

# **Forest Preserve District**

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## **OF WILL COUNTY**

### MEMORANDUM

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

FROM: Marcella M. DeMauro, Executive Director

DATE: September 4, 2013

SUBJECT: 2013 – 2014 Deer Management Recommendations

#### **Proposed Action**

Review and consider approval of recommendations for implementing deer management at seven forest preserves or preserve complexes during the 2013 – 2014 fall-winter season.

#### **Background**

In September 2010, the Board approved the 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.

The decision to approve deer management in forest preserves through the use of sharpshooting only came after nine months (February – September 2010) of presentations of scientific data, public meetings, and public debates.

#### ***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 a 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 ensure 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 assessments of the 2010-2011 and the 2011-12 deer management programs for the Operations Committee and Board in June 2011 and July 2012, respectively. Highlights from these two reports are attached to this memorandum for your convenience. Overall, our deer management program, which has run for two seasons, has been successful at a very modest cost.

The 2011-2012 report identified 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 demonstrate that EHD has not caused a significant reduction in deer population sizes within District preserves. Therefore, recommendations to resume the deer management program are presented here.

### **2013 – 2014 Fall-Winter Deer Management Recommendations**

#### *Preserve Locations and Deer Removal Number*

Aerial deer population surveys were completed in December 2012 and January 2013. Table 1 lists the properties that are proposed for deer management based on that survey data. Deer removal is recommended in the following seven preserves or areas (areas contain more than one preserve, but the IDNR considers them a single management unit) for the 2013-14 program:

- Romeoville Prairie Nature Preserve (including the Isla a la Cache Preserve)
- Lockport Prairie Nature Preserve
- McKinley Woods Preserve
- Kankakee Sands Geologic Area (including three preserves: Sand Ridge Savanna Preserve; Braidwood Dunes and Savanna Nature Preserve; and Kankakee Sands Preserve)
- Goodenow Grove Nature Preserve
- Hickory Creek Preserve

- Raccoon Grove Nature Preserve

The total number of deer proposed for removal during the 2013-14 management season is 206.

The deer removal goals for five of the above management areas are not intended to accomplish the desired population density by the end of the 2013-14 management season. These sites include McKinley Woods Preserve, Kankakee Sands Geologic Area, Goodenow Grove Nature Preserve, and Hickory Creek Preserve. In these preserves the deer population size and current density is so high 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 do not reflect any immigration, emigration, 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 under estimate 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.

Upon Board approval of the 2013-2014 deer management program recommendations, staff will forward the District's DPCP application to the IDNR for review.

#### *Required Documentation for the Deer Population Control Permit (DPCP) Application*

IDNR requires deer browse monitoring during the growing season preceding any proposed culling activities when reviewing permit applications. In July 2013, District staff completed vegetation sampling at each of the areas recommended for culling. 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 DPCP application and are summarized in Table 2.

Vegetation sampling documents the impact of deer browsing on native plants by use of the coefficient of conservatism value (C-value). The C-Value is a measure, ranging from 1 to 10, developed by staff at the Morton Arboretum to describe the authenticity of plant species' associations to their respective habitats. A higher the C-Value indicates a plant species has a more narrow distribution, is more restricted to unique and specific habitats, and is increasingly intolerant of any habitat disturbance or degradation. A lower C-Value indicates a plant species occurs widely in a variety of habitats under a wide range of conditions. 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. Plant

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 (primarily females) 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, and the likely creation of conditions where sharpshooters would have difficulty targeting enough individuals to reach the removal goals. 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. Therefore, staff is recommending the preferential, but not exclusive, removal of does during the 2013-14 management season, allowing for the removal of younger males if necessary to achieve removal targets. Mature males showing ten or more antler points will not be removed.

#### **Site Details**

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

The attached maps show the positions of bait/shooting stations within each preserve. Habitat conditions, access, and safety considerations are 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 135<sup>th</sup> 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. Up to three bait stations are proposed in this preserve.

The Isle a la Cache occupies 96 acres on an island in the DesPlaines River south of 135<sup>th</sup> 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. One bait 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 two preserves documented that 74% of all native plants sampled exhibited some degree of deer browse and 74% of highly conservative plants, those with a coefficient of conservatism value (C-value) of 7 or higher were browsed. The recommended removal target for the Romeoville Prairie/Isle a la Cache Preserve complex is 10 deer.

#### *Lockport Prairie Nature Preserve (LPNP)*

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 three bait stations are proposed and staff intends to use elevated stands. Stations 1, 2 and 3 border the edge of the buffer zones but all shots will be taken into the preserve.

