

# **Pilot On-Site State Game and Wildlife Area Recreation Use Assessment: Maple River State Game Area, Fall 2005**

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January 17, 2006

## **INTRODUCTION**

Recreational use of the Maple River State Game Area (SGA) in Gratiot, Clinton and Ionia counties by those who visited the site with a car or truck was assessed during September 15 – December 15, 2005. The research to assess the type and magnitude of recreational use by those parking on or adjacent to the game area on public areas was patterned after similar studies done in Michigan state game and wildlife areas during the 1950s and 1970s. It was also patterned on research done by the lead author assessing recreational use of Michigan State and National forest lands during the 1990s and 2000s.

The objectives of the research were to serve as a pilot for the methodology to assess recreational use at selected Michigan state game and wildlife areas during 2006-2007. It was also to provide use information about the Maple River SGA to assist in developing its management plan and providing data to the Michigan Department of Transportation about recreational use as they plan the upgrade of US127, which bisects the game area.

In addition to assessing recreational use by those parking on-site, this study also assessed the recreational use of adjacent landowners, their household and guests when they did not park on the game area or on a public right of way adjacent to it. Finally, it also assessed the condition of the 61 designated parking areas on the game area and the spatial distribution of parked vehicles on the game area across the sample months. This paper will report on overall recreational use on the game area by those parking on or adjacent to the area and the spatial distribution of their vehicles. A subsequent paper will report on the use of the game area by adjacent residents, their household and guests and the condition of the designated parking areas.

## **METHODS**

Use was estimated in a two step process. The first step was to systematically count vehicles at all points accessible to a two-wheel drive car in the game area and public road shoulders adjacent to the game area. These counts were conducted on 23 selected days (of the 92-day period) either during the morning, midday or afternoon. Of the 23 days, 10 were weekend days (Saturday or Sunday), holidays (Thanksgiving and Friday after Thanksgiving) or opening days of a hunting season. As a group, they were characterized as “high use” days. The 11 sample days comprised 33.3% of the 33 high use days. A twelfth high use sample day (weekend day) was lost due to deep snow and unplowed roads on December 10. The other 12 were on weekdays (Monday – Friday) that were not

opening days of a hunting season or holidays. They were characterized as “low use days”. The 12 sample days comprised 20.3% of the 59 low use days.

Table 1. Sampling calendar for Maple River State Game Area, fall 2005.

Type of Day	Dates	Proportion of Total Days 9/15-12/15	Multiplier to Extrapolate to
High Use Sample Days	9/15, 9/24, 10/1, 10/15, 10/20, 11/6, 11/10, 11/15, 11/26, 12/1, 12/4, unable to sample on 12/10 due to deep snow, unplowed roads	11 of 33 (33.3%)	$33/11=3.0$
Low Use Sample Days	9/20, 9/28, 10/3, 10/7, 10/10, 10/18, 10/27, 11/3, 11/7, 11/18, 11/23, 12/6	12 of 59 (20.3%)	$59/12=4.92$

After each vehicle was counted, a business reply postcard questionnaire was placed on the windshield of each vehicle or given to the driver if he/she was present. In the case of inclement weather, the card was placed inside a clear plastic lab bag so it was not damaged by the weather. The card elicited information about the number of people in the vehicle, the primary and secondary activities in which they engaged while parked at the game area, their opinions about their experience that day and background demographic and outdoor recreation participation information. Overall recreational use by those who parked on-site was estimated by extrapolating the mean number of people hours per vehicle across the sample period.

The questionnaire also elicited information about distinct users. To effectively report this information, the data must be weighted to account for frequency of use bias. For example, a game area visitor who visits the area 20 times during the sample period compared to one who visits only once has a 20 times greater chance to be sampled than the one-time visitor. Hence, to describe distinct users, the data is weighted by the reciprocal of the number of times a visitor came to the area during the previous 12 months.

The GPS location of each distinct vehicle sampled each sampling day was noted to assess the spatial distribution of use across the game area. In entering the vehicle location, it was also noted if the vehicle was parked in one of the 61 designated parking areas.

