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Forest Preserve District

OF WILL COUNTY

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MEMORANDUM

TO: BOARD OF COMMISSIONERS OF THE FOREST PRESERVE DISTRICT
OF WILL COUNTY

FROM: Marcella M. DeMauro, Executive Director

DATE: September 10, 2015

SUBJECT: 2015-2016 Deer Management Recommendations

Proposed Action

Review and consider approval of recommendations for continuing deer management at seven (7) forest preserves or preserve complexes during the 2015-16 fall-winter season.

Background

In September 2010 the Board approved the 2010-11 Operational Plan for the District's Deer Management Program. This plan established that only sharpshooting was to be used to manage the deer population to achieve an initial target density of between 20 to 30 deer per square mile. Although the overall deer management program was approved, each year Staff provides specific recommendations on the number of deer to be removed from select forest preserves.

Adoption of the Operational Plan (Plan) for Deer Management

The District's Plan states that the deer management program goal is to allow for a sustainable relationship between the deer population, biological diversity and habitat structure, with an initial target deer density of 20 deer per square mile. The Plan also states that the program will be ongoing and that the target deer density per square mile is expected to change as a result of the District's monitoring which is designed to collect and assess data on deer population levels, habitat recovery, and deer management program effectiveness. The results of the monitoring program will be used to modify and adapt management strategies and targets to existing conditions and insure the ongoing effectiveness of the deer management program. The Plan also states that Staff will

consider program effectiveness measured against operational expense, and make the necessary programmatic changes to the deer management program to maintain cost effectiveness and ensure long-term sustainability.

Staff completed an assessment of the 2011-12 Deer Management Program and forwarded a report to the Operations Committee and Board in July 2012. The 2011-2012 report identified areas for operational improvement, and was followed by a memo with recommendations for the 2012-13 deer management program. However the program was suspended due to concerns expressed about the possible effect of Epizootic Hemorrhagic Disease (EHD) on the population sizes of white-tailed deer in District preserves and subsequent impacts disease related mortality might have on the deer management program. Data from the Illinois Department of Natural Resources (IDNR) and aerial deer population counts conducted during the winter of 2012-13 demonstrated that EHD had not caused a significant reduction in deer population sizes within District preserves. Therefore, staff resumed deer management activities for 2013-2014 and continued program management through the 2014-15 winter season.

2015 – 2016 Fall-Winter Deer Management Recommendations

Preserve Locations and Deer Removal Number

Aerial deer population surveys were completed in winter of 2014-15. Table 1 (see Attachment 2) lists the properties that are proposed for deer management based on that survey data, as well as the estimated deer density and area counted as part of each property. Deer removal is recommended in the following seven preserves or areas (areas may contain more than one preserve, but the IDNR considers them a single management unit) for the 2015-16 program: Romeoville Prairie Nature Preserve Area, including the Isle a la cache Museum; Lockport Prairie Nature Preserve; McKinley Woods Preserve; the Kankakee Sands Geologic Area (including Sand Ridge Savanna Preserve, Braidwood Dunes and Savanna Nature Preserve, and Kankakee Sands Preserves); Goodenow Grove Nature Preserve; Hickory Creek Preserve and Raccoon Grove Nature Preserve. The total number of deer proposed for removal during the 2015-16 management season is 175 (see Table 2, Attachment 2).

The deer removal goals at some preserves in the recommendations for the 2015-16 management season are not intended to accomplish the desired population density by the end of this season. These sites include McKinley Woods Preserve, Kankakee Sands Geologic Area and Hickory Creek Preserve. In these preserves the deer population size and current density is such that establishing the desired population size within the time constraints of single season and Deer Population Control Permit (DPCP) is not feasible. Additional deer removal in subsequent years will be necessary to achieve site goals.

It is important to note that the population sizes reported in Table 1 (see Attachment 2) do not reflect any immigration, emigration, mortality or births which may have occurred since the time of the aerial survey, and that the aerial deer counts represent a conservative

population estimate based on the presence of deer within the preserve or survey area at the specific time of the flyover. Aerial surveys are generally considered to underestimate the actual population size by 25%. Also, it is very common for deer to exhibit daily movements between District properties and adjacent properties depending on various conditions.

