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May 2017

Deer Management

Recommended Actions for the
Town of Ithaca

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The Town of Ithaca Conservation Board
AD HOC COMMITTEE FOR DEER MANAGEMENT

This report is a working document used in assessing the feasibility of implementing a deer management program in the Town of Ithaca. This report may be cited as follows:

Town of Ithaca Conservation Board. (May, 2017). *Deer management: recommended actions for the Town of Ithaca*. Unpublished internal document.

Production note:

The Town of Ithaca Conservation Board would like to acknowledge Michael Roberts, Lindsay Dombroskie, Eva Hoffmann, Ellie Stewart, Sharon Tregasiks and Will Van Dyke for writing the *Deer Management Program: Recommended Actions for the Town of Ithaca*. The Conservation Board would also like to thank Drs. Paul Curtis and Bernd Blossey, Mayors Linda Woodard and Marty Petrovic, and Todd Bittner for the valuable insight into their programs and expertise. Thank you also to Mike Smith for his support. This report was prepared for the Town of Ithaca as per the mandate of the Conservation Board, and was overseen by Michael Roberts, Vice-chair of the Town of Ithaca Conservation, and Chair of the ad hoc Committee for Deer Management.

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Executive Summary

This report has been drafted at the request of the Town Board in 2014. The question then was: What would a deer management program in the Town of Ithaca look like? The Conservation Board has taken three years to draft a comprehensive report to meet their inquiry, and key recommendations are a synthesis of programs already underway in the villages of Trumansburg, Lansing, and Cayuga Heights, as well as Cornell University. Any lasting degree of effectiveness in deer management cannot be achieved unless townships in Tompkins County also adopt similar programs, as deer move freely across the landscape.

While the ecological impacts are significant and the main concern of the Conservation Board, the major driver for the development of this deer program will likely be a response to the risks to the safety and health of Ithaca residents. In Tompkins County, the incidence of Lyme disease has increased by 50% since 2011. Deer densities influence the reproductive success and dispersal of black-legged tick, which spreads the bacteria that causes Lyme Disease. In New York State, insurance companies pay \$200 million annually for deer-related motor vehicle claims. The persistently high deer population also translates into greater losses of crop yields and over-abundant deer forever alter natural landscapes by selectively eating native plants, leaving depauperated ecosystems over run with invasive species.

Key Findings

1. The Town needs to pursue responsible deer management to address a serious public health and safety concern, abate environmental damage, and alleviate economic burdens.
2. Deer overpopulation is a product of the ideal food and shelter offered by the urban and suburban landscape, inadequate predation pressure and protection from hunting in some areas.
3. Deer management efforts by adjacent municipalities and Cornell have made modest gains towards their goals, but are hampered by a lack of a broader management strategy for Tompkins County.
4. Deer management programs are safe, and support public health and the environment.

Key Recommendations

1. Form an official Town Sub-committee tasked to draft, implement, and administer a deer management plan that complements initiatives of adjacent municipalities.
2. Utilize DEC Deer Damage Permits to maximize impact of management activities in areas closed to hunting.
3. Amend town Code § 200-5E and move it to § 200-6, allowing management activities to take place on Town properties.

4. Measure impacts of deer, not deer population numbers, to assess effectiveness of the management program.
5. Coordinate efforts with adjacent municipalities, Cornell University, and Ithaca College to leverage resources.

It is important to have a firm grasp of the impact data associated with deer when making the decision whether to implement a management program. Reliable data will be needed for program justification. But even more important than these impacts are the inherent values that compel us to act. We want safe places for families to recreate and connect with nature. We want our children and grand-children to experience the same wonder that we did when we first entered a healthy forest and explored nature. We want safe highways to travel on, and thriving farms supporting our local economy. As Ithacans, we value our natural areas greatly. However, to pass down the same wonder and biodiversity we once found in our gorges, forests, and lakes, we need to provide responsible stewardship.

Note that throughout the report references to hunting and management are not references to the same activity. While hunting can be a form of management, management refers to deer reduction activities (e.g. archers shooting deer over corn bait) that are not a part of the regular hunting season. A similar distinction is made between hunters and participants, or archers. Individuals involved in deer management efforts as a part of a proposed deer management program administered by the Town of Ithaca are participants or archers: not hunters. Hunters hunt during the regular DEC-administered hunting season and are not a part of the program proposed in this report.

Relevant History and Justification of Management

The following facts provide a solid foundation on which to justify our recommendations. The impacts from deer overpopulation are everywhere we look: in the woods, farmer's fields, on our highways and our own yards. It affects the health of our families, our economy, and the environment. We suggest becoming conversant in these facts as you move to address the problem. But the most powerful case you can make to individuals who do not want to support a deer management plan is to appeal to their common values.

Health and Human Safety

In 2012, Tompkins County became a “sentinel” county for the New York State Department of Health (NYS DOH), and with it came new methods for reporting cases of Lyme disease. Previous methods for recording the incidence of the disease (pre-2012) were inconsistent, and are not included in this report. However, data obtained from 2012 onward shows a steeply-increasing trend in the incidence of Lyme disease. There are no higher-resolution data for the disease than at the county level. All data were gathered from the NYS DOH website (<https://www.health.ny.gov/statistics/diseases/communicable/>). These data do not include the unreported cases of Lyme disease, or even the potential cases treated prophylactically.

During 2008 and 2012, the Federal Center for Disease Control identified Tompkins County as a location of high-incidence for Lyme disease. This was based on higher than expected reported occurrences over the period observed (Kugeler, Farley, Forrester & Mead, 2015). For comparison, we've gathered data from three other counties that have similar human population densities as Tompkins County: Chemung, Oneida, and Ontario. Tompkins County exhibited a higher rate of Lyme disease incidence in comparison to the other counties (Figure 1).

There is another artifact of these data that must be understood. Confirmed cases are reported for a person's home address. Imagine a person who might have contracted Lyme disease in Tompkins County who has an out-of-county address (students, tourists, those with more than one home). Their illness would not be recorded as having occurred here. Again, this would indicate that the incidence reported here is conservative.

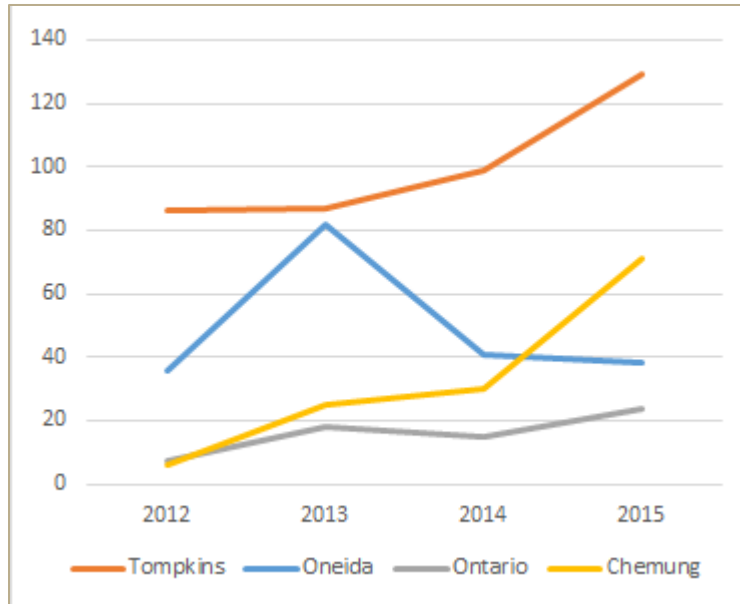


Figure 1. Incidence of Lyme disease in Tompkins, Oneida, Ontario, and Chemung Counties, New York, 2012-2015.

Deer abundance is key to the incidence of Lyme disease. In a pivotal Connecticut study, the rates of Lyme disease in a community were tracked over 13 years in conjunction with the implementation of a local deer management program. There was a strong correlation between deer population reduction and decreased incidence of the disease. At 13 deer per square mile, tick abundance was reduced by 76%, which corresponded to an 80% reduction in the reported rate of Lyme disease in the community (Kilpatrick *et al.* 2014). Pre-management populations in this community had been between 103 and 141 deer per square mile.

The relationship between deer density and tick abundance would appear to have a threshold dynamic that varies between localities. A lag effect in the response of ticks of at least two to three years is present after achieving and maintaining a deer density needed to drastically reduce the tick population, due to the multi-year life cycle of the black-legged tick (Eisen and Dolan, 2016). Figure 2 demonstrates a threshold relationship, where the abundance of nymphs can be drastically reduced if a certain deer density is obtained. Deer densities lower than threshold do not significantly impact nymph abundance.

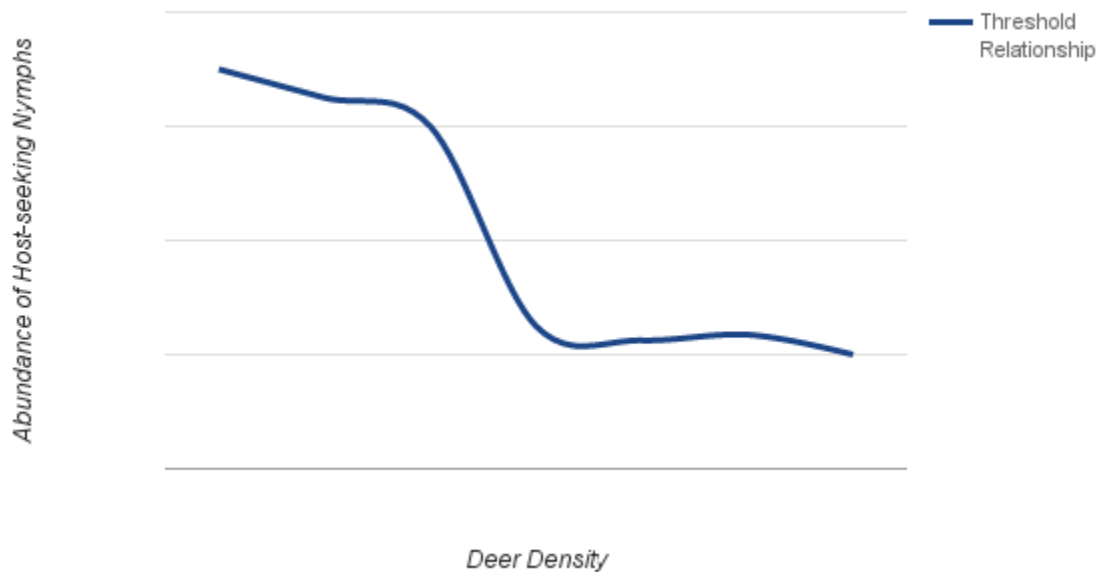


Figure 2. Hypothetical threshold relationship between deer density and tick nymphs. The density of deer required to achieve a significant decline in ticks would appear to be location-specific. Deer density needs to stay at or below threshold for two to three years.

Deer-based solutions provide landscape-scale reductions in the prevalence of ticks and Lyme disease. In a review of 30 years of research related to various tick control methods, deer were identified as a high potential target for implementing tick control measures over large areas. It was noted that while rodent-based control systems may be effective for private property, the coverage is restricted to the rodent's home range. This determination was made following a review of various control methods including personal protective measures, landscape modification, biocontrol, robotic tick collectors, attacking ticks directly by treating an area with acaricides, rodent-targeted topical acaricides, rodent vaccines, deer-targeted topical acaricides, deer exclusion, and deer reduction (Eisen and Dolan, 2016).