## RESULTS

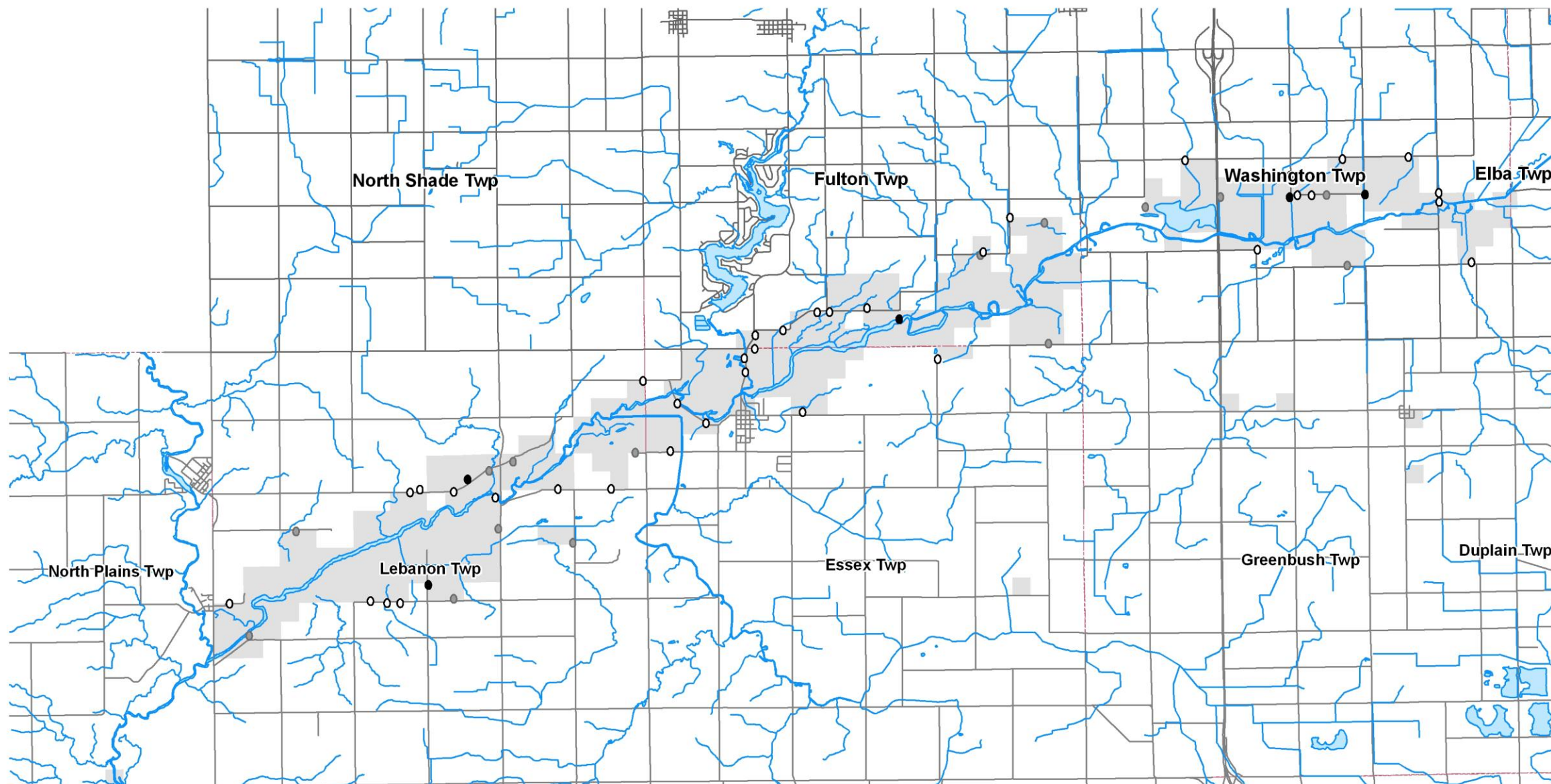
Results are presented by estimated use, characteristics of estimated uses and distinct user characteristics. Estimated use is derived from vehicle counts and the number of people and the length of stay reported on questionnaires completed by drivers. Characteristics of estimated uses is drawn from un-weighted analysis of questionnaires (one questionnaire equals the characteristics of a use) and distinct user characteristics are drawn data from completed questionnaires weighted to compensate for frequency of use bias.

### Use

A total of 621 vehicles were counted on or adjacent to the game area during the 24 sample days in the period September 15 – December 15. A vehicle was counted when it was distinct for that sample day (had not been previously counted that sample day on the game area). Of those, 441 (71.0%) were on high use days and 180 (29.0%) were on low use days. Extrapolated for the full number of high use days (33) the total vehicle estimate for high use days is  $441 \times 3.0 = 1,323$ . However, since vehicles were only counted once at each location on the game area, it is necessary to assess the possibility that on a sample day a vehicle would be counted. The mean number of hours respondents reported their vehicle was parked on the game area was 5.9. This is equal to approximately half the daylight hours of any given sample day. Hence, the possibility of sampling the mean vehicle present during some portion of a sample day is approximately one in two. Accordingly the number of vehicles estimated is doubled to 2,646 for high use days.

Following a similar procedure for the full number of low use days ( $59/12 = 4.92$ ) the total vehicle estimate is low use days is  $180 \times 4.92 = 886$ . Multiplied by two to account for the influence of length of stay on being counted provides a total low use day vehicle estimate of  $886 \times 2 = 1,772$ . In total, for the September 15 – December 15 season, the total vehicle use estimate is 4,418. Based on responses to the questionnaire, the mean vehicle had 1.52 persons. This extrapolates to 6,715 uses by persons who parked on the game area or adjacent to it on a public right of way during fall 2005.

The 60 designated parking areas on the game area and the vehicle count ranges for each are illustrated in Figure 1. The highest vehicle counts were reported at parking areas that access the largest blocks of public land and those with watercraft access to the Maple River and managed waterfowl units.



**Maple River State Game Area, Fall 2005**

**Vehicle Counts at Designated Parking Lots**

Low : > 11 cars

Moderate : 11 - 19 cars

High : < 19 cars



5 Miles

Of the 621 vehicles counted during sampling, 563 (90.7%) were parked in designated parking areas (Table 2).

Table 2. Distribution and number of vehicles counted at Maple River State Game Area fall 2005.

