



Bringing People and Nature Together

Forest Preserve District OF WILL COUNTY

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Background

The Forest Preserve District of Will County (FPDWC) was established in 1927 to “acquire... and hold lands containing one or more natural forests or parts thereof or land or lands connecting such forests or parts thereof, or lands capable of being reforested, or capable of being restored to a natural condition, for the purpose of protecting and preserving the flora, fauna, and scenic beauties within such district, and to restore, restock, protect, and preserve the natural forests and such lands together with their flora and fauna, as nearly as may be, in their natural state and condition, for the purpose of the education, pleasure, and recreation of the public” (70ILCS805/5).

Beginning in the early 1990s FPDWC staff began to notice deer browse lines in several forest preserves. In 1993 the FPDWC began to document the number of deer in the forest preserve system using aerial surveys (Appendix A). Surveys completed indicated deer densities which exceed the target density of 20 deer per square mile widely considered necessary to maintain plant community quality and diversity. The FPDWC also wanted to determine what impacts to the vegetation within the affected habitats high deer numbers resulted in. During the last 20 years, multiple deer browse studies have been conducted on FPDWC properties, and excessive deer browse has been identified as a major contributor to the negative changes in species diversity, composition and structure within the vegetative communities (see 2010 Deer Population Control Permit Application for details).

The winter of 2019/2020 will be the ninth year of the District’s deer management program. During the 2018/2019 permitted season, staff removed a total of 172 deer. Table 1 below summarizes the cumulative number of deer removed from all preserves to date.

Table 1.

Preserve	2010/11 Number Removed	2011/12 Number Removed	2013/2014 Number Removed	2014/2015 Number Removed	2015/2016 Number Removed	2016/2017 Number Removed	2017/2018 Number Removed	2018/2019 Number Removed	Total Number Removed
Romeoville Prairie Area	0	5	10	0	20	14	8	14	71
Lockport Prairie Nature Preserve	10	8	5	10	15	10	8	15	81
McKinley Woods Preserve--Four Rivers Education Center	75	16	63	40	30	25	30	15	294
Kankakee Sands Geologic Area (Sand Ridge, Kankakee Sands and Braidwood Dunes and Savanna Preserves)	0	21	41	41	45	0	30	28	206
Lockport Prairie East	0	0	0	0	0	6	0	0	6
Goodenow Grove Nature Preserve	0	39	30	30	20	20	0	35	174
Hickory Creek Preserve	0	0	60	60	60	60	35	35	310
Raccoon Grove Preserve	0	0	17	20	10	12	19	15	93
Thorn Creek Woods Nature Preserve	0	0	0	0	0	33	19	15	67
Prairie Bluff Preserve	0	0	0	0	0	20	13	0	33
Total	85	89	226	201	200	200	162	172	1335

Current regional research and deer management programs use the deer densities as a meter to help determine the scale of their deer problem. The damage white-tailed deer do to local ecosystems, specifically plant communities and species populations, is measured to determine the success rate of a program, while the deer density numbers provide a guideline for establishing removal targets. Generally, organizations in northeastern Illinois target 10-30 deer per square mile and adjust their plans accordingly over time as recovery in the plant communities occurs and the structure of the deer herds are influenced by removing specific numbers of the animals annually. Current density numbers when looked at in conjunction with floristic surveys and deer browse data indicate that the high numbers of white-tailed deer are major contributors to the altering of ecosystems in Will County Forest Preserves. Table 2 documents current numbers of deer counted as well as proposed numbers for removal. FPDWC proposes removing a total of 146 deer from the preserves listed, including the 30 deer requested by the IDNR from the Sands Areas as part of the CWD Maintenance protocol.

Table 2.

	Current Population Size	Target Population Size	Current Density (Deer per square mile)	2019-20 Removal Target	Estimated Density after 2019-20 Removal Target Completed (Deer per square mile)
Romeoville Prairie Area	25	20	28	5	22
Lockport Prairie Nature Preserve	12	8	25	4	16
McKinley Woods and Four Rivers Environmental Education Center	51	18	62	35	20
Hickory Creek Preserve	91	50	38	35	23
Thorn Creek Nature Preserve	59	35	38	18	26
Goodenow Grove Nature Preserve	49	30	35	19	22
The Sands: Sand Ridge Preserve, Kankakee Sands Preserve, Braidwood Dunes and Savanna Nature Preserve				30	
Total Deer to Remove				146	
*IDNR Requested deer removal					

Program Goals

The FPDWC deer management program goal is to establish and maintain white-tailed deer populations that allow for a sustainable relationship between biological diversity and habitat structure. Succinctly, the deer population numbers will be reduced to allow vegetation to recover from excessive browse.

