FOREST PRESERVE DISTRICT OF KANE COUNTY
PLANNING AND UTILIZATION COMMITTEE
AGENDA

MEMBERS: Chairman Mitchell, Commissioners: Auger, Davoust, Frasz, Kenyon, Kunkel, Lindgren, Reyna, Taylor and Wojnicki

Thursday *9:00 a.m.* *August 30, 2012*

I. Call to order

II. Approval of minutes from July 26, 2012

III. Public Comment (Each speaker is limited to three (3) minutes)

IV. Bids and Proposals

A. Presentation of Bids for Mechanical Upgrades at the Fabyan Villa in Conjunction with a Museum Grant

B. Presentation of Bids for the Paving Work at Brunner Family Forest Preserve

V. New or Unfinished Business

A. Presentation of the Limited Access Agreement

B. Presentation of the Village of Big Rock Special Use Permit Conditions for the Campground at Big Rock Forest Preserve

C. Presentation of Deer Population Data and Proposed Deer Management Program

VI. Executive Session

VII. Chairman's Comments – Announcements and Upcoming Events

Adjournment until: Thursday, September 27, 2012 Forest Preserve District Administration Offices Board Room 1996 S. Kirk Road, Suite 320 Geneva, IL 9:00 a.m.

AGENDA MEMORANDUM

DATE: August 30, 2012

TO: Planning and Utilization Committee

FROM: Monica Meyers, Executive Director
Mike Holan, Director, Operations & Maintenance Department

SUBJECT: Fabyan Villa Geothermal Climate Control HVAC System Upgrade Bid

PURPOSE:

The purpose of this memorandum is to provide the Committee with information to consider approving the bid for the renovation of the Fabyan Villa heating system to a geothermal loop climate control HVAC system.

BACKGROUND:

Currently the Fabyan Villa has an aging heating, ventilation and air conditioning (HVAC) system that consists of forced air heat and window air conditioners for cooling. This project would renovate the current system to a full climate control HVAC system that is regulated via a geothermal loop. The new HVAC system will allow the District to better control the climate within the Villa to better maintain the structure of the Villa as well as the thousands of museum artifacts contained and displayed within it.

Staff has been working with Preservation Partners (P.P.) to obtain grants to partially pay for this project and have currently received three grants. The first grant was awarded by the IDNR for an Illinois Public Museum Grant in the amount of $100,000, the second grant was awarded by the Riverboat Grant Fund in the amount of $50,000 and the third grant is a Clean Energy Foundation Grant for $17,000 awarded because the new HVAC system will be a geothermal loop system. To date, a total of $167,000 has been secured from grants to help pay for the new HVAC system.

Staff worked with Architectural Consulting Engineers to develop the new HVAC and geothermal loop systems and Johnson Lasky Architects to determine how the system will be installed in the Villa to preserve its historical look and integrity.

The bid packet was sent to 10 vendors, with 4 vendors responding. The qualified lowest bidder was J & R Herra of Elburn, IL with a bid price of $238,274.50.

FINANCIAL IMPACT:

$317,000.00 was budgeted for this project in the FY 2011/2012 and FY 2012/2013 budgets. Sufficient funds totaling $283,640.00, are available in the Planning and Development Department Capital Land Area Development Account #03-35-35-7050, for this expense totaling $238,274.50.

RECOMMENDATION:

Staff recommends approving a contract with J & R Herra in the amount of $238,274.50 for the installation of the geothermal HVAC system in the Fabyan Villa.

ATTACHMENTS: *Bid Abstract*

Attachment: Bid Abstract

ABSTRACT OF BIDS

BID NO.: SB-FP-03-12/13 **Opening Date:** August 22, 2012 @ 2:00 pm

Article or Services: Fabyan Villa Mechanical System Upgrades Sent to 10 vendors 4 Responding

Bidder's Name	**Harold O Schultz Co**	**James A. Blackmore**	**J & R Herra**	**Driessen**
Address	Evanston, IL	Downers Grove, IL	Elburn, IL	St. Charles, IL
Bid Item/ Description	Fabyan HVAC	Fabyan HVAC	Fabyan HVAC	Fabyan HVAC
Bid	$309,903.00	**$481,094.00**	**$238,274.50**	**$494,700.00**
Warranty	1 Year		1 Year	Per Specs
Warranty Parts			10 year	
Completion	171 days	March 1, 2013	60 days	170 days
Specs /Plans	Yes	Yes	Yes	Yes
Addendums 1,2,3	1 & 2 only	1 Only	Yes	Yes
Pre- Bid	Yes	Yes	Yes	Yes

I certify that I have opened, read and recorded herein all bids received in response to the invitation.

_____
Ken Stanish, Director of Finance

AGENDA MEMORANDUM

DATE: August 30, 2012

TO: Planning and Utilization Committee

FROM: Monica Meyers, Executive Director
Jerry Culp, Director of Planning and Development

VIA: Ken Stanish, Director of Finance

SUBJECT: Brunner Family Forest Preserve Entry Drive Extension and Parking Lot

PURPOSE:

The purpose of this memorandum is to provide the Committee with information to consider the approval of the bid for the construction of the entry drive extension and parking lot at Brunner Family Forest Preserve.

BACKGROUND:

The Brunner Family Forest Preserve is a 723-acre preserve located in the northeast corner of Kane County along Route 31. The main entrance road to the preserve was widened and paved, and a new bridge spanning the creek was constructed in the fall of 2010. The project extends to the main entry drive and constructs a 15 car parking lot further into the preserve.

The bid for the parking lot (and an alternate for widening the access drive) was distributed in July to fourteen contractors with five contractors responding. The lowest qualified bidder is Evans and Son Blacktop, Inc. of West Chicago, Illinois with a base bid of $42,828.00. The alternate bid for widening the access drive is $13,509.00. The total project amount is $56,337.

FINANCIAL IMPACT:

The project budget for the Brunner Family Forest Preserve Parking Lot is $50,000. Funds are available in the Planning and Development account #03-35-35-7050 for this expense totaling $56,337. Additional funds to cover the balance of this project will be from savings on other projects.

RECOMMENDATION:

Staff recommends approving the base bid and alternate from the lowest qualified, responsible bidder, Evans and Son Blacktop, Inc. for a the construction of the entry drive extension and parking lot at Brunner Family Forest Preserve for $56,337.

ATTACHMENTS: Bid Abstract
Paving Project Plan

Attachment 2 Bid Abstract

ABSTRACT OF BIDS

BID NO.: SB-FP-02-12/13 **Opening Date:** August 16, 2012 @ 2:30 pm

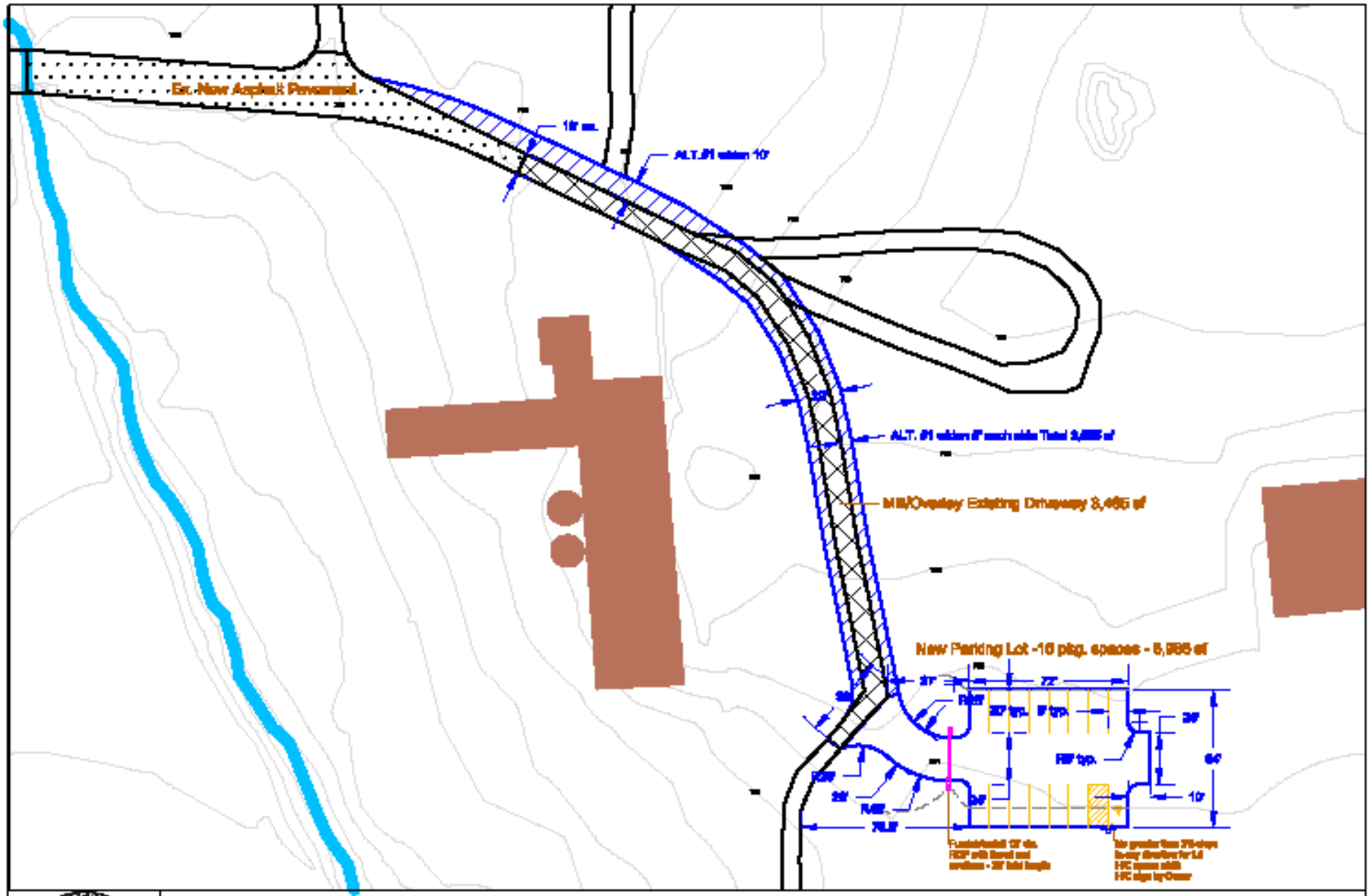
Article or Services: Brunner Family Forest Preserve Paving Sent to 14 vendors 5 Responding