County	Number Vehicles in Designated Lots (% in column)	Number of Vehicles Not in Designated Lots (% in column)	Total Vehicles (% in column)
Clinton	273 (48.4%)	31 (53.4%)	304 (48.9%)
Gratiot	276 (49.0%)	26 (44.8%)	296 (47.7%)
Ionia	20 (2.6%)	1 (1.8%)	21 (3.4%)
Total	563 (100.0%)	58 (100.0%)	621 (100.0%)

### Use Hours

Use hour information was gathered through the post card questionnaire left on the windshield of each vehicle sampled. Of the 621 questionnaires distributed to the drivers of parked vehicles, 182 (29.3%) were completed and returned by the cutoff date of December 27, 2005. Of those 182, 12 completed two questionnaires (were surveyed two different days and responded as requested both times). Use hours are computed by multiplying the number of vehicles estimated by the mean user hours per vehicle. Mean use hours per vehicle are estimated by the mean number of hours a vehicle is parked multiplied by the mean number of people in the vehicle.

The mean number of user hours per vehicle was 9.01 with a standard error of the mean of 0.63 hours. Two standard errors of the mean would be 1.26 hours or  $\pm 14.0\%$  at the 95% confidence interval. The maximum number of use hours one person could account for in one day was truncated at 15 hours. This is analogous to a person arriving at 5 AM to reach their deer stand, hunting all day and returning to their vehicle after dark at 8 PM. Multiplying 9.01 person hours by the 4,418 estimated vehicles provides a use hours estimate of 39,806 hours, plus or minus 5,573 hours (14%).

### Characteristics of Uses

Each game area use is made up of one or more uses. On average, respondents reported that the typical visit involved 3.5 different types of uses per visit. Of these uses, the respondent chose the one that was the primary activity for the people in his/her vehicle. Some form of hunting was the primary activity for 88.6% of the fall 2005 uses (Table 3). This does not include hunting related activities such as scouting for game, exercising/training dog and trapping. Wildlife related activities (all hunting, trapping, fishing, scouting for game and wildlife viewing), accounted for 96.9% of the primary uses.

Table 3. Activity participation and primary activity by respondents and others in their vehicle when sampled at Maple River State Game Area, fall 2005.

Activity	Percent Participated	Percent Primary Activity
Archery deer hunt	43.4	36.5
Firearm deer hunt	24.2	17.9
Waterfowl hunt	12.6	10.3
Rabbit/Squirrel hunt	24.7	6.4
Pheasant hunt	13.7	5.1
Fishing	9.3	3.2
Scout for game	37.9	2.6
View wildlife	40.1	1.9
Grouse/woodcock hunt	7.7	1.9
Exercise/train dog	13.2	0.6
Hike/walk	30.8	0.6
Trap	1.1	0.6
Sightsee	13.2	0.0
Camp	12.6	0.0
Canoe/kayak	6.6	0.0
Drive for pleasure	4.9	0.0
Picnic	4.4	0.0
Power boat	4.4	0.0
Pick berries/mushrooms	2.7	0.0
Target shoot	1.6	0.0
Swim	1.1	0.0
Bicycle	0.5	0.0
Horseback ride	0.0	0.0
Cross country ski	0.0	0.0
Run	0.0	0.0
Other hunt	0.6	0.6
Multiple types hunt	NA	5.1
Unspecified deer hunt	NA	4.5
Other (a)	4.4	1.9
Total	NA (b)	100.0

(a) Included clean up area; pick hickory nuts; work

(b) Multiple activities possible

### Party Composition by Vehicle

The mean party size per vehicle was 1.52 persons, with 98.1% having less than 4 members. Vehicle party composition was 48.0% alone, 28.5% friends and family and 23.5% family. A total of 98.7% of parties had one or more males and 7.9% of parties had one or more females. Of the total people in the parties sampled, 6.5% were female and 93.5% were male. Those under 18 accounted for 12.1% of uses, those aged 19-29 had 14.6% of uses, 30-49 were 42.9% of uses, 50-64 were 24.3% of uses and those over 64 the remaining 6.1% of uses.

Those with disabilities participated in fall 2005 recreational activities on the game area. A total of 10.6% of the respondents had one or more in their vehicle who had a physical impairment that seriously limits their participation in work or recreation.

### Satisfaction with Visit

Of the 182 respondents, 164 rated their satisfaction with the visit and provided the primary reason for their rating. The mean satisfaction rating on a scale of 1 – 9, where 1 was highly dissatisfied and 9 was highly satisfied was 6.8 ( $\pm$  0.16). When grouped by satisfaction category (dissatisfied = 1-3; neutral = 4-6; satisfied = 7-9), 14 (8.5%) were dissatisfied, 44 (26.8%) were neutral and 106 (64.7%) were satisfied. An open-ended question asked about the one most important reason for their satisfaction. Responses were read and then grouped by category. Across the three levels of satisfaction, the relative abundance of the game being sought was the most frequently reported reason for the satisfaction rating (Table 4).

Table 4. One most important reason for satisfaction rating with Maple River State Game Area use, fall 2005.

Most Important Reason for Rating (a)	Dissatisfied (% in column)	Neutral (% in column)	Satisfied (% in column)	Total (% in column)
Game/wildlife abundance	7 (50.0%)	19 (43.2%)	38 (35.8%)	64 (39.0%)
Land/habitat management/condition	0 (0.0%)	10 (22.7%)	23 (21.7%)	33 (20.1%)
Opportunity/place to hunt	0 (0.0%)	1 (2.3%)	18 (17.0%)	19 (11.6%)
Crime/vandalism (b)	3(21.4%)	5 (11.4%)	4 (3.8%)	12 (7.3%)
Harvested game	0 (0.0%)	0 (0.0%)	8 (7.5%)	8 (4.9%)
Conflicts with others	2 (14.3%)	4 (9.1%)	1 (0.9%)	7 (4.3%)
Companions/solitude	0 (0.0%)	0 (0.0%)	5 (4.7%)	5 (3.0%)
Weather	0 (0.0%)	3 (6.8%)	0 (0.0%)	3 (1.8%)
Non-responsive (e.g. “good day”, “good hunting”, etc.	2(14.3%)	2 (4.5%)	9 (8.5%)	13 (7.9%)
Total	14 (100.0%)	44 (100.0%)	106 (100.0%)	164 (100.0%)

(a) Rating of 1-3=Dissatisfied; 4-6=Neutral; 7-9= Satisfied.

