

National Visitor Use Monitoring Results

February 2009
Data collected FY 2008

USDA Forest Service
Region 9

MIDEWIN NATIONAL TALLGRASS PRAIRIE

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INTRODUCTION

Scope and purpose of the National Visitor Use Monitoring program

The National Visitor Use Monitoring (NVUM) program provides reliable information about recreation visitors to national forest system managed lands at the national, regional, and forest level. Information about the quantity and quality of recreation visits is required for national forest plans, Executive Order 12862 (Setting Customer Service Standards), and implementation of the National Recreation Agenda. To improve public service, the agency's Strategic and Annual Performance Plans require measuring trends in user satisfaction and use levels. NVUM information assists Congress, Forest Service leaders, and program managers in making sound decisions that best serve the public and protect valuable natural resources by providing science based, reliable information about the type, quantity, quality and location of recreation use on public lands. The information collected is also important to external customers including state agencies and private industry. NVUM methodology and analysis is explained in detail in the research paper entitled: Forest Service National Visitor Use Monitoring Process: Research Method Documentation; English, Kocis, Zarnoch, and Arnold; Southern Research Station; May 2002 (<http://www.fs.fed.us/recreation/programs/nvum>).

In 1998 a team of research scientists and forest staff developed a recreation sampling system (NVUM) that provides statistical recreation use information at the forest, regional, and national level. Several Forest Service staff areas including Recreation, Wilderness, Ecosystem Management, Research and Strategic Planning and Resource Assessment were involved in developing the program. From January 2000 through September 2003 every national forest implemented this methodology and collected visitor use information. This application served to test the method over the full range of forest conditions, and to provide a rough national estimate of visitation. Implementation of the improved method began in October 2004. Once every five years, each National Forest and Grassland has a year of field data collection.

This NVUM data is useful for forest planning and decision making. The description of visitor characteristics (age, race, zip code, activity participation) can help forest staff identify their recreation niche. Satisfaction information can help management decide where best to place limited resources that would result in improved visitor satisfaction. Economic expenditure information can help forests show local communities the employment and income effects of tourism from forest visitors. In addition, the visitation estimates can be helpful in considering visitor capacity issues.

Methods

To define the sampling frame, staff on each forest classify all recreation sites and areas into five basic categories called "site types": Day Use Developed Sites (DUDS), Overnight Use Developed Sites (OUDS), Designated Wilderness Areas (Wilderness), General Forest Areas (GFA), and View Corridors (VC). Only the first four categories are counted as national forest recreation visits and are included in the visit estimates. The last category is used to track the volume of people who view national forests from nearby roads; since they do not get onto agency lands, they cannot be counted as visits. For the entire sampling year, each day on each site was given a rating of very high, high, medium, low, or no use according to the expected level of recreational visitors who would be observed leaving that location for the last time (last exiting recreation use) on that day. The combination of a calendar day and a site or area is called a site day. Site days are the basic sampling unit for the NVUM protocol. Results of this forest categorization are shown in [Table 1](#).

In essence, visitation is estimated through a combination of traffic counts and surveys of exiting visitors. Both are obtained on a random sample of locations and days distributed over an entire forest for a year. All of the surveyed recreation visitors are asked about their visit duration, activities, demographics, travel distance, and annual usage. About one-third were also asked a series of questions about satisfaction. Another one-third were asked to provide information about their income, spending while on their trip, and the next best substitute for the visit.

Definition of Terms

NVUM has standardized measures of visitor use to ensure that all national forest visitor measures are comparable. These definitions are basically the same as established by the Forest Service in the 1970's. Visitors must pursue a recreation activity physically located "on" Forest Service managed land in order to be counted. They cannot be passing through; viewing from non-Forest Service managed roads, or just using restroom facilities. The visitation metrics are *national forest visits* and *site visits*. NVUM provides estimates of both and confidence interval statistics measuring the precision of the estimates. The NVUM methodology categorizes recreation facilities and areas into specific site types and use levels in order to develop the sampling frame. Understanding the definitions of the variables used in the sample design and statistical analysis is important in order to interpret the results.

National forest visit is the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A national forest visit can be composed of multiple site visits. The visit ends when the person leaves the national forest to spend the night somewhere else.