Bidders Name	**Rose Farm Paving**	**Prime Construction**	**Evans & Son**	**Schroeder Asphalt**	**Meyer Paving**
Address	Woodstock, IL	Hampshire, IL	West Chicago, IL	Huntley, IL	Maple Park, IL
Bid Item/ Description	Brunner Paving	Brunner Paving	Brunner Paving	Brunner Paving	Brunner Paving
Base Bid: Parking lot Road Overlay	**$54,717.37**	**$46,613.50**	**$42,828.00**	**$43,202.40**	**$43,926.00**
Alternate 1: Road Widening	**$19,943.55**	**$14,220.00**	**$13,509.00**	**$15,286.50**	**$15,428.70**
Base plus Alternate Total	**$74,660.92**	**$60,833.50**	**$56,337.00**	**$58,488.90**	**$59,354.70**
Warranty	1 Year	1 Year	1 Year	1 Year	1 Year
Completion	30 days		43 days	20 days	45 days
Pre-Bid	Yes	Yes	Yes	Yes	Yes
Specs /Plans /Worksheet	Yes	Yes	Yes	Yes	Yes
Addendum 1	Yes	Yes	Yes	Yes	Yes

I certify that I have opened, read and recorded herein all bids received in response to the invitation.

_____

Ken Stanish, Director of Finance



FOREST PRESERVE DISTRICT
KANE COUNTY

Brunner Family Forest Preserve - Paving Project

18N681 Western Ave./IL Route 31, West Dundee, IL 60118

Date: 7-17-12
By: MS
Scale: 1"=60'-0"

AGENDA MEMORANDUM

DATE: August 30, 2012

TO: Planning and Utilization Committee

FROM: Monica Meyers, Executive Director

VIA: Ken Stanish, Finance Director

SUBJECT: Limited Access Agreement

PURPOSE:

The purpose of this memorandum is to provide the Committee with information to consider a Limited Access Agreement to allow for short term, limited access through Forest Preserve District property.

BACKGROUND:

Occasionally, companies, private utilities, contractors, neighboring property owners, etc. require short term, limited access through District property.

The proposed agreement serves as a template to permit short term, limited access requests and authorizes the Executive Director to enter into the agreement. Within the agreement, the Grantee must provide a Certificate of Insurance with One Million dollars in coverage naming the District as an additional insured, hold the District harmless, coordinate all safety measures for public access if needed and restore the area back to its original condition. This agreement would be used when only short term, temporary access is the only request of the District. Requests for long term (more than one year) access/use or the inclusion of any other provisions would be coordinated through the District's License Agreement format and sent through the Forest Preserve Commission for approval.

FINANCIAL IMPACT:

A $10 fee will be charged grantees.

RECOMMENDATION:

Staff recommends approval of the Limited Access Agreement as presented.

ATTACHMENT: Agreement

LIMITED ACCESS AGREEMENT

THIS AGREEMENT made and entered into this _____ day of _____, 2012, by and between FOREST PRESERVE DISTRICT OF KANE COUNTY, an Illinois forest preserve district ("GRANTOR"), and _____ ("GRANTEE").

GRANTOR is the owner in fee simple of the real estate described as the _____ Forest Preserve as shown on Exhibit A attached hereto and made a part hereof (the "Preserve"). GRANTEE desires temporary access across a portion of the Preserve to undertake construction activities on a site owned or operated by GRANTEE on adjacent real estate (the "Construction Site") which is not presently otherwise readily accessible from another source or direction. GRANTOR has agreed to grant unto the GRANTEE a temporary right of access to go over and upon the access area with trucks and equipment during the construction of Grantee's improvements.

NOW, THEREFORE, in consideration of the sum of Ten and no/loo Dollars ($10.00) and other good and valuable consideration, receipt and sufficiency of which are hereby acknowledged by the parties hereto, it is mutually agreed as follows:

1. GRANTOR does hereby grant and convey to GRANTEE, its successors and assigns, upon the terms and conditions set forth in this Agreement a temporary right of access to and across the Preserve (the "Access Rights") at the location set forth in Exhibit A attached (the "Access Area") for the purpose of driving and moving vehicles and equipment to the Construction Site.
2. The term of the foregoing Access Rights shall commence upon the final execution hereof by the last party signing this agreement and shall terminate upon completion of the improvements on the Construction Site, but in no event beyond _____.
3. The access rights and use thereof by Grantee shall be subject to the following additional terms and conditions:

   The GRANTEE agrees to indemnify and save harmless the GRANTOR from any loss, damage or expense in the nature of a legal liability which the GRANTOR may suffer, incur or sustain or for which the GRANTOR may become legally liable arising or growing out of any injury or damage to persons, or to real or personal property, caused by any negligence of the GRANTEE, or its contractors, subcontractors, agent or representatives, or any of

them, in the prosecution of the work performed under this grant, or by any negligence of the last aforesaid parties, or any of them, in the maintenance and operation of any improvements to be installed and the maintenance, operation and construction of the path leading thereto.

4. The Grantee agrees to maintain the following insurance coverages:

   a) Commercial General and Umbrella Liability Insurance

   Grantee shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this location.

   CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 10 93, or a substitute form providing equivalent coverage, and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, athletic participation, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

   Forest Preserve District of Kane County shall be included as an insured under the CGL, using ISO additional insured endorsement CG 20 26 or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance afforded to the District.

   b) Business Auto and Umbrella Liability Insurance

   If applicable, Grantee shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability arising out of any auto including owned, hired and non-owned autos.

   Business auto insurance shall be written on Insurance Services Office (ISO) form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

   c) Workers Compensation Insurance

   If applicable, Grantee shall maintain workers compensation and employers liability insurance. The commercial umbrella and/or employers liability limits shall not be less than $1,000,000 each accident for bodily injury by accident or $1,000,000 each employee for bodily injury by disease.

   If District has not been included as an insured under the CGL using ISO additional insured endorsement CG 20 26 under the Commercial General and Umbrella Liability Insurance required in this Contract, the Grantee waives all rights against the District and its officers,

officials, employees, volunteers and agents for recovery of damages arising out of or incident to the Grantee's use of the premises.

d) General Insurance Provisions

i) Evidence of Insurance

Prior to accessing any District property, Grantee shall furnish District with a certificate(s) of insurance and applicable policy endorsement(s), executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth above.

Grantee shall provide written notice to District prior to the cancellation or material change of any insurance referred to therein upon being notified by the issuing company in accordance with the policy provisions. Written notice to the District shall be by certified mail, return receipt requested.

Failure of District to demand such certificate, endorsement or other evidence of full compliance with these insurance requirements or failure of District to identify a deficiency from evidence that is provided shall not be construed as a waiver of Grantee's obligation to maintain such insurance.

District shall have the right, but not the obligation, of prohibiting from occupying the premises until such certificates or other evidence that insurance has been placed in complete compliance with these requirements is received and approved by District.

Failure to maintain the required insurance may result in termination of this Access Agreement at District's option.

Grantee shall provide certified copies of all insurance policies required above within 10 days of District's written request for said copies.

ii) Acceptability of Insurers

For insurance companies which obtain a rating from A.M. Best, that rating should be no less than A VII using the most recent edition of the A.M. Best's Key Rating Guide. If the Best's rating is less than A VII or a Best's rating is not obtained, the District has the right to reject insurance written by an insurer it deems unacceptable.

iii) Cross-Liability Coverage

If Grantee's liability policies do not contain the standard ISO separation of insured's provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

iv) Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to the District. At the option of the District, the Grantee may be asked to eliminate such deductibles or self-insured retentions as respects the District, its officers, officials, employees, volunteers and agents or required to procure a bond guaranteeing payment of losses and other related costs including but not limited to investigations, claim administration and defense expenses.

5. GRANTEE agrees, that reasonable precautions shall be taken by GRANTEE and its contractors and subcontractors to prevent any adverse impact to trail surfaces or groundcover vegetation or trees in or near the Access Area, and further that after construction, GRANTEE agrees to restore the access area to its original condition, if disturbed by such installation or related activities of GRANTEE or its employees or agents.
6. During construction, if any trail surface areas are crossed by GRANTEE or groundcover vegetation and trees are subject to being disturbed or adversely impacted by GRANTEE's exercise of the Access Rights, GRANTEE shall cover any such trail with plywood or other sufficient material to provide a protective cover to prevent damage to the trail surfaces and shall shield or fence or otherwise take appropriate steps to minimize any adverse impact to the groundcover vegetation or trees.
7. GRANTEE shall restore sod, plant material or other improvements damaged in the course of gaining access through the Preserve and Access Area.
8. GRANTEE shall otherwise return the GRANTOR's property in and near the Access Area to its condition prior to the installation or construction of GRANTEE'S proposed improvements.
9. GRANTEE and its contractors will be responsible for safety measures to protect the public and the GRANTOR.
10. GRANTOR will be notified at least forty-eight (48) hours before scheduled construction or maintenance is to commence and GRANTEE agrees to take such reasonable steps necessary to ensure uninterrupted general use of the Preserve and any trail crossed by GRANTEE or its contractors and subcontractors during the installation and construction of GRANTEE'S proposed improvements.