Program Objectives

The general objectives are as follows:

1. Utilize aerial deer population surveys to regularly monitor the density of deer residing within a given preserve.
2. Conduct deer browse studies to assess the extent to which the current conditions and differences from previous conditions can be attributed to browsing pressure from white-tailed deer.
3. Reduce deer browse damage to allow for recovery of plant species diversity, and community composition and structure.

Preserves

Romeoville Prairie Nature Preserve and Isle a la Cache Complex (RPN): (0.90 square miles counted)**

(Sections 26, 27, 34 and 35: Township 37N. - Range 10E. & Section 3: Township 36N. – Range 10E.)

Romeoville Prairie Nature Preserve occupies over 590 acres of the Des Plaines River Valley north of 135th Street on the west side of the river. It is dominated by prairie, sedge meadow, and marsh communities. It is comprised of predominantly high-quality remnant wet-mesic dolomite prairie and contains marsh, sedge meadow, springs, fens and floodplain forest on shallow soils over limestone bedrock. There has been a management emphasis on hydrological control and the expansion, enhancement, and monitoring of the property for rare and conservative plant species. The preserve has no public access areas and is well buffered from residential and other public spaces. The terrain is very level and the landscape very open.

The Isle a la Cache occupies 96 acres on an island in the Des Plaines River south of 135th Street. While the Isle a la Cache Museum and associated amenities occur in the northern half of this area, the southern half of the preserve is flat and largely wooded with a few isolated open areas well suited for sharpshooting.

Lockport Prairie Nature Preserve (LPN): (0.49 square miles counted)**

(Sections 22 & 27: Township 36N. - Range 10E.)

Lockport Prairie Nature Preserve, a unique and critically endangered wetland habitat is located on the west side of the Des Plaines River both north and south of Division Street, east of Route 53 between the cities of Lockport and Crest Hill. There is limited public access to this 254-acre site, and the site is actively managed with prescribed burns, native plant seeding, brush removal and hydrological restoration efforts in order to enhance and restore the entire property. The area supports a number of listed species, both federal and state, and is considered one of the highest quality dolomite prairie remnants left in Illinois, containing calcareous fens and seeps, sedge meadow and wetland communities.

McKinley Woods Preserve and Four Rivers Environmental Education Center (MWP): (0.88 square miles counted)**

(Sections 20, 29, 30 and 31: Township 34N. - Range 9E.)

McKinley Woods Preserve is a 447-acre site situated on bluffs above the I&M Canal and the Des Plaines River. The I&M Canal State Trail is between the river and the canal. The preserve is characterized by steep wooded bluffs and ravines that provide a very safe backdrop for firing stations. McKinley Woods is a high-use, high-quality area currently receiving multiple large-scale management and restoration efforts, including clearing out invasive woody species such as buckthorn and honeysuckle to decrease their dominance in the existing woodlands and re-creating prairie and oak/hickory savanna over former agricultural land on the uplands above the river terrace.

The Four Rivers Environmental Education Center is a 78-acre area located essentially on an island in the Des Plaines River. Except for the narrow strip of land connecting it to the mainland, this area is surrounded on all sides by water providing good isolation for sharpshooting activities. While the northern half of this site is largely open, the southern half is predominately wooded.

Hickory Creek Preserve (HCP): (2.41 square miles counted)**

(Sections 13, 14, 24: Township 35N. - Range 11E. & Sections 16, 17, 18, 19, and 20: Township 35N. - Range 12E.)

Hickory Creek Preserve is a 1,541-acre mosaic of natural communities including woodland, wetland, barrens and prairie around numerous public use amenities, all of which is surrounded by private residential properties. This preserve has varying degrees of natural community quality, including some high-quality areas. The preserve receives regular management in the form of prescribed burning, invasive species control, selective woody removal and planting to maintain higher quality areas while improving more degraded portions.

The preserve has terrain ranging from flat, to rolling, to steeply sloped areas. Using the large amount of interior space and varying terrain, sharpshooters will take advantage of the natural topography and elevated shooting positions from well-buffered locations to limit the potential flight of projectiles.

