Summary Report of Cayuga Heights Deer Study Committee

I. Introduction

At the end of the 19th century white tail deer in New York State were seldom found outside of the Adirondack Mountain region. Since then their population has grown and deer are now found throughout the State. Suburban landscapes with ample food and woodland cover provide ideal deer habitat. Increases in suburban deer populations have been accompanied by increased concerns over the negative impacts of deer on plants, ornamental shrubs, and the suburban ecology; car-deer collisions; and Lyme disease. Communities across the state including Amherst, Irondequoit, North Haven, and Fire Island have taken action to control deer or are considering what to do. Deer population control has proven to be a controversial, complex, and difficult issue.

In the spring of 1998, a group of Cayuga Heights citizens began meeting to explore actions that might be taken to reduce deer problems. A petition drive was organized to ask the Cayuga Heights Board of Trustees to appoint a Deer Study Committee to examine the deer population and perceived problems, and to recommend appropriate action. A committee of nine villagers was appointed on August 17, 1998. The first meeting was held on September 8. Membership in the committee was expanded both in March and again in July 1999, to improve the diversity of the committee membership.

Since its inception the Committee has met over 35 times, researched deer problems, methods to control deer damage and deer numbers, and actions taken by other communities. In conjunction with researchers at Cornell, a survey of Village residents was conducted in the winter of 1998-99, and the results released in March 1999. In October 1999, the Deer Study Committee held a public meeting at the Dewitt Middle School and preliminary findings were presented, then discussed in small focus groups. People attending the meeting were asked to fill out a questionnaire to help the committee to determine the views of those attending. Following this meeting the committee recommended to the Village Trustees that they help support a study by Prof. Paul Curtis of Cornell of deer numbers and movement within the Village. This study was supported by the Cornell Agricultural Experiment Station and NY Cooperative Wildlife Research Unit as well as the Village. Much needed data were obtained to estimate deer numbers during the spring and fall of 2000, and evaluate deer movement through radio collar studies.

On January 17, 2001 the Committee will hold a second public meeting at the Dewitt Middle School to discuss deer problems and possible actions. The Committee has invited five guests to help inform the public: Alan Rutberg of the Humane Society of the United States, Bill Porter of the NYS College of Environmental Science and Forestry, Paul Curtis of Cornell University, Jay Kirkpatrick of ZooMontana, and Jim Glidden of the NYS Department of Environmental Conservation (DEC). At the meeting the committee and the guests will make short statements and then the meeting will be opened to questions and brief comments from the attendees. Following this meeting, researchers at Cornell, again working with the committee, will conduct a second survey to determine the opinions of village residents regarding the deer. Of particular interest to the committee will be the number of villagers wanting deer population control, opinions on optimum herd size, and attitudes towards different methods of population control. The data from this survey will provide important input to the committee in determining its recommendations for the Village Trustees. These recommendations are expected to be presented in March 2001.

In the following sections of this report we present in summary fashion what we have learned in the last two years about deer in the Village of Cayuga Heights, and what could be done to reduce problems associated with the increasing deer abundance.

II. Impact of Deer in Cayuga Heights

1. The concerns related to growing deer numbers expressed by villagers include damage to ornamental shrubs, flowers and to vegetable gardens, deer-car collisions, spread of disease and habitat degradation.
2. Damage to gardens and plantings are of greatest concern to residents. Over 80% of villagers have experienced such damage as indicated by the Cornell survey of 98-99. The deer damage varies from area to area, with heavier impact observed in the Highgate, North Sunset, Klinewoods and the Palmer Woods areas.
3. The impact of deer on suburban ecology and the habitats of other animals can be significant. When food is scarce, deer will eat almost any plant species.
4. Deer-car collisions are a concern of residents. The number of such collisions within the Village that are reported to the police has remained fairly steady for the last 6 years at about 10 per year. The Cornell deer study of 2000 has indicated a higher number of deer-car collisions, most occurring on Route 13.
5. There is concern over deer as a source of disease, especially Lyme disease. This disease is spread by a tick, and the tick's abundance has been found to be correlated with deer abundance. It has been suggested that the risk of contracting tick-borne diseases can be decreased by reducing local deer densities. However, the Ixodes tick feeds off many other mammals, and deer apparently play little role in infecting the tick with the agents of Lyme disease. In addition, tick infection rates are highly variable, and the rate is very low in Tompkins County. Consequently, while the presence or absence of deer has been found to be of critical importance in determining the abundance and dispersion of the tick, it does not follow that reduction of deer will automatically reduce the incidence of Lyme disease. Tick levels on deer tagged in the Village in 2000 were low.
6. The overall negative impact of the present number of deer in Cayuga Heights is attested to by the large majority of residents responding to the 1998-99 Cornell survey who preferred a reduction in the deer population (approximately 80%). Of these respondents, 51% preferred a large decrease. Thus there is considerable support for some form of deer population control.

III. Cornell Survey of Cayuga Heights Residence Regarding Deer, Winter 98-99

1. Surveys were sent by a Cornell graduate student to 550 property owners, and there was an 81 % return rate.
2. The majority of respondents expressed concern about deer related problems; 80% had experienced deer damage to shrubs, etc., and 25% had been affected by car-deer accidents.
3. About 80% of respondents wanted herd reduction, but only 15-30% found culling acceptable. Over 50% would accept fertility control as a method for population control.
4. Citizens wanted to participate in making decisions about deer management.