Vegetation sampling from these areas documented that 62% of all native plants and 55% of highly conservative plant species with a C value of 7 or higher exhibited deer browse. Woody vegetation throughout this complex of preserves is continuing to experience excessive browse pressure. The recommended removal target for the Lockport Prairie Nature Preserve is 5 deer.

#### *McKinley Woods Preserve and Four Rivers Education Center Area (MWP)*

McKinley Woods is a 447-acre site situated on bluffs above the Illinois and Michigan Canal (I&M) 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 six bait 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 bait 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 62% of all native plants and 81% of highly conservative plant species with a C value of 7 or higher exhibited deer browse. Woody vegetation throughout this complex of preserves is continuing to experience excessive browse pressure. Data shows that native shrubs are being browsed at a rate of 95%. The recommended removal target for the McKinley Woods and Four Rivers Education Center area is 63 deer.

#### *Kankakee Sands Geologic Area (KGA)*

The Kankakee Sands Geologic Area is a 1,412-acre management unit including several preserves: Sand Ridge Savanna Nature Preserve, Sand Ridge Preserve, Braidwood Dunes and Savanna Nature Preserve, and Kankakee Sands Preserve.

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. Five potential bait 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. Staff intends to use a combination of natural elevated shooting positions and tree stands throughout this complex. Up to five bait stations are proposed.

Braidwood Dunes and Savanna Nature Preserve is a 314-acre preserve located between Route 113 and Smiley Road, east 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 currently receiving significant restoration attention that could be adversely impacted by excessive deer browse. Up to five bait stations are proposed.

Vegetation sampling from KGA documented that 79% 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 21 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 will take advantage of natural elevated positions for clear shots and backdrops to minimize the potential flight of the projectiles. Up to seven bait stations are proposed in this area.

Previous deer management efforts in the Goodenow Grove Nature Preserve never accomplished the permitted number of deer removal. As a result, the area continues to demonstrate excessive levels of deer browse pressure. Vegetation sampling documented that 73% 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 at a 87% browse rate. The recommended removal target for this preserve during the winter of 2013-14 is 30 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 seven bait stations are proposed in this preserve.

Vegetation sampling at HCP documented that 83% of native shrubs and 80% 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, 66% had deer browse damage. The recommended removal target for this preserve during the 2013-14 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 five bait stations are proposed in this preserve.

Recent vegetation sampling confirms the existing deer population is causing excessive damage to the native vegetation. Overall, 69% of all native plants sampled were

browsed, while all native trees are under browse pressure. Additionally, very high levels of browse were evident in native shrubs (100%) and highly conservative species with a C-value of 7 or more are being preferentially selected (100%). The recommended removal target for this preserve is 17 deer.

### **2013 – 2014 Schedule of Tasks**

The attached schedule of tasks (Table 3) 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 2014, 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.

### **Recommendation**

Staff recommends approval to remove 206 deer from seven forest preserve areas during the 2013-2014 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.



**Table 1** 2013-2014 Deer Management Recommendations

Preserve / Area	Current Population Size*	Target Population Size	Current Density (Deer per Square Mile)**	2013-14 Removal Target	Density after 2013-14 Removal Target Completed (Deer per square mile)
<b>Des Plaines River Watershed</b>					
Romeoville Prairie Nature Preserve and Isle a La Cache Preserve Area	33	23	35	10	24
Lockport Prairie Nature Preserve	14	9	33	5	21
McKinley Woods Preserve and Four Rivers Environmental Education Center	123	30	111	63	54
<b>Kankakee River Watershed</b>					
Kankakee Sands Geologic Area (Sand Ridge Preserve, Kankakee Sands Preserve and Braidwood Dunes and Savanna Nature Preserve)	112	65	37	21	30
<b>Plum Creek Watershed</b>					
Goodenow Grove Nature Preserve	94	30	63	30	43
<b>Hickory Creek Watershed</b>					
Hickory Creek Preserve	248	65	76	60	58
<b>Rock Creek Watershed</b>					
Raccoon Grove Nature Preserve	32	10	64	17	30

\* Based on Winter Aerial Counts 2012-2013

\*\* Target Densities 20 to 30 Deer per Square Mile(DSM)





