	$120.00	
Per diem – 22 days @ $150/day		$3,300.00
Camera setup – 15 sites @ $100/site		$1,500.00
Bait – 15 sites @ $75/site		$1,125.00
Analysis & Report Writing	$2,500.00	
Presentation to Municipal Commission at Discussion Session		
Biologist Rate		$1,000.00
Travel to/from Mt. Lebanon (230 miles each way) 460 miles @ $0.60/mile	$276.00	
Per diem – 1 days @ $150/day		$150.00
Total Cost		$16,575.00

Option 2 – Municipality Furnish Technician to Bait Sites and Check Cameras

Field Surveys		
Biologist Daily Rate - 2 days @ $1,000/day		$2,000.00
Technician Daily Rate – 1 day @ $500/day		$500.00
Travel to/from Mt. Lebanon (2 trips - 230 miles each way)		
920 miles @ $0.60/mile		$552.00
Per diem – 2 days @ $150/day		$300.00
Camera setup – 15 sites @ $100/site		$1,500.00
Bait – 15 sites @ $75/site		$1,125.00
Analysis & Report Writing	$2,500.00	
Presentation to Municipal Commission at Discussion Session		
Biologist Rate		$1,000.00
Travel to/from Mt. Lebanon (230 miles each way) 460 miles @ $0.60/mile	$276.00	
Per diem – 1 days @ $150/day		$150.00
Total Cost		$9,903.00

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micro Management
Resource Consultants

Proposal to Conduct a Deer Density Survey for the Municipality of Mount Lebanon

Micro Management Resource Consultants, LLC Ground FLIR
4 Survey Events

Introduction: Report - Discussion Session $7,398

The white-tailed deer is a highly adaptable animal that has successfully adjusted to living in the suburban habitats also occupied by large numbers of people. In this situation, they often create negative interactions with the people by browsing on landscape and garden plants and the overbrowsing of native habitats, through collisions with automobiles, and by increasing the incidence of Lyme disease. In 2005 many residents approached the Mt. Lebanon Municipal Commission with complaints about the growing deer population in their community. Mt. Lebanon has, as a result, decided to take steps to mitigate this issue.

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Survey Methodology:

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

This proposal is to conduct a distance-sampling visual survey of deer density designed to replicate the original methodology used by USDA Wildlife Services in their 2006 effort. The timing of this survey, from mid-October through mid-November 2008, is within a different season of the year and will not be directly comparable to the prior effort in all aspects as a result.

We propose to conduct four different sampling forays by vehicle along the roads of Mt. Lebanon within the time period. All sampling will be conducted between the hours of 2100 and 0500, during times when the prevailing wind speed was less than 15 mph. A vehicle driven at about 10 mph will transport the observer along the prescribed routes. We will systematically pick the random routes to ensure adequate coverage of the municipality. Observers will use a combination of infrared night-vision and spotlight technology to observe the deer during the sampling. For each route, total distance travelled will be recorded. At each deer sighting, the following data will be recorded: total number of deer in the group, age and sex composition, distance from the observer, habitat cover type, time, and GPS coordinates of the deer. Following this methodology, the total area surveyed is calculated and divided into the total number of deer observed to estimate the deer density.

Tentative Work Schedule:

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Final Report Format (Draft):

The Final Report will include the following components: Introduction, Survey Area, Methodology, Results, and Discussion. GIS maps of the survey routes and deer observations will be included in the results section of the report. Tables showing the raw data will be included.

Costs:

Field Surveys

2780 Hills Creek Rd
Wellsboro, PA 16901
570.376.2255
web: www.wildlife-specialists.com
email: info@wildlife-specialists.com

Biologist Daily Rate - 4 days @ $1,000/day		$4,000.00	
Travel to/from Mt. Lebanon (230 miles each way) 460 miles @ $0.60/mile	$276.00		
Travel while conducting surveys - 160 miles @ $0.60/mile		$96.00	
Per diem – 4 days @ $150/day			$600.00
Analysis & Report Writing	$1,500.00		
Presentation to Municipal Commission at Discussion Session			
Biologist Rate			$500.00
Travel to/from Mt. Lebanon (230 miles each way) 460 miles @ $0.60/mile	$276.00		
Per diem – 1 days @ $150/day			$150.00
Total Cost			$7,398.00

Infrared Deer Survey

Municipality of Mount Lebanon

Pittsburg, PA

Submitted to:

