

Adopted by D&T Committee 6/5/19

Deer Management Plan

*Town of Shelter Island, New York
2019*



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PLAN SUMMARY AND BACKGROUND

The Town of Shelter Island is geographically situated on an island located near the eastern end of Suffolk County, New York. The entire island encompasses approximately 11.9 mi² of land area with roughly 3.2 mi² privately owned by The Nature Conservancy. The remaining area (8.7mi²) is generally suburban, with fragmented sections of open space interspersed throughout an otherwise residential community.

In 2005, the Town of Shelter Island created a Deer & Tick Committee to investigate and recommend potential solutions and strategies to address growing concerns surrounding over abundant deer and tick populations. The all-volunteer Committee is made up of community stakeholders appointed to 3 year terms. Currently, the Committee embraces a 3-pronged approach to addressing issues surrounding deer and tick populations: Deer Management, Deployment of 4-Poster™ devices, and Public Education.

The Town's Deer Management Program controls deer hunting on most public lands, as well as several private properties that have elected to join the program. The Shelter Island Police Department manages the Program to ensure the safety of all involved. The Program coordinates effort, goals and data sharing with The Nature Conservancy and Sylvester Manor's deer management plans to effect island-wide deer management.

4-poster™ devices are deer feeding stations designed to control adult black-legged ticks and all life stages of lone star ticks on deer. As deer feed on bait (corn), rollers treated with a permethrin-containing acaricide rub against the animals' head, neck and ears where many ticks feed. Cornell University conducted a 3 year 4-Poster™ study on Shelter Island from 2008-2010 and the Town has deployed 4-posters™ every year since.

The Committee's efforts to promote public education have included hosting educational forums, the printing of brochures and articles, and the development of the Committee's website. Additionally, the Committee encourages collaboration with other agencies, as well as the academic and scientific communities to ensure the Town receives and shares the most current data available.

This plan is intended to provide direction and goals for the Deer Management portion of the Committee's efforts over the next 3 years. Every effort has been made to ensure the goals herein balance the needs of the community with the wishes of the various stakeholders.

PROBLEM DEFINITION

Research has shown that deer densities above certain thresholds can be considered overabundant. In a balanced ecosystem, overabundance typically occurs when deer density exceeds an area's environmental carrying capacity, or all of the natural resources available to support herd health. In this scenario, natural reactions occur to reduce the surplus population (i.e., rise in predation, starvation, etc.). In most cases, suburban environments typically reduce predation (removal of predators, enacting weapon discharge restrictions) and increase carrying capacity (fragmentation of landscape, supplemental vegetation). In these environments, deer populations are more apt to be subject to an area's social carrying capacity, or the number of deer a given community is able to tolerate. Regardless of which density we wish to achieve, or associated impact we wish to address, Shelter Island's deer population, recently estimated at over 100 deer/mi², is unequivocally over abundant.¹

Overabundant deer populations can impact communities in a variety of ways, most of which tend to fall into three broad categories: 1. Ecological Damage (i.e., deforestation from over browsing, loss of bio-diversity, etc.) 2. Human Conflict (i.e., ornamental damage, agricultural damage, etc.) 3. Public Health and Safety (i.e., increased prevalence of tick-borne illness, deer-vehicle collisions, etc.).

1. Ecological Damage

According to the U.S. Forest Service, ecological damage caused by over abundant deer is considered "a threat to millions of acres of forest land" in the Northeast². On Shelter Island, this damage has been well documented since 2000 with Mashomack Preserve identifying deer browse as "the single greatest threat" to the Preserve's forest³. In addition to preventing forest regeneration, extreme deer browsing fundamentally alters forest composition and bio-diversity by removing/preventing native vegetative growth. The resultant forest, dominated by weedy or invasive species, offers limited habitat for a variety of desirable flora and fauna. Recent examination of the Town's preserved open spaces revealed significant regenerative failure of all species sampled⁴. This failure can be readily identified by the absence of secondary growth below a height of roughly 5', or the height to which deer typically browse. The Town has many parcels of land which have been preserved in an effort to promote and protect our natural environment, however, under the current browse conditions these areas are at grave risk of becoming primarily historic in nature; ecologically depressed sites where a vibrant natural biomass once thrived.