This Agreement shall be binding upon and inure to the benefit of the parties hereto, their successors and assigns. Each of the undersigned does hereby confirm to the other that he or she has authority to execute this Agreement on behalf of their respective party and that this Agreement shall thereby become fully binding upon the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first above written.

GRANTOR:
FOREST PRESERVE DISTRICT OF KANE COUNTY

BY:_____
Its Executive Director

GRANTEE:

_____

BY:_____
Its Authorized Agent

[Note: Site Plan of Preserve with Access Area drawn thereon shall be attached as Exhibit A

AGENDA MEMORANDUM

DATE: August 30, 2012

TO: Planning & Utilization Committee

FROM: Monica Meyers, Executive Director
Drew Ullberg, Director of Natural Resources

VIA: Ken Stanish, Finance Director

SUBJECT: Establishment of a Formal Deer Management Program

PURPOSE:

The purpose of this memorandum is to provide the Committee with information to consider establishing a White-tailed deer management program as another tool to manage the ecological health of the preserves.

BACKGROUND:

Local ecosystems such as prairies and wetlands do not exist at the scale they did in the 1700s and are no longer self-sustaining. The short and long-term survival of most natural area fragments located throughout the six county metro-Chicago region are dependent upon human driven management. Management can be in the form of brush clearing, seeding, and weed control, burning and even reducing densities of white-tailed deer (*Odocoileus virginiana*).

White-tailed deer have a documented impact upon relic and re-created natural areas primarily due to their feeding habits and the sheer number of deer present. This is a far cry from the late 1800s when as a result of market hunting, wild whitetails were absent from northern Illinois. Following reintroductions which began in the early 1900s, coupled with strict hunting restrictions, deer populations have dramatically rebounded across Illinois.

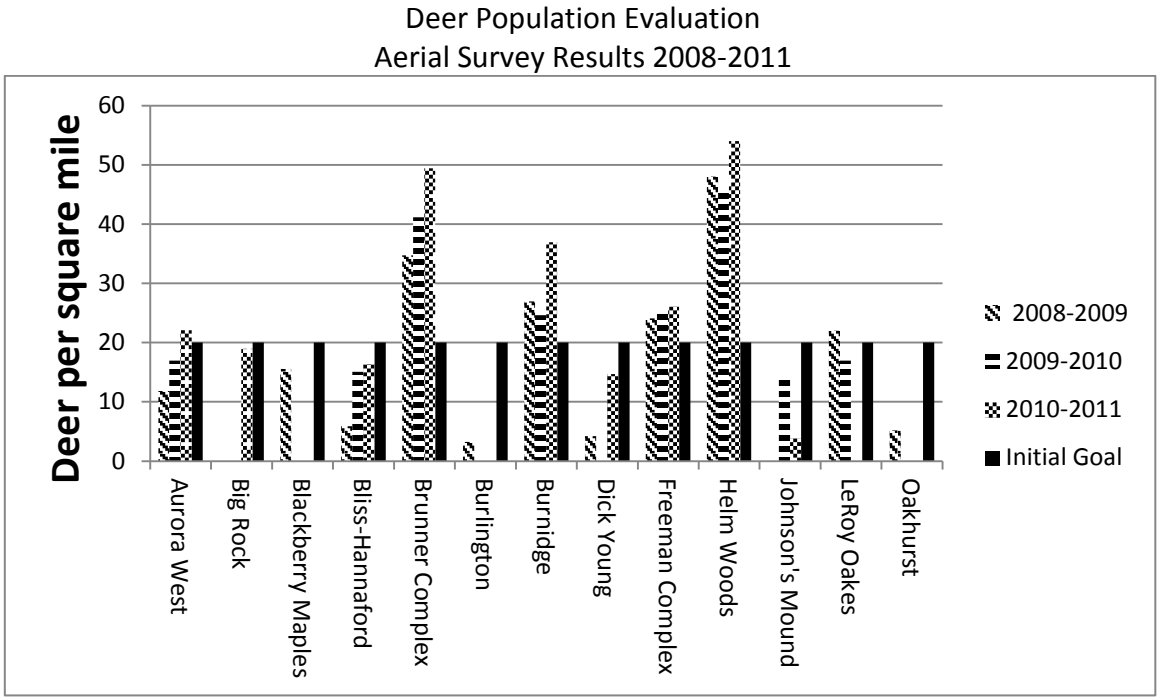
Deer are herbivores and feed mainly on herbaceous plants and the leaves, buds, bark and twigs of trees and shrubs (browse) (Hofmann 2008). Daily they consume pounds of grass, acorns (and other mast), crops (corn and soybeans), garden plants and shrubs. Their diets are flexible and change seasonally with the availability of food sources.

Urbanization has resulted in habitat loss for deer and other species, but these species often find refuge in forest preserves and other undeveloped areas. Deer in undeveloped suburban areas often exhibit high annual survival rates and restricted movement patterns, both of these factors can contribute to deer overabundance (Etter 2001).

Since the mid-1980s, regional deer populations have exploded and deer are more frequently impacting common plants (sunflowers, wild roses, trilliums, oak saplings) and rarities (orchids) growing on public lands. Beginning in 2000, District Staff began discussing deer management practices with Staff at other organizations (e.g. FermiLab, FPDs of Cook, DuPage and Lake Counties, McHenry Co Conservation District). A lot of time was spent tracking which deer control methods failed and learning what methods were most effective in reducing their large deer herds.

By 2008, District Staff fully recognized deer overpopulation was a concern, thus a deer population evaluation project was started. In this project staff collected field data on deer population sizes, through helicopter aided aerial counts, and began documenting what if any impact deer were having upon plant life through deer browse studies.

We have found deer population sizes are not consistent across the District system of preserves (see chart here). On the ground, Staff has counted more than 70 deer in one herd at Brunner Family FP and at Aurora West from 2008 to 2010 regularly counted, from the ground, a herd of 45 deer.



Consistently high deer densities have been recorded at Brunner, Helm Woods, Burnidge and the Freeman Kame Complex during the aerial count project.

Deer browse data is too voluminous to present here, however it is worth noting that there is strong correlation between zero to very low oak regeneration, low oak seedling numbers, high browse incidence and high deer densities for both the Brunner Family and Freeman Kame Forest Preserves. More than 20 to 25 deer per square mile is classified as a high deer density.

With solid field data indicating high deer populations are impacting the structure, function and composition of important natural areas under District stewardship, staff evaluated all the available lethal & non-lethal deer management options including:

- Take No Action
- Apply Repellants
- Install Fencing
- Trap & Relocate
- Fertility Control
- Supplemental Feeding
- Reintroduce Predators
- Firearm sharpshooting
- Hunting

After considerable review, taking no action is no longer practical, thus staff is requesting the Commission consider adopting a formal deer management program consisting of both archery hunting and firearm sharpshooting components. The only authorized and permitted deer management techniques approved by the IDNR are hunting and firearm sharpshooting. The components of the proposed program are as follows:

(1). Archery Hunting. A public lottery shall be held for Kane County residents to fill a pre-determined number of slots for hunting white-tailed deer within established hunting zones in approved preserves. Each hunter must complete the IDNR Hunter Safety course and pass a proficiency test to prove archery skills. The archery season shall run from Oct 1 to Jan 20 in accordance with the established State of Illinois archery season. It is mandatory a CWD sample be submitted from each deer taken during the hunt. The primary function of the archery hunt shall be to reduce deer numbers while allowing for a unique recreational activity.

(2). Firearm sharpshooting. At preserves where deer numbers are significantly over the 20 deer per square mile rate, night time firearm sharpshooting should be implemented. Sharpshooting shall supplement hunting where hunting is not significantly reducing deer density to lessen local ecological impacts in a shorter time span. Deer will be drawn to specific locations by setting out salt and hay. Sharpshooting would occur at night and when preserves are patrolled and closed. In this component of the program trained, skilled and experienced District staff and law enforcement personnel will initially conduct this work. Deer removed shall be tested for CWD with the processed meat donated to local food pantries. More detail on the deer management program components is provided separately.

To gauge public opinion on the proposed deer management program, two public information meetings were held, one on August 13 and one August 15. Further, an online survey was posted on the District website. This survey was the exact form available at each informational meeting. To date, a combined total of 61 residents provided written comment from all sources (public meetings & on-line). Of those providing comment 53 (86%) support the deer management program concept, with 54 (88 %) in favor of an archery hunting program, and 24 (39%) are in favor of the firearm sharpshooting component. There was an equal split of hunters vs. non-hunters providing comment.

FINANCIAL IMPACT:
Approximately $1,000 will be expended from the Natural Resources Supplies Account 03-31-31-6050 in FY2013 for the purchase of archery targets needed to begin the archery proficiency tests.

Proposed hunter fees are as follows: $10 per lottery registration and $100 per hunting zone for successful lottery winners. Each zone can accommodate a maximum of 2 to 3 hunters. It is estimated that fifty lottery registrations will be received (= $500) and approximately twelve hunting zones awarded (= $1,200) for a total revenue of $1,700.

RECOMMENDATION:
Staff recommends implementing the formal deer management program as presented.

ATTACHMENTS: Proposed Deer Management Policy and Program Documents

DEER MANAGEMENT POLICY
FOR THE FOREST PRESERVE DISTRICT OF KANE COUNTY

DISTRICT GOALS AND POLICY

It is the mission of the Forest Preserve District of Kane County (District) to acquire, hold and maintain lands within Kane County, which contribute to the preservation of natural and historic resources and habitats, flora, fauna; and to restore, restock, protect and preserve such lands for the education, recreation and pleasure of all its citizens.

It is the mission of the Natural Resources Department to manage habitats, flora and fauna of the District and to provide the public with continued opportunities for enjoyment and use of the District's natural resources through a program of restoration, regulation, management, research and public education.