Ecological

The proliferation of human settlements, and early-successional forests created after farm abandonment, provided a new and more perfect environment for deer in New York. In the late-1800s, white-tailed deer were rare in central New York. Unregulated hunting, combined with agricultural expansion and forest clearing for timber products, had nearly eradicated a pre-Columbian population estimated at some 24-33 million; just 300,000 deer remained nationwide (McCabe and McCabe, 1984). Their numbers have rebounded significantly, with populations estimates between 15 and 30 million currently (Kert VerCauteren, 2003; Pennsylvania State University, 2014). White-tailed deer are a native species whose environment had adapted to

their presence, but the combination of optimal forage (from urban plantings to rural crops), and the extensive shelter found in urban and suburban neighborhoods, has created the perfect ecosystem for the ungulate.

Deer suppress not only the perennial herbaceous layer through grazing in the understory, they also alter the succession trajectories of forests via browsing. Native plants including tree species are disappearing from the landscape only to be replaced by unpalatable non-native and invasive plants (DiTomasso *et al.*, 2014, NYS DEC 2011, Côté, *et al.* 2004; Tilghman, 1989). "The most important stress in Northeastern forests might not be the emerald ash borer or acid rain, but white-tailed deer," says Bernd Blossey, Associate Professor, Department of Natural Resources at Cornell University. Browsing damage is combined with low replacement rates of tree seedlings (Figure 3). "Canopy trees may re-seed," says Cornell Botanic Gardens' Todd Bittner, "but the bulk of plant diversity in northeastern forests is the understory. Once those species are extirpated, there's not much we can do to put them back. If we lose them, we lose the insects, birds, and other vertebrates that are part of that system. If we lose 90 percent of the foundation, we lose 90 percent of the ecosystem" (Tregaskis, 2013). Indeed, in a recently completed series of ecological assessments for the Town of Ithaca parks and preserves, Newleaf Environmental LLC has consistently documented that tree regeneration is very low with heavy deer pressure and competition from invasive shrubs impeding young tree growth.

Predation pressure from extant carnivores has not sufficiently limited the population growth of deer within New York State. Compensatory predation removes prey that would have died from other causes later in the year (i.e. starved to death). In comparison, additive predation adds to the total mortality rate and effectively limits the growth of a population (i.e. predators kill healthy deer that would have survived the winter). Coyotes are likely the major deer predator in Tompkins County, and they infrequently kill healthy adult deer (Frair *et al.*, 2009; NY DEC, 2017a). Regardless of the high depredation of neonatal deer, long-term research by Friar indicates coyote predation is compensatory in New York (Figura 2015b). In areas where bobcats and coyotes both occur, bobcats are typically not a major source of fawn mortality (Nelson *et al.*, 2015). Predation pressure from bears should be minimal within Tompkins County, as the region is secondary range for black bears (sightings occur but a breeding population does not exist; NY DEC, 2017b). Given that wolves and cougars have been extirpated from the region and are unlikely to return, it is unlikely the remaining predator guild will function to reduce the deer population in the future, as it is not currently doing so.

Hunting by humans can be an effective tool for reducing a deer population, compensating for a lack of additive predation. The intensity, duration, and spatial distribution of human hunting pressure are key factors of the effectiveness of hunting to limit the growth of a deer population. Adequate hunting pressure can help limit the abundance of deer, reducing browsing and grazing and promoting the persistence of rare plant species (McShea 2012). However, additional management actions may be needed to sufficiently reduce the deer population and begin regenerating native plant communities. New York State Department of Environmental Conservation Deer Damage Permits should be employed for this goal.



Figure 3. A forest understory decimated by high deer populations in Cayuga County. Note the absence of forage species (both woody and herbaceous) within the browse zone for deer (ground level to ~ 2 vertical meters). Typically, only unpalatable or very low palatability species remain in this zone when deer foraging pressure is high. Photo from Rawinski (2008).

The combination of optimal forage (from urban plantings to rural crops), and the extensive shelter found in urban and suburban neighborhoods, has created an ecosystem perfect for the proliferation of the ungulate. Aldo Leopold's concept of a "Land Ethic" advocates for a clear, objective observation of nature. We see clearly that very little truly natural remains in natural areas where an overpopulation of deer exists. They simultaneously erase native plants from the landscape while promoting non-native plants through browse selection. Careful observation of our natural areas will show that white-tailed deer are a keystone species, impacting plant biodiversity, and other components of the ecosystem (McShea and Rappole, 1992). People need to embrace their responsibility as stewards of nature if we are to maintain native plants and animals for the foreseeable future.

Agricultural Losses

New York farmers and nursery owners report losses of more than \$53 million in annual crop damage (Brown *et al.* 2004). Another study asking farmers across the state to estimate the amount of damage done to their crops mirrors this number closely at \$58.8 million (Brown, Decker & Curtis, 2003). This study is particularly useful as the data were broken down by region. The Southern Tier, while not the most heavily hit region, reported losses of \$7.5 million dollars annually (Brown *et al.*, 2003). Urban and suburban communities catalog expenses incurred from loss of horticultural plantings closer to \$49 million (Drake *et al.*, 2014). Unfortunately, no data could be found at any finer scale than New York State.

Car-Deer Collisions

One of the few reports chronicling the economic impact from deer-car collisions in New York State indicates that the cost to New Yorkers may be as high as \$120 million (Drake *et al.*, 2014). These data were aggregated for the state and it is highly likely that odds of getting into a car accident with a deer are much worse for drivers in rural, upstate New York. In 2015, Tompkins County Highway Department removed 185 dead deer from county roads (Figure 4), offering a crude but up-close view of what is happening locally. In 2016, the number of collisions increased to 201 deer. Unfortunately, other comparable counties do not track this data, and so no benchmark can be made.

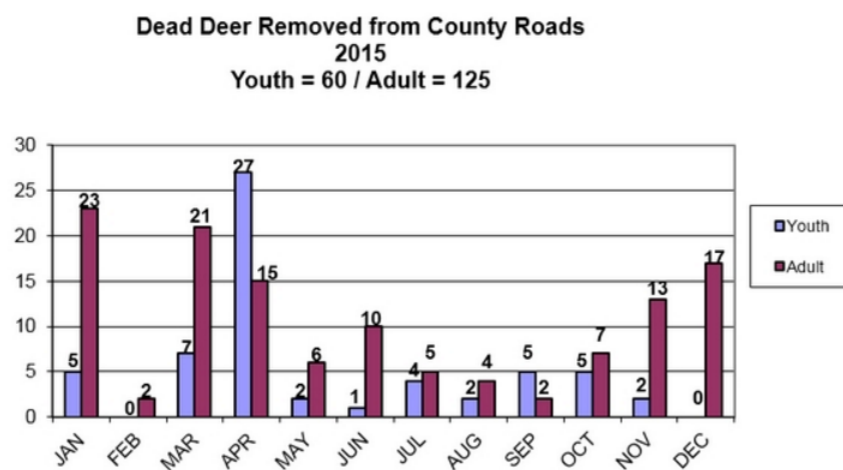


Figure 4. Total road-killed deer removed from Tompkins County roads by month in 2015.

While these figures have implications for public safety and the inhumane suffering of animals, the economic impact is very important. A recent study of collisions with wildlife found the average cost of car repairs resulting from striking a white-tailed deer was \$2,622 (Huijser M 2009). The average medical costs associated with such accidents were \$2,700, adjusting for the type and likelihood of injury. Assuming normal distribution for the severity of the accidents cited above, it can be reasonably estimated that collisions with deer on Tompkins County-maintained roads resulted in a cost of \$972,000 in 2015. The 201 deer removed from county roads in 2016 would increase this expense to Tompkins County residents to \$1,069,722. This is a conservative estimate as only county roads were tracked in this data set, and not all deer that were struck and killed by cars would have died so close to the roadway as to necessitate removal. The Village of Cayuga Heights recorded zero deer-vehicle collisions in 2016, following 4 years of a deer management program with an approximate 70% reduction in local deer abundance (personal communication, Linda Woodard, Cayuga Heights Mayor).

What is the NYS DEC Deer Management Focus Area

Local efforts got a boost in 2012–2013 when the NYS Department of Environmental Conservation launched its pilot Deer Management Focus Area (DMFA): a 60,000-acre swath of land in Tompkins County. While hunters still require landowner permission and must abide by all local laws, hunting regulation changes in the focus area decreased costs, raised harvest limits, and extended the hunting season into January. Hunting activities in the DMFA do not require regular hunting tags, but hunters are obligated to record the deer that are taken under the program. Hunters are limited to two antlerless deer per day. "The idea had been in consideration by DEC for several years, and they were looking for an area where they could get good evaluation data," says Curtis, who consulted on the program's design and execution along with Bittner, Boulanger, and Blossey. "Given that we're already estimating deer abundance on campus, and the Village of Cayuga Heights was looking at its options, this seemed like a good area for an evaluation to be done."

Review of Local Deer Management Programs and Methods

Many municipalities in Tompkins County and across New York State are increasingly aware of the threats posed by over-abundant deer and have taken steps to abate them. Below is a summary of the management efforts in Tompkins County, some of which occur within town bounds. Many resources and articles exist to learn more about these programs, and personal offers have been made by the Mayors of Trumansburg and Cayuga Heights to discuss them further with the Town Board. Two items that may be of particular interest for their breadth and relevance: 1) an article published on NewYorkupstate.com, and 2) WildLifeControl.info.

Village of Trumansburg

Key Program Features:

- Overseen by Village Deer Management Oversight Committee and Board
- Baited sites with archers to remove deer using a DEC Deer Damage Permit (DDP)
- Donate meat to the Food Bank of the Southern Tier
- Fly-over infrared aerial population survey
- Annual re-approval of program
- Cost: \$2,500

In 2014, the Trumansburg Board of Trustee's began implementing a Deer Management Program (TDMP). The TDMP called for the acquisition of Deer Damage Permits from the NYS DEC and skilled bow hunters at nine strategic sites in and around the village. Locations are located on private property. Landowners interested in taking part in the program (hosting participants) self-identified after a public presentation described the program and solicited landowner volunteers. Individual sites were vetted by the committee to meet safety and suitability standards.

The participants operated 1-2 hours before sunset and continued after dark on Friday, Saturday, and some Sunday evenings between September and April 1. They utilized corn bait dispensed from timed feeders, which were placed in the field 7-10 days prior to shooting activities. Shooters were required to use tree stands for elevated angles, dogs to find wounded deer, lights on their bows, and camouflage. They were also provided landowner information for contact off hours and neighbor contact information for tracking wounded deer, and carried all landowner agreements and permit on their person. Carcasses were removed, and either consumed or donated by the participants. The initial year of the TDMP (2014-2015) saw the removal of 90 deer within the village limits. The retrieval rate (the successful harvest of a wounded/killed deer) was 90%.

The Village Deer Management Oversight Committee was responsible for reviewing the progress (weekly), collecting data including deer harvested and tick numbers, then reported back to the

Village board on the activities. The Village then posted these updates on their website. The committee also alerts police ahead of deer management activities.

The TDMP was highly successful and should be used as a standard for comparison. The only deviation we recommend is to forgo the aerial surveys in favor of impact-oriented metrics. The reports offered on the Trumansburg Village website should be reviewed by the Town of Ithaca deer management committee. The Mayor, Marty Petrovic, wishes to extend the program to 24-hour activity.