If District approval of these recommendations is granted, they will be sent to the IDNR as part of the DPCP application for consideration.

Required Documentation for the Deer Population Control Permit Application

The IDNR also requires deer browse monitoring during the growing season preceding any proposed culling activities when reviewing permit applications. In July, District staff completed vegetation sampling at each of the areas recommended for culling during the 2015-16 season. This sampling documented ongoing elevated deer browse pressure in support of the permit application to initiate or continue population reduction. The complete browse results will be included in the IDNR DPCP application, and are summarized in Table 3 (see Attachment 2).

Vegetation sampling demonstrates the impact of deer browsing on native plants by use of the coefficient of conservatism value (C-Value). The C-Value is a measure developed by staff at the Morton Arboretum to describe the authenticity of the affiliation of plant species to their respective habitats. The higher the C-Value, the distribution of a plant species becomes increasingly narrow and restrictive to unique and specific habitats, and becomes increasingly intolerant of any disturbances or degradations to the habitat. The lower the C-Value, the distribution of a plant species is broader and can be found in a variety of habitats. Plants species with higher C-Values are native species, are generally rare in their associated habitats, and not likely to be found outside of those habitats; while species with lower C-Values are generalists, include both native and exotic species, and are typically very tolerant of habitats that are disturbed or degraded.

Deer Removal Recommendation Relative to Sex Ratio

During the first two years of the deer management program, sharpshooters focused on the removal of only antlerless individuals to facilitate a more rapid population reduction by both removing existing deer and reducing additions to the population through births. As expressed in previous reports, one concern was the potential for creating a sex ratio favoring males, a condition not supportive of the deer management program goal. Staff indicated in previous reports that modifications to the deer program would be required in response to evidence of skewed sex ratios in preserves selected for deer management.

During the 2011-12 culling seasons, skewed sex ratios probably contributed to the reduced sharpshooter efficiency and increased costs as compared to the 2010-11 season. For the 2013-2014 campaign staff recommended altering the restrictions on antlerless deer and said recommendation was approved. Therefore staff is recommending the continued preferential, but not exclusive, removal of does during the 2015-16

management season, allowing for the removal of males to achieve removal targets. Mature males showing ten or more antler points will not be targeted for removal.

Site Details

Pending issuance of the required population control permits from The IDNR, the District's Police Department will engage in sharpshooting to achieve the initial target deer density of between 20 and 30 deer per square mile at the seven identified areas.

The attached maps (Attachment 1) show the proposed positions of bait/shooting stations within each preserve. The bait station/shooting locations are based upon conversations with the sharpshooting personnel and are equivalent to the official bait station locations from the 2014/2015 season. The bait stations have to be approved by the IDNR as part of the permitting process and should be in the same locations unless stated otherwise. Habitat conditions, site access, deer availability and safety considerations were primary factors affecting the selection of station locations. Firing stations will be in both elevated stands and at ground level. The main determinant in the firing station elevation is natural terrain. Natural terrain was considered at all stations in all preserves to ensure an acceptable backdrop for shooting in a downward trajectory at all times over a distance of 50 yards or less (the same distance required for IDNR sharpshooter certification); and shooting into the preserve, not toward or beyond the preserve's boundary. The following is a brief description of bait/firing stations and existing deer browse pressure at each of the seven areas.

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

Romeoville Prairie Nature Preserve occupies over 590 acres of the DesPlaines River Valley north of 135th Street on the west side of the river. It is dominated by prairie, sedge meadow, and marsh communities. 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 DesPlaines 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.

Vegetation sampling from these two preserves documented that 52% of all native plants sampled exhibited some degree of deer browse and 70% of moderately conservative plants, those with a coefficient of conservatism value (C-value) of 4 through 6 were browsed. Up to three (3) bait station/shooting locations are proposed and staff intends to use elevated stands. The recommended 2015-16 removal target for the Romeoville Nature Preserve Area is 20 deer. Staff may also recommend lowering the target density for this site if heavy browse of highly conservative plant species continues to be a problem.

Lockport Prairie Nature Preserve (LPN)

Lockport Prairie Nature Preserve is a 254-acre site located along the west bank of the DesPlaines River east of Route 53 and south of Route 7. The preserve has a relatively flat terrain; it occupies the floor of the river valley which is approximately 40 feet below the west bluff of the DesPlaines River valley along Route 53. Up to two (2) bait stations/shooting stations are proposed and staff intends to use elevated stands.

