FOREST PRESERVE DISTRICT WILL COUNTY
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2024-2025 Deer Management Plan

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" (70 ILCS 805/5). Beginning in the early 1990s FPDWC staff noticed 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). Survey crews of two or more people counted deer between December and 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. Without these conditions, it is extremely difficult to observe deer that blend into the brown backdrop of winter. Surveys indicated deer densities that exceed densities of 20 deer per square mile, which is widely considered the maximum density allowable to maintain plant community quality and diversity. The FPDWC also wanted to determine impacts to the vegetation within the affected habitats caused by high deer numbers. Numerous deer browse studies have been conducted on FPDWC properties that indicate significant deer browse pressure from high deer densities result in negative shifts in species composition, decreases in diversity, and an overall decline in the quality of these natural areas. It was also noted during the pilot year of deer management that where there is a lack of preferred native forage, likely due to decades of heavy deer browse, the deer are turning to plants from which they get less nutritional value.

Current regional research and deer management programs use deer densities as a meter to help determine the scale of their deer problem. The damage that white-tailed deer do to local ecosystems, specifically plant communities, is measured to determine the success rate of a program, while 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.

During the 2023-2024 season, staff removed a total of 250 deer, including the deer removed at the request of IDNR for Chronic Wasting Disease (CWD) monitoring. The winter of 2024-2025 will be the fourteenth year of the District's deer management program. During the winter of 2023-2024, aerial surveys were conducted at twenty-nine Forest Preserves. The eight management areas selected for deer removal this season are: Lockport Prairie Complex, Hickory Creek Preserve, Thorn Creek Woods Nature Preserve, Goodenow Grove Nature Preserve, the Romeoville Prairie Complex, the Messenger Woods Complex, McKinley Woods Preserve, and Raccoon Grove Complex. The Kankakee Sands Complex is part of an ongoing CWD surveillance program and will be included in the deer management program at the request of the Illinois Department of Natural Resources. These nine management units range in size from 213-1,541 acres and are undergoing habitat management and restoration efforts. This season, the FPDWC proposes removing a total of 300 deer from the preserves listed (Table 2). Although the proposed removal numbers will not bring all populations to the target density of 10 deer per square mile, they have been determined as reasonable goals based on experience culling these locations and available resources. The FPDWC expects to continue deer management in the subsequent years to reach browse and density goals.

Program Goals

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

Program Objectives

The program objectives are as follows:

1. Reduce deer browse damage to acceptable* levels to promote the recovery of species diversity and community structure,
2. Monitor deer browse rates on target species to evaluate the effectiveness of deer management efforts over time, and
3. Reduce and maintain deer populations at a target density of 10 deer per square mile within selected management sites.

* Currently, browse rates above 30% are deemed unacceptable.

Site Descriptions

Lockport Prairie Complex (LPN): Lockport Prairie Nature Preserve and Prairie Bluff Preserve
*(Sections 22 & 27: Township 36N. - Range 10E.) (0.6 square miles counted**)*
Lockport Prairie Nature Preserve, a unique and critically endangered dolomite prairie and 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 320-acre site, and the site is actively managed with prescribed burns, native plant seeding, invasive species removal, and hydrological restoration efforts in order to enhance and restore the entire property. The U.S. Army Corps of Engineers has funded a five-year (2019-2023) Aquatic Ecosystem Restoration Project at LPN, which includes significant invasive species removal and 88,000 native plantings. This area is considered one of the highest quality dolomite prairie remnants left in Illinois, containing calcareous fens and seeps, sedge meadow and wetland communities. LPN supports many species listed as threatened and endangered on federal and state levels. Given the exceptionally high quality of Lockport Prairie and the significant investment in ecosystem restoration being completed, a low deer density is needed to reduce browse pressure on the native plantings and facilitate habitat recovery. This site has been a part of the deer management program since its inception in 2010. Last season, a section of Prairie Bluff Preserve was included in the program as part of the LPN Complex. While the vast majority of Prairie Bluff is an open prairie, the 51-acre section of woods on the corner of Renwick Rd. and Route 53 consistently holds deer across the street from LPN. It was a beneficial addition to the Complex that will continue to be utilized.