Natural Resources staff utilize land management techniques such as prescribed burning, invasive species control, seeding, and planting to enhance, restore and recreate native habitat by reintroducing the conditions that favor the proliferation of native species. The goal is maintain or increase species diversity and restore community structure using the best available management methods. The ultimate land management goal is to create diverse and sustainable habitats and communities.

White-tailed deer (*Odocoileus virginianus*) are a valued component of the diverse fauna within the District and will continue to be so in the future. The elimination of large predators, alterations to the landscape and reduced exposure to hunting mortality have resulted in increased deer survival and population growth in urban and suburban areas.

When overabundant, deer populations can alter the diversity and structure of forest communities due to overbrowsing. Selective browsing can result in regeneration failure of preferred tree species and compositional shifts of the dominant and preferred tree species. These factors can cause a shift in the structure and composition of the forest canopy. Repeated browsing on herbaceous species can cause local species extirpation. There is also evidence that deer overabundance facilitates the success of invasive species (e.x. garlic mustard) in forested ecosystems. When white-tailed deer alter the distribution and composition of plant communities, they also influence the food resources and shelter available to other wildlife species. Overabundant deer can represent a threat to human safety through vehicle collisions and zoonotic diseases (e.g. Lyme disease).

Similar to other urban and suburban areas throughout the United States and the Chicago region, there is evidence of elevated deer populations at many District properties. There are also indications from vegetation monitoring that deer are negatively impacting local ecosystems.

Responsible land stewardship and resource protection require that wildlife and its habitat be managed for the long-term benefit of all animals and plants.

A deer management program will be necessary when deer become overabundant to provide for the long-term preservation of vulnerable plant communities, restoration efforts and their associated fauna. Taking no action will allow continued growth in deer populations and increased damage to the flora and fauna that we set out to protect.

Priority for deer management and monitoring shall be given to District sites containing rare and significant ecological values that are threatened by overabundant deer populations. This would include, but is not limited to Illinois Nature Preserves, high quality natural areas, and areas with rare and endangered species and sites with large scale ecological restoration efforts. A program of monitoring deer population trends, deer browse, rare species, and indicator species, deer-vehicle accidents and zoonotic diseases will be used to evaluate the need for management, measure the effectiveness of management and make necessary changes over time.

Each site represents a unique suite of characteristics and challenges. The District recognizes that multiple methods will be necessary to effectively manage deer populations and preserve diversity in the long-term.

The District evaluated non-lethal and lethal methods for managing deer populations and their impacts. The District already utilizes non-lethal methods, such as repellants and caging where feasible, but these methods are not practical or feasible across entire preserves. Fertility control is not effective or State-approved means to manage free ranging deer populations at present. The two methods for managing deer populations that are known to be safe, effective and permitted by State regulations are 1) archery hunting within the established statewide season and 2) sharpshooting, at pre-determined and safe locations, while preserves are closed.

Forest Preserve District of Kane County

Proposed Deer Management Program

August 27, 2012

Contents

DEER MANAGEMENT PROGRAM

BACKGROUND

Deer Natural History and Biology

White-tailed deer (*Odocoileus virginiana*) occur throughout much of the contiguous U.S. and are the only large free ranging mammal in Illinois. They are the state mammal of Illinois, and are among the most popular and recognizable animals here, admired by hunters and other nature enthusiasts alike. Prior to European settlement, the white-tailed deer population in North America was estimated to have been 23 to 24 million (McCabe and McCabe 1984). Exploitation via market and subsistence hunting in the 1800's reduced the deer population to a fraction of its original size. This trend was evident in Illinois, where whitetails were absent from northern Illinois by the late 1800's and the last native deer were seen in southern Illinois in about 1912 (Hofmann 2008).

Deer were reintroduced in northern Illinois in the 1890's and in southern Illinois during the 1930's, natural immigration also occurred. By 1970, whitetails occurred in every county in Illinois (Hofmann 2008). Deer populations in Illinois have continued to expand since the 1970's.

Deer are herbivores and feed mainly on herbaceous plants and the leaves, buds, bark and twigs of trees and shrubs (browse) (Hofmann 2008). They also consume grasses, acorns (and other mast), crops (corn and soybeans), garden plants and shrubs (Hofmann 2008). Their diets are flexible and change seasonally with the availability of food sources. During spring and summer, deer prefer forbs and the new growth of grasses and woody plants; in agricultural areas, corn, soybeans and alfalfa can be major food items. During fall, acorns and other mast are vital food items, and during winter deer often feed primarily on woody materials.

Although the optimal habitat for white-tailed deer consists of a mosaic of forested and open areas, they can be found statewide in areas ranging from rural farmland to suburban neighborhoods. Deer home range size is influenced by many factors; including habitat quality and surrounding land-use. Generally speaking, home range sizes for females are typically smaller in urban areas than in rural areas of Illinois (Etter 2001, Nixon et al. 1991).

Most deer live about 2 to 3 years in the wild. Maximum lifespan in the wild is 20 years, but realistically, few deer live past 10 years of age. Because of their large size and the extirpation of large predators (e.g. wolves and mountain lions), deer have relatively few predators. Coyotes and bobcats, where present, can only take fawns and the weakest of adults. Statewide, the primary sources of mortality for deer in Illinois are hunting and collisions with vehicles. In suburban DuPage and Cook Counties, annual survival was high (over 80%) for males and females, with deer-auto collisions being the most common cause of known deaths (Etter 2001).

Mating typically occurs from October to December, and young are born in the May or June after a gestation period of 200-210 days (Hofmann 2008). Males and females are capable of breeding in their first year, but this is relatively uncommon. Typically, an adult female will have 2 fawns, but occasionally litters of 3 or more occur. In forest preserves within Cook and DuPage Counties, reproductive rates for females were as follows: 16.5% of fawns were pregnant (mean # of fetuses = 1.07), 96.8% of yearlings were pregnant (mean # of fetuses = 1.61), and nearly 99% of adults were pregnant (mean number of fetuses ≥1.90) (Etter 2001). If a female survives and reproduces for 5 years, she alone can contribute up to 8 deer to the population, not including the progeny of her offspring.

Deer Overabundance & Impacts

Urbanization generally results in habitat loss for deer and other species, but these species often find refuge in forest preserves and other undeveloped areas. Deer in undeveloped suburban areas often exhibit high annual survival rates and restricted movement patterns, both of these factors can contribute to deer overabundance (Etter 2001).

When deer populations reach high levels they begin to have negative impacts upon ecosystems, restoration efforts, private property, deer population health, and can also represent a greater danger to public safety (i.e. deer vehicle collisions).

Deer have been described as a "keystone herbivore" in forested areas, meaning that their feeding activity can directly and indirectly affect many species (Waller and Alversen 1997). Overbrowsing by deer can suppress or stop the regeneration of desirable native trees and shrubs, affecting the structure and species composition of the habitat. The long term result of prolonged regeneration failure of the dominant tree species is a shift in the canopy composition from familiar species that are valuable to wildlife (e.g. oaks and hickories) to shade tolerant species (maples) and invasive species (buckthorn).

The loss of structural diversity in the herbaceous and shrub layer and the loss of mast producing canopy species have many immediate and long term implications for a range of species (Rodewald 2003). Forest birds require vegetation for feeding, nesting and cover, when deer alter the structure of the forest understory, the abundance and diversity of forest birds is affected (McShea and Rappole 2000, deCalista 1994).

Deer also influence the reproduction and survival of some herbaceous plant species (ex. Trillium species) through repeated grazing, which often targets larger, flowering plants. Over time repeated grazing can result in smaller plants, reduced flowering rates, and even local extirpation (Anderson 1994, Augustine and Frelich 1998). Many rare, threatened and endangered plant species are also herbaceous species and are susceptible to repeated deer herbivory, thus subject to local extirpation. In fragmented and isolated woodlands, the likelihood of dispersal and recolonization by these species is uncertain (Miller et al. 1992).

Deer consume the seeds and fruit of many native and invasive species, therefore deer can also be a mechanism for the transportation of these species. While the dispersal of native plant seeds is beneficial, there is evidence that the conditions created by overabundant deer and resulting browse levels favor invasive species in forested areas (Knight et al 2009).

Browsing and antler rubbing by deer can cause economic losses in many agricultural operations including row crops, orchards, nurseries, tree farms, and commercial forestry, as well as causing substantial damage to landscape and garden vegetation, cemeteries, and golf courses.

An overabundant deer population causes a reduction in the availability of forage, which leads to the decline in the health of individual animals and deer herds. Overabundant deer populations are conducive to the transmission and spread of diseases that impact deer (e.g., chronic wasting disease).

Deer have the potential to impact human health and safety in two primary ways: deer-vehicle collisions (DVC) and zoonotic diseases, more specifically, tick-borne diseases. Zoonotic diseases are diseases that are naturally transmissible from vertebrate animals to humans. The increasingly close association between growing human population and growing deer populations has implications for DVC's and potential disease transmission.

Increases in human population and subsequent increases in vehicle traffic can result in more DVC's, especially in areas with high deer populations. DVC's are a concern in terms of property damage and the potential for human injury and death.

Zoonotic diseases are of great importance to the health and safety of humans. Lyme disease, Ehrlichiosis and babesiosis are among the tick-borne, zoonotic diseases that deer carry or serve as host to vectors, all of these are classified as emerging infectious diseases. The role of deer can be that of host to disease vectors (i.e. ticks in the case of Lyme disease and babesiosis) or reservoir host of the disease agent (e.g. Ehrlichiosis).