Site visit is the entry of one person onto a national forest site or area to participate in recreation activities for an unspecified period of time. The site visit ends when the person leaves the site or area for the last time on that day.

A *confidence interval* is a range of values that is likely to include an unknown population value, where the range is calculated from a given set of sample data. Confidence intervals are always accompanied by a *confidence level*, which tells the degree of certainty that the value lies in the interval. Used together these two terms define the reliability of the estimate, by defining the range of values that are needed to reach the given confidence level. For example, the 2008 national visitation estimate is 175.6 million visits, with a 90% confidence interval of 3.2%. In other words, given the NVUM data, our best estimate is 175.6 million visits, and given the underlying data, we are 90% certain that the true number is between 170.0 million and 181.2 million.

Recreation trip is the duration of time beginning when the visitor left their home and ending when they return to their home.

Site day - a day that a recreation site or area is open to the public for recreation purposes.

Proxy – information collected at a recreation site or area that is directly related to the amount of recreation visitation received. The proxy information must pertain to all users of the site and it must be one of the proxy types allowed in the NVUM pre-work directions (fee receipts, fee envelopes, mandatory permits, permanent traffic counters, group reservations, ticket sales, and daily use records).

Nonproxy – a recreation site or area that does not have proxy information. At these sites a 24-hour traffic count is taken to measure total use for one site day at the sample site.

Use level – for each day of the year for each recreation site or area, the site day was categorized as very high, high, medium or low last exiting recreation traffic, or no exiting use. No Use could mean either that the location was administratively closed, or it was open but was expected to have zero last exiting visitors. For example a picnic area may be listed as having no use during winter months (120 days), high last exiting recreation volume on all other weekends (70 days) and medium last exiting recreation use on the remaining midweek days (175 days). This accounts for all 365 days of the year. This process was repeated for every site and area on the forest.

Limitations of the Results

The information presented here is valid and applicable at the forest, regional, and national level. It is not designed to be accurate at the district or site level. The quality of the visitation estimate is dependent on the sample design development, sampling unit selection, sample size and variability, and survey implementation. First, preliminary work conducted by forests to identify and consistently classify sites and access points according to the type and amount of expected exiting visitation is the key determinant of the validity and magnitude of the visitation estimate. Second, the success of the forest staff in accomplishing its assigned set of sample days, correctly filling out the interview forms, and following the field protocols influence the reliability of the results, variability of the visitation estimate, and validity of the visitation descriptions. Third, the variability of traffic counts within a sampling stratum affects the reliability of the visitation estimates. Fourth, the range of visitors sampled must be representative of the population of all visitors. Finally, the number of visitors sampled must be large enough to adequately control variability. The results and confidence intervals will reflect all these factors.

Confidence intervals indicate the reliability of the visitation estimate, given the underlying data. Large confidence intervals indicate high variability in the national forest visit (NFV), site visit (SV) and Wilderness visit estimates. Variance is caused primarily by a small sample size in number of days or having a few sampled days where the observed exiting visitation volume was very different from the normal range. For example, on a particular National Forest in the General Forest Area low stratum, there were 14 sample days. Of these 14 sample days, 13 days had visitation estimates between zero and twenty. The remaining day had a visitation estimate of 440. So the stratum mean was about 37 per day, standard error was about 116, and the 90% confidence interval width is 400% of the mean. Causes for such outlier observations are not known, but could include a misclassification of the day (a high use day incorrectly categorized as a low use day), unusual weather, malfunctioning traffic counter, or reporting errors. Eliminating the unusual observation from data analysis would reduce the variability. However, unless the NVUM team had reason to suspect the observation was incorrect they did not eliminate these unusual cases.

The descriptive information about national forest visitors is based upon only those visitors that were interviewed. Every effort was made to incorporate distinct seasonal use patterns and activities that vary greatly by season into the sampling frame. The sampling plan took into account both the spatial and seasonal spread of visitation patterns across the forest. Even so, because of the small sample size of site-days, or because some user groups decline to participate in the survey, it is possible to under-represent certain user groups, particularly for activities that are quite limited in where or when they occur.