Hickory Creek Preserve (HCP)
*(Sections 13, 14, & 24: Township 35N. - Range 11E. & Sections 16, 17, 18, 19, & 20: Township 35N. - Range 12E.) (2.41 square miles counted**)*
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 site is a sprawling preserve surrounded by suitable habitat on private property, both capable of supporting a large population of deer. The terrain ranges from flat, to rolling, to steeply sloped areas. This preserve has varying degrees of natural community quality, including some high-quality areas, and provides habitat for several highly conservative species. HCP receives regular management in the form of prescribed burning, invasive species control, selective woody removals, and plantings to maintain higher quality areas while improving more degraded sections. HCP has been a part of the deer management program since 2013.

Thorn Creek Woods Nature Preserve (TCN)
*(Sections 1,2,11 & 12: Township 34N. - Range 13E) (1.6 square miles counted**)*
Thorn Creek Woods Nature Preserve is a 1,025-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, and University Park; all of whom comprise the Thorn Creek Woods Management Commission. TCN contains upland, bottomland, forested land, glacial potholes, ravines, prairie, and wetlands. The preserve has over three miles of hiking trails. Ecological management activities include limited invasive species control, prescribed burning, and seeding activities. TCN has been a part of the deer management program since 2016.

Goodenow Grove Nature Preserve (GGN)

*(Sections 23, 26, 27, 28, 33 & 34: Township 34N. - Range 14E.) (1.39 square miles counted**)*

Goodenow Grove Nature Preserve is an 891-acre site located east of I-394 and north of Goodenow Road. The site is characterized by wooded areas along Plum Creek and its tributaries, as well as barrens (shrubby prairies), savannas, and grasslands. Goodenow Grove 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. In recent years, the site has received extensive management and restoration including invasive species control, prescribed burning, seeding, and planting efforts. The FPDWC's ecological management activities were assisted by a Habitat Fund grant awarded by the IDNR which contributed funding support for habitat restoration activities (2019-2021). This site has been managed for deer since the second year of the program in 2011.

Romeoville Prairie Complex (RPN): Romeoville Prairie Nature Preserve and Isle a la Cache

*(Sections 26, 27, 34 & 35: Township 37N. - Range 10E. & Section 3: Township 36N. – Range 10E.) (1.15 square miles counted**)*

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. This preserve is home to federally endangered and highly conservative plant species. There has been a management emphasis on invasive species removal, 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 Isle a la Cache occupies 106-acres on an island in the DesPlaines River north and south of 135th Street. While the Isle a la Cache Museum and associated amenities occur in the southern unit, the preserve is flat and largely wooded with a few isolated open areas well suited for sharpshooting. Deer management at the Romeoville Prairie Complex began in 2011.

Messenger Woods Complex (MWN): Messenger Woods Nature Preserve and Messenger Marsh Preserve

*(Sections 23, 24, 25, 26, & 27: Township 36N. – Range 11E.) (1.66 square miles counted**)*

Messenger Woods Nature Preserve consists of 441 acres of high-quality, remnant wet-mesic and mesic Oak/Hickory woodland, wet-mesic floodplain forests, shrub swamps, and wet prairie. Messenger Woods is widely known for beautiful, but once spectacular spring ephemeral displays. Messenger Marsh Preserve which encompasses over 620 acres of cattail marsh, woodlands, grassland, and ponds is adjacent to Messenger Woods Nature Preserve. When combined, these two preserves make up the core of the Spring Creek Greenway. Many high-quality plants that have been recorded in this complex. Some major mitigation projects have been undertaken at both preserves including a large-scale wetland, prairie, and savanna restoration funded through the O'Hare Modernization and Mitigation Account and savanna/woodland re-creation as required mitigation by the Illinois State Toll Highway Authority for impacts related to the extension of I-355. Management activities throughout Messenger Woods include invasive species removal, understory tree thinning, prescribed burning, seeding, and planting. The Messenger Woods Complex was part of the deer management program during the inaugural year and then reintroduced to the program in 2021.

McKinley Woods Preserve and Four Rivers Education Center (MWP)

*(Sections 20, 29, 30 & 31: Township 34N. - Range 9E.) (0.82 square miles counted**)*

McKinley Woods 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 located 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. This includes 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 by water providing good isolation for sharpshooting activities. While the northern half of this site is largely open, the southern half is predominately wooded. McKinley Woods has been part of the culling program every year since 2010.