(b) Includes littering, trash dumping, theft of tree stands, shooting of signs, etc.

For those hunters who were dissatisfied, many reported seeing none or less than expected of the target species. Conversely for those who were satisfied, expectations for seeing target wildlife were often exceeded. Land management and habitat conditions were also both a reason for satisfaction (beautiful, natural, good water levels, etc.) or dissatisfaction (too many ponds and not enough upland, need more food plots, etc.). Crime and vandalism were always seen as negative. However, even some users who rated their experience as a 7 or an 8 may cited it, one noting “would have left a higher rating, but some pig people left trash, fire debris and garbage at 3 parking sites”. For those with satisfied ratings, in each instance trash and litter were what were cited. For those with

neutral ratings, trash and poaching were noted. For those with negative satisfaction ratings, theft of a tree stand was noted in two of the three instances.

Some responses were only connected with one level of satisfaction rating. Harvesting game and enjoying one's companions were only noted by satisfied users. Weather concerns were only noted by those who were dissatisfied.

### **Distinct Users**

While each completed questionnaire is from a distinct user, those who are more frequent visitors to the game area are more likely to be sampled than infrequent visitors. To compensate for this frequency of use bias, data for questions where individuals are considered as distinct users (an individual) versus distinct uses (an event) are weighted to eliminate frequency of use bias. This is done by weighting with the reciprocal of the number of uses at the game area the previous year. Hence, a distinct user who visited 10 times in the past year has a weight of 1/10. A person who visited only once last year has a reciprocal of 1/1. This assumes that last year's visitation patterns are similar to the current year. In the case of a new visitor (one who did not visit last year), they are assigned a weight of 1/1. Of the 182 respondents, 12 had responded for two different days. Their second responses were eliminated from analysis as this would be double counting. Of the remaining 170, 152 provided a number of days they used the Maple River State Game Area during the past 12 months. The 18 respondents not providing this data were eliminated from further consideration as distinct users as it was not possible to weight those cases.

### **Game Area Uses during Past 12 Months**

The mean respondent used the Maple River SGA 4.4 times during the past 12 months and any Michigan state game area (including Maple River SGA) 12.3 times in the same period. However, this mean is unduly influenced by frequent users, who visited game areas up to 160 days in the past 12 months. The median provides a more realistic estimate of typical use, with 2 as the median number of uses at Maple River SGA and 10 for all Michigan game areas during the past 12 months.

For distinct visitors sampled at Maple River, 56.2% reported that Maple River was the most important state game and wildlife area to them, 30.9% reported that all game areas were of equal importance and the remaining respondents cited Shiawassee River SGA (6.2%), Rose Lake Wildlife Research Area (4.2%), Nayanquing Point Wildlife Area (1.4%), Munuscong SGA (1.1%), Lapeer SGA (0.8%) and Gratiot-Saginaw SGA (0.2%) as the most important to them.

When asked about the most important activity to them the DNR manages for on state game and wildlife areas, hunting in some form was cited by 89.2% of the distinct user respondents (Table 5).



Table 5. Recreation activity distinct users at Maple River State Game Area cite as most important to them in Michigan state game and wildlife area management, fall 2005.

Activity (list from Question 1 and Table 3)	Percent Most Important Activity to Manage For
All types of hunting (a)	39.1
Deer hunting	16.3
Archery deer hunt	10.7
Waterfowl hunt	8.4
Rabbit/Squirrel hunt	7.4
Pheasant hunt	1.4
Fishing	7.1
Firearm deer hunt	3.7
Scout for game	0.0
View wildlife	2.2
Grouse/woodcock hunt	1.3
Exercise/train dog	0.1
Hike/walk	2.0
Trap	0.0
Sightsee	0.0
Camp	0.4
Canoe/kayak	0.0
Drive for pleasure	0.0
Picnic	0.0
Power boat	0.0
Pick berries/mushrooms	0.0
Target shoot	0.0
Swim	0.0
Bicycle	0.0
Horseback ride	0.0
Cross country ski	0.0
Run	0.0
Other hunt	0.0
Other (b)	0.0
Total	100.0

(a) All types of hunting was not a choice on question 1 in the questionnaire, but was written in by respondents.

(b) Included clean up area; pick hickory nuts; work

### **Purchase of Michigan Hunting, Fishing, Park and Recreational Vehicle Permits**

Distinct users at Maple River State Game Area purchased a wide variety of permits and licenses from the DNR and the Michigan Secretary of State to legitimately pursue outdoor recreation in Michigan. Firearm deer, general fishing and archery deer were the three most common purchases during the past 12 months for distinct users (Table 6). The mean distinct user had purchased 5.2 licenses/permits/registrations during the past year.

Table 6. Purchase of Michigan outdoor recreation related licenses, permits and registrations during the past 12 months by distinct Maple River State Game Area users, fall 2005.