Note that the results of the NVUM activity analysis DO NOT identify the types of activities visitors would like to have offered on the national forests. It also does not tell us about displaced forest visitors, those who no longer visit the forest because the activities they desire are not offered.

Some forest visitors were counted and included in the total forest use estimate but were not surveyed. This included visitors to recreation special events and organization camps. Their characteristics are not included in the visit descriptions.

Caution should be used in interpreting any comparisons of these results with those obtained during the 2000 – 2003 period. Differences cannot be interpreted as a trend. Several method changes account for the differences, for both visitation estimates and visit characteristics. One key factor is that the first application of the NVUM process was largely a national beta-test of the method, and significant improvements occurred following it. The NVUM process entailed a completely new method and approach to measuring visitation on National Forest lands. Simply going through the NVUM process for the first time enabled forest staff to do a much better job thereafter in identifying sites, accurately classifying days into use level strata, and ensuring consistency across all locations on the forest. These improvements enhanced the validity of all aspects of the NVUM results. Sampling plans and quality control procedures were also improved.

VISITATION ESTIMATES

Forest Definition of Site Days

The population of site days for sampling was constructed from information provided by forest staff. For each site, each day of the year was given a rating of very high, high, medium, low, or none according to the expected volume of recreation visitors who would be leaving the site or area for the last time (last exiting recreation use). The stratum, a combination of site type and use level, was then used to construct the sampling frame. The results of the recreation site/area stratification and days sampled are displayed in [Table 1](#).

Table 1. Site days and percentage of days sampled by stratum on the Midewin Tallgrass Prairie (National Visitor Use Monitoring FY 2008 data).

Stratum*		Site Days* in Stratum Population	Days Sampled	Sampling Rate (%)
Site Type*	Use Level ^c or Proxy Code*			
DUDS	High	1	1	100.00
DUDS	Medium	100	10	10.00
DUDS	Low	40	12	30.00
GFA	High	7	6	85.71
GFA	Medium	191	10	5.24
GFA	Low	462	18	3.90
GFA	FR1	587	8	1.36
GFA	TB1	26	8	30.77
Total		1414	73	5.16

^a Stratum is the combination of the site type and use level or proxy code. Sample days were independently drawn within each stratum.

^b DUDS = Day Use Developed Site, GFA = General Forest Area ("Undeveloped Areas"), OUDS = Overnight Use Developed Site, WILD = Designated Wilderness

^c Use level was defined independently by each forest by defining the expected number of recreation visitors that would be last-existing a site or area on a given day. The forest developed the range for very high, high, medium, and low and then assigned each day of the year to one of the use levels.

^d Proxy Code - If the site or area already had counts of use (such as fee envelopes or ski lift tickets) the site was called a proxy site and sampled independent of nonproxy sites.

^e Site Days are days that a recreation site or area is open to the public for recreation purposes.

Visitation Estimates

Visitor use estimates are available at the national, regional, and forest level. This document provides only Forest level data. Other documents may be obtained through the National Visitor Use Monitoring web page: www.fs.fed.us/recreation/programs/nvum/

When reviewing the results, users should discuss with forest staff if this forest experienced any unusual circumstances such as forest fires, floods, or atypical weather that may have created an unusual recreation use pattern for the year sampled. [Table 2](#) displays the number of national forest visits and site visits by site type for this National Forest. The site visit estimate includes the Wilderness site visits.

Table 2. Annual visitation estimate (thousands) for Midewin Tallgrass Prairie (FY 2008).

Visit Type	90% confidence interval width (%) ^e	
	Visits (thousands)	
Total Estimated Site Visits	16.9	42.5
Designated Wilderness Visits ^b	NA	NA
Special Events and Organizational Camp Use ^c	0.1	0.0
Total Estimated National Forest Visits	16.2	41.8

^b Designated Wilderness visits (if applicable) are included in the Site Visits estimate.

^c Special events and organizational camp use are not included in the Site Visit estimate, only in the National Forest Visits estimate. Forests reported the total number of participants and observers so this number is not estimated; it is treated as 100% accurate.

^e This value defines the upper and lower bounds of the visitation estimate at the 90% confidence level, for example if the visitation estimate is 100 +/-5%, one would say “at the 90% confidence level visitation is between 95 and 105 visits.”