Thorn Creek Woods Nature Preserve (TCN): (1.56 square miles counted)**
(Sections 1,2,11 & 12: Township 34N. - Range 13E)

Thorn Creek Woods Nature Preserve is a 996-acre preserve in Park Forest and University Park that is managed by the Forest Preserve District of Will County. It is owned by multiple partners including FPDWC, the Village of Park Forest, University Park and the Illinois Department of Natural Resources; all of whom comprise the Thorn Creek Woods Management Commission.

It contains upland and bottomland, forested land, glacial potholes, ravines, prairie and wetlands. The preserve contains over 3 miles of trails, and is subject to multiple restoration activities including, invasive species control, prescribed burning and planting and seeding activities. All bait stations are located on FPDWC property.

Goodenow Grove Nature Preserve (GGN): (891 acres, 1.39 square miles)
(Sections 23, 26, 27, 28, 33 and 34: Township 34N. - Range 14E.)

The Goodenow Grove Nature Preserve is an 891-acre site located east of I-394 and north of Goodenow Road. The site is characterized by heavily wooded areas along Plum Creek and its tributaries, as well as barrens (shrubby prairies), savannas and grasslands associated with level areas. Goodenow Grove Nature Preserve contains high-quality remnants of a diverse mixture of natural communities including dry-mesic and mesic upland forests, mesic and wet-mesic floodplain forests, forested seeps, savanna, dry-mesic and mesic prairies, wet-mesic prairie/sedge meadow, marshes and vernal pools. The preserve contains habitat for several state threatened or endangered species.

The site receives extensive management and restoration including invasive species control, prescribed burning, and seeding and planting efforts. Staff intends to take advantage of natural elevated positions for clear shots and backdrops to minimize the potential flight of the projectiles.

**Actual preserve area may differ slightly from the actual estimated area flown.

Documentation of Problem

The FPDWC has been monitoring changes in the vegetation through surveys and inventories and monitoring deer population levels through aerial surveys in FPDWC properties for many years. Specifically, the FPDWC has permitted, assisted on or conducted a number of deer browse related studies of the vegetation at various locations; including the Romeoville Prairie Area, Lockport Prairie Nature Preserve, McKinley Woods Preserve, including Four Rivers Environmental Education Center, Hickory Creek Preserve, Raccoon Grove Nature Preserve, Thorn Creek Woods Nature Preserve, and Goodenow Grove Nature Preserve. These studies were comparative (examining the change in vegetation over time on large ecosystem wide scales), species specific (focused on a single sensitive species), or were community specific with regard to the composition and structure of woody and herbaceous growth within a given natural community. Some of these studies also compared deer browse impacts between preserves at the species or community level. Data indicate significant deer browse pressure and very high deer densities in these preserves resulting in negative shifts in species composition, decreases in diversity, and an overall decline in the quality of these natural areas.

Historical Deer Browse and Browse Monitoring and Evaluation

Additionally, the following is a list of the deer browse surveys and historical monitoring studies that were designed either to assess general vegetation changes over time or to assess specific impacts of deer browse at the level of individual species or plant communities in Will County Forest Preserves. For detailed information related to and supporting the following results, please refer to the 2011-2012 Will County DPCP Application for summaries and complete reports.

Deer Browse Inventory and Browse Monitoring
Forest Preserve District of Will County Three-Year Browse Study
Woody Vegetation Changes in Four Will County, Illinois Forest Preserves
Messenger Woods Large-flowered Trillium Herbivory Study
Lockport Prairie *Dalea foliosa* Monitoring

Current Deer Browse Evidence

1. Deer Browse Inventory and Monitoring 2019

In July 2019, multiple plots were sampled for deer browse at each of the six proposed deer management sites, as well as at the KGA Sands as per the IDNR request. Plots were selected based on historical documentation of known populations of native herbaceous and

woody plant species, with special attention given to listed species, species of concern, more conservative species and native species in descending order of priority. Browse plots are not replicated at a given point each year. The plots are at new points each year.

Each survey team consisted of two to three persons, with at least one plant specialist, and one data recorder/GPS recorder per team. Within each preserve, survey teams would locate areas that historically supported populations of native plants, or find areas via visual surveys that had evidence of native and conservative species present. Within those areas of native plants showing browse damage, teams would delineate a plot location by placing a center post and measuring out a circle with a 10-foot radius.