Vegetation sampling from these areas documented that 41% of all native plants and 50% of highly conservative plant species with a C value of seven or higher exhibited deer browse. Native shrubs throughout this preserve are continuing to experience excessive browse pressure (82%). The recommended 2015-16 removal target for Lockport Prairie Nature Preserve is 15 deer. Staff may also recommend lowering the target density for this site if heavy browse of highly conservative plant species continues to be a problem.

McKinley Woods Preserve and Four Rivers Environmental Education Center (MWP)

McKinley Woods is a 447-acre site situated on bluffs above the Illinois and Michigan (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. Up to four (4) bait stations/shooting stations are proposed in this preserve.

The Four Rivers Environmental Education Center is a 78-acre area located essentially on an island in the DesPlaines 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. One (1) bait station/shooting station may be located in this area; if so, District Police will coordinate with facility staff to avoid any scheduled public programs.

Vegetation sampling from these areas documented that 63% of all native plants and 64% of highly conservative plant species with a C value of seven or higher exhibited deer browse. Woody vegetation throughout this preserve is continuing to experience excessive browse pressure. Data shows that native shrubs and trees are being browsed at a rate of 60% and 61% respectively. The recommended 2015-16 removal target for the McKinley Woods and Four Rivers Environmental Education Center area is 30 deer.

Kankakee Sands Geologic Area (KGA)

The Kankakee Sands Geologic Area includes multiple preserves: Sand Ridge Savanna Nature Preserve, Sand Ridge Preserve, Braidwood Dunes and Savanna Nature Preserve, and Kankakee Sands Preserve. The area recommended for deer management totals 1,412-acres.

The Sand Ridge Savanna complex is a 543-acre site comprised of both Sand Ridge Savanna Nature Preserve and Sand Ridge Preserve, located south of Route 113 approximately one mile west of the Kankakee River. The western half of the site is

characterized by a series of forested dune ridges and wetlands between the ridges or agricultural fields; the eastern portion of the site contains open prairie and wetlands. Three (3) potential bait stations/shooting stations are proposed.

Kankakee Sands Preserve is a 555-acre site located north of Route 113 beginning approximately one quarter mile west of the Kankakee River continuing westward to about one mile away from the river. This preserve is dominated by large active agricultural fields interrupted by tree lines and interspersed pockets of wetlands and woodlands receiving significant restoration resources. Staff intends to use a combination of natural elevated shooting positions and tree stands throughout this preserve. Up to three (3) bait stations are proposed.

Braidwood Dunes and Savanna Nature Preserve is a 314-acre preserve located between Route 113 and Smiley Road, west of Sand Ridge Savanna. The preserve is dominated by sand prairie, sand savanna and wetland communities. This is a unique habitat that supports many uncommon native and conservative species which is also currently receiving significant restoration attention that could be adversely impacted by excessive deer browse. Up to three (3) bait stations/shooting stations are proposed.

Vegetation sampling from KGA documented that 63% of all native plants sampled had been browsed by deer. Among these, native trees, shrubs and species with a C-value of 7 or more are all suffering significant browse pressure. The recommended removal target for the Kankakee Sands Geologic Area is 20 deer.

Goodenow Grove Nature Preserve (GGN)

The Goodenow Grove Nature Preserve is an 891-acre complex 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. Staff intends to take advantage of natural elevated positions for clear shots and backdrops to minimize the potential flight of the projectiles. Up to four (4) bait stations/shooting stations are proposed in this area.

Vegetation sampling documented that 62% of all native plants exhibited some degree of deer browse damage. All types of plants are experiencing significant levels of deer browse, particularly native shrubs which exhibited a browse rate of 81%. The recommended removal target for this preserve during the winter of 2015-16 is 20 deer.

Hickory Creek Preserve (HCP)

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. 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. Up to five (5) bait stations/shooting stations are proposed in this preserve.