Raccoon Grove Complex (RGN): Raccoon Grove Nature Preserve and Monee Reservoir

*(Sections 31 & 32: Township 34N. – Range 13E.) (0.73 square miles counted**)*

Raccoon Grove Nature Preserve is a 213-acre wooded preserve south of Goodenow Road, east of Route 50. This preserve is the remnant of an historic prairie grove and supports some of the highest quality woodland habitat including conservative spring ephemerals in Will County. It is characterized by rolling terrain, but often features steep slopes where Rock Creek has down-cut through the morainal deposits. A restored prairie area occurs on the south end of the preserve while a former residential property area on the west side provides more of an open savanna structure. The preserve receives regular burn management and invasive species control. Starting last season, this site is considered a Complex with the neighboring preserve—Monee Reservoir—in order to provide more accurate herd counts, reasonable removal goals, and additional shooting locations. Monee Reservoir is a popular fishing location with centrally located visitors center and boat launch, both of which close November 1st. There are 1.6 miles of trails through wetlands on the north end of the preserve, the lake occupies the east side, an agricultural field is to the west, and trees border a restored prairie to the south. Monee Reservoir will be used as a secondary shooting location for when the deer are inevitably pressured off Raccoon Grove.

Kankakee Sands Complex (KGA): Kankakee Sands Preserve, Braidwood Dunes and Savanna Nature Preserve, Sand Ridge Savanna Preserve and Nature Preserve

*(Sections 10, 11, 14, 15, 16, & 26: Township 32N. – Range 9D.) (2.21 square miles counted**)*

The Kankakee Sands Complex is 1,414 acres comprised of four adjacent preserves in southern Will County. These preserves contain a wide variety of high-quality remnant and restored areas that support a wide variety of species unique to sands habitats. Some restoration efforts include invasive species treatments, prescribed burning, seeding, and restoring agricultural fields to prairie habitats. This unit and surrounding areas have produced seven positive CWD cases since 2013.

**Area surveyed may differ slightly from actual area of site

Documentation of Problem

Deer Browse Monitoring 2024

Persistent damage from deer browsing reduces the flower and seed production of plants, thus diminishing species' ability to reproduce and persist. To measure the damage done by deer to native vegetation, single species plots are monitored each year at each of the proposed deer management sites. Plots were selected based on known populations of native plant species, with special attention given to listed species, species of concern, and more conservative species in descending order of priority. The coordinates have been recorded for each 3m radius plot. Within each plot, the total number of plants of a designated target species, as well as the number of those plants damaged by deer browse, were recorded. Plants with damage that could not confidently be identified as deer browse, were included in the total number of plants, but not in number browsed. Each season, effort is made to monitor the herbaceous plots within a month of the original survey date.

The deer browse data was recorded in the ArcGIS ap *Field Maps* then loaded into an Excel spreadsheet, sorted by site, and assigned C-values as per *Flora of the Chicago Region* (Wilhelm and Rericha, 2017). Plants were categorized as generalist (C-value 0-3), moderately conservative (C-value 4-6), and highly conservative (C-value 7+). Browse rates above 30% have been deemed an unacceptable level of browse. In time, acceptable browse rates will be developed on a gradient for each C-value group. The results varied by site, but each location experienced substantial browse damage above the 30% threshold (Table 1).

Table 1. Summary of deer browse rates at each management site by plant type, C-value, and total percent browsed

Site	% Forbs Browsed	% Shrubs Browsed	% Trees Browsed	% Vines Browsed	% Browse on C-value 0-3	% Browse on C-value 4-6	% Browse on C-value 7+	Total % Browsed
LPN	53%	84%	-	-	-	67%	55%	57%
HCP	51%	75%	56%	100%	100%	69%	61%	64%
TCN	50%	93%	94%	-	-	70%	66%	69%
GGN	18%	88%	34%	91%	-	32%	63%	46%
RPN	60%	90%	90%	-	89%	54%	74%	68%
MWN	50%	97%	83%	-	73%	55%	75%	66%
MWP	9%	54%	71%	74%	81%	17%	41%	26%
RGN	26%	61%	68%	42%	-	67%	38%	44%

Proposed Methods and Procedures

The FPDWC sharpshooting program will utilize FPDWC police personnel and qualified volunteers as sharpshooters, field dressers, and for coordinating transportation of the deer 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. Bait stations will be located at least 100 yards into management sites as per FPDWC requirements. All bait stations must be pre-approved by IDNR. 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. The program will not authorize the use of archery equipment, handguns, shotguns, muzzle-loading rifles, etc. Only modern rifles firing 0.223, 0.300, or 0.308 rounds are proposed for use in the sharpshooting program.