License, Permit or Registration (a)	Percent Purchasing (a)
Firearm Deer Hunt	86.6
General Fish	77.9
Small Game Hunt	71.6
Archery Deer Hunt	65.4
Boat Registration	46.2
Turkey Hunt	33.7
Daily State Park Motor Vehicle Permit	33.6
Trout/Salmon Fish	29.9
Waterfowl Hunt	23.8
Annual State Park Motor Vehicle Permit	18.7
ORV Ride	11.3
Managed Waterfowl Area (daily or annual)	10.2
Snowmobile Trail	9.2
Fur Harvester	4.7
Total	NA

(a) Many purchased multiple licenses

#### **Origin of Distinct Users**

Respondents were asked for their zip code. Only two zip codes accounted for more than 5% of distinct users: St. Johns (49979) with 11.9% and Owosso (48867) with 5.4% (Figure 2). Distinct users origins were grouped along highways US 127, M21 and M57 with most coming from the north, east or south of the game area.

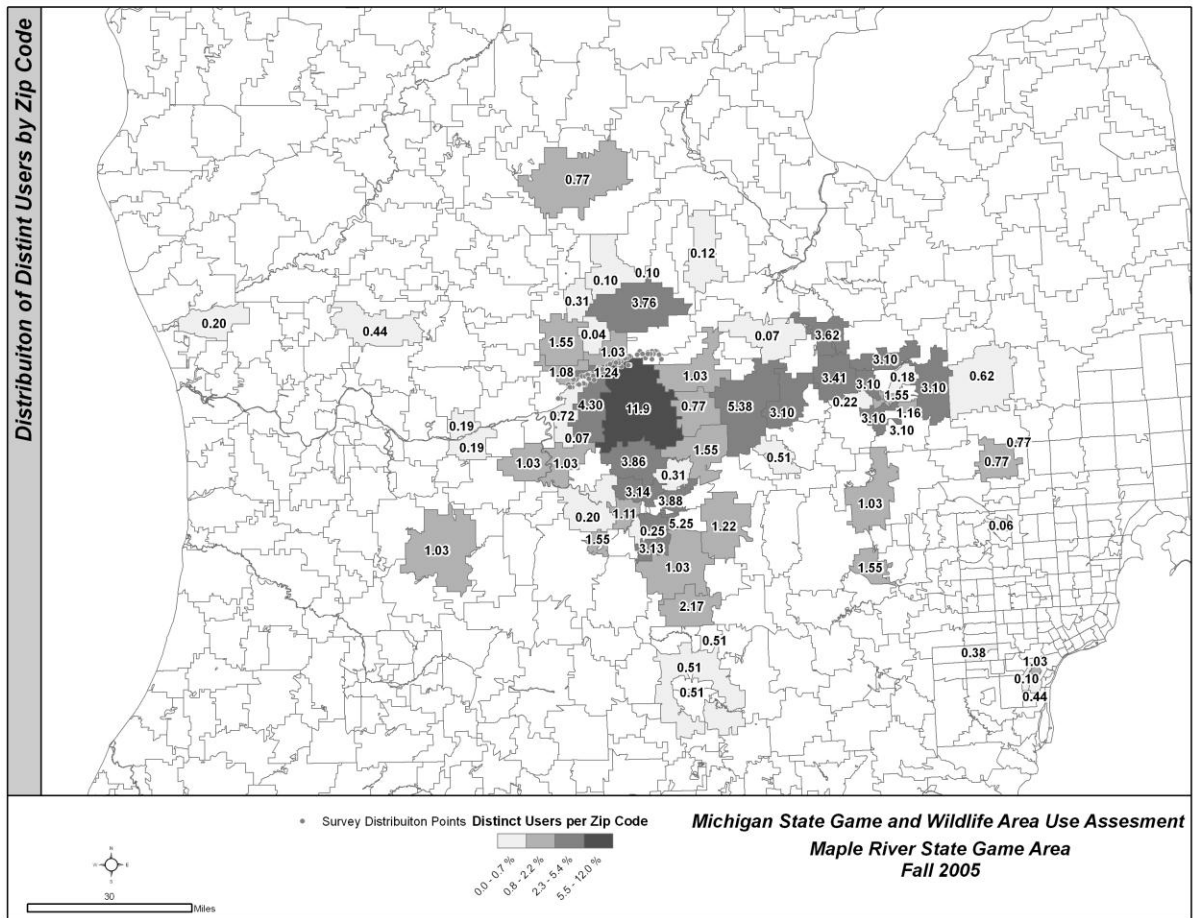


Figure 2. Zip code distribution of origin of distinct Maple River SGA users, fall 2005.



The lots were evaluated for their condition on five key maintenance dimensions: litter, trash dumping, lot/entry surface, SGA sign and evidence of fire activity. Each was rated on a three-point scale: 1=good, 2=moderate and 3=poor (Table 7).

Table 7. Condition standards for parking lot evaluation Maple River State Game Area, Fall 2005.