Lyme disease is caused by the bacterium *Borrelia burgdorferi.* The maintenance and transmission of the disease involves a complex interaction between the disease agent (bacteria), vectors (ticks), hosts (many species) and the habitats that support them. In the upper Midwest, white-footed mice and chipmunks are important reservoir hosts for *B. burgdorferi*, the black-legged tick or deer tick (*Ixodes scapularis*) is the primary vector (Williams and Barker 2001). Deer are not important as reservoirs of *B. burgdorferi*, they are important in the disease cycle as they are the preferred host of the adult stage of the tick vector (Williams and Barker 2001). Ehrlichiosis and babesiosis can also be transmitted by the black-legged tick. Although these diseases can significantly impact humans, many complex factors influence their prevalence and occurrence. Current evidence does not indicate a simple relationship between deer density and Lyme disease (i.e. having less deer doesn't simply translate to reduced Lyme disease in most instances).

While deer are an integral and valued component of the natural resources of Kane County, it is clear that under certain conditions they can have substantial negative impacts on natural areas, restoration efforts, other species and human health and safety.

PROGRAM MISSION, GOALS AND OBJECTIVES

To maintain and enhance the diversity of flora and fauna within preserves by protecting natural and restored plant communities from excessive deer impacts by managing deer populations at levels compatible with the long-term health of ecosystems using safe, effective and State approved methods.

The decision-making and evaluation of the District's deer management program will be guided by the following goals and objectives. The District will utilize multiple strategies and prescriptions in an adaptive management framework to achieve objectives and meet program goals.

Program Goal: Manage and maintain a healthy, stable deer population appropriate to the habitat present at District preserves.

Population Objectives: Establish population targets for deer at each site or complex of preserves.

- Prescription 1: Estimate the population size of deer at each site or complex.
- Prescription 2: Establish preliminary population goals (e.g. 20 deer per sq. mile) for each site or complex based upon current literature, habitat composition, and presence of sensitive and rare plant communities, habitat restoration projects and landscape context. Modify population goals based upon monitoring of impacts to plant communities, restoration efforts and impacts of management.
- Prescription 3: Conduct deer removals as needed, as approved by the Forest Preserve Board of Commissioners and in accordance with State regulations to maintain deer populations conducive to the long-term ecological health of each site or complex.
- Prescription 4: Monitor the health and productivity of deer populations with biological data collected from deer removals. This includes the collection of demographic and reproductive data to inform management as well as monitoring for diseases (e.g. CWD) and parasites.

Ecological Impact Objectives: Establish site or complex-specific objectives related to habitat, plant communities and restoration efforts, to preserve and enhance native plant communities and their associated fauna.

- Prescription 1: Implement restoration projects that reduce habitat fragmentation and recreate historic habitat conditions to altered and degraded lands.

- Prescriptions 2: Where feasible and appropriate, restore agricultural fields adjacent to natural habitats to their native habitat type to reduce edge habitat and supplemental food resources available to deer.

- Prescription 3: Improve forest condition and reduce winter deer cover by removing invasive shrubs (e.g. buckthorn and honeysuckle).

- Prescription 4: Utilize non-lethal means to protect resources where feasible (e.g. deer repellent on small plantings and rare plant populations.

- Prescription 5: Conduct deer removals as needed, Forest Preserve Board of Commissioners and in accordance with State regulations to maintain deer populations conducive to the long-term ecological health of each site or complex.

- Prescription 6: Inform and modify population objectives using monitoring data regarding impacts to plant communities and restoration efforts.

Public Health and Safety Objectives: Establish site or complex-specific objectives related to the enhancement of the health and safety of the public.

- Prescription 1: Evaluate DVC data to identify areas where deer populations are negatively impacting public safety.

- Prescription 2: Conduct monitoring for zoonotic diseases that would potentially impact human health and safety.

Communication Goal: Maintain communication with preserve users, preserve neighbors and residents.

Communication Objective: Maintain communication with the public regarding deer management activities, research and information for resolving deer issues.

- Prescription 1: Develop materials to notify preserve users, neighbors and residents about deer management activities.

- Prescription 2: Evaluate methods for obtaining public input and coordinating public information meetings.

- Prescription 3: Compile information to help neighboring landowners reduce the negative impacts of deer to their property.

DEER MANAGEMENT SITE SELECTION

When applicable, multiple preserves will be evaluated and managed as a preserve complex (i.e. multiple preserved that are adjacent or connected by suitable deer habitat or transportation corridors). Selection of sites for management will be based on the criteria listed below, with preference being given to higher quality natural areas (Illinois State Nature Preserves, Illinois Natural Areas Inventory sites). However, deer management activities may be considered at any site where a demonstrated need exists based on the following criteria.

- Documented negative impacts by deer on the floristic quality of native plant communities.
- Documented negative impacts by deer on the diversity of native plant species.
- Documented negative impacts from deer on indicator plant species, or species of conservation concern (e.g. Threatened or endangered species and plants of concern [POC] species).
- Documentation of excessive damage to restoration efforts (e.g. reforestation efforts).
- Deer density above the recommended preliminary deer density goal (15-20 deer /mi^2).

ESTIMATION OF DEER POPULATION SIZE AND DENSITY

Estimating the size of a deer population allows for the assessment of impacts of deer upon District lands and the ecosystem. This information is also vital to determine the relationship between population size and the observed impacts such as browse damage and deer vehicle collisions and evaluate whether program goals are being achieved. Also, observations by field staff of deer impacts to rare plant or reforestation areas by have proven important in selecting which preserves to monitor.

Aerial counts

District staff currently use aerial counts from a helicopter to estimate deer population size at preserves and complexes. Counts are conducted between December-February when a uniform and adequate (>3 inches) snowfall occurs. Two observers independently count deer from the same side of a helicopter from an altitude of approximately 300 feet. Preserves are typically surveyed along a series of approximately 500 foot wide transects. Survey boundaries include District property and, where applicable, adjoining areas of deer habitat to an extent of approximately ¼ mile from preserve boundaries to account for seasonal and diurnal movements of deer off preserves. The estimated deer density is determined for each site by dividing the population estimate by the area (square miles) surveyed (i.e. preserve acreage + buffer area).

ASSESSMENT OF DEER IMPACTS

The District will collect data annually using multiple methods to assess the impacts of deer on the plant communities of forest preserves. Data collection will continue to evaluate the effectiveness of management and document recovery over time following management activities. The diversity of plant species and floristic quality will be evaluated at sites to observe long-term trends in the status of the plant community. The impacts of deer and browse pressure will be assessed using methods such as browse transects surveys, indicator species monitoring, exclosures, and rare species monitoring. Monitoring will be conducted at sites where deer management is proposed or ongoing, as well as at sites where field observations and/or aerial counts have determined monitoring is warranted and future management may be considered. Information regarding other types of deer impacts will also be collected and monitored including DVC data, property damage complaints, zoonotic diseases and CWD.

Browse transect surveys

Browse transects are used to assess the impacts of deer herbivory on plant communities. District staff currently uses browse transects to evaluate the impacts and intensity of deer herbivory on trees and shrubs in woodland communities. This allows staff to observe impacts in the understory (trees and shrubs under 6 ft. tall) to determine how deer are influencing the regeneration, species composition and structure of District woodland communities. Browse transects consist of a 100 meter long line, along which 10 sampling transects are evaluated. The 10 sampling transects are 25 meters in length and all woody species within one meter of the transect are identified, classified by height, and the level of browse is determined. Eight of the transects to be sampled are randomly selected yearly and 2 of the transects are permanent. All species are evaluated on permanent transects, only native species are evaluated on all other transects.

Indicator Species and Rare Species

Depending on the site and plant community type District staff also identify and monitor specific indicator species, rare species and species of conservation concern. This allows staff to evaluate the browse intensity and impacts to those species and evaluate the level of threat to the long term conservation of species diversity. These data are collected by staff as well as trained volunteers participating in the Plants of Concern monitoring program.

Reforestation Monitoring

Monitoring of the deer impacts on reforestation projects will be conducted at sites where large scale reforestation efforts are a component of the long term restoration plan of a site. This monitoring will evaluate whether deer impacts are inhibiting the survival of these plantings.

Deer Vehicle Collisions (DVC)

DVC data is collected and managed by the Illinois Department of Transportation. This data has been collected since 1994. In 2009, changes to reporting requirements were made that preclude the comparison of data collected from 1994-2008 to data collected 2009 to present. In 2009 reporting (damage) levels were increased. Since 2005, specific collision location data has been collected and obtained by the District from IDOT thus allowing us to observe spatial patterns in DVC occurrence and assess the severity of the issue at a local level.

District staff will continue to compile and evaluate this data to identify areas where high deer populations are affecting public safety to compare with aerial counts and deer browse data.

SELECTION OF MANAGEMENT METHODS

District staff evaluated of variety methods that are used or proposed for managing deer impacts and populations. Three basic courses of action were evaluated:

1) Take no action
2) Non-lethal (repellents, fencing, fertility control, trap & relocate, supplemental feeding)
3) Lethal (predator reintroduction, controlled archery hunting, sharpshooting)

In light of the District's mission and responsibility to be responsible stewards of public lands, taking no action is only feasible in areas where deer populations are not in conflict with conservation and management goals. Non-lethal and lethal methods for managing deer populations and negative impacts on a large scale were evaluated for efficiency, effectiveness, safety, compliance with State laws (Appendix A). Public input was also gathered at two open house meetings, online comments, letters and phone calls.

Based upon all of these factors the two methods identified as safe, effective and State-approved are controlled archery hunting and sharpshooting, limited to where they can be done safely. Controlled archery hunting would be conducted by Kane County hunters selected through a lottery. Hunters must show proof of completing an IDNR Hunter Safety course and pass the District's archery proficiency test. Additional rules and hunting zones will be established to further enhance safety. When utilized, sharpshooting would be conducted by qualified marksmen, at night, while preserves are closed to the public. Sites would be predetermined to ensure safety. Because District sites vary in their level of use, location and other factors, multiple methods must be implemented to effectively manage deer populations in the long-term.