Cornell University Deer Management Program

Key Program Features:

- CUPD-supported background checks of all participants
- Both hunting and DEC DDP activities currently utilized
- Online location reservation system
- Harvest report generated via Qualtrics
- Deer population monitored via camera traps

In addition to overseeing the surgical sterilization of dozens of does on central campus—and extracting animals from such unsafe settings as downtown cafés—the program also manages hunting on Cornell University property. “In six years, hunters and archers have taken >700 deer from campus lands,” says Paul Curtis, and the team did not document a decreased herd size on core campus. “Suburban deer issues are probably the most difficult,” he adds, noting that the animals’ home ranges of 150 to 300 acres or more rarely correspond to the political boundaries and jurisdictions. Importantly, he notes that “[t]he most effective programs look at multiple management options across a wide scale and get municipalities to work together” (Tregaskis, 2013).

Applicants authorize Cornell Police to conduct background checks on participants. Anyone with a felony conviction is rejected. Many sites allow only archery equipment; firearms are heavily restricted and hunters must report such details as the age and sex of deer taken and observed. Hunters who fail to comply with all regulations are barred from participation in subsequent years.

The University supported more targeted efforts to remove deer from smaller natural areas in suburban spaces which have proven to be very successful. During 2014-2016, Cornell applied for a DEC Deer Damage Permit and recruited volunteer archery shooters to implement the program. Within the program, Cornell University Police Department (CUPD) and the Cornell Deer Management Committee approved shooting locations and participants. Bernd Blossey used a Qualtrics system to track participant activity and deer take, and has offered the use of the program to the Town of Ithaca. An agreement would need to be reached with the University regarding the use of such data, if a similar tracking program were to be used by the Town of Ithaca.

In Jay Boulanger's "Earn-A-Buck Program" conducted from 2007-2013, covering 4,027 acres of University-owned agricultural fields and woodlots, hunters were required to take antlerless deer before earning the right to take a buck. In 2012, 538 hunters harvested 165 animals. The other program, on the Cornell Botanic Gardens' 3,400 acres of natural lands, uses a password-protected online reservation system. "Part of our strategy is to have as many hunters in the field as is safe," Bittner says. In 2012, more than 1,000 hunters applied to hunt in the Cornell Botanic Gardens; 238 showed up, taking 96 deer. In fall 2013, when Bittner received vague trespassing complaints at one site, he used what few details he had to triangulate within his electronic records. "I figured out who it was and kicked them out of the program," he says. "We don't want to be bad neighbors, and if our hunters are trespassing, they're either willfully breaking the law or they don't know where they are—either way, that's not safe." Now all Cornell deer hunting is conducted under the online reservation system, and the Earn-a-Buck Program was ended.

Cayuga Heights

Key Program Features:

- Administered by Mayor and Chief of Police
- Take of deer over bait with a DEC DDP, combined with surgical sterilization
- Management contracted to White Buffalo, Inc., a wildlife control firm
- Camera survey by Cornell University staff to track deer population levels
- No formal impact assessment activity has been conducted
- Cost: \$50,000 - \$170,000

In Cayuga Heights, where any form of hunting is illegal under local laws, Dr. Paul Curtis's studies suggest that the original deer census in 2012 was approximately 125 deer per square mile (225 total deer). Residents concerned about increasing vehicle collisions and landscape destruction put management on elected officials' agenda in the late '90s, spurring an increasingly acrimonious battle. In December 2012, Village leaders won a legal challenge and then failed to garner the requisite permission from landowners to stage a deer culling operation approved by the NYS Department of Environmental Conservation. Consequently, 137 does were baited, trapped, anesthetized, and surgically sterilized, using techniques like those on Cornell's campus. Sterilization is logistically difficult and expensive, and it does little to reduce harmful impacts from deer in the short run.

The Village mailed letters to every resident asking interested landowners to contact Village staff to take part in the deer management program. Police were also made aware of management activities before they took place. Information regarding the program is posted on the Village website annually. This program, while complying with the will of its residents, has proven costly. The first year of the program in 2012 cost nearly \$170,000; much of which was paid to White Buffalo, Inc. The program costs fell to \$60,000 in 2013, and down to \$50,000 in subsequent years.

Mayor of Cayuga Heights Linda Woodard offers the Town Board this insight:

“If other towns and Cornell don’t cull their deer, Cayuga Heights can still be successful, but it will cost more and both culling and sterilization will need to continue indefinitely. The more and broader other municipalities manage their deer, the easier it will be on all of us. Nature abhors a vacuum. If we managed to eliminate all our deer and the areas surrounding us had deer, then there would be significant migration into Cayuga Heights—less competition for available resources. So the more the municipalities surrounding us eliminate their deer, the farther new deer will have to travel to get to us. Having the Town of Ithaca initiate a deer management program would be a very welcome development for us.”

There are some indications of success with this program. Last year, 2016, was the first year that there were no recorded deer-car collisions in the Village. Deer populations are now less than 40 deer/square mile in the Village, down 70% from the 125 deer/square mile in 2012.

Lansing

Key Program Features

- Tompkins County’s longest running community-based deer program (10 years)
- Started with recreational hunting, and evolved to the current DEC DDP Program
- Anecdotal evidence of reduced deer impacts on plants
- Donates meat to the Food Bank of the Southern Tier
- Cost: \$2,000 annually, up to \$6,000 for program alterations

The Village of Lansing has overseen the removal of 250 deer by shooters—and another 250 or so were killed in motor vehicle accidents over the course of their program. However, as Dan Veaner (2016) reported “the deer were learning where the shooters were, so yields during the regular hunting season declined to 47 in 2012 and 2013, and 40 in 2014”. In late 2015, a modification of the existing program was made to maintain the deer population at ecologically-relevant reduced levels. A DEC Deer Damage Permit program was initiated, involving baiting and shooting at night.

Blossey explains this change was enacted, “because typical recreational hunting during hunting season doesn’t give us what we need in terms of deer reduction” (Veaner, 2015). Over the last six years, Blossey has yet to document a shift in forest regeneration in Lansing. However, there was a drastic drop in the number of deer/car collisions in 2015, and residents have reported seeing plants on their properties that haven’t been present for years (Veaner, 2016). Their program can be viewed as moderately successful, but real gains will be hard to maintain if larger adjacent municipalities fail to act.

In late 2016, Blossey’s group were in discussions on how to improve the effectiveness of the Deer Damage Program using data obtained from the first year it was implemented. As Dan Veaner (2016) reports, “The areas that were baited in last season’s programs [2015] were monitored using trail cameras, and it was found that the deer were coming early in the morning, before sunrise, during times not authorized for shooting by the DEC. Based on these data, both

Cornell University and Trumansburg requested 24-hour shooting, and the DEC granted their requests. Blossy said a 24-hour permit wouldn't change the number of hours shooters would be in the stands, but would allow them to take deer when they can be most effective. He recommended Village of Lansing Trustees also request the 24-hour permission."

Recommendations for a Deer Management Program in the Town of Ithaca

Program Goals

Ecological

Reduction of the resident deer population within Town boundaries to a point where impacts from browsing damage are reduced to 40% of current browse levels by 2018, and 45% of 2016 levels by 2021.

Health and Human Safety

Achieve a 15% drop in the 2011 rate of Lyme disease by 2018, and a 50% decrease of 2011 levels by 2021.

Economic

As impacts to farms locally has not been meaningfully measured in the past there can be no metric for this impact. However, costs associated with deer-car collisions could be tracked. Our recommendation is to cut financial impacts (due to vehicle repairs and medical expenses as measured above) by 20% in 2018, and 40% by 2021.

How will we achieve our goals?

What follows is a broad sketch of a recommended deer management program. There are some details that will only be able to be worked out by a committee (designated by the Town Board). While compiling this information we conducted interviews with the Mayors of Cayuga Heights and Trumansburg, researchers at Cornell University intimately familiar with such programs, as well as the Director of Natural Areas for the Cornell Botanic Garden. All have extensive experience developing and overseeing deer management programs, and all have excellent safety records associated with their programs. It should be noted that both the Cornell and Cayuga Heights programs were conducted on densely settled lands with no safety problems reported.

Taking of Deer

The models in our area that we look to for instruction use volunteer archers (participants) to carry out lethal removal of deer over corn bait (Figure 5; Appendix 2). They will be carefully vetted by a representative of the Town Deer Management Committee (proposed here), have a background check done by Tompkins County Sheriff's Office, and will be expected to strictly adhere to guidelines (regulations and code of conduct) established by the Town. An example of a participant code of conduct is included in Appendix 5.

Participants' proficiency with a bow (the only weapon permitted in the program) will be ascertained by a qualified professional. Failure to comply with Town guidelines would be grounds for dismissal from the program, and—depending on the infraction—blacklisting from other municipal programs. In addition to archers who have already participated in other local deer management programs, and who may be reached through administrators of those programs, Flashing Feathers Bow Club has expressed their interest in taking part in future management activities.

The participants will be required to keep documentation of the Deer Damage Permit on their person when they are in the field. They will also be carrying tax parcel maps of the area in which they are active to minimize the possibility that they stray over a property boundary in pursuit of a deer. Every effort will be made to retrieve wounded deer from properties owned by accommodating landowners. It is recommended that the Town solicit residents to participate in the program in addition to management activities on Town property. Landowners and their properties would still need to be evaluated by the proposed committee for suitability.

DEC Deer Damage Permits

Acquisition of these permits is a necessary part of a management program. They enable management activities to take place outside of the hunting season, after dark (if the board deems it safe and efficacious), allow for taking deer over bait and greatly increases the number of deer that might be harvested. For these reasons, Deer Damage Permits greatly increase the efficiency and success rate of a management program. Antlers greater than 3 inches in length must be sent to the DEC. The program will be coordinated with Courtney LaMere at the DEC Region 7 office. Find more information at: <http://www.dec.ny.gov/animals/104956.html>.

As a matter of policy, the DEC does not typically issue DDPs unless hunting has been a part of a municipality's management actions. To be clear: The Town would not need to oversee hunting activities within Town boundaries, only deer management activities. Private individuals who wish to hunt, or allow hunting on their land, would have that right, but would not be working in coordination with the Town of Ithaca. That hunting is allowed within the Town, that such activities are considered by the Town as an integral component of a comprehensive program and that hunting alone has not had the desired effect on deer impacts are all critical points to mention to the DEC when applying for the DDPs. Should the Town Board wish to expand management activities to Town-owned properties, § 200-5E of the Parks and Recreation Areas code would need to be amended to allow the use of bows and crossbows in them.

Archers at Baited Sites

This is the preferred method for effective deer management that the Conservation Board recommends to the Town Board for consideration. Limited success has been achieved using this method in near-by municipalities (Trumansburg, Lansing, and Cayuga Heights), but these communities have fallen short of reaching their goals due in no small part to the lack of a regionally-coordinated effort; or at the least, a regionally-engaged effort.

Deer removal takes place between two hours before sunset until two hours after sunrise, and can be aided using red or green lights. The larger line items for the budget in this program are the corn feeders used to lure in the deer, and elevated ladder stands. Elevated shooting stands and cleared shooting lanes are the safest methods of deer removal. The downward trajectory of the arrows ensures that the projectile does not travel far, and the shooting lane ensures that arrows are not knocked off target by branches or other obstructions (Figure 5). With the ability to establish ideal shooting angles through the arrangement of the corn feeder and ladder stand, this method also provides the best opportunity to kill deer in a quick and humane manner.