Tom Kelley, Director of Public Works
Municipality of Mt. Lebanon
710 Washington Rd.
Pittsburgh, PA 15228

Submitted by:

Susan Bernatas
Certified Wildlife Biologist
Vision Air Research, Inc.
904 East Washington St.
Boise, Idaho 83712
208-841-9566
www.visionairresearch.com

October 27, 2008

Infrared Wildlife Survey

Vision Air Research, Inc was founded to specialize in wildlife surveys using airborne infrared sensor or forward-looking infrared (FLIR). Vision Air Research's mission is to provide economical and high-quality, reliable natural resources data collection and analysis. We bring professional team of resource specialists, thermographers, GIS, pilots, and aviation support staff to serve your project needs. We understand that successful data collection requires professional support as well as capable technicians and high performance equipment.

Our staff has experience conducting aerial infrared surveys on a range of species including moose, elk, white-tailed deer, mule deer, bighorn sheep, pronghorn antelope, burros, wild horses, black bears, polar bear maternal dens, sage grouse, turkeys, coyotes, mountain lions, and domestic livestock. Habitats or cover types include mixed hardwoods and coniferous forests, mixed hardwoods, western mixed coniferous forests, sagebrush grasslands, and agricultural lands. We have conducted surveys both day and night and from the North Slope of Alaska in winter to the Sonoran Desert of Arizona in the summer.

The key personnel have conducted extensive peer reviewed research on detection and sightability modeling using infrared for wildlife surveys. Survey are conducted by Certified Wildlife Biologist with over 20 years of experience in conducting natural resources surveys including over eight years of hands on experience using FLIR for wildlife surveys and training in thermography. We provide accurate, precise, and unbiased data collection for reliable, replicable wildlife population estimates.

QUALIFICATIONS

Our staff has over 20 years of experience conducting natural resources surveys and over 15 years of conducting aerial wildlife surveys across North America. The pilots and airplanes are FAA Certified. All crew members have experience conducting day and night IR surveys for wildlife in very cold and very hot temperatures in a range of terrain and airspace issues.

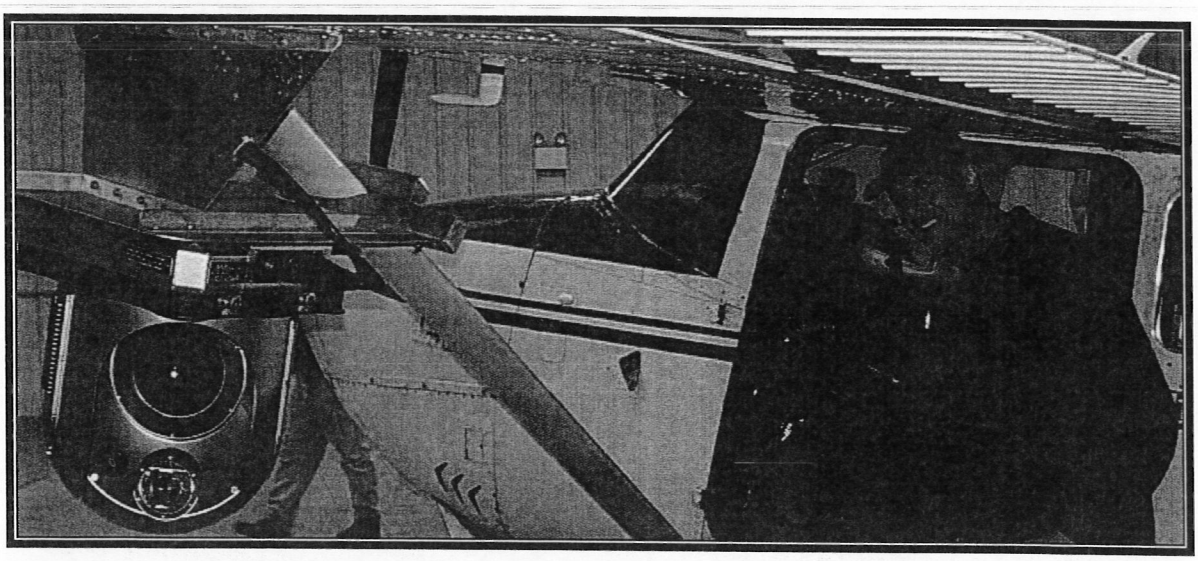
Vision Air Research was founded in 2000 to conduct FLIR surveys for wildlife. Our Certified Wildlife Biologist has conducted research on the use of FLIR for wildlife surveys since 1995 and has over 20 years of experience in biological surveys and an MS in Forest Resources.