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 an IDNR-approved meat processing facility and to donate the processed venison to a bona fide charitable organization. FPDWC utilizes Freedom Sausage in Earlville for meat processing, and the meat is donated to the Northern Illinois Food Bank. 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 (November 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. IDNR will cover the meat processing cost for the deer removed from the Sands Complex.

Staff has reviewed and researched current urban deer programs and recommendations extensively. The FPDWC has set the target density to 10 deer per square mile based on this research (current literature suggests that pre-settlement densities of white-tailed deer were approximately 9 deer per square mile). The target number of deer to be removed from each site (Table 2) was determined based on the stated desired density, the estimated deer population based on the most recent aerial surveys, as well as being contingent on the resources available to the FPDWC.

Activity	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Restoration Activities													
Conduct Deer Browse Surveys													
Prepare DPCP Application													
Submit DPCP Application to IDNR													
Train and Certify Volunteers													
IDNR Review and Approval of DPCP and Firing Stations													
Post Deer Management Updates on Website													
Mail Notification Letters to Adjacent Landowners													
Sharpshooter Qualification Testing													
Implement Culling Activities													
Conduct Aerial Deer Population Surveys													
Submit Annual Summary Report to IDNR													
Submit Annual Summary Report to Public Relations													

Figure 1. Timeline of tasks for the FPDWC Deer Management Program

Proposed Removals

The expected fall densities for the proposed deer management sites range from 23-149 deer/mi², which are well above the target density of 10 deer/mi² (Table 2). Therefore, the FPDWC proposes removing 300 deer from nine management units during the 2024-2025 deer management season. Results of the aerial surveys and rationale for proposed removals are discussed for each site below.

Lockport Prairie Complex

As part of the 2023/2024 DPCP, 30 deer were removed from LPN. This season's survey counted 21 deer between Lockport Prairie and the wooded section of Prairie Bluff, and the average recruitment into the LPN population is 15 deer. The fall density is estimated to be 60 deer/square mile before management. Removing 30 deer would result in a density of 10 deer per square mile (Table 2). Even though LPN does consistently hold a deer population, it is not prime deer habitat. Deer numbers here are prone to high levels of fluctuation since this site is part of the river wildlife corridor, and they quickly become gun-shy. These factors make removals difficult and enforce the need for continued yearly management. The additional bait station at the wooded section of Prairie Bluff was a significant aid in reaching the site's removal goal last season.

Hickory Creek Preserve

Last season, 50 deer were removed from this site. The aerial count resulted in 104 deer. With the average recruitment at 26 deer, the fall density is estimated to be 54 deer per square mile. Reducing the population by 60 deer in the 2024/2025 management season will result in a density of approximately 29 deer per square mile (Table 2). Despite heavy management since the 2013/14 season, the large deer population is slow to respond (Figure 2). Therefore, continued aggressive deer management in subsequent years will be necessary to reach density and browse reduction goals.

Thorn Creek Woods Nature Preserve

Deer control at TCN in the 2023/2024 season consisted of 20 deer being removed. This year's aerial count places the population at approximately 216 deer. Recruitment was calculated to be 16 deer, putting the fall density estimate at 149 deer per square mile. Reducing the population by 30 deer in the 2024/2025 management season will result in a calculated density of approximately 129 deer per square mile (Table 2). As this is a lower priority site, management will focus on maintaining the population size until resources become available to remove more deer as other site target densities are reached and maintained.

Goodenow Grove Nature Preserve

Last season's efforts resulted in 40 deer being removed. Subsequent aerial counts placed the population at approximately 127 deer. The site's average recruitment is 26 deer, therefore, the fall density is estimated at 110 deer per square mile. This is a significant increase in population size as the population appears to have doubled from last year's aerial survey, which counted 59 deer. Reducing the population by 55 deer in the 2024/2025 management season should result in a calculated density of approximately 71 deer per square mile (Table 2). Continued management will be necessary to reduce the population to the target density.

Romeoville Prairie Complex

The 2023/2024 management season removed 20 deer from RPN. This season's aerial survey counted at 25 deer in this population. With the average recruitment at 23% of the aerial count, the estimated fall density is expected to be 29 deer per square mile. Removing another 20 deer will reach the target density of 10 deer per square mile (Table 2). This complex is a river corridor for wildlife, causing high levels of fluctuation in population counts. Consistent annual management will be continued to maintain this population at the target density.