Vegetation sampling at HCP documented that 71% of native trees, 73% of native shrubs and 60% of highly conservative plants with a C-value of 7 or more currently exhibit some degree of deer browse damage. Evaluating all of the native vegetation sampled, 64% had deer browse damage. The recommended removal target for this preserve during the 2015-16 management season is 60.

Raccoon Grove Nature Preserve (RGN)

Raccoon Grove Nature Preserve is a 213-acre, heavily wooded preserve south of Goodenow Road and east of Route 50, with a restored prairie on the south end and a former residential area on the west side that provides more of an open savanna structure. The preserve is characterized by rolling terrain, but often features steep slopes where Rock Creek has down-cut through the morainal deposits. The wooded, rolling terrain and steep slopes associated with the creek provide excellent backdrops for safely conducting sharpshooting activities. Up to three (3) bait stations/shooting stations are proposed in this preserve.

Recent vegetation sampling confirms the existing deer population is causing excessive damage to the native vegetation. Overall, 55% of all native plants sampled were browsed. Additionally, very high levels of browse were evident in native shrubs and trees (100% and 88% respectively) and highly conservative species with a C-value of 7 or more are being preferentially selected (67%). The recommended removal target for this preserve is 10 deer.

2014 – 2015 Schedule of Tasks

The attached schedule of tasks (Table 4) assumes a 60-day IDNR application review period. Ideally, desired winter conditions would allow sharpshooting activities to begin in mid-December, allowing the removal targets to be accomplished in time for aerial population counts to be conducted immediately afterwards. This is the ideal situation for assessing the resulting deer population density and determining the need for additional population management the following winter.

Deer management activities will likely be completed by the end of February 2015, but could extend into early March depending on when the 90-day population control permit expires, if an extension is requested and granted, and the actual winter weather conditions experienced.

Future Deer Management Needs

Since the District's deer management program began, the focus has been on reducing deer densities within the highest quality natural area remnants with the highest concentration and diversity of conservative plant species and unique plant communities, namely dedicated state nature preserves. Additional forest preserve sites also support important native plant populations and communities which are being degraded and/or suppressed from achieving the desired restoration potential due to excessive deer browse from resident deer populations.

Table 5 (in Attachment 2) contains a list of sensitive sites which currently have a white-tailed deer density above the target range which are in need of deer population reduction once the current deer management sites transition into a population maintenance phase. These sites will be included in future deer management recommendations as program resources allow.

Recommendation

Staff recommends approval to remove 175 deer from seven (7) forest preserve areas during the 2015-2016 fall-winter season. Removal will be conducted by certified sharpshooters including both District Police Officers and volunteers under the direction of the Police Department in accordance with approved program guidelines and as authorized by the Illinois Department of Natural Resources.

If you have any questions, please feel free to contact me.

Attachments:

Attachment 1 – SEP15 – MAPS – 2015 2016 Deer Mgmt Recommendations (PDF)

Attachment 2 – SEP15 – TABLES – 2015 2016 Deer Mgmt Recommendations (PDF)