STAFF – Our staff has conducted extensive research on the detection and sightability modeling using aerial infrared for wildlife surveys since 1995. We have conducted aerial infrared deer surveys across the United States. We have conducted aerial infrared wildlife surveys for the US Fish and Wildlife Service, Army, Air Force, National Guard,

universities, numerous state wildlife agencies, counties, and municipalities. Vision Air Research is committed to client satisfaction with personnel who are highly qualified in all facets required to conduct the survey and analysis including aviation, aerial infrared, wildlife surveys, analysis and mapping. We will bring equipment and personnel to meet the project requirements. We provide expertise to provide high quality products on schedule and at reasonable rates. The core team for this project includes a pilot and Certified Wildlife Biologist / Thermography. A GIS Analysis is on staff and available as needed.

PILOT – Vision Air Research, Inc pilots are certified by the FAA with extensive experience in aerial infrared wildlife surveys. Morgan "Charlie" Gay serves as Director of Operations and Maintenance for Vision Air Research (Figure 1). He and his family own and operate Skyhaven Airport in Tunkhannock, PA. Charlie has over 16 years of flying experience with over 3,000 hours of flight time and has experience maintaining and flying over 60 different types of aircraft. He is a Certified Airframe & Power mechanic with Inspection Authorization, Airline Transport Pilot with type rating in IAI 1124 Westwind business jet, Instrument instructor, Multi engine instructor, Commercial seaplane. He was Director of Maintenance and a pilot for K2 Aviation, Talkeetna, AK for 3 years before returning to Pennsylvania. Steve Gay, Pilot, has over 40 years in aviation with over 18,000 hours of flight time. Both Charlie and Steve have four years of experience of flying for Vision Air Research.

Figure 1. Vision Air Research's Director of Operations and Maintenance, Charlie Gay, checks out our Cessna 206 and FLIR installation.



CERTIFIED WILDLIFE BIOLOGIST/THERMOGRAPHER – The sensor will be operated by Susan Bernatas who has over ten years of experience in the development and testing the use of FLIR for wildlife surveys. She has conducted research on the detection rates using various flight parameters and has experience with IR surveys in a range of environments. Ms. Bernatas has peer reviewed papers on the use of FLIR for wildlife surveys including:

- O'Neil, T.A, P. Bettinger, B.G. Marcot, B.W. Luscombe, G.T. Koeln, H.J. Bruner, C. Barrett, J.A. Pollock, and S. Bernatas. 2005. Application of Spatial Technologies in Wildlife Biology. Pages 418 – 447. *in* C.E. Braun, editor.

Techniques for Wildlife Investigations and Management. Sixth Edition. The Wildlife Society, Bethesda, Maryland, USA. (Remote sensing of animals – Forward-looking Infrared (FLIR) 439 – 442.)

- Bernatas, S. and L. Nelson. 2004. Sightabilty model for California bighorn sheep in canyonlands using forward-looking infrared (FLIR), Wildlife Society Bulletin 32(3):638-647.

She has presented papers on the use of FLIR at wildlife conferences in Greece, France, China and across the US. Ms. Bernatas has provided instruction on the use of FLIR for wildlife surveys to a range of audiences, for example: US Fish and Wildlife Service, National Conservation Training Center's segment on FLIR for wildlife surveys within the New Technologies Course, 2003.

- The Wildlife Society's Annual Meeting, Calgary, 2004 and Anchorage 2006, Provided half day workshop on the use of FLIR for wildlife surveys at the Wildlife Society's Annual Meeting.

- Ontario Ministry of Natural Resources, Thunderbay, Ontario, November 2005, training session on the use of IR for aerial surveys for the MNR's aerial survey training session.

She has a M.S., is a Wildlife Society Certified Wildlife Biologist and has over 20 credits in statistics and attended the Level II Thermography course with the Infrared Training Institute, Sweden.

EQUIPMENT

The airplane, FLIR system, and sensor installation have been used for aerial infrared (FLIR) wildlife surveys 2002. We have a proven track record for deer survey across the US. We are able to fly at airspeeds to optimize the sensor for deer detection within the habitats and terrain found in PA. We have a proven track record conducting wildlife surveys using FLIR.