Messenger Woods Complex

Last season, 30 deer were removed from the Messenger Complex. The population was surveyed to be approximately 97 deer this winter. Preliminary estimates put this population's recruitment at 30 deer, which would result in a fall density of 77 deer per square mile. The goal for this season is to remove 30 to 40 deer. Removing 40 deer would put the density at 52 deer per square mile (Table 2). Until it's reintroduction to the program for the 2021-2022 season, this complex had only been managed once during the pilot year of the program. The density of the deer population has increased substantially with the absence of deer management (Figure 2). Continued annual management will be required to bring the deer population down to target density.

McKinley Woods Preserve

The 2023-2024 season removed 20 deer, two of which tested positive for CWD. The 2024 survey counted 11 deer at MWP. Average recruitment has decreased slightly from 22 to 18 deer, therefore, the fall 2024 density is predicted to be 35 deer per square mile. Removing 25 deer this season should reduce the density to 5 deer per square mile (Table 2). While the population is expected to be slightly below target density, it will be beneficial for reducing the spread of CWD in the area. Consistent annual management should be maintained to manage the spread of CWD and maintain the population near target density.

Raccoon Grove Complex

The 2023/2024 season removed 10 deer from the Raccoon Grove Complex, 3 of which were filled at Monee, making it a valuable addition to this difficult site. This year, 58 deer were counted between Raccoon Grove and Monee Reservoir. A preliminary estimate of this complex's average recruitment is 9 deer which would result in a fall density of 93 deer per square mile. Another 10 deer are recommended for removal this season, which would result in an estimated post-culling density of 79 deer per square mile (Table 2). The deer are easily pressured off Raccoon Grove to Monee Reservoir and surrounding habitats, which currently makes culling more than 10 deer difficult. The goal for this site is to maintain culling pressure on the population, which helps protect oak and hickory saplings from being over browsed during the winter season. Additional tags may be requested in the future depending on the continued effectiveness of Monee as a fallback location.

Kankakee Sands Complex

The Kankakee Sands Complex has been a part of IDNR's Chronic Wasting Disease monitoring program since 2011. A positive case was discovered in the unit in 2013, and four additional positive cases have been found since 2021. Surveillance efforts will continue at the request of IDNR, regardless of population densities. IDNR has requested 30 deer be removed for CWD testing this season (Table 2).

Table 2. Surveyed deer populations from the beginning of 2024 with estimated densities before and after proposed removals

Management Area	Surveyed Population (# of Deer)	Estimated Fall Density* (Deer/mi²)	Proposed Removal (# of Deer)	Estimated Density after Removals (Deer/mi²)
Lockport Prairie Complex	21	60	**30**	10
Hickory Creek Preserve	104	54	**60**	29
Thorn Creek Woods Nature Preserve	216	149	**30**	129
Goodenow Grove Nature Preserve	127	110	**55**	71
Romeoville Prairie Complex	25	29	**20**	10
Messenger Woods Complex	97	77	**40**	52
McKinley Woods Preserve	11	35	**25**	5
Raccoon Grove Complex	58	93	**10**	79
Kankakee Sands Complex**	32	23	**30**	9
		Total Deer to Remove:	**300**	

*Estimated Fall density calculated by adding average recruitment calculated for individual sites to aerial survey

**This site is included at the request of IDNR for CWD surveillance and control

Evaluation of Management Program

The Forest Preserve District of Will County has been managing its deer populations since 2010. Evaluation of the deer management program will be based on documenting the changes in vegetation browse rates over time and aerial population survey results. Permanent deer browse plots were established in the 2021/2022 season, with 8 plots per site. During the second year of monitoring permanent plots, it became apparent that flexibility regarding plot statuses and interpreting browse data will be required. Plot types may be modified over time based on the reality of these plants' abilities to persist and continue to represent the site wide browse rates. To supplement years where browse rates in permanent plots do not convey the damage to the species across the site, alternate plots may be monitored to document the browse damage that was not represented by the permanent plot. Permanent plots may be retired when the target species is no longer considered representative of the site or the plot becomes so over browsed that the species no longer exists at that location. Additionally, occurrences such as prescribed burning, deer movements, drought, seed banks, etc. are expected to cause natural variations in target species population sizes and browse rates. Given this, only about half of the plots have been able to be monitored the full four years. When there is sufficient data to do so, analysis will be conducted to try to discover browse rates that tend to cause species decline or allow for species persistence may be used to define "acceptable" browse rates. It may also be possible to correlate the browse rates to the deer densities at each site. A gradient of acceptable browse levels is expected to develop with highly conservative species requiring the lowest browse rates and generalist species enduring at more moderate browse rates. Until these acceptable values can be defined, the FPDWC considers browse rates of 30% or higher to be unacceptable. With browse rates above 30% at all sites, it is clear that deer populations are still negatively impacting vegetation at these sites.