With the plot selected, the center point recorded via GPS or manually on a physical map, and the circumference of the plot flagged, plant species and level of browse was recorded. A rough visual assessment was done by the plant specialist on the team. From that assessment, a species list of what was native, most desirable and most relevant to the browse survey would be compiled into a focus list. Using the plot specific focus list, the team would document the amount and degree of deer browse. Assessment of deer browse was based primarily on vegetation at least 18 inches in height to minimize bias from browse unrelated to deer. In a few instances, vegetation less than 18 inches in height was sampled when the browse damage could be confidently attributed to deer. Likewise, in instances when the terminal portions of twigs or other vegetation parts were missing but that damage could not be confidently attributed to deer, those specimens were recorded as undetermined browse or simply as damaged. Each plant from the focus list found within a plot was examined and its condition recorded as to whether or not it was browsed, and if it was browsed by deer. Plants were categorized into 3 categories: Browsed by Deer, Not-browsed, or Browsed by Other.

Within each plot, efforts were directed at finding evidence of deer browse upon native species. This data was recorded to illustrate damage caused by deer. It can be noted that where there is a lack of preferred native forage, or native species, likely due to decades of heavy deer browse, the deer are turning to those plants they get less nutritional value from. The data recorded was then placed into an Excel spreadsheet, sorted, and assigned C-values as per Wilhelm and Rericha (Wilhelm and Rericha, 2017). The result varied by site, but at each site browse damage was extensive within the plots as Table 3 illustrates.

Table 3.

	% Browse Native Vines	% Browse Native Trees	% Browse Native shrubs	% Browse Native Forbes	% Browse Plants C-value 0-3	% Browse Plants C-value 4-6	% Browse Plants C-value 7+	Total % Deer Browse
RPN	na	100%	85%	62%	79%	79%	59%	69%
LPN	na	na	75%	65%	68%	84%	52%	67%
MWP	na	69%	70%	66%	67%	66%	na	66%
HCP	44%	69%	75%	63%	62%	64%	65%	64%
TCN	80%	66%	67%	58%	64%	67%	59%	64%
GGN	na	58%	69%	68%	64%	66%	63%	66%
KGA	na	50%	47%	57%	52%	64%	56%	57%

Plan of Action for Program Evaluations

Schedule of tasks:

Activity	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Submission of IDNR Permit Application											
Train and Certify Volunteers											
Update Deer Management Brochure											
Post Deer Management Program Updates on Web Site											
IDNR Review and Approval of Application and Firing Stations											
Sharpshooter Qualification Testing											
Develop and Mail Notification Letter to Adjacent Landowners											
Implementation of Culling Activities											
Complete Aerial Deer Population Surveys											
Prepare Annual Summary and Recommendations Report											

Proposed Methods and Procedures

The FPDWC sharpshooting program will utilize FPDWC police personnel and qualified volunteers as sharpshooters, field dressers and for coordinating the transportation of the carcasses to an authorized meat processing facility. Deer will be taken at bait stations by FPDWC sharpshooters and all bait stations will adhere to the IDNR regulations for safety. All sharpshooter candidates will be tested and seasonally approved by the IDNR prior to deer program implementation. Each volunteer candidate must be an Illinois resident, possess a valid firearm owner’s identification (FOID) card and pass a verbal interview, background check, drug screening and practice shooting qualification round conducted by FPDWC police before being considered for testing by the IDNR.

Techniques authorized under deer population control permits require that the resulting deer carcasses are suitable for human consumption. The permittee is required to have all usable deer carcasses processed at a State or Federally licensed meat processing facility and to donate the processed venison to a bona fide charitable organization. Unusable deer carcasses must be disposed of in accordance with the Illinois Dead Animal Disposal Act. Since deer collected under deer population control permits must be used for human consumption, the FPDWC’s permit season would take place during the cooler late fall and winter months (December to March).

The FPDWC must return all unused tags along with a deer removal summary within 30 days after permit expiration. The removal summary must list the tag number, location, sex, age and physical condition of each animal collected, as well as the total amount of processed venison donated and the names of the charities receiving the donated meat. The FPDWC is responsible for all costs associated with the deer control program. The program will not authorize the use of archery equipment, handguns, shotguns, muzzle-loading rifles, etc. Only modern rifles firing 0.223 or 0.308 rounds are proposed for use in the sharpshooting program.