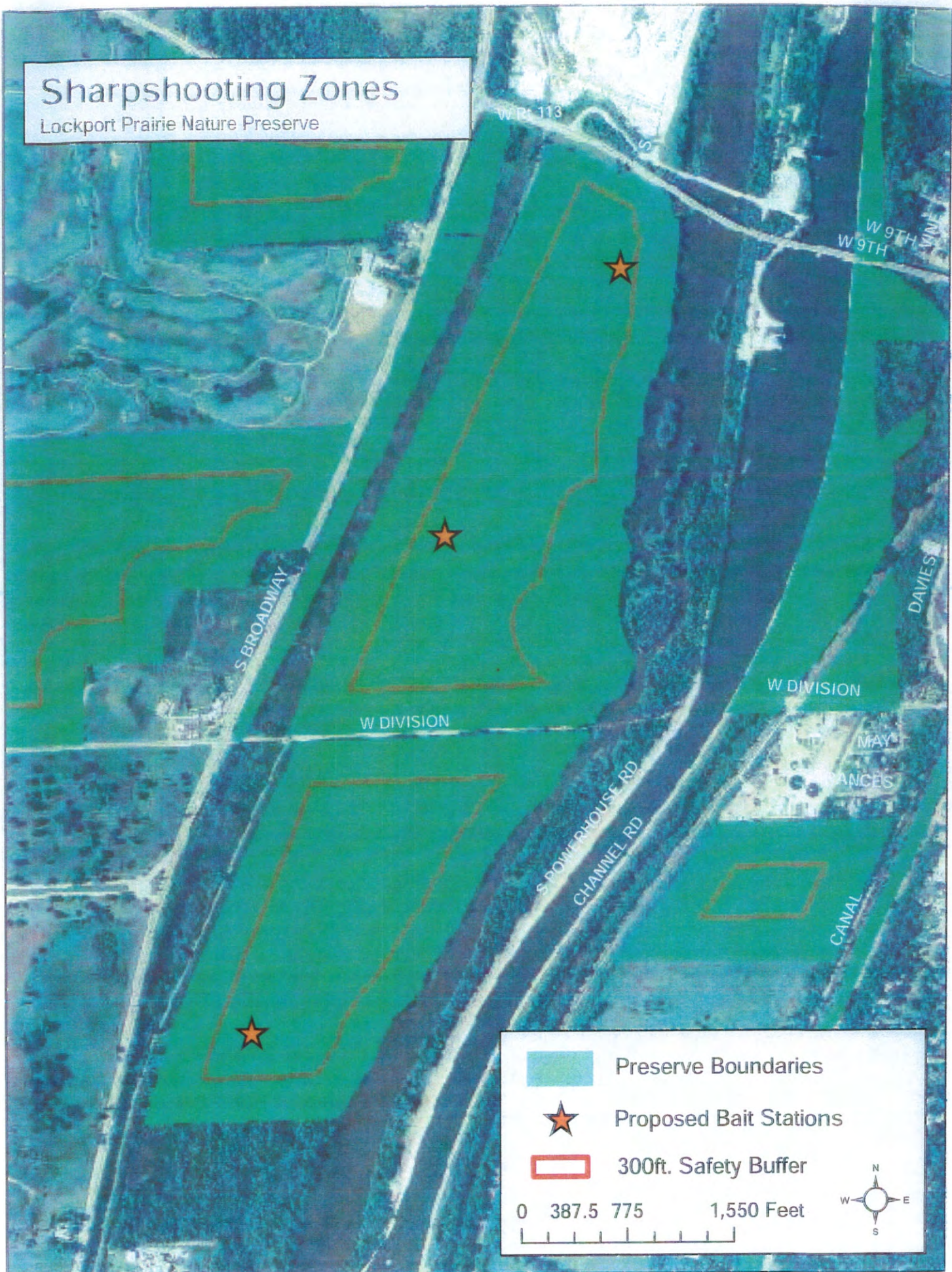
# Sharpshooting Zones


Romeoville Prairie Nature Preserve





# Sharpshooting Zones

Lockport Prairie Nature Preserve




 Preserve Boundaries

 Proposed Bait Stations