In recent years, available resources limited removal goals to 250 deer per season, which limited the ability to quickly reduce and maintain densities at all sites every season. This season represents an initial assessment of FPDWC's capacity to remove up to 300 deer. For reference, in order to reach target density at all management sites this season, FPDWC would have to remove 758 deer. This season, four of the nine management areas are expected to reach the target density of 10 deer per square mile after management: Lockport Prairie, Romeoville Prairie, McKinley Woods, and Kankakee Sands Complex. As previously stated, the deer population is highly mobile along the Des Plaines River Valley, causing high levels of fluctuation in aerial survey results. The removal goals for Lockport and Romeoville Prairies were increased last year and remain high this year in an effort to maintain the negative trendlines seen in Figure 2 at these highly sensitive sites. The Kankakee Sands Complex is a great example of how consistent management can reduce deer populations to the target densities, having been reduced from a density of about 80 deer per square mile in 2000 to being maintained around the target density in recent years (Figure 2). McKinley Woods is following a similar pattern, with consistent management reducing the population from its highest density of 214 deer per square mile in 2007 to the target density in 2021 (Figure 2). With continued consistent management, these two populations are expected to reach and be maintained at the target density with minor fluctuations in the future.

The remaining five sites are still considered in need of population reduction to meet target density. Despite the high growth rates observed for the Hickory Creek population, it responds to consistent and aggressive management. If removal goals are difficult to reach this season, future applications may gradually request fewer tags as target density is approached. The Goodenow population generally responds well to culling efforts that remove about 30-40% of the population. The aerial surveys produced an unexpectedly large population size that does not fit with the model predictions. To adjust to the population boom coupled with the increased recruitment rate, the tag request was increased from last year. A similar population boom was observed at Thorn Creek. It is possible the spike in populations at these two sites are a result of tighter transects being flown during surveys resulting in overcounting. If this is the case, it may be difficult to reach removal goals this year, but there will hopefully be an observed "bust" in these populations next year. If the current counts are accurate, then removal goals may need to remain high at Goodenow Grove in order to make up for the progress lost by this "boom". It will be difficult to reach and maintain target densities at Raccoon Grove due to the vast surrounding areas that can support deer herds. The goal is to maintain culling pressure at Raccoon Grove and Thorn Creek until more deer can be removed effectively with the resources available. Lastly, the Messenger Woods Complex is a high ecological priority to protect from over browsing. However, the program attempts to fill all Messenger tags within a two-week window to limit public concerns. The removal goal at this site will continue to be at least 30 deer annually in the hopes that the population will respond similarly to the Kankakee Sands Complex.

For future seasons, consistent management should be a priority. This includes gradual reductions in removal goals as populations begin to reach target density. Consistent management also entails annual management at the same sites and not adding new sites to the program until the current site populations can be maintained around the target density or more resources become available to request more tags. When culling has been postponed for a season or more in the past when target densities are apparently reached, there have been significant rebounds in the populations. Therefore, for sites still requiring population reduction, culling should occur annually even if target densities appear to be reached during aerial surveys, especially if the previous years' counts contradict that possibility.