Sharpshooting Zones

Romeoville Prairie Nature Preserve Area



-  Preserve Boundaries
-  Proposed Bait Stations
-  300ft. Safety Buffer

0 475 950 1,900 Feet

Sharpshooting Zones

Lockport Prairie Nature Preserve

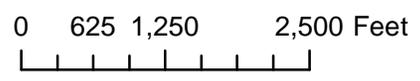


Sharpshooting Zones

McKinley Woods Preserve

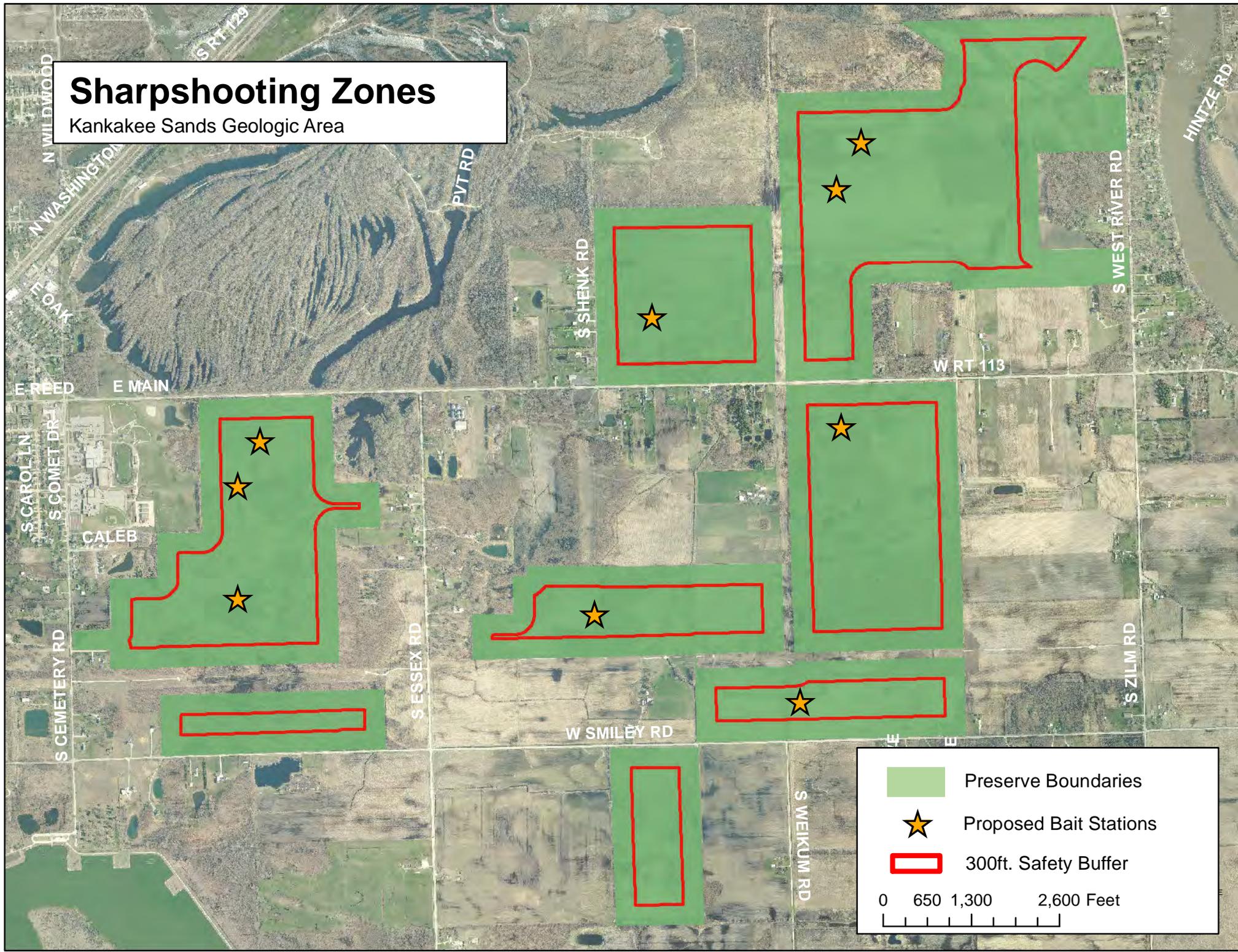


-  Preserve Boundaries
-  Proposed Bait Stations
-  300ft. Safety Buffer



Sharpshooting Zones

Kankakee Sands Geologic Area



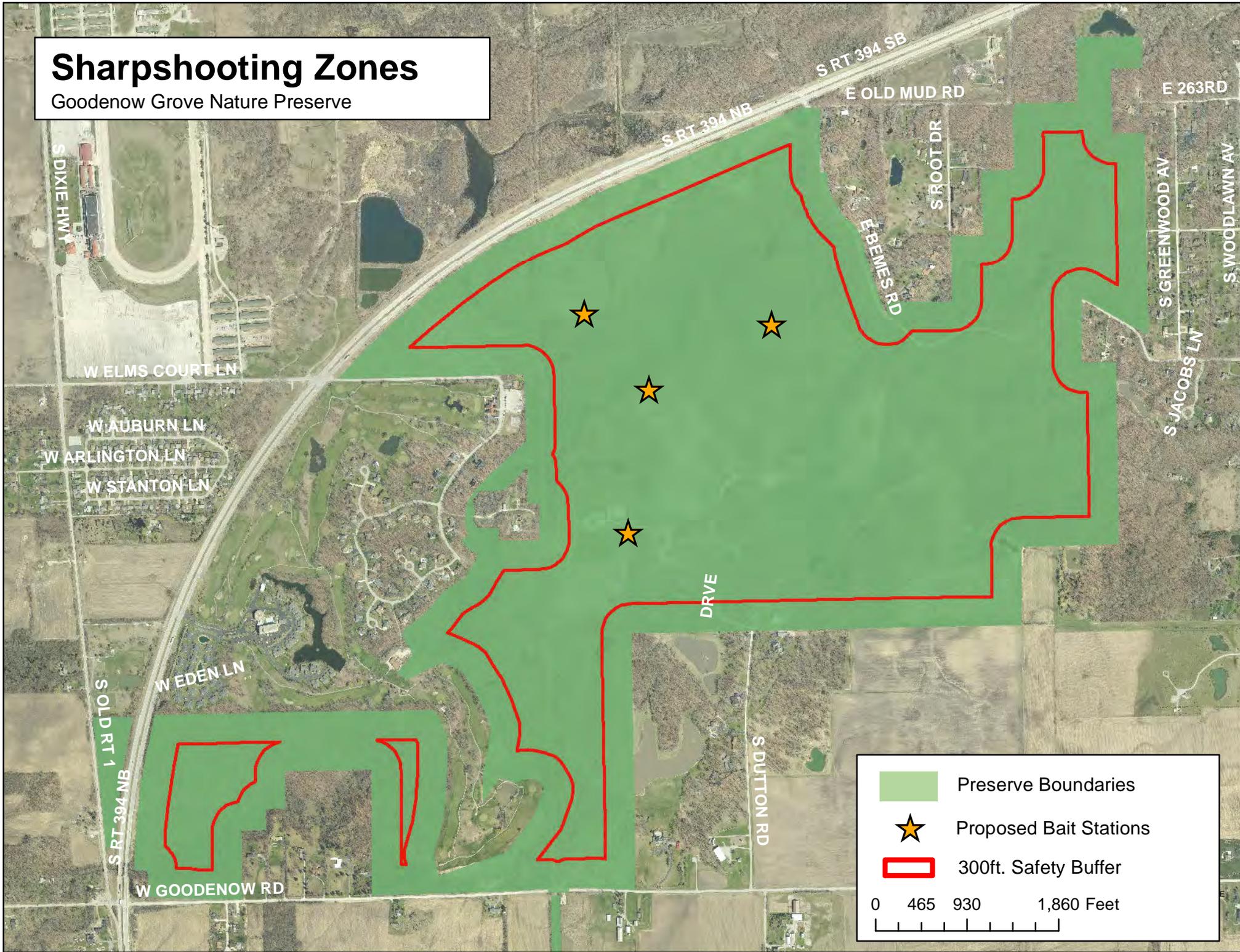
-  Preserve Boundaries
-  Proposed Bait Stations
-  300ft. Safety Buffer

0 650 1,300 2,600 Feet



Sharpshooting Zones

Goodenow Grove Nature Preserve



Sharpshooting Zones

Raccoon Grove Nature Preserve



-  Preserve Boundaries
-  Proposed Bait Stations
-  300ft. Safety Buffer

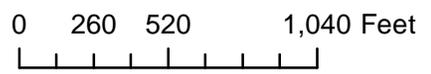


Table 1

Area Counted (square miles)				
Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Romeoville Prairie Area	0.90	0.95	0.90	0.90
Lockport Prairie Nature Preserve	0.43	0.43	0.43	0.45
McKinley Woods Preserve	1.11	1.11	1.11	0.88
Kankakee Sands Geologic Area		2.57	2.57	2.21
Goodenow Grove Nature Preserve	1.50	1.50	1.50	1.39
Hickory Creek Preserve	3.25	3.25	3.25	2.41
Raccoon Grove Nature Preserve		0.50	0.50	0.50
Aerial Count				
Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Romeoville Prairie Area	27	33	8	47
Lockport Prairie Nature Preserve	27	14	21	25
McKinley Woods Preserve	137	123	93	65
Kankakee Sands Geologic Area		112	112	110
Goodenow Grove Nature Preserve	98	94	76	59
Hickory Creek Preserve	147	248	205	175
Raccoon Grove Nature Preserve		32	59	20
Densities (per square mile)				
Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Romeoville Prairie Area	30	35	9	52
Lockport Prairie Nature Preserve	63	33	49	56
McKinley Woods Preserve	123	111	84	74
Kankakee Sands Geologic Area		44	44	50
Goodenow Grove Nature Preserve	65	63	51	42
Hickory Creek Preserve	45	76	63	73
Raccoon Grove Nature Preserve		64	118	40