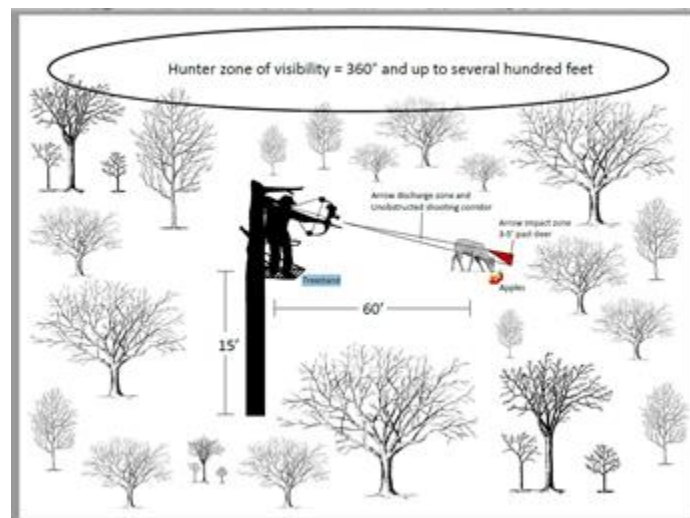


Figure 5. Schematic of a shooter at a bait site used for deer removal.

It is true that deer may still run after being shot by bows, but reports from Cayuga Heights indicate that it is only a short distance (average 55m): about the same distance as the archery setback. All landowners adjacent to a parcel where management activities are being considered would be contacted regarding their willingness to allow participants or law enforcement to retrieve deer from the property. Participants must comply with all state regulations, including setbacks from residences and schools. In six years, there hasn't been a single accident. "Concern about a shooter misidentifying a target comes from guns—the idea that you might shoot at a sound or something moving," says Dr. Bernd Blossey, whose queries to state agencies in search of accidental shooting reports involving archers have come up empty. "There are reports about bullets going through windows, or someone getting shot hanging out laundry—but that's about bullets."

Law Enforcement

The Tompkins County Sheriff's office, and NYS Department of Environmental Conservation law enforcement officers, need to be fully apprised of every necessary detail regarding deer management activities. They will know who will be on what property and when. Other municipalities have found police officers to be a great resource and ally in their efforts. The Sheriff's office staff will also be responsible for running background checks on potential participants. At least one member of the proposed Deer Management Committee should be a law enforcement representative.

Interfering with government activities (even if being carried out by volunteer participants) is against the law. If citizens unhappy with management activities attempt to protest on site, they may be dealt with by law enforcement officials. Reassessing the commitment of the Town to such a program on an annual basis may be an effective tool.

Carcasses and Venison

The Town Public Works facilities should be considered a key resource. After taking deer, participants will need to dress the carcass and dispose of the remains properly. Hunters typically do this where the deer is taken, but this is not advised as the Town will want the deer stand location to continue to be attractive to deer throughout the program's duration, and the smell of deer remains tends to repel other deer. It is advised that the Town use a dumpster for remains disposal¹, likely sited at a Public Works facility. There is the additional possibility that use of the County's commercial compost contract may be secured to compost the unwanted remains.

It is likely that participants will not be able to use all the meat harvested. The Food Bank of the Southern Tier is a good partner in this regard, and has offered to pick up the meat harvested in other municipalities, at no charge. The Venison Donation Coalition is a valuable resource for finding processors willing to provide services at no cost. Their website: <http://www.venisondonation.org> (Appendix 1).

Communications

Not all programs face resistance, and some are even received positively. You must be prepared for both. To that end, an extensive Q&A section is provided in the appendices to prepare Town officials for public comment and inquiry (Appendix 3). Public meetings have been an effective mode of communication, especially when soliciting landowners to participate in the program. However, discretion must be exercised. Anything that would allow those opposed to deer culling to identify a place and time of management activities would best be kept out of the public record.

¹ Rental rates were very high from Been There, Dump That (~\$240/week for a 2-yard dumpster), which is prohibitive. Casella never responded to numerous requests for estimates. With these

Contact with landowners adjacent to properties where management activities are likely to take place should be done immediately following a site assessment for deer activity and access. That is, once a landowner has agreed to allow culling actions to take place on their property, and a suitable site has been identified for a deer stand, the neighbors should be contacted to ascertain their willingness to allow access to retrieve deer. An unwilling neighbor does not mean a site cannot be used, only that a wounded deer on their property may not be recovered. If too many neighbors are opposed to the program, careful consideration should be used to determine if it is still a viable location.

Assessing Progress

In a sharp departure from other programs the Conservation Board recommends that only deer impacts be tracked to assess program efficacy, and not deer population levels. This is a key point and can be done using several methods. Assessment methods should be aligned with the program goals adopted.

Ecological

Utilize oak “sentinels” and/or trillium survival rates. Another would be to track deer/car collision rates in the town (data on this is being collected currently by the county). Sentinels are seedlings that are planted in forests at specific locations. Extant trillium populations also serve as good indicators of deer browsing pressure, being a preferred food source of deer. Dr. Bernd Blossey, at Cornell University’s Department of Natural Resources, has used the oak sentinel method (see below) to measure browsing pressure of deer for many years. This would be a particularly cost-effective method of measurement as the Town is quite large, and fly-over surveys would be prohibitively expensive. Volunteer or student labor may be used to defray costs of assessment, or measurements already being gathered by Cornell researchers may be able to be used provided they are proximal or within Town boundaries.

To quantify the pressure imposed by deer in search of suitable forage, Blossey has launched a research project using red oak seedlings to measure browse damage. The trees' survival rate serves as a valuable indicator of just how desperate the animals are for food. Research assistants monitor survival rates of the seedlings, some fenced and others unprotected, on campus and elsewhere throughout Upstate New York. "Hunters may care how many deer there are, but from a conservation perspective, we need to know their effect," says Blossey, who argues that the one-size-fits-all ratios of deer per square mile bandied about in civic struggles over white-tailed deer management have limited utility for conservation purposes. "Whether it's five deer per square mile or 100, it's a useless debate. If there are 1,000 on campus and all they do is breathe air and avoid the cars, it doesn't matter if they're there." Estimating populations of deer is costly, and ultimately not the right metric to be tracked. The acceptable number of deer in the landscape may be determined by the measureable effects deer numbers have on sensitive plants.

Alternatively, the Town Board may consider employing a new system of impact assessment recently developed by Kristi L. Sullivan, Peter J. Smallidge and Paul D. Curtis in collaboration with the NYS DEC and SUNY Environmental Science and Forestry. The method is termed Assessing Vegetation Impacts from Deer (or AVID) and is similar in some senses to the above method but more sophisticated in its approach. More types of plants are counted annually to assess deer browse pressure and are tracked over time. There is an app available on Android or Apple phones that may be downloaded through Apple Store or Google Play and used to track deer browsing impacts across the state. For more information on this, refer to the draft manual available on the wildlife control website: <http://wildlifecontrol.info/>.

Health and Safety

Tompkins County is already a “sentinel” county (not to be confused with the section above) in the New York State Bureau of Communicable Disease Control’s tracking program. Data on any finer scale, to our knowledge, does not exist. Starting a program to follow the Town’s incidence of Lyme disease is a subject outside the scope of this report, but may be explored by the Town Board if they so wish. For now, incidence of Lyme disease in the county could also be followed to measure program efficacy. Jenn White of the Tompkins County Health Department would be the contact for getting the most recent data.

Budget

This estimate of expenses is based on the program the Village of Trumansburg initiated, and communications with Dr. Bernd Blossey of Cornell University. See Table 1 for a breakdown of costs associated with the proposed program. This budget assumes participants are willing to use their own hunting stands, which is typical among the programs we reviewed. Otherwise, the costs of stands would total \$1200 (12 Hunting stands at \$100.00 / per). Price estimates for oak seedlings comes from White Oak Nursery, plant cages from Ben Meadows, corn feeders from Bass Pro Shop, and pin flags from Ithaca Agway.

Annual Budget Estimate for Proposed Deer Management Program					
	Item	Vendor	Unit Cost	Quantity	Total Item Cost
Core Costs	Corn feeders	Dick's Sporting Goods	\$100	12	\$1,200
	Corn feed	Matthew Dedrick (Dedrick Farms, Lansing)	\$6.50-\$8.25/50# bag	(est.) 20-40	(est.) \$130-\$340
Incidental Costs	Oak seedlings	White Oak Nursery	\$6	200	\$1200
	Plant cages	Agway	\$95.90/150	150	\$95.90
	Pin flags	Agway	\$15/100	200	\$32.54
				Total	\$2658.45-2868.45

Table 1. Proposed budget for the Town of Ithaca Deer Management Program

Next Steps

Ad Hoc Committee to Oversee the Deer Management Program

Given the data presented here, and the unaddressed concern over public health and the extensive ecosystem damage caused by overpopulation of deer, the Conservation Board recommends that the Town Board implement the following actions:

1. Form an official Town Sub-committee tasked to draft, implement and administer a Deer Management Plan that complements initiatives of adjacent municipalities.
 - a. Key points within the plan would specify a target impact levels (e.g., reduction in the number of deer/car accidents, reduced browse pressure, lower incidence of Lyme disease cases).
 - b. A key component of the plan should delineate areas of active management taking into consideration the new setback distance for archery hunting (150 ft. bows, 250 ft. crossbows).
 - c. Town residents owning property where deer removal may take place should be solicited for their participation in the program (see the appended agreement below).
 - d. Apply to the DEC for Deer Damage Permits enabling participants to take deer outside of the normal hunting season.
 - e. Secure funds to implement the program
 - f. Retain services of local expert to review program participant competency.
2. Open talks with the City of Ithaca to coordinate efforts.
3. Coordinate efforts with city officials, the Natural Areas Commission and Cornell Botanic Garden Natural Areas program to enhance program effectiveness. Among the points discussed with the City should be the establishment of a hunting site(s) within the Six Mile Creek Natural Area.
4. Utilize <https://deeradvisor.dnr.cornell.edu/> as an unbiased, online resource center for residents who want to learn more about the why and how of deer management efforts (Appendix1).

Capacity Building

1. Apply to the DEC for Deer Damage Permits for use in Town bounds, and engage local shooters to facilitate taking. This action would be coupled well with an outreach program to landowners with more than 15 acres on how they can successfully apply for Deer Damage Permits. Importantly, this would entail clarifying the legal distinction between Deer Management Assistance Program (DMAP) and Deer Damage Permits from DEC.
2. For smaller potential sites, consider the use of permitted trap and kill methods.

Recommended Policies/Practices

1. Set regular meetings with Town stakeholders to maintain collaborative progress and facilitate information sharing.
2. Adopt a code of conduct for management program participants. Cornell University has offered adapting one from theirs (Appendix 5).
3. Informing, and/or incentivizing, how landowners within the town can allow hunting on their lands (Appendix 4).
4. Educate Town residents about the extent of white-tailed deer damage in the trophic cascade: “sanctity of life” should include plants, insects, and birds in ecosystems impaired by over-browsing.
5. The Conservation Board is committed to being an active and engaged partner with the Town Board. We would like to offer our help gathering information, data and other resources in support of the Town’s efforts on this issue.