 300ft. Safety Buffer

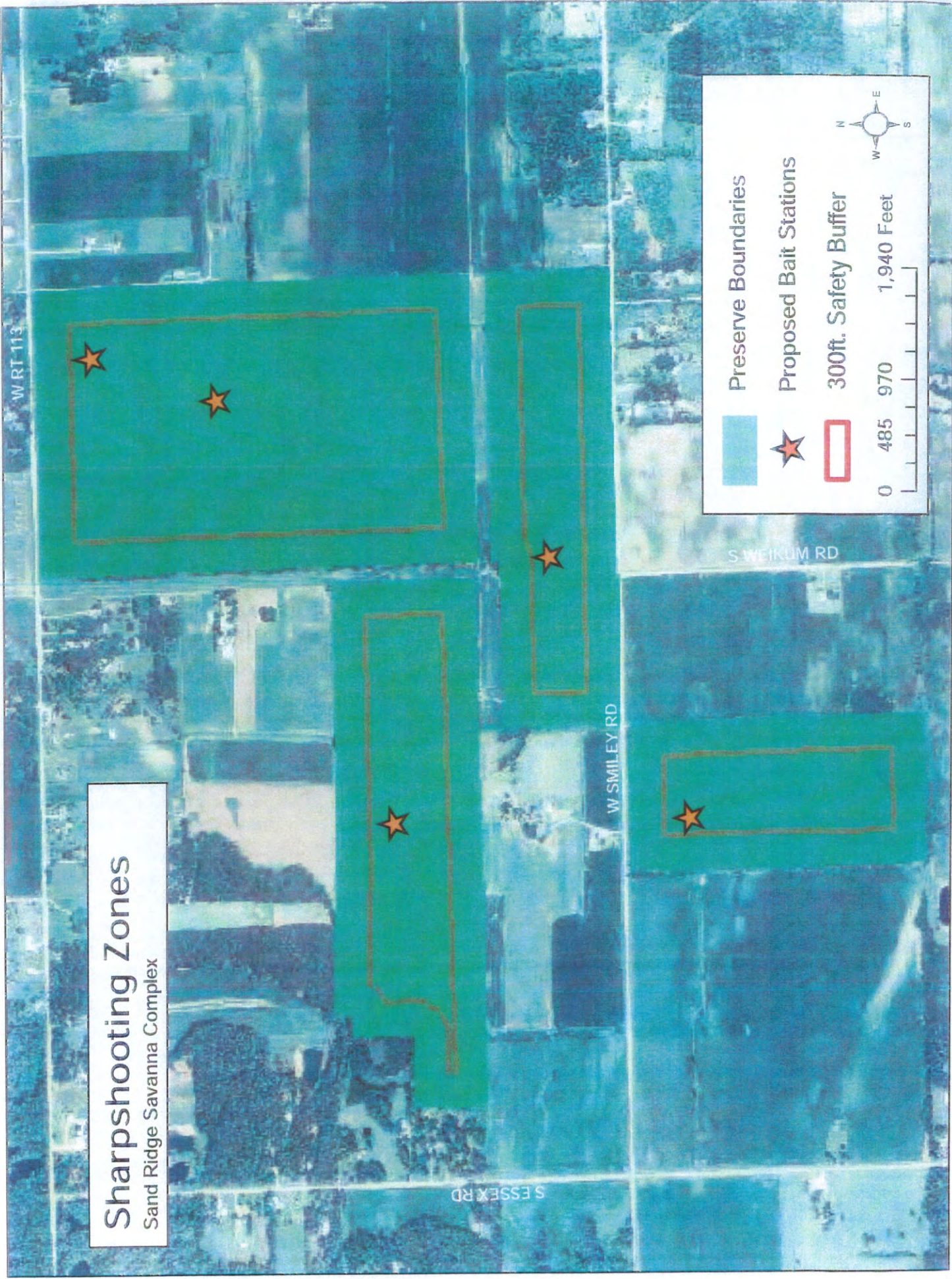
0 387.5 775 1,550 Feet





# Sharpshooting Zones

Sand Ridge Savanna Complex



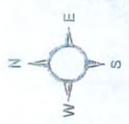
Preserve Boundaries