Controlled Archery Hunting as a Component of a Deer Management Program: Directives and Rules

Rationale

Hunting is a commonly used and proven deer management tool in rural areas, and has been used effectively in some suburban areas. Controlled hunts during the established hunting season can successfully reduce deer densities in localized areas under the proper conditions.

Type of Hunting

Due to the suburban nature and size of many of District holdings and IDNR regulations (i.e. no firearm hunting East of Rt. 47) if hunting were to be utilized as a management tool, the use of controlled archery hunting would be most appropriate for a majority of sites. Additional restrictions and regulations would be made to tailor the program to each site and further enhance safety.

Eligibility and Requirements to Participate

Residency: Program participants must be a full time resident of Kane County.

Hunter safety education course**:** To be eligible, all participants must show proof that they have successfully completed a state-approved hunter safety education course. Applicants must submit a photocopy of the applicant's hunter safety education card with the application.

Proficiency test: Each participant must qualify to participate in the Deer Management Program. The proficiency test will entail hitting 4 of 5 arrows in an 8 inch circle with the equipment to be utilized in the field. You must use broadheads or practice broadheads, field points are not acceptable. Participants using compound bows or crossbows must qualify at 20 yards, and participants using long bows or recurve bows must qualify at 15 yards. Qualification will occur after the lottery has been conducted. The qualification will be held at a date and location to be determined.

CWD testing: Hunters must have all deer taken through archery hunting tested for CWD.

Program Overview

In 2012 the District will be proposing controlled archery hunting to achieve deer management program goals. One month long hunting periods and zones will be assigned via a lottery system.

Size of Group: Hunters may apply alone, or in a group of two or three applicants. Each zone can accommodate up to three hunters.

Zones: District staff shall set zones within each site. A hunter and members of his or her group shall be assigned a zone for the duration of their program participation.

Fees

There will be a $10 dollar fee for each application submitted to the District for inclusion in the lottery. Payment must be submitted with the application.

The permit fee will be $100 per zone per hunting period. Fees will be due at the orientation meetings following the lottery.

No refunds will be given, unless the District suspends hunting in a given area or after hunters have commenced hunting.

Rules and Regulations

District hunting and parking permits

- All participants and their "helpers" must clearly display a District-issued parking permit on the dashboard of their vehicle.
- Participants shall not enter District property without a District-issued hunting permit on their person.
- All parking and hunting permits must be returned to the District after the end of a participant's designated hunting period. Individuals who do not return their permits will be disqualified from future hunting lotteries.

Parking

- All participants must use established or designated parking areas. Parking anywhere else is prohibited. Site/Zone maps will illustrate designated parking areas.

Zone Access

- Participants must travel to and from their zone using a District designated route.
- Marking devices are permitted. Marking devices shall be removed at the end of the participants hunting period.
- At a minimum, all participants must wear a blaze orange hat while walking to and from their stand.

Sign in and out

- All participants must sign in and out each time they hunt, and record time and other information requested on the data sheet.

Site Hours and Shooting Hours

- Participants may not enter District property prior to one and one-half hours before legal shooting time and must exit within one hour after legal shooting time.
- Shooting hours are established by IDNR. One-half hour before sunrise to one half hour after sunset. Sunrise and sunset times are posted in local newspapers or can be obtained on-line.

Scouting and Tree Stand Information

- Tree stand location(s) must be approved by the District prior to hunting.
- Participants may scout beginning the day after attending the mandatory orientation meeting. Upon the beginning of the first hunting period, hunters in later periods shall not scout until the first day of their designated hunting period.
- Participants may not hang stands until the first day of their assigned hunting period.
- Participants must remove all stands by the end of the last day of their designated hunting period.
- There is no limit to the number of stands that can be placed in a zone.
- Tree stands may be set up anywhere within an assigned zone, based on map instructions. Participants are encouraged to communicate with participants in adjacent zones prior to selecting stand locations.
- No nails, spikes or piercing of bark are allowed in trees. Only branches with a diameter of less than 2 inches may be removed from the stand tree.
- Permanent stands are not allowed.
- Tree stands must be elevated a minimum of six (6) feet from the ground's surface. The hunter's feet must rest on the platform.
- Tree stands must be TMA-certified (Treestand Manufacturers Association).
- Hunters must use Fall Arrest System (FAS) or Full Body Harness (FBH) while in a tree stand.

- Each participant may have one or two non-permitted people to assist with stand placement and removal. The participant must be present and a guest parking pass must be displayed in the vehicle of the "helper".

- Stands must display an original District-issued stand tag. The tag must be clearly visible from the ground.

- When clearing shooting lanes only trees less than 3 inches diameter may be removed. Only non-native shrubs and trees may be removed.

Post-Harvest Requirements

- All harvested deer must be reported**.** Failure to report harvest will result in being excluded from program participation in the future.

    - Participants must follow IDNR check in regulations and procedures after harvesting a deer.

    - After completing IDNR check-in, participants are required to call the phone number on their District permit between 7 am and 10pm on the day of harvest.

    - Additionally, the harvest must be recorded on sign in sheet at the site.

- Field dressing of deer must occur more than 100 yards away from and trail, roadway or parking area.

- Each hunter can have one or two non-permitted people help drag out harvested deer. The permitted participant must be present. These "helpers" may not assist with the tracking of a deer. A guest parking pass must be displayed in the vehicle of any "helper".

- The collection of a sample for CWD testing from each harvested deer is a requirement for program participation. Failure to comply will result in ineligibility for future program participation.

    - A list of the locations for sample drop off locations will be provided by the District.

Other Rules

- No participants shall be under the influence of or be in possession of illegal drugs or alcohol during program participation.

- Participants will be required to harvest an antlerless deer before harvesting an antlered deer.

- Participants shall not enter private property adjacent to District land without obtaining permission from the landowner. A participant may call a District police officer to escort the participant to approach a neighbor.
- Participants and "helpers" shall not enter another hunting zone. A participant must contact District staff to be escorted into another zone.
- Participants may only harvest game animals designated on their permit (i.e. deer only).
- It is unlawful to make available food, salt, mineral blocks, or any other products for ingestion by wild deer. The establishment of food plots is prohibited on District lands.
- Participants may not work together to drive or move deer or allow other individuals to knowingly do so.
- "Still-hunting" or "stalking" of deer is prohibited.
- If tracking a deer, a participant may only carry a bow without a nocked arrow.
- No participant may nock an arrow until they are in their stand and legal shooting hours have begun.
- Participants must remove all garbage that they bring onto District land.
- Permit holders may not assign nor transfer their permit.

Sharpshooting as a Component of a Deer Management Program

Rationale

Sharpshooting with firearms is known to be safe, effective and State-approved. Safety and efficiency are maximized by utilizing trained personnel to remove deer from pre-determined locations with defined shooting lanes, shooting direction and a backstop. Sharpshooting is conducted after dark, while preserves are closed to the public which reduces or eliminates a number of public safety concerns. This is the method that a majority of Forest Preserve Districts in northeastern Illinois utilize for deer management. Sharpshooting can be utilized in areas where controlled hunts are not feasible, to supplement controlled hunts after the season is over, or to reduce extremely high densities where controlled hunts have not been successful. When proposing the use of sharpshooting the District must satisfy the permitting requirements of the IDNR and the Illinois Nature Preserve Commission where applicable.

IDNR Deer Population Control Permit (DPCP)

When an agency proposes to manage deer populations using a non-traditional method such as sharpshooting, the IDNR must issue a DPCP. An agency must submit a DPCP application and management proposal demonstrating a need to manage deer populations. A DPCP proposal must include the following: 1) introduction and background, 2) program goals and objectives, 3) descriptions of the site(s) to be managed, 4) qualitative and/or quantitative documentation of the problem, 5) proposed techniques and procedures, 6) a means of evaluating the management program, 7) chronology of management activities and 8) literature cited and supporting materials.

DPCP applications are required annually and must be submitted no later than 30 days prior to the proposed starting date. Within 30 days after the DPCP permit expires or the collection of the proposed number of deer being achieved, the land-manager must submit the required DPCP summary report.

When sharpshooting under a DPCP permit is utilized, it may only occur at shooting sites previously viewed and approved by the IDNR authorizing agent. Sharpshooters must be tested annually and approved by the IDNR. The sharpshooting qualification test involves 3 steps summarized below:

1) Application: proposed sharpshooters must complete an IDNR application listing their experience and qualification (i.e. firearm or hunter safety courses, military experience, hunting experience etc.). In the initial years of the sharpshooting program, District staff and local law enforcement personnel will be the only permitted applicants for the Kane County program.

2) Shooting Proficiency Test: the proficiency test is designed to ensure that the proposed sharpshooter can consistently, accurately, and precisely hit a target of similar in size to the one they will see in the field. The applicant must use the firearm and ammunition that they will be using in the field. All firearms must have telescopic sites (i.e. scopes). The type of weapon will be dictate the target size and acceptable score for the test. The proficiency test will be administered no greater than 45 days prior to the proposed initiation date. Proposed sharpshooters are allowed one attempt to qualify, if unable to do so, they cannot be retested until the following year.

3) Oral Interview: proposed sharpshooters will participate in an oral interview to allow IDNR staff evaluate and clarify information included in the sharpshooter application form. This process will also assist with evaluating an individual's attitude towards the program, cooperativeness and commitment to ensuring human safety and program success.

Additional Requirements

1) Must be ≥ 18 years of age.
2) Must possess a valid FOID card and hunting privileges must not have been revoked.
3) If not a resident of Illinois, cannot have been convicted of a felony or Wildlife Code violations.
4) Cannot be using prescription or over-the-counter medication or any other substance known to impair physical and/or mental decision making abilities.