Literature Cited

- Boulanger, J. R., Curtis, P. D., Cooch, E. G., & DeNicola, A. J. (2012). Sterilization as an alternative deer control technique: a review. *Human Wildlife Interactions*, 6 (2), 273-282.
- Brown, T. L., Decker, D. J., & Curtis, P. D. 2004. Farmers' estimates of economic damage from white-tailed deer in New York State. HDRU Series No. 04-3, Dept. of Natural Resources, Cornell University, Ithaca, NY. 26pp.
- Côté S.D., Rooney TP, Tremblay JP, Dussault C, Waller DM. 2004. Ecological impacts of deer overabundance. *Annual Review of Ecology, Evolution, and Systematics*, 35, 1-700.
- Daley, B. (2013, July 14). A minuscule foe, a massive public health challenge. *The Boston Globe*. Retrieved from <https://www.bostonglobe.com/lifestyle/healthwellness/2013/07/13/ticks-stealth-and-human-nature-hamper-lyme-disease-prevention/05tnWMvLznGYCJXoevF4l/story.html>.
- DiTommaso, A., Morris, S. H., Parker, J. D., Cone, C. L., & Agrawal, A. (2014). Deer browsing delays succession by altering aboveground vegetation and belowground seed banks. *PLoS One*, 9(3): e91155. <http://dx.doi.org/10.1371/journal.pone.0091155>
- Drake, D., Paulin, J. B., Curtis, P. D., Decker, D. J., & San Julian, G. J. 2005. Assessment of negative economic impacts from deer in the northeastern United States. *Journal of Extension*, 43(1), 1RIB5. <http://www.joe.org/joe/2005february/index.shtml>
- Eisen, L., & Dolan M.C. 2016. Evidence for personal protective measures to reduce human contact with blacklegged ticks and for environmentally based control methods to suppress host-seeking blacklegged ticks and reduce infection with lyme disease spirochetes in tick vectors and rodent reservoirs. *Journal of Medical Entomology*, 53 (5), 1063–1092
- Frair, J., Gibbs, J., Batcheller, G., Jensen, P., Holevinski, R., & Christina, B. 2009. Population Status and Foraging Ecology of Eastern Coyotes in New York State: Interim Progress Report. 14pp.
- Figura, D. (2015a, Nov. 20). Wildlife biologist: Why non-lethal means rarely work to control deer numbers. Syracuse Post Standard. Retrieved from http://www.syracuse.com/news/index.ssf/2015/11/wildlife_biologist_why_non-lethal_means_rarely_work_to_control_deer_numbers.html.
- Figura, D. (2015b, Jan.31). SUNY ESF prof: Coyotes everywhere in NYS, but impact on deer numbers is 'minimal'. Retrieved from http://www.syracuse.com/outdoors/index.ssf/2015/01/suny_esf_prof_coyotes_are_everywhere_in_nys_but_overall_impact_on_deer_is_minima.html
- Huijser, M. P., Duffield, J. W., Clevenger, A. P., Ament, R. J., McGowen, P. T. 2009 Cost–benefit analyses of mitigation measures aimed at reducing collisions with large ungulates in the United States and Canada; a decision support tool. *Ecology and Society* 14(2), 15. <http://www.ecologyandsociety.org/vol14/iss2/art15/>
- Kilpatrick, H.J., LaBonte, A.M., & Staffor III, K.C. 2014. The relationship between deer density, tick abundance, and human cases of Lyme disease in a residential community. *Journal of Medical Entomology*, 51(4):777-84. <http://dx.doi.org/10.1603/ME13232>

- Kugeler, K. J., Farley, G. M., Forrester, J. D., & Mead, P. (2015). Geographic Distribution and Expansion of Human Lyme Disease, United States. *Emerging Infectious Diseases*, 21(8), 1455-1457. <https://dx.doi.org/10.3201/eid2108.141878>.
- McCabe, R. E., & McCabe, T. R. (1984). Of slings and arrows: A historical retrospection. in L.K. Halls (ed.), *White tailed deer: ecology and management* (pp. 19-72). Harrisburg, PA, Stackpole: A Wildlife Management Institute Book.
- McShea, W.J., & Rappole, J.H. 1992. White-tailed deer as keystone species within forest habitats of Virginia. *Virginia Journal of Science*, 43 (1B) , 177-179.
- McShea, W.J. 2012. Ecology and management of white-tailed deer in a changing world. *Annals of the New York Academy of Sciences*, 1249, 45–56.
- Nelson, M., Cherry, M., Howze, M., Warren, R., & Conner, L. 2015. Coyote and Bobcat Predation on White-tailed Deer Fawns in a Longleaf Pine Ecosystem in Southwestern Georgia. *Journal of the Southeastern Association of Fish and Wildlife Agencies*, 2, 208–213.
- New York State Department of Environmental Conservation. (2011). *Management Plan for White-tailed Deer in New York State 2012-2016*. Division of Fish, Wildlife and Marine Resources, Bureau of Wildlife
- New York State Department of Environmental Conservation. (2017a). *Eastern Coyote*. Division of Fish, Wildlife and Marine Resources, Bureau of Wildlife. <http://www.dec.ny.gov/animals/9359.html>
- New York State Department of Environmental Conservation. (2017b). *Black Bear*. Division of Fish, Wildlife and Marine Resources, Bureau of Wildlife. <http://www.dec.ny.gov/animals/6960.html>
- Pennsylvania State University. (2014). Species Page. <http://www.psu.edu/dept/nkbiology/naturetrail/speciespages/>. whitetaileddeer.htm
- Rawinski, T. J. (2008). *Impacts of White-Tailed Deer Overabundance in Forest Ecosystems: An Overview*. Northeastern Area State and Private Forestry Forest Service, U.S. Department of Agriculture.
- Sportsmen Education Program. (2016). *2016 Hunting Safety Statistics*. New York State of Environmental Conservation.
- Sullivan, K.L., P.J. Smallidge and P.D. Curtis. In Review. *AVID: Assessing Vegetation Impacts from Deer: A Rapid Assessment Method for Evaluating Deer Impacts to Forest Regeneration*. <http://wildlifecontrol.info/>.
- Tilghman NG. (1989). Impacts of white-tailed deer on forest regeneration in northwestern Pennsylvania. *Journal of Wildlife Management*, 53, 524-532.
- Tregaskis, S. (2013, September/October). The Buck Stops Here. Cornell Alumni Magazine. Retrieved from http://cornellalumnimagazine.com/index.php?option=com_content&task=view&id=1725&Itemid=56&limit=1&limitstart=1
- Veaner, D. (2015, Oct.2). Village Of Lansing Steps Up Deer Population Management Program. *The Lansing Star*. Retrieved from <http://www.lansingstar.com/news-archive/12069-village-of-lansing-steps-up-deer-population-management-program>
- Veaner, D. (2016, Nov. 18). Village Deer Management Program Showing Signs of Success. *The Lansing Star*. Retrieved from <https://www.lansingstar.com/around-town/13260-village-deer-management-program-showing-signs-of-success>

VerCauteren, K. 2003. The Deer Boom: Discussions on Population Growth and Range Expansion of the White-Tailed Deer. *United State Department of Agriculture Wildlife Research Center*. Staff Publications. Paper 281.

Appendix 1: Resources for Further Study

Forestry Webinars

Impacts of Deer on Northeastern Forests and Strategies for Management

<https://www.youtube.com/watch?v=VBo4E0bSqCo>

Impacts of deer on northeastern forests and strategies for control. Deer have been shown to cause significant negative impacts to forest regeneration in northeastern forests. Chronic overbrowsing reduces both plant and animal abundance, and these legacy effects can last long after deer numbers are reduced. Landowners should manage deer numbers on their property at levels the forest can sustain. Aggressive hunting programs, or in some cases deer damage permits, may be needed to lower deer numbers and impacts to acceptable levels. There is no quick and easy solution unless deer can be fenced out of regeneration areas, and this usually is not economically feasible. In many parts of NYS, if landowners do not manage deer, then successful forest regeneration of diverse hardwood trees is unlikely. Presented June 15, 2016 by Dr. Paul Curtis, Cornell University, Department of Natural Resources, Cornell University Cooperative Extension.

Interactions of Deer and Invasive Species: Metrics and Strategies for Suburban Deer Management

<https://youtu.be/xmHvjJhyFy4>

There are significant impacts of deer and invasive plant species on forests and woodlands, and these deer and plant impacts can interact. Join Dr. Bernd Blossey of the Cornell University Department of Natural Resources for this webinar. Bernd will introduce new metrics on how to assess deer damage and then discuss implementation of suburban deer management programs in the Ithaca area. These innovative approaches have resulted in substantial deer reductions in several towns and may function as a blueprint for other communities struggling to find their own process to deal with overabundant deer herds. Presented March 16, 2016 by Dr. Bernd Blossey Cornell University Department of Natural Resources.

Trumansburg Program:

Cornell expert: Archers are Cheap, Effective Way to Lower CNY Deer Numbers.

This article discusses the successes of the Trumansburg deer management program. It talks about cost and methodologies.

http://www.syracuse.com/outdoors/index.ssf/2016/01/an_evening_with_in_a_treestand.html#incart_river_index.

Other Programs:

Hamilton and Colgate Prepare for 'Bait and Kill' Deer Culling on Dec. 23.

This article is a news article discussing the start of deer culling program in Hamilton, NY. It is not an in-depth article, but mentions that it is based on the Trumansburg model. Also talks about the need to open with the public.

http://www.syracuse.com/outdoors/index.ssf/2015/10/hamiltoncolgate_u_bait_and_kill_deer_culling_program_starts_dec_23.html

How to bait and kill deer – Fayetteville's step-by-step plan for reducing its herd

http://www.syracuse.com/news/index.ssf/2015/11/how_fayetteville_plans_to_kill_deer.html#0

Draft Resolution:

Town of Ithaca Conservation Board Resolution
Wednesday, November 18, 2015

Whereas there can be no doubt that the unsustainable overpopulation of white-tailed deer is an environmental crisis desperately in need of responsible attention, and

Whereas the public health has been seriously harmed by Lyme disease, which is clearly caused by a serious infestation of deer-ticks harbored by too many deer in our neighborhood, and

Whereas deer-car collisions and the damage caused to landscape plants and agricultural crops, however severe, is a minor nuisance compared to the destruction of natural areas, where habitat loss caused by deer over-browsing is resulting in a trophic cascade: with the extinction of native flora and fauna and the proliferation of invasive species everywhere around us, leaving depauperate lands where the deer themselves suffer from insufficient native browse and run the risk of prion disease among many other problems, and

Whereas responsible attempts to lower deer population in adjacent municipalities of Cayuga Heights, Lansing, Trumansburg (please see attached "Activities on approved Properties" from the Village of Trumansburg Deer Management Program for 2015-16"), and in the Natural Areas and on the campus of Cornell University, prove that reducing the size of deer herds is not only feasible, but requires areawide cooperation and "smart" (ie, not recreational or sport) hunting, lest deer management in one area result in herds seeking refuge in adjacent unmanaged lands, and

Whereas the Conservation Board of the Town of Ithaca has repeatedly resolved that the Town should do something to reduce our deer herds, including a white paper providing scientific documentation of the necessity to do so (please see August 7, 2014 memo to Supervisor Engman and Town Board members referring to this "Deer in Ithaca: an updated review of science, and a call for action"), for more than ten years "without any perceptible change in policy," we now most urgently

RESOLVE that the Town of Ithaca must, as soon as possible, engage in a concerted, responsible, and coordinated effort to join in the efforts of adjacent landowners and natural areas managers to kill deer not for sport, but in an intelligent and effective method demanded by a responsible land ethic, to reduce deer population wherever and however possible.

Study Session Minutes:

For those Town Board Members who would like to recap what was covered at the 2016 meeting, a link to the study session minutes has been copied below.

<https://drive.google.com/file/d/0B2XZPJdCpWSYVHNrWmR2cUptajRxSkF3QVRpcW1aSW9CSVdF/view?usp=sharing>

Meat (and hide) Donation:

<http://www.venisondonation.com/>

<http://www.dec.ny.gov/outdoor/8351.html>

<http://www.foodbankst.org/venison-donations>

http://www.syracuse.com/outdoors/index.ssf/2015/11/deer_season_donations_three_places_cny_hunters_can_donate_venison_deer_hides_thr.html

Appendix 2: A Review of Selected Methods for Deer Management

Archers over Corn Bait

Taking deer over corn-baited sites is the recommended method for management for the Town of Ithaca. This method is cost effective, safe, and humane. Key features of the program are:

1. Only bows or crossbows may be used (firearms are prohibited),
2. Management activities take place under the DEC's Deer Damage Permit program,
3. The Town applies for such permits and administers the program,
4. The Town establishes a deer management program committee to administer management and communications activities,
5. All participant volunteers (archers) are vetted by professional staff and must submit themselves to a background check by the Tompkins County Sheriff Office

A key safety feature of this method is the positioning of the participant in relation to their target (Figure 5). The elevated position of the archer prevents arrows from traveling more than a few feet beyond their target.