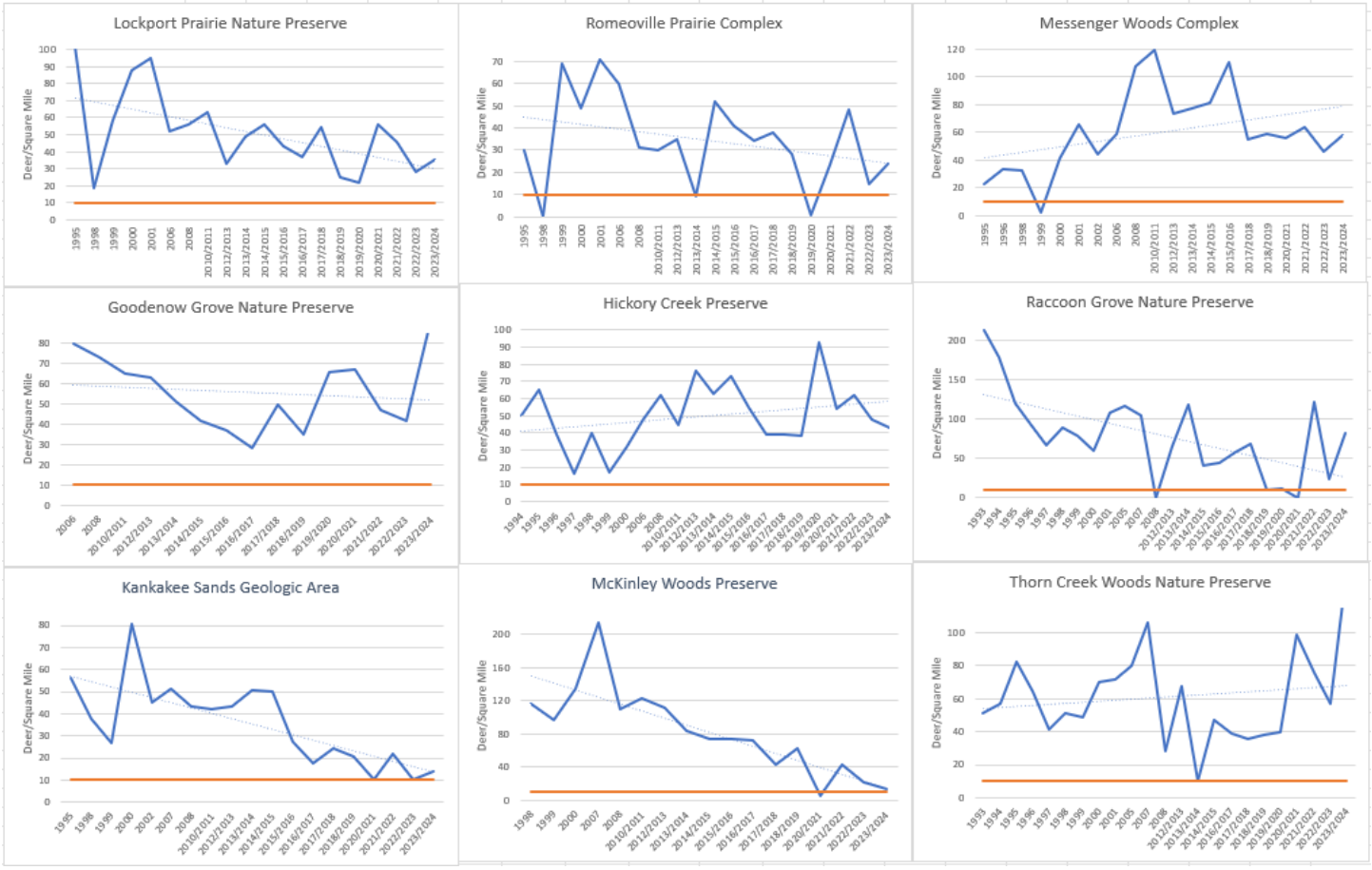

Figure 2. Densities of the deer populations over time with trendlines for current Deer Management sites, excluding years when an aerial survey did not occur. The orange line represents target density of 10 deer per square mile.

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Downstate Forest Preserve District Act. 70 ILCS 805/5. Ch. 96 1/2, par. 6308.