2. Human Conflict

The extent to which overabundant deer populations result in negative human interactions is a difficult issue to define. People tend to value various issues differently and thus tolerate conflict to varying degrees. In 2017, the Committee surveyed residents of Shelter Island to ascertain their thoughts on several deer and tick related issues. An impressive 33% response rate demonstrated the significance of these topics with our community. A majority (85%) of respondents indicated their vegetation had been damaged by deer, with more than \$847,000 in damage reported.⁵ Shelter Island's only active farm, Sylvester Manor Educational Farm, erected a 10-foot high fence around its crop field in 2012 at a cost exceeding \$22,000.⁶ Additionally, a brief drive around the island's neighborhoods will reveal countless deer fences protecting ornamental vegetation and personal gardens. Several residents have elected to fence entire properties despite the Town Code's prohibition of such fencing.⁷

3. Public Health and Safety

Public Health and Safety can be significantly impacted by over abundant deer populations. Studies have shown that deer-vehicle collisions (DVC) and tick-borne disease (TBD) incidence are linked to deer population size.^{8,9} In general, as deer density decreases, the rate of DVCs decreases. When deer density is low enough, the incidence of TBDs also decreases. Although the Town has conducted more than a decade of managed hunting, DVC's still account for approximately 27% of all reported motor vehicle accidents on Shelter Island since 2006.¹⁰ Survey respondents reported over \$930,000 in damage resulting from DVCs on Shelter Island alone.⁵

Deer are the primary reproductive host for the adult Black-legged tick (*Ixodes scapularis*), as well as the preferred host for all stages of the Lone star tick (*Amblyomma americanum*).¹¹ Both tick species are known to transmit a variety of vector-borne diseases to humans with confirmed cases of Babesiosis, Erlichiosis and Lyme Disease on Shelter Island.¹¹ Reliable data on local TBD incidence is scant at this time, however, 60% of residents reported they had been treated for a tick-related illness.⁵ Despite the past efforts to decrease tick populations in an effort to reduce risk (i.e. managed hunting and 4 Posters), 95% of all respondents believe there is still a tick problem on Shelter Island.⁵

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GOALS

After careful consideration of the many environmental, economic and social factors, the following goals have been established. The Committee believes these goals are attainable by 2022, provided the management objectives are employed as needed.

- 1. Reduce the ecological damage occurring on Shelter Island.*
- 2. Reduce the percentage of DVCs occurring on Shelter Island.*
- 3. Mitigate the risk of contracting a tick-borne illness.*
- 4. Mitigate human conflicts with deer.*

MANAGEMENT ACTIONS CONSIDERED

In an effort to ensure appropriate action is taken, the Committee investigated several management actions. The actions listed below represent some strategies potentially available to the Town.

1. No Action

Advantages: No additional expense
No additional planning

Disadvantages: Issues will persist or worsen
Disregard of community input

Discussion: Taking no new or additional action would result in the continuation and perhaps exacerbation of the problems defined above. The current rate of harvest appears sufficient to maintain the deer population, but is insufficient to meaningfully decrease it in the proposed timeline.¹² Additionally, no action would be contrary to the 78% of survey respondents who want the Town to do more to reduce deer density.⁵

2. Non-Lethal Management

Exclusion, Fertility Control and Translocation are the three forms of non-lethal management considered during the development of this plan.

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A. Exclusion

Advantages: Excellent protection of vegetation
Rapid deployment

Disadvantages: Large scale use currently prohibited
Diverts population rather than reduce
Labor/Cost intensive

Discussion: Literature has demonstrated that forest regeneration thrives in the absence of deer browse pressure² and tick populations within protected areas can be reduced by as much as 90%.¹³ Large scale fencing efforts may exacerbate DVCs by forcing deer into roadways and unfenced areas may see dramatic increases in browse pressure. With the appropriate equipment, fences could be installed well within the proposed timeline. At an estimated cost of \$3,800 per acre⁶, a fencing campaign of the scope needed to protect all areas of concern could exceed \$1,000,000.

B. Fertility Control

Advantages: Perceived as “humane”
Significant reduction in birthrate

Disadvantages: Currently permitted only on experimental basis
Labor/Cost intensive
Delayed population reduction

Discussion: There are currently two methods of controlling the birthrate of free-ranging deer: the administering of contraceptive vaccines (i.e., PZP or GnRH) and surgical sterilization. Studies have shown up to 49% reductions in deer populations over a 3-4 year period, with the highest success rates realized in closed or isolated environments.¹⁴ With either form, the majority (>90%) of female deer must be treated to obtain optimal control.¹⁴ Utilizing this method, the speed with which the population is reduced becomes solely a function of mortality, which if low can translate to a delay in reduction. Presently, all fertility control programs within NYS are only permitted on an experimental (research) basis and must be conducted in conjunction with a lethal control program.¹⁵ Costs typically range from \$500 to \$1,500 per deer handled depending on

scope and available personnel (volunteers vs. staff).¹⁴ With females representing an estimated 64% of the Town's deer population¹, costs could range from \$224,000 to \$864,000 to achieve a significant (>50%) reduction in the deer population.