INPC Requirements

The Illinois Natural Areas Preservation Act and Rules for Public Use of Dedicated Illinois Nature Preserves provide that animals may be killed to control an ecological imbalance that threatens the natural quality of a nature preserve. Removal activities to manage a deer herd must be part of a plan approved by the Illinois Nature Preserve Commission and may be part of a management schedule in a Nature preserve Master Plan. Nature preserve managers can seek approval of deer management via a proposal not included in the Master Plan, but the plan must be incorporated into the next 3-year update of the management schedule for the preserve.

The deer management plan must have: 1) clearly defined management objectives, 2) description of site characteristics, 3) description of methods to be used to achieve stated objectives, 4) description of methods used to monitor the success or failure in meeting the objectives of the management. Land managers must provide an annual summary of management effort, the number, sex, antlered or antlerless, and age of deer removed, and the results of any deer population or vegetation monitoring. This summary shall be provided with the annual report provided to INPC.

General Timing:

April-August: Conduct vegetation monitoring data at sites to be proposed for management and priority monitoring sites.

August-September: Evaluate data and determine sites to be proposed for management activity.

August-September: Secure necessary in-house approvals. Prepare DPCP and INPC applications.

September: Submit proposals and applications to IDNR and INPC if required.

September-October: Obtain quotes for helicopter rental, obtain quotes for deer processing. Place signage where needed.

October-November: Begin program if controlled hunting is the proposed management tool. Conduct INDR sharpshooter qualification.

November-February: Continue controlled hunts until end of season (mid-January). Conduct aerial surveys. Conduct sharpshooting activities under DPCP where proposed and approved.

February-March: Submit end of season summaries and reports as required.

March-April: Remove signs and other program equipment from the field.

Program Overview

If sharpshooting is proposed for a site and a DPCP is approved by IDNR, existing staff would be evaluated through the IDNR sharpshooter testing and qualification procedures. Approved sharpshooters and support staff would conduct management activities at night, while preserves are closed to the public. After determining that an area is clear of preserve users, sharpshooters will shoot deer at pre-determined, approved locations from elevated positions. Elevated positions ensure that bullet trajectory is toward a firm backstop. Deer taken under a DPCP must be field-dressed, tested for CWD, processed, properly stored and donated to a charitable organization. Data will be collected and analyzed annually to measure the effectiveness of the program and guide changes where needed.

Literature Cited

Anderson, R. C. 1994. Height of white-flowered trillium (*Trillium grandiflorum*) as an index of deer browsing intensity. Ecological Applications. 4:104-109.

Augustine, D. J., and L. E. Frelich. 1998. Effects of white-tailed deer on populations of an understory forb in fragmented deciduous forests. Conservation Biology. 12:995-1004.

deCalesta, D. S. 1994. Effect of white-tailed deer on songbirds within managed forests in Pennsylvania. Journal of Wildlife Management. 58:711-718.

Etter, D. R. 2001. Ecology and management of overabundant white-tailed deer from suburban Chicago, Illinois. Dissertation, University of Illinois at Urbana-Champaign, 118 pages.

Hofmann, J. E. 2008. Field manual of Illinois mammals. Illinois Natural History Survey Manual 12. xii + 358pp.

Knight, T. M., J. L. Dunn, L. A. Smith, J. Davis, and S. Kalisz. 2009. Deer facilitate invasive plant success in a Pennsylvania forest understory. Natural Areas Journal. 29:110-116.

McCabe, R. E., and T. R. McCabe. 1984. Of slings and arrows: An historical retrospection. Pages 19-72 in White-Tailed Deer: Ecology and Management. (L. K. Halls, ed.) Stackpole Books, Harrisburg, PA.

McShea, W. J. 2000. The influence of acorn crops on annual variation in rodent and bird populations. Ecology. 81:228-238.

McShea, W. J., and J. H. Rappole. 2000. Managing the abundance of breeding bird populations through manipulation of deer populations. Conservation Biology. 14:1161-1170.

Meister, S. 2008. A proposal for white-tailed deer management within the forest preserve district of DuPage county. Forest Preserve District of DuPage County. 43pp.

Miller, S. G., S. P. Bratton, and J. Hadidian. 1992. Impacts of white-tailed deer on endangered plants. Natural Areas Journal. 12:67-74.

Nixon, C. M., L. P. Hansen, P. A. Brewer, and J. E. Chelsvig. 1991. Ecology of White-Tailed Deer in an Intensively Farmed Region of Illinois. Wildlife Monographs 118, The Wildlife Society, Bethesda, MD.

Preuss, T. 2008. Deer population control permit application 2008-2009. Lake County Forest Preserve District. 18pp.

Rodewald, A. D. 2003. Decline of oak forests and implications for forest wildlife conservation. Natural Areas Journal. 23:368-371.

Waller, D. M., and W. S. Alverson. 1997. The white-tailed deer: a keystone herbivore. Willdife Society Bulletin. 25:217-226.

Whitham, J. H., and J. M. Jones. 1990. White-tailed deer abundance on metropolitan forest preserves during winter in northeastern Illinois. Wildlife Society Bulletin. 18:13-16.

Woolhouse, M. E., and S. Gowtage-Sequeria. 2005. Host range and emerging and reemerging Pathogens. Emerging Infectious Diseases. 11: 1842-1847

APPENDIX A

Evaluation of Potential Deer Management Options

1) Take no action

While this method is inexpensive in terms of management costs, this option requires the acceptance of the ramifications and ecological costs of high deer numbers. Taking no action has clear consequences in the long term on vegetation structure and diversity, sensitive and rare species, habitat quality, wildlife, and human health and safety. To do nothing is to accept allowing high quality ecosystems to be degraded by deer and attempt to restore other areas with the influences of high deer densities. This is not compatible with the mission of the District, its Natural Resources department or the District's duty to be responsible stewards of public lands.

2) Habitat Modification

While habitat modification can be used to remedy localized problems with certain species, it is not a viable option to manage issues with overabundant deer. Habitat modification would have to be extreme (e.g., nearly complete removal of all vegetation) to get deer to leave an area; such habitat modifications would be destructive and highly detrimental to numerous other species and therefore would be undesirable to most natural resource agencies and landowners for managing deer populations.

Modifying habitat to increase its carrying capacity for deer could include creation of edge habitat and early successional habitat by clear-cutting or other means. Ultimately, this would result in further increases in deer population and possible increases in potential conflicts with humans (i.e. DVC, property damage).

3) Supplemental Feeding

Initially, the supplemental feeding of deer may appeal to some as a potential means to reduce the pressure of deer browsing on natural vegetation. Upon closer inspection there are several ecological reasons to discourage supplemental feeding. Supplemental feeding has been observed to increase browse pressure in the vicinity of feeding sites (Doenier et al. 1997). Supplemental feeding can also result in improved physical condition, which would lead to increased reproductive success and most likely population increases. Resulting population increases would exacerbate the impacts of overabundant deer populations.

Supplemental feeding can result in higher densities of animals than normally occur under natural circumstances; additionally there may be increased levels of contact among individuals. These conditions are more likely to facilitate the transmission of disease, such as CWD, among individuals. Aside from practical and ecological reasons not to use this method it is now illegal

to feed deer, e.g. corn piles, or provide salt licks due to CWD and other disease transmission concerns (Title 17, Part 635, Section 635.40).

4) Reintroduction of Predators

Coyotes are the largest mammalian predator in northeastern Illinois; they are highly opportunistic and rely on a diversity of food sources that vary spatially and seasonally (Morey et al. 2005). It is uncommon for coyotes to take healthy, adult deer, but they are an important predator of fawns.

In overabundant deer populations, fawn mortality may slow population growth, but the overall population is likely to remain high when adult survival is high. It is worth noting that coyote populations have increased significantly in the Chicago area in the last few decades, over that same time many deer populations have also continued to increase. Large predators, capable of preying on adult deer, such as wolves and mountain lions are sensitive to habitat fragmentation (Crooks 2002).

The reintroduction of large native predators into suburban areas is impractical due to the lack of large areas of habitat required by most large predators and concerns regarding the safety of releasing potentially dangerous animals into these settings.

5) Repellents

Liquid form and pelletized animal repellents and deterrents have been used with varied success for reducing deer damage in urban areas. Repellents attempt to reduce the palatability of treated plants to a level lower than that for other available forage. Such measures are best suited for use in gardens, orchards, or for other high-value plants due to the cost of repellents and time required to apply them.

Repellents currently used by the District cost approximately $100 per gallon and can treat approximately 400 tree saplings. It must be applied 3 times throughout the growing season. Repellents also appear to decline in efficacy when deer populations are high, as feeding pressure can overcome the repellants effects.

District Natural Resources staff and volunteer site stewards currently utilize repellents on relatively small scale projects (e.g. tree and shrub plantings); however large-scale use of repellants would be logistically and economically impractical or impossible.

6) Fencing

Fencing can provide a reliable means of protection against deer browsing under certain conditions. A well-constructed and properly maintained fence could prevent deer from

immigrating into managed natural areas. However there are many factors that limit the utility of fencing to protect natural areas in a Forest preserve setting.

A fence that would limit deer movements would also be a hindrance to the natural movement of other wildlife species. Fencing would also negatively impact the aesthetic qualities of natural areas that people come to enjoy. Complex property lines, streams, roads, and the existence of utility rights of way could also make the construction of a continuous and effective fence costly if not impossible. Once constructed, fences also require frequent inspection and repair if they are to remain an effective barrier.

For example a recent cost estimated for 2200 linear feet of 8ft chain link fence at Aurora West Forest Preserve was $55,000. Constructing a fence at large scale over varying terrain could be expected to be even more costly.

The use of fencing to manage the impacts of deer upon natural resources is not a feasible option for most areas. Fencing may be appropriate for small and localized areas (i.e. rare plant populations), however they will still be costly and of limited use.