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Appendix A	Summary of Aerial Survey Areas, Deer Counts, Densities, and Deer Culled from 1993-Present at all Deer Management Sites																												
Area Counted (square miles)*	Aerials occur post season (later year)																												
Preserve & Unit	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**	**2023/2024**
Romeoville Prairie Area			0.61			0.61	0.61	0.61	0.66			0.90		0.90		0.90		0.95	0.90	0.90	0.90	0.90	0.90	0.90		0.9	1.06	1.06	1.06
Lockport Prairie Nature Preserve			0.43			0.43	0.43	0.43	0.43			0.56		0.43		0.43		0.43	0.43	0.45	0.49	0.49	0.49	0.49	0.49	0.49	0.5	0.5	0.5
Lockport Prairie East																			0.05	0.05						0.21	0.24	0.24	0.24
McKinley Woods Preserve						0.68	0.68	0.68					0.84	1.11		1.11		1.11	1.11	0.88	0.88	0.88	0.82	0.82		0.82	0.82	0.82	0.82
Hickory Creek Preserve		2.36	2.46	2.36	2.36	2.36	2.36	2.36				3.25		3.25		3.25		3.25	3.25	2.41	2.41	2.41	2.41	2.41	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		0.50	0.50				0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.33	0.33	0.33	0.33
Thorn Creek Nature Preserve	4.67	3.52	4.99	4.99	2.67	3.52	3.52	3.52	3.52		4.08		3.52	3.52				2.92	2.92	1.56		1.56	1.56	1.56	1.56	1.6	1.6	1.6	1.6
Goodenow Grove Nature Preserve												2.10		1.50		1.50		1.50	1.50	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Kankakee Sands Geologic Area			0.75			1.04	1.04	1.04		1.79			2.57	2.57		2.57		2.57	2.21	2.21	2.21	2.21	2.21	2.21		2.21	2.21	2.21	2.21
Messenger Woods and Marsh	1.94		1.86	1.86		1.73	1.73	1.73	1.94	1.84		2.30		1.49		1.49		1.49	1.49	1.66	1.66		1.66	1.66		1.66	1.66	1.66	1.66
Prairie Bluff Preserve																0.98			0.98	1.06	1.06	1.06	1.06	1.06		1.06	1.06	1.06	1.06
Plum Valley Preserve		0.88	0.88	0.88		0.88	0.73	0.73	0.73			1.21		1.36		1.36		1.36	1.36	0.71	0.71		0.71	0.71	0.71	0.71	0.71	0.71	0.71
Aerial Count	Aerials occur post season (later year)																												
Preserve & Unit	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**	**2023/2024**
Romeoville Prairie Area			18			0	42	30	47			54		28		27		33	16	47	37	31	34	25	1	21	51	16	25
Lockport Prairie Nature Preserve			44			8	25	38	41			29		24		27		14	21	25	21	18	27	12	11	28	23	14	20
Lockport Prairie East																			19	8		0				26	18	36	16
McKinley Woods Preserve						79	66	92					180	122		137		123	93	65	65	64	35	51		4	35	18	11
Hickory Creek Preserve		119	159	92	38	94	40	75				155		200		147		248	205	175	132	95	93	91	225	131	149	116	104
Raccoon Grove Nature Preserve	106	89	60	47	33	44	39	30	54		58		52	0				32	59	20	22	29	34	5	6	0	40	8	58
Thorn Creek Nature Preserve	237	199	411	320	110	181	174	247	252		327		373	99				200	30	73		59	56	59	63	158	122	91	216
Goodenow Grove Nature Preserve												169		110		98		94	76	59	52	38	70	49	92	93	65	59	127
Kankakee Sands Complex			42			39	28	84		81			132	112		108		112	112	110	61	39	54	46		22	48	21	32
Messenger Woods and Marsh	22		43	62		57	4	72	127	82		136		160		178		110	116	135	183		91	98		93	106	76	97
Prairie Bluff Preserve																33		8	19	12	63	43	17	24		3	3	25	5
Plum Valley Preserve		40	49	44		55	30	69	55			74		57		61		54	75	35			42	57	55	73	55	30	73
Densities (per square mile)	Aerials occur post season (later year)																												
Preserve & Unit	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**	**2023/2024**
Romeoville Prairie Area			30			0	69	49	71			60		31		30		35	18	52	41	34	38	28	1	23	48	15	24
Lockport Prairie Nature Preserve			102			19	58	88	95			52		56		63		33	49	56	43	37	54	25	22	56	46	28	35
Lockport Prairie East																			380	160		0				124	75	150	67
McKinley Woods Preserve						116	97	135					214	110		123		111	84	74	74	73	43	62		5	43	22	13
Hickory Creek Preserve		50	65	39	16	40	17	32				48		62		45		76	63	73	55	39	39	38	93	54	62	48	43
Raccoon Grove Nature Preserve	212	178	120	94	66	88	78	60	108		116		104	0				64	118	40	44	58	68	10	12	0	121	24	81
Thorn Creek Nature Preserve	51	57	82	64	41	51	49	70	72		80		106	28				68	10	47		39	36	38	40	99	76	57	138
Goodenow Grove Nature Preserve												80		73		65		63	51	42	37	28	50	35	66	67	47	42	91
Kankakee Sands Geologic Area			56			38	27	81		45			51	44		42		44	51	50	28	18	24	21		10	22	10	14
Messenger Woods and Marsh	11		23	33		33	2	42	65	45		59		107		119		74	78	81	110		55	59		56	64	46	58
Prairie Bluff Preserve																34		8	19	11	59	41	16	23		3	3	24	5
Plum Valley Preserve		45	56	50		63	41	95	75			61		42		45		40	55	49	31		59	80	77	103	77	42	103