C. Translocation

Advantages: Perceived as “humane”
May benefit receiving community

Disadvantages: High stress induced mortality
Disease concerns
Labor/Cost intensive

Discussion: Translocation of deer is often suggested as a means of reducing overabundance, however due to disease (i.e., Chronic Wasting Disease) and liability concerns, finding willing recipient communities is often difficult, and in some cases prohibited by law. Studies have shown as many as 85% of translocated deer perish within 14 months of release.¹⁶ The USDA, several state wildlife agencies, and many wildlife professionals generally oppose translocation as means of addressing overabundant deer populations.¹⁷ Costs have ranged from \$400-\$3,200 per deer.¹⁸ Utilizing this method, a significant (>50%) reduction in the island's deer population could cost between \$240,000 and \$1,920,000.

3. Lethal Management

For the purposes of this plan, Lethal Management was divided into two categories: Recreational Hunting and Culling.

A. Recreational Hunting

Advantages: Low cost
Provides food to community

Disadvantages: Human safety concerns
Regulatory restrictions
Limited reduction ability

Discussion: The most common form of lethal deer management is

recreational hunting. The DEC utilizes recreational hunting as its primary deer management method, adjusting season lengths, tag allotment, etc. as needed to achieve management objectives. Studies have shown that recreational hunting alone may reduce deer density to under 50 deer/mi²¹⁹ but locally, it more often maintains deer densities at or near present levels.¹² Several thousand pounds of venison have been donated to the island community by recreational hunters.²⁰ For the safety of all involved, state law mandates specific distances and times for the discharge of firearms and archery equipment which restricts the number of areas available for recreational hunting.²¹ In Suffolk County, recreational hunting with firearms (Shotgun or Muzzleloader) is only permitted on properties at least 10 acres in size²¹, further restricting the available area. Given that recreational hunting is a *recreational* pursuit, there is typically little or no expense incurred by the benefitting community. Shelter Island has a Town-organized recreational hunting program offering property access, incentives, cold storage and butchering services.²² The programs cost the Town an average of \$19 per deer harvested during the past three recreational seasons.²³ A significant (>50%) reduction using only a recreational hunting program could cost \$11,400.

B. Culling

Advantages: Immediate and long term reduction
Provides food to community

Disadvantages: Human safety concerns
Regulatory restrictions
Labor/Cost intensive

Discussion: A more aggressive form of lethal management is culling, or taking deer in excess and outside of the recreational hunting season. The DEC allows culling on a case by case basis through the issuance of Deer Damage Permits (DDPs) and stipulates the number of deer to be taken, manner of taking (firearm, archery, etc.) and allowable location(s). Additionally, DDPs typically allow the use of bait and remove shooting hour restrictions.²⁴ Depending on the type of culling

(volunteer vs. professional), deer densities may be reduced to a desired level in relatively short timeframe. In general, as the scope of a culling program increases, so do the costs associated with the effort. For several years the Town has utilized volunteers to cull under our DDP with incentive, butchering and cold storage expenses averaging approximately \$120 per deer.²³ In February and March of 2018, the Town conducted a pilot program utilizing local Nuisance Wildlife Control Operators (NWCOs) which cost approximately \$221 per deer.²³ Professional culling operations (i.e. APHIS, White Buffalo) typically average \$350-\$500 per deer.²⁵ Utilizing only a DDP to significantly (>50%) reduce the island's deer density could cost between \$72,000 and \$300,000.

MANAGEMENT ACTION RECOMMENDED

Lethal Management

To achieve the above listed goals, the Committee recommends reducing the island-wide deer density to 50 deer per square mile by the summer of 2022. In consideration of the proposed timeline, as well as the financial implications for each method reviewed, the Committee further recommends that this reduction be attained through the use of lethal management. The alternative methods examined would be cost prohibitive, impractical for the proposed timeline, and potentially irresponsible. While 50 deer per square mile is in excess of levels typically associated with the mitigation of problems defined above, the Committee believes this to be a reasonable, attainable and socially acceptable level to achieve over the next 3 years. A careful examination of this plan's progress (see MONITORING PROGRESS) and an evaluation of the impacts associated with the 4-Poster deployment and Public Education should be used when determining goals and objectives for future plans.

The Town of Shelter Island currently utilizes recreational hunting as its primary deer management method, with 79% of the annual reported harvest taken by recreational hunters alone over the past three seasons.¹² Unfortunately, an examination of long term harvest records on the island indicates our recreational efforts are typically only adequate to maintain the population, mirroring the results found in scientific literature.^{12,19} While the Committee supports and appreciates the role of the recreational hunter in overall reduction, we clearly identify a need to augment those efforts if we are to achieve our goals. The 2018 NWCO program showed promise, more than doubling the number of deer taken post-season in

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2017.¹² Population modeling indicates this effort alone may have contributed to a 10% decrease in the 2018 summer population.²⁶

The Town and community benefit in several ways by relying on recreational hunters for the majority of the needed reduction and every effort should be made to continue and facilitate their efforts. However, due to the unpredictability in year to year hunter effort and success, the Committee would be remiss if we did not anticipate the need for continued augmentation efforts. We recommend that the level of post season intervention be a function of recreational effort, with more aggressive action taken following a season of lower recreational performance and conservative action following those which are more productive.