7) Fertility Control

Fertility control attempts to inhibit reproduction in deer, which may slow population growth in the short term, and result in actual population declines over time as the deer population ages and senesces (Rudolph et al. 2000, Walter et al. 2002). Contraception does not result in immediate reductions in population abundance, and the effects of older age-classes may not be observed for 5-10 years.

The main groups of fertility control include: surgical sterilization, synthetic steroid hormones, immunocontraception and contra gestation.

Surgical Sterilization: This method requires the capture of individual deer and subsequent field surgery by a licensed veterinarian. The primary advantage of this method is that it is permanent, but the need to capture individuals and perform surgery is costly.

Synthetic steroid hormones: This method requires that hormones be either ingested or implanted subcutaneously. Orally administered steroids can inhibit ovulation in female deer, but they require daily oral exposure, which limits their usefulness. Implanted hormones have prevented pregnancy in deer, but require the capture of individual females and reproduction can no longer be suppressed after the implant is depleted (1-2 years). Currently, there are no synthetic steroid hormone contraceptives that have been approved by the U.S. Food and Drug Administration (FDA) for use in white-tailed deer (Warren 2000).

Immunocontraception: This methods involves injecting an animal with a vaccine that results in the production of antibodies against a protein or hormone involved in reproduction. The vaccine must either be hand injected into a captured female or delivered remotely via a dart. Porcine Zona Pellucida (PZP) immunocontraception has been used experiments involving free-ranging white-tailed deer populations. When utilizing PZP, two shots are necessary the first year and a single annual booster thereafter. Because annual mortality rates of suburban deer are usually low, a large proportion of females (70 to 90%) must be effectively treated to reduce population growth (Rudolph et al. 2000).

Recently GonaCon ™ , an immunocontraceptive vaccine, has displayed improvements over previous products because it is a single shot, multiyear vaccine. Long term field efficacy data do not currently exist, but preliminary studies indicate a single injection prevented pregnancy in 67-88% of females in the first year and in 47-48% the second year. GonaCon ™ must be hand injected, which necessitates that capture and handling of each individual to be treated. Although promising, this technology is intended to be a tool which must be used in conjunction with other wildlife management methods.

Contragestation: Contragestation involves using a chemical, postconception, to terminate pregnancy. While this method can be effective with white-tailed deer, negative public perception may limit future application of this method in deer (DeNicola et al. 2000). Furthermore this method also requires treating a large proportion of females, which requires the ability to get close to the deer.

It is also important to note that greater than 70% of the females in most deer populations will need to be treated by the contraceptive agent (Nielsen et al. 1997*b*), resulting in considerable implementation costs, as deer often need to be captured and given a hand injection of the contraceptive agent.

Although fertility control may one day be a useful tool for managing small and isolated populations of deer, currently its utility is limited by many factors. Because all of the current methods require the capture and handling of each deer to be treated, the cost of labor, materials and the feasibility of treating an adequate number of deer will likely limit the use of immunocontraceptives to small insular herds that are habituated to humans (DeNicola et al. 2000).

A final consideration is that contraceptive methods are not currently approved in Illinois and IDNR will not issue Deer Population Control Permits (DPCP's) for experimental techniques (e.g. sterilization and immunocontraception). Currently any use of these methods would require a long term experimental project, which would involve partnering with numerous agencies for a multi-year field study, requiring significant financial commitment with unknown outcomes.

8) Trapping and Relocation

This method entails the capture of deer using traps, nets or chemical immobilization (darts). The deer are then relocated to another site and released. This method is often proposed due to the perception that it is a humane alternative to the lethal removal of deer. Capture and relocation has been demonstrated to be impractical, stressful to the deer handled and at times results in high post-release mortality (DeNicola et al. 2000).

The deaths of relocated deer have been attributed to capture myopathy, unfamiliarity with release sites and exposure to novel mortality sources. Capture myopathy is a stress related disease that can cause deer that have been captured and handled to die after the fact. When relocated, deer often move extensively to find suitable habitat and avoid competition with resident deer. These movements can increase the exposure of a deer to mortality sources such as vehicles, hunting and predation. A capture and relocation effort involving black-tailed deer in California resulted in an 85% mortality rate in a one year period following relocation (O'Bryan and McCullough 1985). In a study of the post-translocation survival of deer in Northeast Illinois, adult deer had a mortality rate of 66% (Witham and Jones 1990).

IDNR will not issue DPCP's for the live-capture and translocation of deer. Places willing and able to accept deer have always been very limited. Trapping and translocation is not permitted in Illinois due to concerns about transmission of diseases (ex. CWD) from one deer population to another.

9) Reduction via Controlled Archery Hunting

Hunting has traditionally been a primary means of managing deer herds in most areas. In urban and suburban areas, firearm hunting often is limited due to firearm discharge ordinances, restrictive hunting laws (e.g. archery only east of Rt. 47 in Kane County), or public perceptions about firearm safety (Jones and Witham1995). Archery hunting has been used to manage urban and suburban deer populations in some areas, often through the use of controlled hunts. Controlled hunting is the application of legal, regulated deer hunting methods with additional restrictions stipulated by the land manager. Controlled hunts have been successful in several areas and hunting is currently used to manage deer at two regional Conservation Districts (Boone and McHenry).

As with all methods, there are important considerations that must be evaluated to determine if controlled hunting is a viable option at a site. Safety and compatibility with other preserve uses would be the primary concerns, followed by the ability to efficiently achieve management program goals. It is not suggested that managed hunts are not safe, but substantial planning and oversight may be required to ensure a level of safety that is satisfactory to the public. A vital question for this option is whether the preserves with deer problems can hunted in accordance

with regulations (i.e. ≥ 300 feet from inhabited dwellings) with adequate hunter harvest and distribution to achieve program goals. When hunting is used it is vital that effort be distributed such that there aren't refugia that deer can use to avoid any chance of being harvested.

10) Reduction via Sharpshooting

This method is currently used by a majority of agencies in the Chicago metropolitan area. Culling is conducted under strictly controlled conditions by skilled marksmen, while preserves are closed to the public. Sharpshooting over bait, in predetermined areas with defined shooting lanes, shooting direction and a backstop maximizes safety. Additionally, operations take place when preserve use is absent, which reduces or eliminates a number of public safety concerns. This method must be conducted under the authorization of a Deer Population Control Permit (DPCP), which must be issued by the IDNR. All healthy deer culled under DPCP permits must be processed and donated to approved, charitable organizations (i.e. Northern Illinois Food Bank).

11) Reduction via Sharpshooting Followed by Managed Archery Hunting

It may be desirable to use controlled archery hunting to maintain deer populations at desired levels following an initial culling program. This would have to be evaluated for the same issues stated in #8 above.

Identification of Preferred Deer Management Options on District lands

The District is already using non-lethal means (i.e. repellants and limited fencing) to mitigate deer impacts where practical and applicable. It is impossible to implement these methods over large areas, such as entire preserves. Currently, a field-proven, state approved non-lethal means to reduce overabundant free-ranging deer populations does not exist.

Lethal removal of deer is the most viable option and is the staff recommended approach for reducing deer densities across specific, not all, District lands. This option is the most practical and cost effective means to manage deer populations and shall best maintain them at levels compatible with long term conservation objectives.

The two primary lethal means of removal recommended are: 1) controlled hunting within the established deer hunting seasons and 2) sharpshooting under a DPCP permit from IDNR. These methods are not mutually exclusive, and depending on the location and other factors, controlled hunting can be utilized initially or during the "maintenance phase" of deer management after sharpshooting in the "reduction phase".

Crooks, K. R. 2002. Relative sensitivities of mammalian carnivores to habitat fragmentation. Conservation Biology. 16:488-502.

Denicola, A. J., K. C. Vercauteren, P. D. Curtis and S. E. Hyngstrom. 2000. Managing white-tailed deer in suburban environments: a technical guide. Cornell Cooperative Extension Information Bulletin, N.Y. State College of Agriculture and Life Science, Cornell University, Ithaca, New York, USA.

Doenier, P. N., G. D. DelGuiduice, and M. R. Riggs. 1997. Effects of winter supplemental feeding on browse consumption by white-tailed deer. Wildlife Society Bulletin. 25:235–243.

O'Bryan, M. K., and D. R. McCullough. 1985. Survival of black-tailed deer following relocation in California. Journal of Wildlife Management. 49:115-119.

Whitham, J. H., and J. M. Jones. 1990. White-tailed deer abundance on metropolitan forest preserves during winter in northeastern Illinois. Wildlife Society Bulletin. 18:13-16.

Jones, J. M., and J. H. Whitham. 1995. Urban deer "problem solving" in northeast Illinois: an overview. Pages 58-65 in J. B. McAninch, ed., Urban Deer: a manageable resource? 1993. Symposium of the North Central Section. St. Louis, Mo.: The Wildlife Society.

Nielsen, C. K., W. F. Porter, and H. B. Underwood. 1997. An adaptive management approach to controlling suburban deer. Wildlife Society Bulletin. 25:470–477.

Rudolph, B. A., W. F. Porter, and H. B. Underwood. 2000. Evaluating immunocontraception for managing suburban white-tailed deer in Irondequoit, New York. Journal of Wildlife Management. 64:463–473.

Walter, W. D., P. J. Perkins, A.T. Rutberg, and H. J. Kilpatrick. 2002. Evaluation of immunocontraception in a free-ranging suburban white-tailed deer herd. Wildlife Society Bulletin 30:186-192.

Warren, R. J. 2000. Overview of fertility control in urban deer management. Pages 237-246 *in* Proceedings of the 2000 Annual Conference of the Society for Theriogenology, 2 December 2000, San Antonio, Texas, Society for Theriogenology, Nashville, Tennessee (*www.therio.org*).

Morey, P. S., E. M. Gese, and S. D. Gehrt. 2007. Spatial and temporal variation in the diet of coyotes in the Chicago metropolitan area. American Midland Naturalist. 158:147-161.