The cost of such a program is more than an order of magnitude cheaper than those that incorporate sterilization, or the use of deer management firms (See the cost associated with individual programs below). Corn feeders are mechanized hoppers that dispense corn at regular intervals. They are commonly available at sporting goods stores. To mitigate expenses, it is possible to forgo the feeder and spread the corn by hand although it is a more involved process. Shooting stands and baits are placed in the field weeks before management activity commences. The feeders should be activated and refilled a week before participants use the location to habituate deer to the food source. There has been increased success in the Village of Lansing when these methods are coupled with extended shooting into nighttime hours along with the use of red, bow-mounted lights.

Firearms Hunting

It is important to note that the DEC may require gun hunting be a part of a larger program to reduce deer impacts before they will issue Deer Damage Permits (DDPs) in areas where hunting is practical and legal. The current concerns with this method include: a difficult-to-accommodate 500' setback limit, reduced efficacy due to limited capacity to take deer under normal hunting regulations and potentially greater political resistance. However, the use of hunters to take deer is recommended where feasible and practical, as part of a comprehensive deer management plan. Statewide, all hunters have a 99.9% safety record (Sportsman Education Program, 2016).

There is adequate space among more rural properties to accommodate the set-back safely. Hunting should be promoted, but not as a coordinated part of the Town's deer management program. Residents acting of their own volition can provide hunting opportunities and support the Town's overall efforts to abate the harmful impacts of deer, thereby reducing costs and effort over the life of the program.

Sterilization

Surgical sterilization was attempted at the outset of Cornell's deer management program, and it did stabilize the local population. However, the method used to sterilize deer was changed from removing the ovaries to tubal ligation based on vet recommendations. This caused the does to cycle repeatedly from November through February, which resulted in sustained population levels due to the influx of male deer. Researchers eventually changed back to removing ovaries in later years.

Spaying a deer costs \$800-\$1,000, which makes it prohibitively expensive for most municipalities. While effective, this method would need to be supported by a larger hunting and culling program to maximize its utility. For more information on this method and the outcomes of a program using it see Jason Boulanger and Paul Curtis' article: *Efficacy of Surgical Sterilization for Managing Overabundant Suburban White-Tailed Deer*.

Despite the appeal of immunocontraceptive vaccines—a tactic the mayor of Hastings-on-Hudson has announced his town will pursue—Jay Boulanger says currently available options aren't cost-effective (Jay Boulanger is a certified wildlife biologist who holds a PhD from Cornell University). Curtis conducted a pilot study of the technique in Cayuga Heights in 2005, and more recently with Boulanger, as published a comprehensive literature review (Boulanger *et al.*, 2012).

"It requires booster shots or repeated treatments," explains Boulanger. "You capture a doe, give it a shot, then have to do it again a year or two later." Deer aren't stupid, he points out, and they don't like getting caught. "After you capture it once, it's harder to capture it the next time." We do not recommend using sterilization in any form as a deer management method.

Trapping and Captive Bolt

This method involves using a special penetrating captive-bolt device that discharges a metal piston at extremely high velocity just a few inches. The deer would have to be trapped using drop nets, or drop-door netted cages, or dart rifles, and a trained individual would have to use the captive bolt device to dispatch the animal. Due to the specialty equipment, trained personnel, and permitting issues, we do not recommend using this method.

Appendix 3: Deer Control Q & A (2016-7-8)

The first half of this section is dedicated to answering questions posed to the Conservation Board by the Town Board. These questions followed a presentation to the Town Board by members of the Conservation Board on the subject in the spring of 2016. The second half of this section is comprised of questions the Town may receive from the public regarding the proposed actions for deer management. Some of those questions were drawn from coverage of the issue in regional papers; others arose in dialogue within the ad hoc committee.

Town Board Q & A

Below are questions about deer control which were asked at the Feb. 22, 2016, Town Board Study Session. Included here are, in parentheses, the names or initials of the board or staff members who asked the question. Mike Roberts, Ellie Stewart, and Eva Hoffmann were at this meeting to present the Conservation Board's (CB) reports and proposal.

Q1 (Rich DePaolo): What kind of numbers was the Committee talking about such as an estimate of how many deer would have to be taken in a particular span of time in order to get the population under control?

A: A recent shift in thinking among state game managers and academics in the field put less emphasis on deer population numbers and more on the impacts they have. As stated elsewhere in this report, the findings of this committee support the use of herbivory indicators to measure the effectiveness of the program. At least one person on the proposed sub-committee must have the scientific background to inform the process for assessment.

Q2 (Pamela Bleiwas): What should the ideal size of the herd be?

A: In short: Whatever size is tolerable according to the program goals. The most recent data we have on the subject is a camera survey done by Paul Curtis at Cornell in 2012. His findings put the deer density in the Town at around 125 per square mile. A conservative estimate of the Town population would be about 3,500 deer. To put this into perspective, some estimates of a sustainable population would be around 5-10 per square mile, or 150-300 deer for the Town. The term sustainable is from an ecological perspective for regeneration rates for the flowers and trees.

Again, deer population numbers are not the metric we suggest following through the course of our proposed management actions.

Q3 (Eric Levine): Is there an estimate on cost?

A: See the Budget. Mr. Roberts responded that he did not have any estimate, but the Trumansburg event reported associated costs of around \$15K. Much of the costs are associated with the bait (corn) and feeders. As the price of corn fluctuates through the year, and estimate of cost is subject to error.

Q4 (Rod Howe): A small part of the Town was covered in the Cornell (deer control) plan; what was the impact of that plan?

A: It's impossible to say how much of an impact it had on those locations. Number of deer taken at each site are tracked, and those numbers are available. However, impacts have not been quantified. The four bodies conducting control activities now are Lansing, Village of Cayuga Heights, Cornell and Trumansburg. However, there are refuges within the Town of Ithaca and broader landscape that deer move to because there is no hunting there.

Q5 (R DP): Trumansburg is much smaller than the Town so the cost would be proportionately larger (in the Town). He questions the last statement regarding the deer moving to safe zones if not everyone is managing their deer numbers.

A: Really the cost should be thought of on a per site basis. Yes, the Town of Ithaca has more area, but we may not want to operate any more than 10-12 stands (comparable to Trumansburg), at least for the first year or two. Mr. Roberts responded that he is going to speculate that there are a lot more sport hunters in Dryden and Enfield than the town of Ithaca so those pressures are going to take the place of having to cull. He did not know of any programs that Dryden had but they may not have that big of a problem as the town does. Mr. DePaolo suggests we do need to ask some questions before we start doing this.

Mr. Roberts responded that the deer are there and they will come to the bait, so that is not in question. Mr. DePaolo agreed, but asks what if you can't reduce the population and you are essentially inviting deer from neighboring areas as you eradicate your own population? Then you have to allocate the same resources year after year to do that and that is prohibitively expensive.

A. Ms. Stewart stated that she does not have statistics for this area, but the rural areas do not have the same problems with the deer; the density increases as you approach the City of Ithaca. Possible reasons include more sport hunters outside of the city, farmers can get nuisance permits, there is no hunting closer to the city, and higher forage quality within the town and city. All the gardens and ornamentals are attractive to them so they come from the immediate next door area.

A. Ms. Hoffmann added that not only does the town need to cooperate with the other municipalities that are doing deer management, but this is a great opportunity to interact with those other municipalities to get the deer controlled throughout the area.

Q6 (Tee-Ann Hunter): What are the recommendations in terms of acceptable numbers of deer?

A. Again, if anyone is focused on herd size, correct them. We're looking for a reduction in the impacts associated with the large deer herds. See the section on Program Goals.

Q7 (TA H): What ecological systems is the Committee trying to protect?

- A. While all ecosystems types are impacted to some degree by excessive herbivory (and the Conservation Board is interest in conserving all types), forests are the most noticeably affected ecosystems within the Town. Forest regeneration is dramatically impaired when seedling trees are browsed to the extent they are. There is extensive literature on this (Literature Cited; Appendix 1).

Q8 (TA H): Stated that she would be uncomfortable without some sort of public notice when the sharpshooters were going to be there because that seemed not to happen in some municipalities.

- A. This is not accurate. All previous programs in the county notified adjacent landowners of management activity. A general notice to the public may invite protest to private property owners' lands and should be considered carefully.

Q9 (PB): Stated that she is looking for concrete data about the extent of the problem. The report on car/deer collisions are for NYS but not this area in particular. She was reluctant to kill anything without better numbers on the impact to our businesses or lives.

Ms. Ritter noted that the ITCTC did have some data from their transportation study and she could check with them or someone on the committee could.

- A. Mr. Roberts responded that in 2014 the county tracked the number of dead deer collected by the Highway Department. There were 155 with 185 in 2015. Deer will be killed with or without a management program, but it will be in the form of car accidents, and will not have the same suppressive effects on harmful impacts that a management program would. Every effort has been made to collect data relevant to the Town. There are not many sources gathering data on such a hyper-local level.
- A. Ms. Hoffmann added that from a personal perspective of a resident of Snyder Hill Road, the amount of shrubbery, small trees and such being eaten and not able to grow affects many other animals such as birds and small animals. That is their habitat that is being eaten and not re-growing. Her own 3 acres has significantly changed in the past decade from the deer and all the invasive species that have flourished in the absence of what should have been there.

Potential Town Resident Questions and Answers

Q. How many participants are going to be allowed on any one property?

- A. This is not decided on a parcel basis, but by the suitability of the sites with regard to setback laws, deer activity, access and safety. As all participants will be conducting their activities from a stand only, concerns over accidents arising from the density of participants per site can be put to rest.

Q. Is my neighbor getting paid for the deer management activities on their property, or are the services provided by the town? (Is the town footing a bill?)

- A. No resident is getting paid for access to their property. Costs for corn feeders, corn, program tracking and administration are borne by the Town. Equipment used by participants (bows, arrows, clothing, tree stands, other equipment and transportation) are the property of the participant, who are volunteers. Meat is processed by participants for personal consumption, or by butchers volunteering their time. This encompasses the entirety of the costs associated with the program.

Q. Who is liable if anything happens on my property?

- A. This depends entirely on what occurred. Wounded deer that run onto adjacent lands will, with the permission of the landowner, be retrieved. No activities will take place on properties without written permission from landowners.

Q. Are there restrictions on the time of day for management activities?

- A. There are restrictions, and they are detailed in the permit application submitted to the NYS Department of Environmental Conservation.

Q. Can the archers come on my property?

- A. Again, no activities will take place on your property unless you have provided written consent to the Town.

Q. Are you being selective in which deer are taken in the program?

- A. To administer an effective program, we are following guidelines established by other municipalities in this county regarding which deer to take. To best manage impacts from over-abundant deer populations and meet the goals of our management plan, we instruct our participants not to be selective in the types of deer they take shots at, so long as it is an unobstructed sightline.

Q. What if an injured deer comes onto my property? I do NOT want an archer near my house.

- A. Law enforcement will be apprised of all shooting activities and may be contacted should a deer expire on your property. Should management activities take place adjacent to your property, you will be well contacted before tree stands are erected. Your wishes regarding access can be made known then, and they will be respected by all parties involved.