IV. Deer Study of 2000

1. A total of 50 deer were tagged and 17 equipped with radio collars to study deer movements.
2. Citizens were asked to report sightings of tagged deer via a web site and by phone.
3. Photos of deer were taken at baited sites in late winter and again in early fall to estimate deer abundance.
4. This method was validated in a study of deer inside the fenced area at Seneca Army Depot.
5. Winter 2000 population estimates were approximately 135 deer in Cayuga Heights or 75 deer per sq. mile.

6. Preliminary fall survey results ranged from 170-210 deer or 94-117 deer/sq. mile. (Range due to uncertainty in determining the number of remaining tagged deer.)
7. The home range of female deer is limited to between 50 - 80 acres during much of the year.

V. Deer Population, Damage Prevention and Control

Population And Factors Influencing Population Change

1. The current deer population is higher than expected and is growing. (In the summer of 1998 Village police had estimated 60 to 100 deer.)
2. Factors affecting population size include birth rate, death rate, and movements in and out of the village.
3. Sightings of many females with two fawns indicate that deer are in good health.
4. This observation suggests that deer numbers will continue to grow because the food supply is good.

Damage Prevention

1. There are several options available to reduce or prevent damage including: use of deer resistant plants; use of repellents, and installation of fencing for damage prevention to plants, shrubs and gardens; road signs warning of deer; driver education and enforcement of laws prohibiting feeding deer near roads to prevent deer-car collisions; and precautions to reduce exposure to deer ticks.
2. Repellents are helpful if reapplied on a regular basis, however, even when applied correctly they are not 100 percent effective. Gardens can also be replanted with plants that are less desirable to deer. Widespread replanting with deer resistant ornamentals would be expensive. When hungry, deer will eat whatever forage is available and will not be deterred by repellents or deer resistant plants.
3. To be effective fencing needs to be 8 feet high. Permanent 8-foot fencing is expensive (between $4000 and $5500 for a one-acre lot for woven wire fencing but considerably less for electrified fence) and 8 feet fencing in the first 15 feet of one's property is prohibited by Village ordinance. Temporary fencing to protect shrubs in the winter is used currently in the Village. Materials cost between $110 and $167 per hundred feet.
4. Deer crossing signs to warn motorists in areas frequented by deer are recommended.
5. The Committee does not believe that Lyme disease is a problem in the Village at the present time. As noted, deer tagged in the Cornell study had few or no ticks. Vigilance is recommended.
6. The above damage control steps if taken by individuals do not reduce damage to plants, gardens, and the suburban ecosystem for the whole community. They merely shift deer damage from one yard to another. As the deer population grows, plant damage will increase, as will car-deer collisions. Not enough is known to predict with confidence whether or not Lyme disease will become a problem in the future.

Population Control via Fertility Control and Culling

1. Experience elsewhere with the growth of deer herds and the results of the 98-99 Cornell survey indicate that some form of deer population control will be necessary and is desired.
2. A first step when evaluating control options is to set a management goal. This could be an acceptable number of deer per square mile (Cayuga Heights has 1.8 square miles), or a reduction in damage to a tolerable level. Other communities have considered this question and reached different conclusions; see Table 1 (between 15 and 46 deer per sq. mile with an average of 25). Another step is to determine how soon the community wants

that goal to be reached. The advantages and disadvantages of the various control methods differ (see Table 2). The two major categories of population management in areas closed to hunting are culling and fertility control.

3. There are three basic approaches to fertility control: contraception, sterilization, and contragestation (see Table 2).
4. A major difference between the three methods of fertility control is the frequency of treatments. Sterilization of individual does is a one-time treatment, while contraception requires annual treatments. Contragestation is effectively abortion, and a separate treatment is required for each pregnancy. All three methods are experimental, and their effectiveness depends on being able to treat enough deer. Because of high fertility rates in healthy deer, a large fraction of the females must be treated (approximately 70 %). Given deer mortality rates, population reduction via fertility control can take several to many years depending on the percentage reduction desired and the percentage of does treated. Treating a large fraction of the females is difficult and expensive with immunocontraception and contragestation because the same does must be retreated each year, whereas sterilization of a female deer is a one-time event.
5. Culling is an effective way to reduce the herd size quickly, but can be very controversial. Culling also must be repeated on a regular basis to keep the herd at the desired size. The various approaches to culling are compared in Table 2. To implement some form of culling in the village, permission of the DEC is required and most likely village personnel or professional shooters would do the culling.
6. If the Cayuga Heights community desires a rapid and large reduction of the deer population, some form of culling will be necessary. If the community will accept a slower approach to herd management, fertility control may be possible if sufficient numbers of deer can be captured and treated. A combination of the two methods could be used to achieve a rapid but partial reduction of the population by culling followed by fertility control to further reduce and then maintain the desired population level.

Table 1. Deer Densities and Target Densities in Various Communities

Location	*Deer Density at Time of Decision to Reduce Population (deer/square mile)*	*Target Density for Population after Reduction (deer/square mile)*
Bluff Point Reserve, CT	284	46
Crane Reservation, MA	100	16
Gettysburg (NPS), PA	447	31
Great Swamp WLF, NJ	70	20
Lake Winnipesaukee, NH	60	15
North Haven, NY	170	14
Princeton, NJ	76	18
Town and Country, MO	83	26
Town of Irondequoit, NY	63	31
Union County, NJ	174	--
Mean	**---**	**24.1**
SD	**---**	**10.5**