<b>Challenge/Facility</b>	<b>GOOD 1</b>	<b>Moderate 2</b>	<b>POOR 3</b>
Litter	none present at site	1 - 5 pieces of litter present	Greater than 5 pieces of litter present
Trash Dumping	no dumping present	one small pile of gravel, concrete, etc. with a diameter no greater than 5ft	more than one pile of any material or one that is greater than 5ft; or any dumping of appliances
Condition	no ruts or depressions in entrance of lot	1 to 2 depressions or ruts less than 5ft long and 6in deep	depressions and ruts or more than 2 depressions or ruts greater than 5ft long and 6in deep
DNR State Game Rules Sign	good condition and readable	no more than 1/4 missing or illegible	more than 1/4 is illegible or sign is missing or post is removed from ground
Fire activity	no evidence of fire	One fire pit no greater in diameter than 2ft and 1 to 2 pieces of burnt material present	two or more fire pits or a fire pit that is greater than 2 ft. or more than two pieces of burnt material present

Besides being rated individually on the five factors noted in Table 7, the overall condition of each parking area received an adjusted average condition rating. This allows more effective comparison of one lot to another. In this approach if the mean rating among the five dimensions for a given lot was 1.00 - 1.66 it was rated good. If it was 1.67 - 2.33 it was assigned the adjusted average condition of moderate and if the mean rating was greater than 2.33 it was assigned poor adjusted average condition (Table 8).

Table 8. Rated condition of parking areas at Maple River State Game Area, Fall 2005.

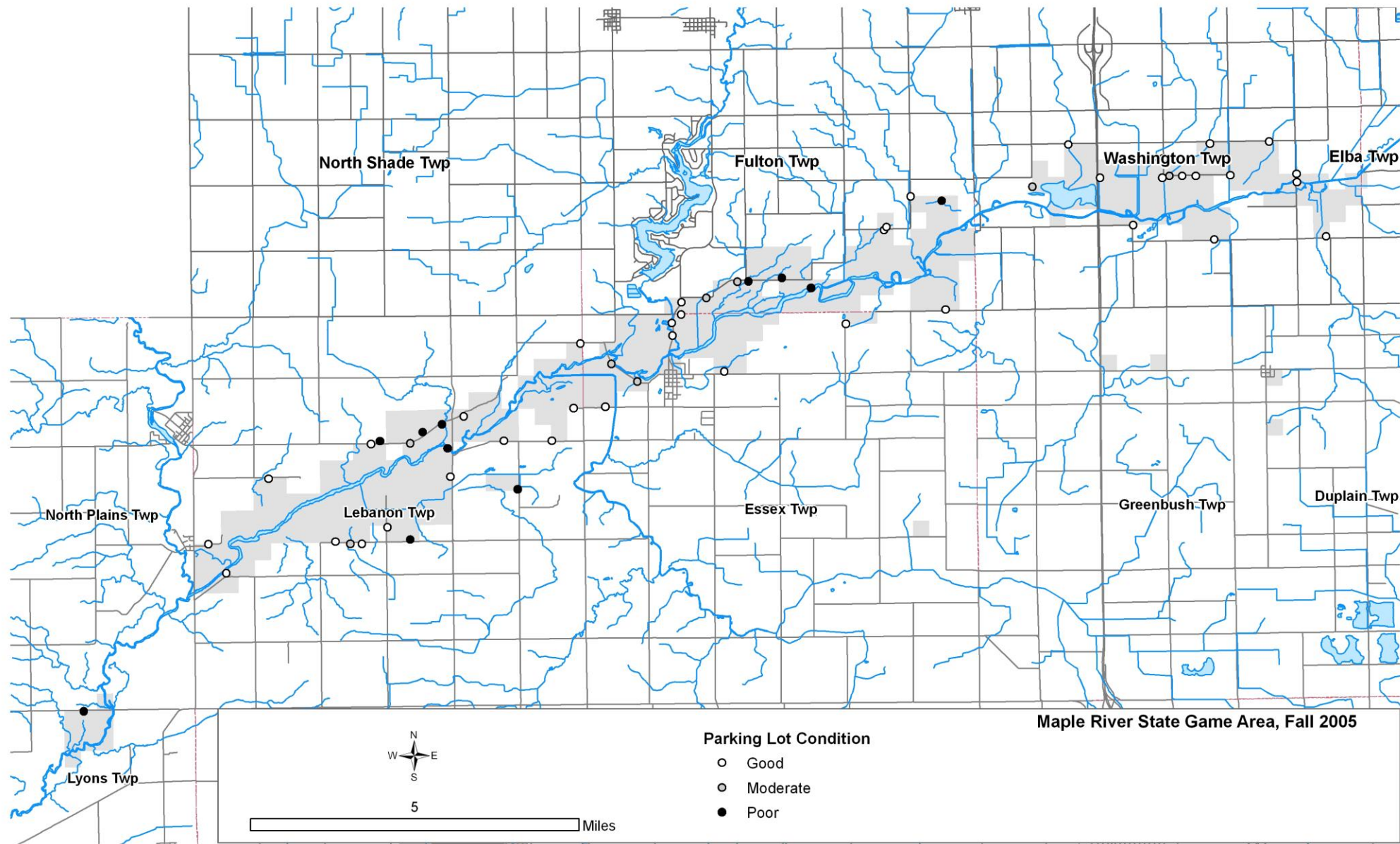
Location		Litter	Trash Dumping	Condition	DNR Sign	Fire Pit	Adjusted Average Condition
Lot / Landing #	Lot / Landing # and location						
IN01	Ionia Co. North Plains Twp. Parking Lot 01	3	3	2	3	2	3
CL01	Clinton Co. Lebanon Twp. Parking Lot 01	2	1	2	1	2	1
CL02	Clinton Co. Lebanon Twp. Landing Parking Lot 02	1	1	1	1	1	1
CL03	Clinton Co. Lebanon Twp. Parking Lot 03	2	1	2	1	2	1
CL04	Clinton Co. Lebanon Twp. Parking Lot 04	1	1	1	1	2	1
CL05	Clinton Co. Lebanon Twp. Parking Lot 05	1	1	3	1	3	2
CL06	Clinton Co. Lebanon Twp. Parking Lot 06	2	1	1	1	1	1
CL07	Clinton Co. Lebanon Twp. Parking Lot 07	2	1	1	1	1	1
CL08	Clinton Co. Lebanon Twp. Parking Lot 08	3	3	3	1	3	3
CL09	Clinton Co. Lebanon Twp. Parking Lot 09	2	1	2	1	2	1
CL10	Clinton Co. Lebanon Twp. Parking Lot 10	3	1	3	3	2	3
CL11	Clinton Co. Lebanon Twp. Parking Lot 11	3	2	3	3	2	3
CL12	Clinton Co. Lebanon Twp. Parking Lot 12	3	1	2	3	3	3
CL13	Clinton Co. Lebanon Twp. Parking Lot 13	1	1	1	1	2	1
CL14	Clinton Co. Lebanon Twp. Landing Parking Lot 14	2	1	3	3	3	3
CL15	Clinton Co. Lebanon Twp. Parking Lot 15	3	1	2	1	1	1
CL16	Clinton Co. Lebanon Twp. Parking Lot 16	1	1	1	1	1	1
CL17	Clinton Co. Lebanon Twp. Parking Lot 17	3	3	2	1	3	3
CL18	Clinton Co. Lebanon Twp. Parking Lot 18	1	1	1	1	1	1
CL19	Clinton Co. Lebanon Twp. Parking Lot 19	2	1	1	3	1	1
CL20	Clinton Co. Lebanon Twp. Parking Lot 20	1	1	1	3	1	1
CL21	Clinton Co. Lebanon Twp. Parking Lot 21	3	1	2	3	2	2
CE01	Clinton Co. Essex Twp. Parking Lot 01	1	1	2	3	2	2