Q. What is the time frame in which you are doing this? Does it correspond to hunting season?

- A. Deer management actions do not necessarily correspond with hunting season. Other programs have taken place between September and April 1st. Days and times of the week that takings may occur will be left to the discretion of the Committee for Deer Management.

Q. I picked my property because it is peaceful. How can you guarantee no one will trespass?

- A. All participants are fully aware that failure to comply with the guidelines set out by the Town will disqualify them from future involvement in our program. Should anyone trespass on your property, they expose themselves to the possibility of legal action should you wish to pursue it. This has not been an issue in previous programs as participants have proven to have the utmost respect for landowner rights. All the volunteers who are offering their time and expertise to the program have been vetted by the Committee.

Q. How will they be identified as a “town approved archer” as opposed to a random trespasser?

- A. If you have given written permission to the Town for participants to enter your property to retrieve a deer, the participant must alert you and identify themselves before searching the property.

Q. Can I get venison for free?

- A. It is not uncommon for participants and landowners to reach some agreement about an exchange of meat. The Town does not involve itself in such agreements. Some meat will be donated to the Food Bank of the Southern Tier and they may be contacted regarding the availability of venison.

Q. Is this only private property or Town land?

- A. The private land model is used by other municipalities, and we intend to follow this. Given the unique matrix of rural, suburban and urban landscapes throughout the Town, the use of public lands may be explored in the future.

Q. Why haven't I heard of this program before?

- A. This question can only be answered after the implementation of a strategic, proactive and engaging communications plan. There should be opportunities for public input, an iterative process for the program (including communications) and multiple forms of media utilized to reach residents. In short, the Town of Ithaca will want to be able to say that the degree of consultation sought from residents is beyond what typically takes place before implementing such a program: And it must be true. If the Town Board disagrees with this assessment, this document may be edited to reflect their wishes.

Q. If there is hunting activity on a property next to mine, how will I know?

- A. If your property is adjacent to a parcel on which management actions are being considered, one of the Deer Management Committee members will reach out to you before any activities take place. At that time, the Committee member will ask you if you are amenable to participants accessing your property in the event a wounded deer runs onto it.

Q. I am concerned about my children who play in the woods behind our house which belongs to us. How can you guarantee their safety?

- A. Our participants are not roving the woods looking for deer. They will not cross property boundaries to retrieve a deer without first consulting you, the landowner. All participants will have parcel maps of the area in which they are active, and will have familiarized themselves with the area during the day to minimize the possibility of accidentally crossing a property line.

Deer management activities will take place during certain periods of day— often late in the evening or early in the morning – to be determined by the Committee. You will be consulted if there is planned activity on an adjacent piece of land. All participants know, and will be repeatedly reminded, of the importance of only taking shots that have an unobstructed sightline. This eliminates the possibility of an arrow being deflected off course. Lastly, as all participants hunt exclusively from tree stands, the downward trajectory of the arrow ensures it does not travel any further than intended.

Q. Who covers damage to my property if a deer is spooked?

- A. To date, there have been no reported cases of damage caused by deer, which were spooked by management activity. The Draft Landowner Agreement indicates The Town agrees to indemnify the Landowner for, and save the Landowner harmless from and against, any and all losses, costs, damages, expenses, claims, liabilities and obligations (including reasonable attorney's fees) sustained or incurred by the Landowner as a result of the Town's or the Participant's performance of the actions that the Landowner has consented to in Section 2 of this Agreement, except to any extent sustained or incurred as a result of any action of the Landowner.

Q. How do we know there is a deer problem at all?

- A. There have been long term, scientifically rigorous studies administered by many scientists at Cornell University not only demonstrating that there is a deer overpopulation problem, but what the landscape-level effects are as a result of the excessive herd size. Paul Curtis and Jay Boulanger last performed a camera trap survey in 2012 that put deer densities in at least one location in the town at 125 per square mile. This severely impairs forest regeneration and habitat and forage for birds. The Tompkins County Highway Department removes deer carcasses from roadways they maintain. In 2015, they released data on this activity. That year the TCHD cleared 185 deer carcasses from their roads alone. One road had greater densities of pick-ups than any other, North

Triphammer Road with 3.88 deer per mile. In 2012, the DEC established the first ever Deer Management Focus Area here as a response to the unusually large populations densities. This effort was an attempt to discover the effect of increased hunting on deer populations given a higher take limit.

- B. Herd numbers aside, the metrics that really matter scale the impacts that an overly large herd has on local ecosystems, human health and safety and the costs borne by residents. Ultimately this is a judgement call, one that we believe to be too “expensive” in every sense. Numbers to support this have already been presented earlier in the report.

Q. Why are we pursuing archery as the method of removal as opposed to firearm hunting?

- A. The use of bows is much safer, as arrows do not travel nearly as far as bullets. Additionally, shorter setback distances for bows allows participants to take deer on smaller parcels of land. In effect this enable us to go where the deer are and improves the effectiveness of the program.

Q. Why does the Town need to involve itself in this process?

- A. Professional oversight and coordination of this program is imperative. Coordinating efforts across geographies and political boundaries requires the involvement of political agencies with a mandate to protect property and public health. Having professional staff administering the program enables an “economy of scale” - vis-a-vis application for more nuisance permits - than would be possible if individual landowners attempted to undertake a similar program.

Q. What protocols are in place to ensure that stray arrows aren’t going to cause damage or harm?

- A. Our program abides by New York State’s minimum setback limits. This means no archer can take a shot if they are within 150 feet of a building without the building owner’s permission. Additionally, all participants shoot from stands with established cleared shooting lanes. These ensure that arrows cannot glance off branches to deflect from the intended target. And, because all archers shoot from stands over corn bait, shots are at close range, are angled down into the ground and are assured an ideal positioning of the deer for a clean shot.

Q. How can you ensure that archers are killing deer humanely?

- A. All participants taking part in this management program have been vetted for proficiency and temperament by an impartial and professional agent. Strict ethical standards and codes of conduct are a part of every archers’ training. Reports of violations of these standards are dealt with under program guidelines for discipline, and with the knowledge that the public’s trust is at stake.

Q. How much did this program cost, and what steps were taken to manage expenses?

- A. Cost vary from year to year [annual expenses can be reported]. Much of the hunting equipment (bows, hunting stands, etc.) are participant-owned. The Town elected not to

perform costly herd population assessments, which reduced the cost of the program by many thousands of dollars annually (See: Budget).

Q. What happens to the meat? Is it going to waste?

- A. The Triad Foundation, a local philanthropic group, has helped municipalities meet the cost of processing deer in the past. There are butchers that are a part of the Venison Donation Coalition process the carcasses for free and deliver the meat to a food pantry. The Food Bank of the Southern Tier is happy to pick up the meat at no cost.
https://www.facebook.com/pg/Triad-Foundation-Inc-307382019274942/about/?ref=page_internal

Q. Why hasn't something been done about the deer problem sooner?

- A. Embarking on a deer management program in an area with a history of resisting such actions is a project fraught with challenges. We wanted to make sure we got it right. We needed to research primary papers to justify the need for a program, speak with stakeholders, deliberate the best way forward, draft a formal plan and implement it thoughtfully. We hold the safety of our citizens to be of paramount importance, and had to speak with officials in municipalities who have experience implementing such programs to make sure we were putting together a safe and effective program. All of this take a lot of time and leg work: much of it being done by dedicated volunteers who have other commitments to tend to. Yes, we would have like to have had a program in place sooner, but we took the time to lay the groundwork for the most successful and safe program we could.

The following questions were printed in the article: *"Wildlife biologist: Why non-lethal means rarely work to control deer numbers"* in the Syracuse Post Standard (Figura, 2015a):

[...] Brian Underwood, a U.S. Geological Survey wildlife biologist at SUNY ESF and long-time deer researcher, has been attending and speaking at public meetings on deer issues across the Northeast since 1990...Underwood said to make any sort of impact on a deer herd in a community – to just maintain the status quo – at least 40 percent of the does need to be removed annually. He said a healthy female deer on the average has two to sometimes three fawns each year.

"Typically, it's going to require more than one method to successfully resolve issues with deer on landscapes as big as Syracuse's east side communities and elsewhere," he said. "It's a pretty standard script. There's always a similar progression of ideas and thoughts in deciding what to do about the deer. Everyone has to go through the process and wrestle with the issues. There's only so many ways you can do this."

In a recent interview, Underwood discussed why, in his opinion and in his experience, non-lethal measures alone often don't work when it comes to controlling deer numbers – particularly in areas where deer are free to come and go. He addressed approaches that

are frequently voiced at public meetings.

Why don't we just trap and relocate these animals to somewhere else – say the Adirondacks -- where they can roam freely?

[...] The DEC or any other fish and wildlife department are dead set against transferring wildlife from one area to another. One reason is for the safety of the animals. They are unfamiliar with where they're being placed and studies have shown that their survival rate is often low. The biggest reason this is unacceptable, though, is the possibility of introducing chronic wasting disease and other deadly transmittable diseases from one area to another. Finally, it's not easy to trap deer – and often the strain of the process will hurt or kill them.

Well, why don't you just dart them with a tranquilizer and relocate them?

No, for the same reasons that trapping and relocating them won't work. In addition, when you tranquilize deer, it's very risky. Often you'll end up hurting or killing a few animals despite your best intentions. Some deer struggle so much when they're tranquilized that they'll die later from "white muscle" disease, which is a degradation of the muscles from struggling. Wild deer don't take well to captivity, even for a short period of time. You then let them go and often they'll be dead two weeks later out in the wild.

Why not just encourage residents or property owners to plant things that deer won't eat and then they'll go away?

“ [sic] That may solve part of the problem, but not all. Sure, they dine on tulips and gardens. But deer will subsist on grass if they have to. That's happening right now off the Beltway in Washington, D.C. Once they've come to your neighborhood, there's not much you can do to prevent deer from living there, short of paving your yard. You're not going to keep deer from establishing home ranges because you've planted food that they don't like. Instead, of your yard being a breakfast table, it'll end up being a deer's bedroom.

Why don't the people who don't like the deer put up high fences to keep them out?

Sometimes fences can work on small parcels, such as around gardens. But when everyone starts building fences around everything, bad things happen. Most zoning boards have height restrictions for fences on property. The bottom line is you're not solving the problem. You're just shunting it from one area to the next.

What about using dogs to chase the deer to keep them out of urban or suburban areas?

Certain businesses have effectively used trained border collies, for example, on corporate lawns to keep the deer and geese off. It might work on a single property, a small group of properties or in a cemetery. But the cost would be ridiculously high for a whole community,

and you'd have deer running back and forth. This would undoubtedly result in a spike in deer/motor vehicle accidents.

What about allowing Mother Nature to do her thing and reintroduce coyotes or wolves – the so-called natural predators -- to take care of the deer?

The coyotes are already here. And if folks are uncomfortable with coyotes in their backyards, they're not going to want to have wolves hanging around. The reality is the biggest predator of deer in urban and suburban areas right now are humans with their cars and trucks – and obviously they're not stabilizing or bringing down the herd size to acceptable numbers.

What about using birth control or simply sterilizing them?

This has been tried, and in some cases it's worked. On individual animals, in particular, it's highly effective. However, as the population of deer you're dealing with grows and the area you're dealing with is large, those things tend to erode the efficiency of these approaches. There are all sorts of cost and logistical problems – among them new deer wondering into the targeted area.