OBJECTIVE AND ACTIONS

We believe that the Goals enumerated above (see GOALS) can be achieved in the proposed timeline through the implementation of the recommended management action. The following Objective and Actions provide specific methods and are listed by aggressiveness of strategy. Implementation does not need to be taken in the order presented, however, doing so may ensure that the next step is taken only *after* other, less aggressive options have been employed.

Objective: Reduce deer density to $\leq 50/\text{mi}^2$ (summer population) by 2022.

- Action 1:**
- A. Encourage and facilitate recreational hunting on private properties.
 - B. Facilitate the acquisition of DDPs for private properties.
 - C. Enroll un-hunted and under-hunted properties in Town Management Program.
- Action 2:**
- A. Expand the use of the Town's DDP.
- Action 3:**
- A. Expand the current "NWCO" program to include all properties currently managed by the Town.
 - B. Increase qualified resident participants to 6+ individuals.
 - C. Expand eligibility to non-resident participants.
- Action 4:**
- A. Utilize a Town employee(s) to cull deer under the authority of our Deer Damage Permit.

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- Action 5:** A. Contract with a professional deer reduction organization on select properties.
- B. Contract with a professional deer reduction organization on all Town managed properties

MONITORING PROGRESS

Goal 1: Reduce the ecological damage occurring on Shelter Island.

Measurement method(s):

1. Annual evaluation and analysis of Town and TNC browse plots.
2. Initial inventory and establishment of additional browse plots as new property becomes available.
3. Annual evaluation of overall forest health by qualified Botanist or Ecologist.

Goal 2: Reduce the percentage of DVCs occurring on Shelter Island.

Measurement method(s):

1. Annual evaluation of long term DVC data.
2. Conduct additional public survey by 2022.

Goal 3: Mitigate the risk of contracting a tick-borne illness.

Measurement method(s):

1. Annual evaluation and analysis of tick drag data.
2. Annual evaluation and analysis of long term Shelter Island Doxycycline use.
3. Evaluation and analysis of Federal, State, County data as it becomes available.
4. Conduct additional public survey by 2022.

Goal 4: Mitigate human conflicts with deer.

Measurement method(s):

1. Conduct additional public survey by 2022.

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Objective: Reduce deer density to $\leq 50/\text{mi}^2$ (summer population) by 2022.

Measurement method(s):

1. Conduct annual camera survey.
2. Conduct annual spotlight survey.

PUBLIC ENGAGEMENT

To ensure community stakeholders have continued input in the decision making process, as well as have access to the information developed by this plan, several types of public meetings will be held periodically.

Deer & Tick Committee: Meetings held on the 1st Wednesday of every month at 10 A.M in the Town Hall meeting room.

Town Board Updates: Typically given at a Town Board work session in late April and late December. Work sessions are held on Tuesdays at 1 P.M. in the Town Hall meeting room.

Hunter Meeting: Typically held on the 3rd Tuesday of September at 7 P.M. in the Town Hall meeting room.

Public Survey: The last public survey was conducted in the summer of 2017. A follow up survey should be conducted by summer 2022.

BUDGET

Funding for the recommended management action should be provided in the annual Animal Control budget, specifically line A3510.498 titled "Deer Reduction Management". This budget is prepared and submitted each year as part of the Town's overall annual budget and therefore must account for any anticipated one-time and reoccurring costs expected in the budget year ahead. A careful evaluation of each year's progress must be made using the methods defined above (see MEASURING PROGRESS) to ensure progress pursuant to this plan remains fiscally, ecologically and socially responsible.

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RESPONSIBILITIES

- Town Board:*** Ultimate responsibility for the implementation and results of this plan. At the Board's discretion, changes to this plan may be made as needed to ensure the best possible results for the community at large.
- Deer & Tick Committee:*** Responsible for identifying and analyzing new information, discussing and evaluating potential costs and benefits, and making sound recommendations to the Town Board. Collaborate with Police Department to develop annual budget.
- Police Department:*** Manage the implementation of this plan to ensure safety of all residents. Collaborate with the Deer & Tick Committee on, and present annual budget.
- Animal Control Officer:*** Oversee the daily operations associated with the implementation of this plan. Collect, analyze and report information developed pursuant to this plan. Complete and file all applications, reports and data required to obtain a DDP. Develop preliminary budgets to ensure adequate funding will be available to implement the management actions as needed.

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