SENSOR – Vision Air Research, Inc staff has experience using a wide variety of long and short waves FLIR systems on both helicopter and fixed wing platforms for wildlife surveys. FLIR systems used include: Star SAFIRE, SAFIRE I, SAFIRE II, FLIR 2000, FLIR Mark 3, WesCam DS-16, PolyTech Kelvin 350 II, and other hand held systems.

Vision Air Research uses the PolyTech, Kelvin 350 II which includes the Thermovision 1000 infrared radiometer and a SONY video camera. This system is 4-axis gyro-stabilized and specially designed mount to maintain camera performance. We can collect IR and color video as well as extract still images from video. We can also capture frame by frame images at up to one frame per second, but are rarely needed for wildlife surveys. We have over four years of experience using the Kelvin 350 II with the Thermovision 1000 infrared sensor for wildlife surveys. This system performs well to distinguish wildlife with or without snow.

Our system and capabilities in using FLIR for wildlife surveys allows us to distinguish deer from other objects in the scene (Figure 2 & 3). This system was used in the test for

wildlife species as small as sage grouse (Vision Air Research, 2005, report on file at the Idaho Fish and Game, Nampa, ID).

Figure 2. The deer in the upper left hand corner of the left image are distinguished from rocks found in the right image. These images collected at night from 1,000 ft above ground level.

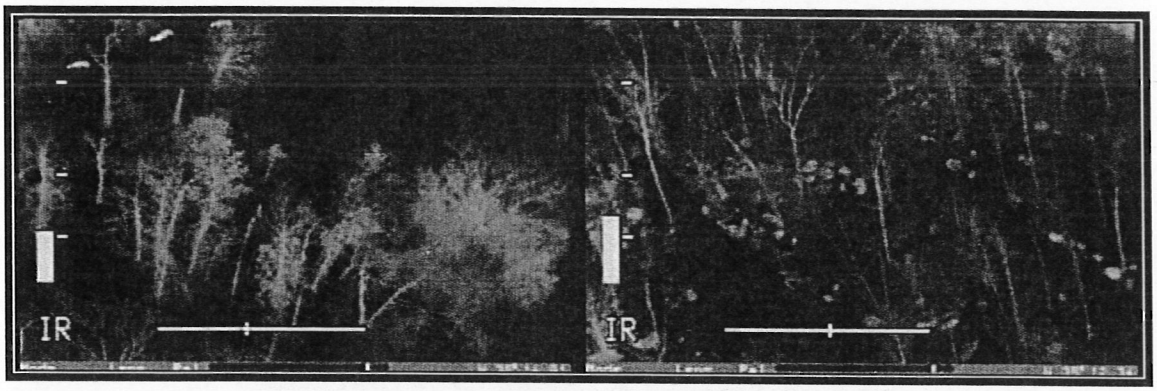
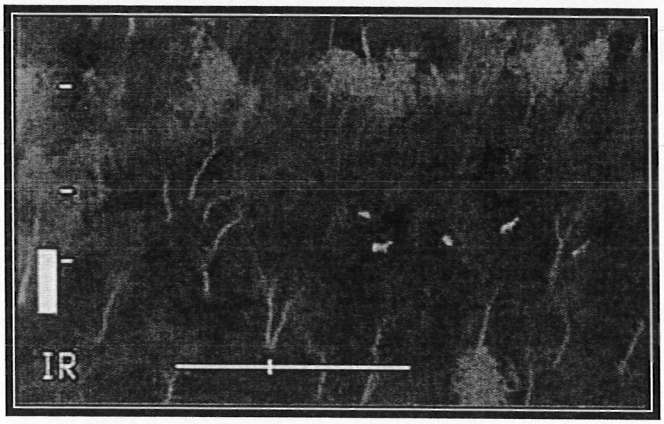


Figure 3. An example of 5 deer walking and feeding in a deciduous forest on Long Island, NY.



SCOPE OF WORK

Vision Air Research will provide all labor, materials and equipment to conduct an airborne infrared deer count for the Municipality of Mount Lebanon, Pittsburgh, PA. The perimeter of the Municipality will be squared off since transects are used to conduct the survey. All locations of white-tailed deer groups will be mapped and individuals counted.

WORK SCHEDULE

No restrictions in flight clearance are anticipated. Any delay once on-site including weather delays (i.e., wind, rain, or other unfavorable conditions for IR surveys), delays associated with airspace issues, delays associated for other reasons not related to Vision

Air Research staff or equipment will be billed using weather day rates provided in the cost estimate.