Lot / Landing #	Lot / Landing # and location	Litter	Trash Dumping	Condition	DNR Sign	Fire Pit	Adjusted Average Condition	
CE02	Clinton Co. Essex Twp. Landing Parking Lot 02	1	1	3	3	1	2	
CE03	Clinton Co. Essex Twp. Parking Lot 03	1	1	1	1	1	1	
CE04	Clinton Co. Essex Twp. Parking Lot 04	1	1	2	1	1	1	
CE05	Clinton Co. Essex Twp. Parking Lot 05	1	1	2	3	1	1	
CE06	Clinton Co. Essex Twp. Parking Lot 06	1	1	1	3	1	1	
CE07	Clinton Co. Essex Twp. Parking Lot 07	1	1	2	1	1	1	
CE09	Clinton Co. Essex Twp. Parking Lot 09	1	1	1	3	1	1	
CE10	Clinton Co. Essex Twp. Parking Lot 10	1	1	2	3	1	1	
GF01	Gratiot Co. Fulton Twp. Parking Lot 01	1	1	2	3	1	1	
GF02	Gratiot Co. Fulton Twp. Parking Lot 02	1	2	1	3	2	2	
GF03	Gratiot Co. Fulton Twp. Parking Lot 03	3	2	2	3	2	3	
GF04	Gratiot Co. Fulton Twp. Parking Lot 04	1	1	1	3	1	1	
GF05	Gratiot Co. Fulton Twp. Parking Lot 05	2	3	2	3	3	3	
GF06	Gratiot Co. Fulton Twp. Landing Parking Lot 06	3	3	3	3	3	3	
GF07	Gratiot Co. Fulton Twp. Parking Lot 07	2	1	1	1	1	1	
GF08	Gratiot Co. Fulton Twp. Parking Lot 08	2	1	1	1	2	1	
GF09	Gratiot Co. Fulton Twp. Parking Lot 09	3	1	2	1	1	1	
GF10	Gratiot Co. Fulton Twp. Parking Lot 10	3	3	3	3	1	3	
GF11	Gratiot Co. Fulton Twp. Parking Lot 11	Lot was not accessible on rating day						
GF12	Gratiot Co. Fulton Twp. Parking Lot 12	1	1	2	1	1	1	
GF13	Gratiot Co. Fulton Twp. Parking Lot 13	3	2	1	1	3	2	
GW01	Gratiot Co. Washington Twp. Landing Parking Lot 01	1	3	3	1	2	2	
GW02	Gratiot Co. Washington Twp. Parking Lot 02	2	1	1	1	1	1	

Lot / Landing #	Lot / Landing # and location	Litter	Trash Dumping	Condition	DNR Sign	Fire Pit	Adjusted Average Condition
GW03	Gratiot Co. Washington Twp. Landing Parking Lot 03	1	1	3	1	1	1
GW04	Gratiot Co. Washington Twp. Landing Parking Lot 04	2	1	3	1	1	1
GW05	Gratiot Co. Washington Twp. Parking Lot 05	2	1	1	1	1	1
GW06	Gratiot Co. Washington Twp. Landing Parking Lot 06	1	1	2	1	1	1
GW07	Gratiot Co. Washington Twp. Parking Lot 07	1	2	1	1	1	1
GW08	Gratiot Co. Washington Twp. Parking Lot 08	1	1	1	1	1	1
GW09	Gratiot Co. Washington Twp. Parking Lot 09	1	1	1	3	1	1
GW10	Gratiot Co. Washington Twp. Parking Lot 10	1	1	1	1	1	1
GW11	Gratiot Co. Washington Twp. Parking Lot 11	1	1	2	1	1	1
GW12	Gratiot Co. Washington Twp. Parking Lot 12	1	1	1	1	1	1
GW13	Gratiot Co. Washington Twp. Parking Lot 13	1	1	1	1	1	1
GW14	Gratiot Co. Washington Twp. Parking Lot 14	1	1	2	1	1	1
GW15	Gratiot Co. Washington Twp. Parking Lot 15	2	1	1	1	1	1
GW16	Gratiot Co. Washington Twp. Parking Lot 16	1	1	3	3	1	2