Proposed Bait Stations



300ft. Safety Buffer



# Sharpshooting Zones

Kankakee Sands Preserve

RD

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S WEST RIVER RD

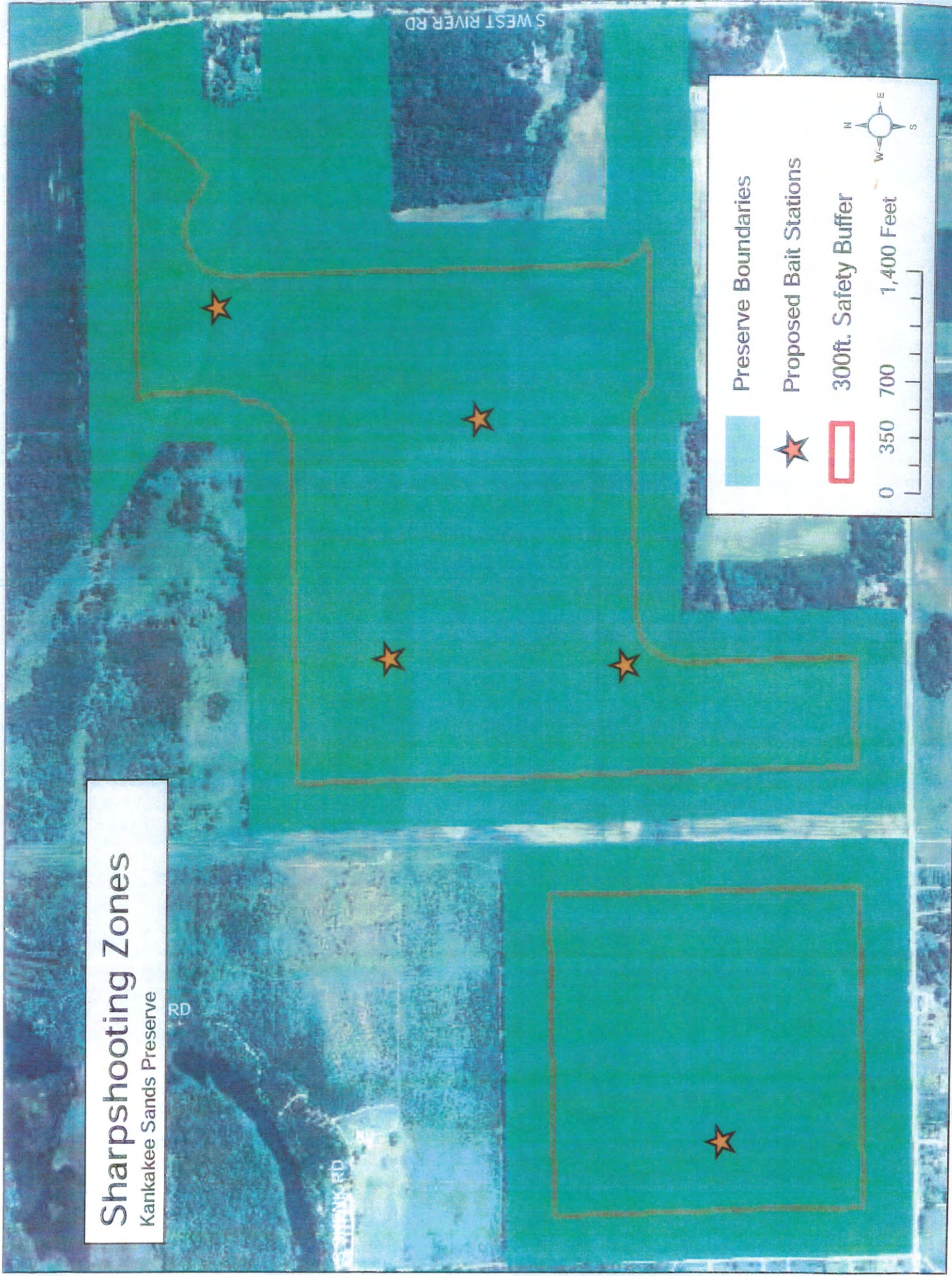
Preserve Boundaries