I was involved in a project using anti-fertility drugs for 17 years on an island off the coast of Long Island. One of the big problems was getting access to all the females. Some were easy to get, others were extremely hard to find and dart. The birth control drugs are not all that expensive, but they do have to be injected annually. The big cost is you're paying for someone's time. On top of that, you won't really start seeing an impact on a big herd for five or 10 years -- and most communities don't want to wait that long.

As for sterilization, the same time frame applies. Although sterilization is much more expensive than using anti-fertility drugs, you only have to use it once. So in the long run, the cost will be about the same. The problem once again, is capturing all the deer to perform the operation.

One final thing, why do deer have to be killed in these culling programs using bows, crossbows or firearms? Why not try an approach that is more humane, such as darting them with a drug that puts them asleep and kills them painlessly?

What is humane varies from individual to individual. As for the use of darting deer with lethal drugs; that's often not considered for one big reason. Folks want to see the meat used and often that means donating it to local food pantries and giving some of it to the individuals who are taking the deer out. Using a lethal drug would contaminate the meat, rendering it unusable.

Appendix 4: Draft Landowner Agreement

Landowner Consent Agreement

This Agreement is made by and between _____, whose address is _____ (the "Landowner"), and the Town of Ithaca, a New York municipal corporation having offices at 215 N. Tioga St, Ithaca, New York 14850 (the "Town"), acting through the Town's law enforcement agency (the "Tompkins County Sheriff's Office").

A. The Landowner is familiar with the Town's efforts to manage and reduce the population of deer within the Town, referred to in this Agreement as the Town's Deer Management Plan ("DMP").

B. The Landowner understands that the Town has engaged or will engage the services volunteer archer Participants to effect the culling of deer.

C. The Landowner is willing to allow the Town, including the Tompkins County Sheriff's law enforcement officers, and the Participants to use the Landowner's property in connection with the DMP as stated in this Agreement.

For the consideration set forth in this Agreement and other good and valuable consideration, the Landowner and the Town agree as follows:

1. The Landowner owns the property located at _____, in the Town of Ithaca, New York (the "Property" or "my Property").

2. The Landowner hereby consents to, and the Landowner hereby grants permission to the Town, including to the Tompkins County Sheriff's Office, and to the Participants to take, the following action(s):

a. Place or install bait sites on my Property for attracting deer for sterilization or culling.

YES NO

b. Discharge crossbow or vertical bow on my Property, including within 250 feet of my residence (150 feet for vertical bow), for shooting deer located either on my Property or on adjacent or nearby property.

YES NO

c. Discharge crossbow or vertical bow on adjacent or nearby property, within 250 feet of my residence (150 feet for vertical bow), for shooting deer located either on my Property or on adjacent or nearby property.

YES NO

d. Discharge crossbow or vertical bow on adjacent or nearby property, within 250 feet of my residence (150 feet for vertical bow), for shooting deer located either on adjacent or nearby property.

YES NO

3. Any action taken on the Property will be in accordance with applicable Town law, New York State law, any permit required for such action issued by the New York State Department of Environmental Conservation, and the agreement between the Town and the Contractor.

4. The Town will arrange for the Participant to remove from the Property all deer killed.

5. The Town agrees to indemnify the Landowner for, and save the Landowner harmless from and against, any and all losses, costs, damages, expenses, claims, liabilities and obligations (including reasonable attorney's fees) sustained or incurred by the Landowner as a result of the Town's or the Participant's performance of the actions that the Landowner has consented to in Section 2 of this Agreement, except to any extent sustained or incurred as a result of any action of the Landowner.

Executed this _____ day of _____, 20_____.

Town of Ithaca Landowner(s)

Authorized Representative

Print Name

Signature

Print Name

Signature

Appendix 5: Cornell Code of Conduct

Cornell Deer Nuisance Program Activities 2016

Our deer nuisance program is designed to maximize both participant and public safety, reduce potential confrontations or objections by the public while greatly increasing deer removal around core campus perimeters. **All participants are required to obey all instructions and rules set forth below (and any updates).** Failure to follow these rules will result in immediate and permanent removal of violators from the program.

General

1. All participants must be approved by Cornell Police (CUPD), submit their vehicle information (license plate numbers of all vehicles that may be used during permit activities) and contact information (email, cell phone). All participants are required to carry a CUPD issued permit (release permit) while participating in our activities allowing bows in their personal vehicles on campus (must be concealed in locked trunks).
2. We will maintain a database of participants and their contact information that will be made available to all participants, CUPD as well as DEC Environmental Conservation Officers (ECO's). This should reduce the possibility for interruptions as ECO's check reports for potential poaching activities. All participants will be provided contact information for CUPD and ECO's as well.
3. Due to the high sensitivity and potential for objections to our activities from some community members, please refrain from public advertising of this program; particularly stand locations and names of participants.
4. We use a Qualtrics website to manage observations, stand use and deer reporting. A separate document details the functions of this website and how to do the reporting.
5. We will ask for more extensive reporting of participant activities to allow us to better manage this program to maximize deer take while maintaining stand productivity. In addition we will ask for your observations (similar to the bow hunter observation log) while in the stand, as well as your activities (number of arrows used, deer taken or wounded etc.) and potential confrontations. This will need to be reported within 24 hours and allow us to collect information on the safety and efficacy of our program. We have used this effectively to dispel rumors about cruelty of bow hunting, wounding rates and distance of deer traveled so we appreciate you helping us out.

Program Details

6. Permit activities will be allowed from 1 January 2016 to 31 March 2015. We reserve the right to cancel portions or the entire program should we deem this necessary.
7. In a change from previous seasons, we have closed certain areas for recreational hunting during the DMFA season and going forth. As of today (1/5/16) we will only be allowed to bait but not use nuisance tags during the DMFA season. We will provide updates and clarifications as locations will be affected differently.
8. Daily shooting hours will be ½ hour prior to sunrise to 11PM (for those with verifiable experience using lights). Please note these are shooting hours; you will be allowed to retrieve or follow blood trails to locate a deer outside shooting time windows.

9. Among our participants Matt Sacco owns a tracking dogs. Please use his help if tracking becomes difficult and the signs warrant this effort. Matt will make these judgments.
10. Activities will only be conducted at pre-determined and approved locations (tree stands or ground blinds). No stalking or shooting while walking in or out of stand; no driving of deer. The only time this does not apply is if you need a follow-up shot and need to walk up to a downed deer. Weapon discharge restrictions still apply. Participants must be aware of a downed deer's location with respect to restricted area boundaries.
11. Locations are only available for an individual or a restricted number of participants. This "ownership model" is designed to allow participants to manage specific locations to maximize deer take. There are more locations than participants and we will have the ability adjust locations and participants as needed.
12. All locations will overlook bait placed approximately 20-25 yards from tree stands. During permit activities, participants are required to bait sites they are going to visit and we encourage you to help with baiting during resting periods. Please coordinate with Mike Ashdown. We also now have automated feeders available and will purchase more if required. All bait will be stored at the REM facility and further instructions will be provided to each participant.
13. No individual treestand should be hunted more than twice a week. We will determine changes to this procedure as needed. We may experiment with differences in the length of rest periods.
14. Where applicable, parking in approved areas only (instructions were provided to individuals where needed). Access to treestands and deer removal occurs only via designated routes.
15. Use your best judgment and be aware of your limitations for shot selection. Do not risk our long-term goals to reduce deer damage by taking poor shots.
16. **Do not shoot when other people are within 200' of your treestand.**
17. While in the field, each participant needs to be in possession of the Cornell permit, the release permit (both signed by Bernd) and at least a single nuisance tag. We will initially have 40 tags available and replenish them as program success determines. Tags will be stored at the REM. Immediately after confirming a deer kill you will need to alert Bernd via text message. **What we need to avoid is shooting more deer than we have permits for.** You can shoot more than a single deer as long as we as a group have sufficient permits available that day. We have discussed with the DEC that we can rapidly get new tags issued.
18. Be honest in your reporting via the Qualtrics survey, it will be done anonymously to outside sources. Double lung shots will also reduce distances deer travel and avoid any landowner conflicts.
19. We no longer have strong preference for your choice of deer to shoot should multiple deer approach a stand. The highest priority still should be adult does without ear tags. **Our permit is for antlered and antlerless deer. You are allowed to shoot antlered deer.** Many males will not have dropped their antlers in January but you will need to remove antlers and place them into a cardboard box located on the bench at the REM where we keep the other materials. We will need to deliver antlers to the DEC every 10 days; this is a change from previous seasons. The goal is to **greatly** reduce deer abundance and damage and bucks contribute to that as well.
20. To avoid educating deer too quickly, do not wait for large groups to assemble at your stand or wait for deer with higher priority to approach (if you can see them in the distance). Ideally, we want to shoot single individuals to reduce alerting others in the herd or family group. Do NOT engage groups of 5 or more – too many individuals will be educated.

21. No field dressing at any properties so prepare sleds, carriers, etc. Deer should be concealed (small tarps etc.) while transporting them to your vehicle during daylight hours, particularly at locations where you may encounter other recreational users (or when snow is on the ground). We are working on a site where field dressing may occur – we will alert you when that is ready should you need it. All deer should be used by participants or donated. Depending on demand and take, we like for you to donate deer to the Foodbank of the Southern Tier through our approved processor and the Venison Donation Coalition at no cost for you. The approved processor is John Gain at 525 Peruville Road, Groton NY (Country Harvest and Big Boy Sealant). You can drop off field dressed deer there during regular season or call Don (607-533-4525). We will also maintain a list of individuals wanting additional deer for their freezers and will share this information with all of you.
22. Provide observations and deer take within 24 hours through our website (instructions in separate document).
23. Please collect hair samples from each deer and deposit samples in the jar next to the antler drop off at the REM. Sample bags are in the folder, please provide the appropriate information. A separate document will be emailed to you for details.

Notes on personal behavior while conducting activities

24. Have cell phones ready and text among participants. If you see violations record them with video or pictures and call CUPD (255-1111).
25. Knowledge of property boundaries, and respect for preferences by other users of Cornell lands are especially important. We will provide this landowner information as it is needed. Be as discreet and silent as possible, use your best judgment and leave if a stand is compromised, do not confront other users unless being approached but report to Bernd.
26. Sometimes, particularly on evening walks into stands or in the mornings when walking out, it may be best to remove camouflage clothing at certain locations if other users are present. Make sure to remove headgear and put bows on the ground. Where necessary let other users pass while staying off trails, particularly when removing deer. But be friendly and cordial when approached without offering details. If you encounter media, refer them to John Carberry (office: 607-255-5353; mobile: 607-882-1777).
27. Within the area, there are certain individuals or landowners who do not support lethal deer management. Conflicts may arise; make sure you are mentally prepared when confronted. Stay calm, do not try to win an argument or engage in a shouting match. Call Cornell police (255-1111) and Bernd for advice immediately if conflicts arise or if you are unsure about a situation. Explain that you are part of the approved Cornell deer management program and then wait for support or the Cornell police to arrive.
1. Do not gather in large groups in camouflage. If you need to track a deer long distance, do this with as few people as possible. If you need to venture out of approved areas ask Bernd for advice.

A few notes on suburban deer management

2. Deer are often less cautious, scent does not play as important a role early because deer are used to human scent. But deer will quickly “smart up” as the easy ones are taken. Do not spook deer unnecessarily. Many surviving deer have smarted up after being pursued or shot over bait. Avoid bad wind directions or otherwise spooking deer. Deer

are visibly cautious when encountering tracks in the snow, so approach stand locations carefully.

3. Often there are multiple shot opportunities in a single sitting. Instead of immediately retrieving deer after you have taken a shot and see or hear the deer fall, wait for additional deer to come by and retrieve them at the end of the sit. The exception is if you see deer fall in areas close to trails or used by others.