*No survey flown in 2011/2012

Table 2

	Current Population Size	Target Population Size	Current Density (Deer per square mile)	2015-16 Removal Target	Estimated Density after 2015-16 Removal Target Completed (Deer per square mile)
Romeoville Prairie Area	47	23	52	20	30
Lockport Prairie Nature Preserve	25	9	56	15	22
McKinley Woods Preserve	65	30	74	30	40
Kankakee Sands Geologic Area (Sand Ridge, Kankakee Sands and Braidwood Dunes and Savanna Preserves)	110	65	50	20	41
Goodenow Grove Nature Preserve	59	30	42	20	28
Hickory Creek Preserve	175	65	73	60	48
Raccoon Grove Nature Preserve	20	10	40	10	20
Total				175	

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
Romeoville Prairie Nature Preserve	na	100%	82%	38%	76%	70%	32%	52%
Lockport Prairie Nature Preserve	na	na	82%	32%	37%	57%	50%	41%
McKinley Woods Preserve	na	61%	60%	63%	59%	68%	64%	63%
Kankakee Sands Geologic Area	na	59%	67%	63%	62%	67%	75%	63%
Goodenow Grove Nature Preserve	67%	46%	81%	56%	64%	60%	60%	62%
Hickory Creek Preserve	na	71%	73%	60%	68%	61%	60%	64%
Raccoon Grove Nature Preserve	33%	88%	100%	54%	54%	58%	67%	55%

Table 5

Area Counted

Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Plum Valley Ravines	1.65	1.65	1.65	1.60
Plum Valley Preserve	1.36	1.36	1.36	0.71
Monee Reservoir			0.33	0.39
Thorn Creek Woods Nature Preserve		2.92	2.92	1.56
Messenger Woods Nature Preserve	0.76	0.76	0.76	0.69
Messenger Marsh Preserve	0.73	0.73	0.73	0.97
Lockport Prairie East Preserve			0.05	0.05
Keepataw Preserve	0.55	0.55	0.55	
Lower Rock Run Preserve	0.57		0.57	
Rock Run Preserve (N. of Black Rd)	0.2		0.2	0.50
Theodore Marsh Preserve	0.45			0.45
O'hara Woods Preserve	0.08			
Bird's Junction Marsh	0.09		0.09	
Hammel Woods	0.66		0.66	0.70

Aerial Count

Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Plum Valley Ravines	149	152	151	144
Plum Valley Preserve	61	54	75	35
Monee Reservoir			12	0
Thorn Creek Woods Nature Preserve		200	30	73
Messenger Woods Nature Preserve	99	55	84	75
Messenger Marsh Preserve	79	55	32	60
Lockport Prairie East Preserve			19	8
Keepataw Preserve	61	10	33	
Lower Rock Run Preserve	82		99	
Rock Run Preserve (N. of Black Rd)	32		52	16
Theodore Marsh Preserve	34			45
O'hara Woods Preserve	4			
Bird's Junction Marsh	23		8	
Hammel Woods	27		27	20

Density (deer per square mile)

Preserve & Unit	2010/2011	2012/2013	2013/2014	2014/2015
Plum Valley Ravines	90	92	92	90
Plum Valley Preserve	45	40	55	49
Monee Reservoir			36	0
Thorn Creek Woods Nature Preserve		68	10	47
Messenger Woods Nature Preserve	130	72	111	109
Messenger Marsh Preserve	108	75	44	62
Lockport Prairie East Preserve			380	160
Keepataw Preserve	111	18	60	
Lower Rock Run Preserve	144		174	
Rock Run Preserve (N. of Black Rd)	160		260	32
Theodore Marsh Preserve	76			100
O'hara Woods Preserve	50			
Bird's Junction Marsh	256		89	
Hammel Woods	41		41	29