Proposed Bait Stations

300ft. Safety Buffer

0 350 700 1,400 Feet

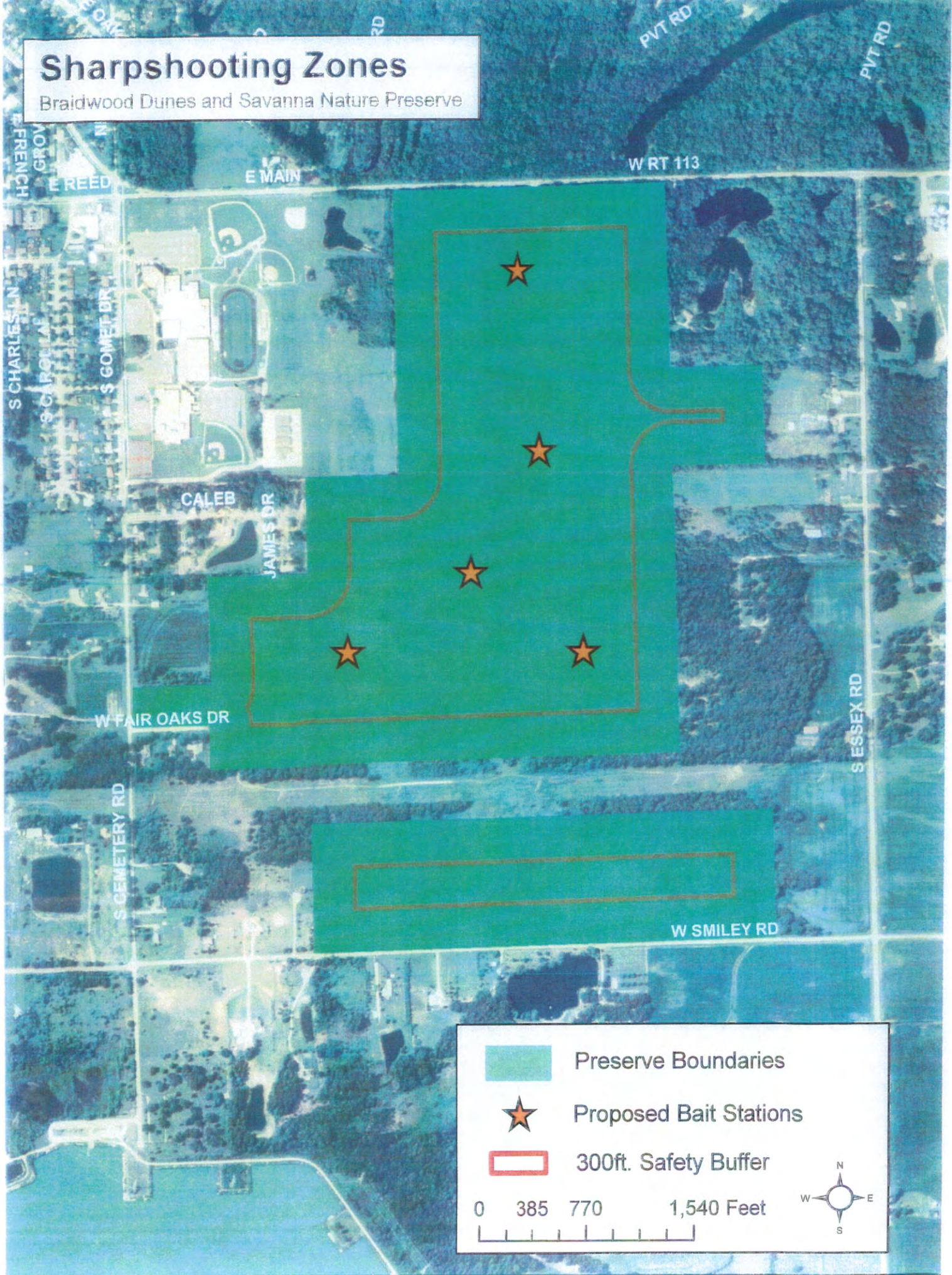
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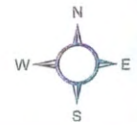