The lowest rated site was GF06, a boat landing/parking lot in Section 24 of Fulton Township. It was rated as poor for all five categories. Two other lots, CL08, in Section 22 of Lebanon Township north of Stone Road and GF10, in Section 25 of Fulton Township south of Taft Road had four of five categories rated as poor. Using the adjusted average condition, 11 of the 59 lots (18.6%) rated poor, 8 (13.6%) fair and 40 (67.8%) good.





## DISCUSSION

The discussion is divided into a discussion of methods and a discussion of results. The methods discussion focuses on how to improve methods based on knowledge gained from the pilot. The results discussion focuses on implications of fall use for Maple River SGA management.

### Methods Discussion

Sampling challenges during this pilot were evident from two sources. First, sampling during late afternoons of high use days often resulted in the inability to finish vehicle counts and survey distribution in daylight. We purposefully chose not to approach people's vehicles in the dark as they may construe the approach as someone attempting to vandalize their vehicle or steal it or its contents. It seems apparent that a longer sample period is needed for busy days on a large area such as Maple River. This consideration may then reduce the number of areas that can be sampled if large game areas are chosen for study. It may also require help from DNR field personnel or additional MSU survey personnel. Large game areas include Allegan, Barry, Gratiot-Saginaw, Waterloo and Flat River. Besides a large physical area, all have many parking lots, a complex network of secondary roads and numerous in-holdings.

Second, weather played a negative factor in sampling near Thanksgiving and in December as snow, mud and a lack of plowing made passage through the game area with our passenger car difficult, dangerous and sometimes impossible. While use may have been limited those days, it is likely there was use which we were not able to assess. Wintertime sampling then is very likely to be problematic, as is early spring sampling (thaw, mud, impassible roads) unless we have a 4 wheel drive vehicle, which is more than double the cost of the current sedan counting rental and operation costs. It is recommended that sampling occur from March 15 – December 31 in 2006. This will provide some wintertime coverage, most likely missing activities such as ice fishing which are dependent on extended cold periods.

In terms of data gathered through observation, additional data needs to be recorded when counting vehicles. This includes vehicle license plate letters/numbers, whether the vehicle is a car, van or truck and whether the vehicle has a trailer attached. This will allow additional sophistication in assessing the mean number of occupants by type of vehicle. Counting trailers will better gauge the parking space utilized on a given day. Finally, vehicle license numbers will assist in assessing the number of repeat visitors. This is important as the relatively low response rates to the survey instrument (29.3%) suggests that there may have been many repeat visitors who refused to complete a second questionnaire, even though those sampled are encouraged to complete one for each visit when they are sampled. Also, there are no other population parameters to check with non-respondents regarding non-response bias as there may be in a general population survey (e.g. census data). However, the downside as this will again take additional time per vehicle sampled. This suggests that a full day of work for a survey administrator may be more likely to involve two game areas, especially if those chosen are large, rather than three as initially projected. This may moderately cut vehicle costs (somewhat reduced

mileage), but those are likely to be the only costs savings. However, the higher quality of data is in our opinion of greater value than the cost savings.

### **Results Discussion for Maple River SGA**

Recreational use by those driving a vehicle and parking on or adjacent to the Maple River SGA in fall 2005 was dominated by wildlife related activities, with hunting being by far the most common. Over the three month study period (September 15-December 15, 2005), the Maple River SGA provided an estimated forty thousand hours of outdoor recreation. This estimate of use will increase when the results of the adjacent landowner survey of game area use without parking a car or truck on the SGA are available in April 2006. An estimated 91% of vehicles parked on the area were parked in designated parking lots. Of those vehicles parked outside of designated lots, no more than four were observed across the study period at any one location, suggesting that parking lot distribution is effectively meeting needs.

Using the adjusted average condition, 11 parking lots were rated as poor. Key problems in these lots were litter, trash dumping, surface condition, unauthorized fire rings/pits and damaged or missing signage. Of these problems, litter and trash dumping were noted to be of greatest concern when visitors were asked the most important reason for their satisfaction rating of their Maple River SGA experience.

Overall, while the majority of respondents were generally satisfied with their recreational experience on the area, key sources of dissatisfaction were identified. They were lack of target species, crime and vandalism (theft of tree stands and littering/trash dumping) and conflicts with others. Each of these dimensions is within the purview of SGA managers to influence. For those who were satisfied, abundance of target species, good land management/habitat and having a place to hunt accounted for three quarters of the satisfied uses. Again, each of these factors can be influenced significantly by SGA management.

The vast majority (97.5%) of distinct Maple River SGA users cited wildlife related recreation as the key activity for which the DNR should manage. With the mean distinct user purchasing over 5 licenses/permits/registrations during the past 12 months, SGA users are extremely important in supporting not only SGA management, but also the entire conservation effort of the DNR through financing a wide range of programs and the overall functioning of the DNR to which all of the restricted license, permit and registration monies contribute.