Staff has reviewed and researched current urban deer programs and recommendations extensively. The FPDWC has set goals of 20-30 deer per square mile based on this research (current literature suggests that pre-settlement numbers of white-tailed deer were approximately 9 per square mile). This target range will be re-evaluated annually as the impacts of the deer browse decline with the reduction in deer densities in a given area. The target number of deer to be removed from each site (Table 2) was determined based on the stated desired density and the estimated deer population based on the most recent aerial population counts as well as being contingent on the resources available to the FPDWC.

Evaluation of Management Program

Staff has conducted deer population counts from a helicopter during most years beginning in 1993. Table 10 presents the results from the year 2002 to the present. Survey crews of two or more persons counted deer from December through March, ideally when the snow is less than three days old, at least three inches deep and in the absence of foliage to allow better visibility. However, extremely

mild conditions and lack of persistent snow cover during the winter of 2011/2012 prevented deer population counts from being completed at any FPDWC preserve.

Evaluation of the deer management program will be based on documenting the changes in aerial population surveys and changes in vegetation browse over time at sites where management has been conducted. Site-specific deer population targets will emerge over time as the structure and composition of the vegetation in a given preserve recovers from browse pressure. The deer density and deer population monitoring will not be the sole vehicle of evaluation for management effectiveness. Density targets will be managed adaptively meaning that recovery of vegetative communities and/or species populations will determine future population control and density targets.

The FPDWC initiated its deer management program with a requirement for sharpshooters to remove antlerless individuals only to hasten the population reduction at certain preserves and to allow the public time to adjust to the new program. With the removal of many females from some sites but not enough to reach target population sizes, the District sharpshooters began to experience a significant reduction in efficiency at bait stations during the 2011/2012 culling season as the sex ratio in some preserves with two consecutive years of deer management appeared to have been skewed towards males. The District will continue to implement a restriction for subsequent deer culling seasons; Sharpshooters will now attempt the preferential, but not exclusive, removal of does, allowing for the removal of younger males if necessary to achieve target population sizes. Mature males showing ten or more antler points will not be preferentially targeted.

Table 10.

Area Counted (square miles)*	2002	2005	2006	2007	2008	2009	2010/2011	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Preserve & Unit	2002	2005	2006	2007	2008	2009	2010/2011	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Romeoville Prairie Area			0.90		0.90		0.90	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Lockport Prairie Nature Preserve			0.56		0.43		0.43	0.43	0.43	0.45	0.49	0.49	0.49	0.49
McKinley Woods Preserve				0.84	1.11		1.11	1.11	1.11	0.88	0.88	0.88	0.82	0.82
Hickory Creek Preserve			3.25		3.25		3.25	3.25	3.25	2.41	2.41	2.41	2.41	2.41
Raccoon Grove Nature Preserve		0.50		0.50	0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50
Thorn Creek Nature Center		4.08		3.52	3.52			2.92	2.92	1.56		1.56	1.56	1.56
Goodenow Grove Nature Preserve			2.10		1.50		1.50	1.50	1.50	1.39	1.39	1.39	1.39	1.39
Aerial Count														
Preserve & Unit	2002	2005	2006	2007	2008	2009	2010/2011	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Romeoville Prairie Area			54		28		27	33	8	47	37	31	34	25
Lockport Prairie Nature Preserve			29		24		27	14	21	25	21	18	27	12
McKinley Woods Preserve				180	122		137	123	93	65	65	64	35	51
Hickory Creek Preserve			155		200		147	248	205	175	132	95	93	91
Raccoon Grove Nature Preserve		58		52	0			32	59	20	22	29	34	5
Thorn Creek Nature Center		327		373	99			200	30	73		59	56	59
Goodenow Grove Nature Preserve			169		110		98	94	76	59	52	38	70	49
Densities (per square mile)														
Preserve & Unit	2002	2005	2006	2007	2008	2009	2010/2011	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Romeoville Prairie Area			60		31		30	35	9	52	41	34	38	28
Lockport Prairie Nature Preserve			52		56		63	33	49	56	43	37	54	25
McKinley Woods Preserve				214	110		123	111	84	74	74	73	43	62
Hickory Creek Preserve			48		62		45	76	63	73	55	39	39	38
Raccoon Grove Nature Preserve		116		104	0			64	118	40	44	58	68	10
Thorn Creek Nature Center		80		106	28			68	10	47		39	36	38
Goodenow Grove Nature Preserve			80		73		65	63	51	42	37	28	50	35

*=The actual area flown/counted differs from the official preserve size