# Sharpshooting Zones

Braidwood Dunes and Savanna Nature Preserve

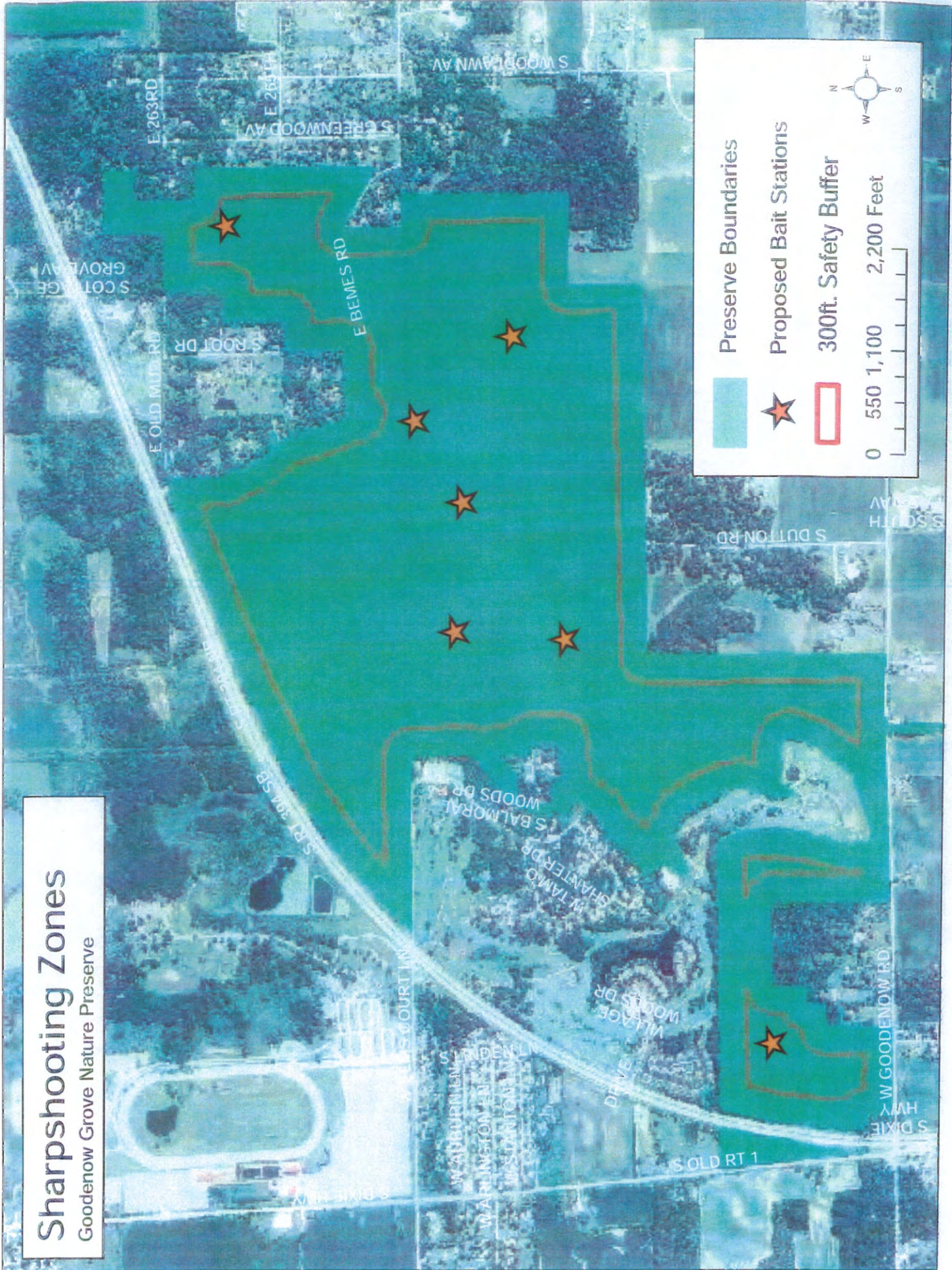


-  Preserve Boundaries
-  Proposed Bait Stations
-  300ft. Safety Buffer



# Sharpshooting Zones

Goodenow Grove Nature Preserve



Preserve Boundaries



Proposed Bait Stations



300ft. Safety Buffer

0 550 1,100 2,200 Feet





# Sharpshooting Zones

Raccoon Grove Nature Preserve



W PAULING RD

W TIMBERLANE RD

S TIMBERLANE RD

S EGYPTIAN TR

SRT 50

Preserve Boundaries

Proposed Bait Stations

300ft. Safety Buffer

0 240 480 960 Feet



## Highlights of the 2010 - 2011 Deer Management Program Report June 1, 2011

- Last November the Board authorized the use of sharpshooting to control deer at 5 forest preserves: McKinley Woods, Lockport Prairie Nature Preserve, Messenger Woods Nature Preserve, Sandridge Savanna Nature Preserve, and Goodenow Grove Nature Preserve.
- On January 29, 2011, IDNR issued five (5) Deer Population Control Permits (185 tags) for the 5 sites, which were valid for 60 days (until March 31, 2011).
- 134 deer were removed from 3 preserves (McKinley Woods, Messenger Woods Nature Preserve, and Lockport Prairie Nature Preserve) between February 8th, 2011 and March 24th, 2011. This represents 99.3% of the 135 deer authorized for take under the District's permits. Due to the time constraints, deer management was not attempted at Sandridge Savanna and Goodenow Grove Nature Preserves.
- Under IDNR's and District permit conditions, Staff was able to cull on 27 of the 32 available weekdays (evenings). The program was implemented with 3 patrol officers per night and 4 rotating volunteers.
- The Police Staffing costs totaled to \$151/deer and is in line with the original cost estimates.
- Adding costs of the Natural Resource Management staff, which was not included in the original estimates, totaled \$183/deer.
- Including one time costs (scopes, deer stands, etc.,) the total program cost including the one time purchases, is \$28,989.06.
- There were 148 shots taken and 134 deer taken, at 91% accuracy. There were no injuries, unaccounted shots or deer leaving any of the preserves.
- 6,030 pounds of ground venison that was donated to the Northern Illinois Food Bank, St. Charles, IL for distribution to needy families in northeastern Illinois.
- Of the 134 deer removed, 53% were adults, 17% were yearlings, and 30% were fawns.
- Of the 134 deer removed, 76% were female, 24% were antlerless males.
- Of the 102 female deer removed, 67% were gravid, 33% were not. The majority (69%) of all gravid females removed were carrying two fetuses. Only one had triplets, the remaining females each had a single fetus.
- All of the samples sent to test for Chronic Wasting Disease were negative.