REPORTING RESULTS & DELIVERABLES

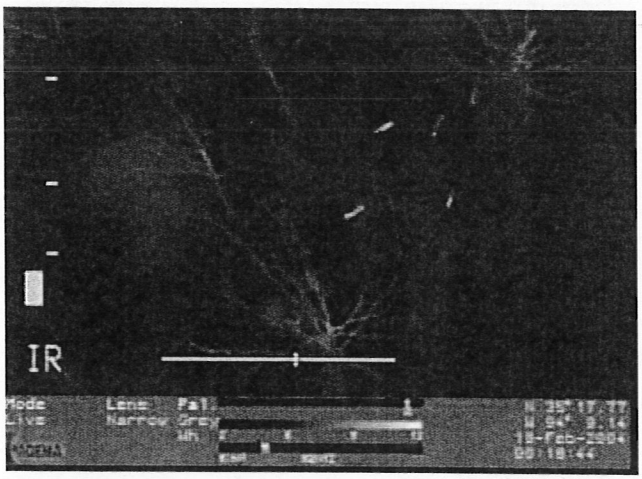
REPORT: A brief 2 – 3 page report will provide information on the weather conditions, methods, results, and detection rate by habitat. No management information will be provided. A literature review will not be provided. A final report only will be provided. The report will be provided in a pdf format.

SHAPEFILE: Vision Air Research will provide an ESRI shapefile for the deer groups with the number of deer in each group noted in a data field.

MAP: A simple dot map will be included in the report. The basemap layer will be an orthophoro quadrangle or topographic map base layer which ever is more current and available for free downloading. Only an electronic map will be provided in pdf format. The map can be printed on site at various sizes. We can provide a dot map for each deer or for each deer group. Please advise as to the desired format.

ALL DELIVERABLES WILL BE PROVIDED PER EMAIL ATTACHMENT.

REFERENCES



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Iowa Army Ammunition Plant

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Brookhaven National Laboratory
P.O. Box 5000 - Bldg. 120

SOSIA-IN-E
17571 State Highway 79
Middletown, Iowa 52638-5000

Upton, NY 11973
631-344-3091

Additional information can be found on the following web sites:

www.visionairresearch.com

http:// www.dncr.state.pa.us/forestry/deer/deersurvey.aspx

http://pacfwru.cas.psu.edu/reports/FLIR%20report.pdf

COST ASSUMPTIONS

This information is proprietary and not for release.

Deer Survey

	Rate	Unit	No. Units	
Flight time	$700.00	hr	3	$2,100.00
Ferry	$380.00	hr	4	$1,456.67
Report	$100.00	hr	12	$1,200.00
Mapping	$650.00	each	1	$650.00
				$5,406.67

This is a time and materials bid.

Results will be provided as follows:

◎ The data will be provided in the form a Map Export (an ESRI compatible shapefile) transmitted as an email attachment. The deer group location will be noted with a GP point location. Group size is noted in the data field. GIS support is not included.

◎ One report will be delivered within 30 days of survey completion via email and after the data collection invoice is processed. The report is brief (2 – 3 pages) with methods and results. Literature review and management recommendations will not be provided. No revisions will be provided.

Conditions:

◎ Data collection costs will be invoiced directly following the survey.

◎ The balance is due within 30 days of the delivery of the report. We will not commence data analysis until the invoice for data collection is processed.

◎ The Ferry and Flight Time rates are based on 100 LL fuel prices staying below $ 4.20 / gal. Any increase in 100LL fuel prices will results in a proportional increase in the form of a fuel charge.

◎ We require a signed contract and 30 days notice to schedule surveys. Surveys may be scheduled sooner based on availability and weather.

◎ The budget information is proprietary and not for release. Rates are valid for 30 days.

◎ Terms are net 30 days with 18% interest (1.5 % per month) for balance over 30 days.

◎ Vision Air Research is an Idaho Corporation and any conflicts resolution will be resolved in Idaho.

⊙ Vision Air Research can provide proof of insurance as needed. Additional insurance requirements will cost extra as needed.

- These rates are valid for 120 days.

Vision Air Research is a small, emerging, women-owned business founded to specialize in wildlife surveys using airborne infrared sensor or forward-looking infrared (FLIR). Vision Air Research is certified as a Disadvantage Business Enterprise under the U.S. Federal Highway Administration as administered by the Idaho Department of Transportation.