## Highlights of the 2011 - 2012 Deer Management Program Report July 1, 2012

- In August 2011 the Board authorized deer population control through the use of sharpshooting at 8 forest preserves: Braidwood Dunes and Savanna Nature Preserve, Goodenow Grove Nature Preserve, Lockport Prairie Nature Preserve, McKinley Woods Preserve, Messenger Marsh Preserve, Messenger Woods Nature Preserve, Romeoville Prairie Nature Preserve, and Sand Ridge Savanna/ Kankakee Sands Preserve.
- The program again targeted the removal of female deer (does).
- Deer Population Control Permits were issued by the IDNR to remove 250 deer. The permits were valid from December 5, 2011 to March 3, 2012. This 90 day permit period was modified to limit culling to Monday through Thursday only.
- At the request of the Village of Homer Glen, the District delayed deer culling at Messenger Woods Nature Preserve and Messenger Marsh Preserve until an aerial survey could be completed to confirm deer numbers. Due to inadequate snow cover, the aerial survey was not done and no deer were removed from either site (82 were authorized for removal through IDNR permits).
- The District removed 99 white-tailed deer from the remaining 6 forest preserves representing 59% of the 168 deer authorized for removal.
- Removal targets were achieved at Braidwood Dunes and Savanna Nature Preserve, Lockport Prairie Nature Preserve, and Romeoville Prairie Nature Preserve, but were not met at the other three preserves.
- The deer removed yielded 4,455 pounds of ground venison. To date 10,485 pounds of venison have been provided to the Northern Illinois Food Bank, which has distributed the ground venison throughout northeastern Illinois.
- Staff was able to cull on 39 of the 52 weekday evenings (Monday-Thursday only). The program was implemented with 4 patrol officers per night and 6 rotating volunteers. The full time patrol officers were replaced on their regular shifts by part-time officers.
- Personnel costs totaled \$24,692.48, of which \$24,487.73 was Police staff and \$204.75 was Resource Management staff.
- Operational costs totaled \$5,921.37 and included services for the processing and rendering of the venison, ammunition and bait.
- Total cost for 2011/2012 deer management program was \$30,613.85, resulting in a removal cost of \$309 per deer.

- There were 105 shots taken and 99 deer taken, at 94% accuracy. There were no injuries, unaccounted shots or deer leaving any of the preserves.
- Of the 99 deer removed, 43% were adults, 20% were yearlings, and 36% were fawns.
- Of the 99 deer removed, 68% were female, 32% were antlerless males.
- Of the 67 female deer removed, 34% were gravid, 66% were not. The majority (70%) of all gravid females removed were carrying two fetuses. Two had triplets, four had a single fetus, and data was missing from one pregnant female.
- IDNR required testing for Chronic Wasting Disease (CWD) from all yearling and older deer taken from preserves in the western half of the county (Braidwood Dunes and Savanna Nature Preserve, Sand Ridge Savanna Nature Preserve, McKinley Woods Preserve, Romeoville Prairie Nature Preserve, and Lockport Prairie Nature Preserve). All tissue samples (31) tested negative for CWD.
- Post-Operation Assessment. Several factors limited the effectiveness of the culling season:
  - The exceptionally mild winter and lack of snow cover had the single biggest impact on the program since deer were not dependent on bait stations. This past winter was viewed as an aberration, and typical winter conditions are expected to improve overall effectiveness of the program.
  - Sharpshooters felt the deer had become accustomed to their presence and were avoiding the culling areas when the sharpshooters were present. Staff will be including larger habitat blocks in preserves in the recommendations for the 2012/2013 deer management program.
  - Sharpshooters saw mostly bucks, which were not culled. This is partly attributable to a portion of the culling season that coincided with the deer rut; female deer were run off the bait stations by the bucks.
  - It may also be due to early signs of skewed sex ratios as a result of removing primarily does during the first two years of the program. Staff is reassessing the antlerless-only strategy and will likely provide recommendations that allow for the preferential, not exclusive, removal of does for the 2012/2013 management season.
  - The District received several complaints about closing the preserves early for the program, mostly about McKinley Woods. An officer was assigned to the gate at McKinley Woods from 3:00 pm to 4:00 pm, providing an extra safety measure for preserve users and allowing them to ask questions and voice their concerns.
- Staff will to the Operations Committee in September 2012 to review recommendations for the 2012/2013 deer management season.