The quality of the use estimate is based in part on how many individuals were contacted during the sample day and how many complete interviews were obtained from which to estimate NVUM numbers and visitor descriptions. [Tables 3](#) and [4](#) display the number of visitor contacts, number of completed interviews by site type and survey form type. This information may be useful to managers when assessing how representative of all visitors the information in this report may be.

Table 3. Number of individuals contacted by Site Type on Midewin Tallgrass Prairie (FY 2008).

Site Type	Total Individuals Contacted	Individuals Who Agreed to be Interviewed	Individuals who were last exiting recreation*
DUDS	24	21	9
GFA	155	109	101
Total	179	130	110

* includes individuals last exiting sometime during the interview day.

Table 4. Number of complete interviews^a on Midewin Tallgrass Prairie by Site Type and Form Type (FY 2008).

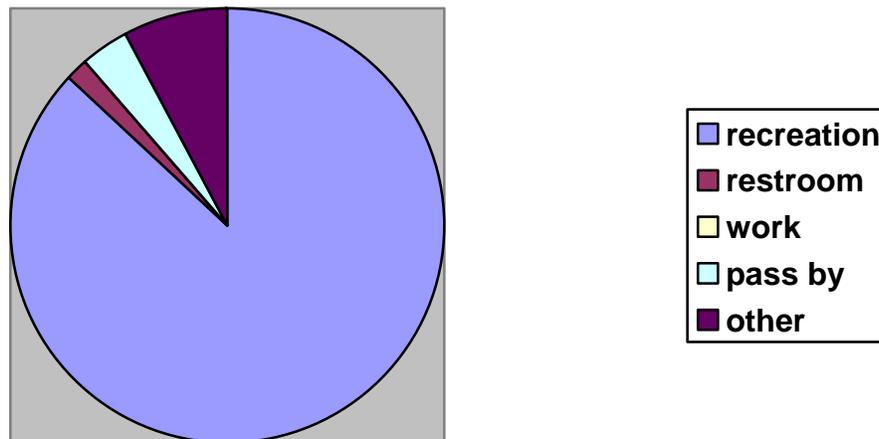
Form Type ^b	Day Use Developed Site	Undeveloped Areas (GFAs)	Total
Basic	6	41	47
Economic	2	34	36
Satisfaction	3	32	35
Total	11	107	118

^a Complete interviews are those in which the individual contacted agreed to be interviewed, and fell into the targeted group (was recreating on the national forest and was exiting the site or area for the last time that day).

^b Form type is the type of interview form administered to the visitor. The Basic form did not ask either economic or satisfaction questions. The Satisfaction form did not ask economic questions and the Economic form did not ask Satisfaction questions.

Visitors were interviewed regardless of whether they were recreating at the site or not, however the interview was discontinued after determining that the reason for visiting the site was not recreation. Figure 1 displays the various reasons visitors gave as their purpose for stopping at the sample site.

Figure 1. Purpose of visit by visitors who agreed to be interviewed on Midewin Tallgrass Prairie (FY 2008).



DESCRIPTION OF THE RECREATION VISIT

Demographics

Descriptions of forest recreational visits were developed based upon the characteristics of interviewed visitors (respondents) and expanded to the national forest visitor population. Basic demographic information helps forest managers identify the profile of the visitors they serve. Management concerns such as providing recreation opportunities for underserved populations may be monitored with this information. [Table 5](#), [Table 6](#), and [Table 7](#) provide basic demographic information about visitors interviewed regarding Gender, Race/Ethnicity, and Age, respectively. [Table 8](#) shows the most common reported origins for recreation visitors. A complete list of reported zip codes for respondents is found in [Appendix A](#). [Table 9](#) provides information about self reported travel distance from home to the interview site.

Demographic results show that almost 78 percent of visits are made by males. American Indian/Alaska Natives (7.6%) are the most common racial or ethnic minority. There are relatively few older people in the visiting population. Only about 4 percent of visits are made by people aged 70 and up. One quarter of the visiting population is in their forties and almost 22 percent are in their fifties. Just over 6 percent of the visiting population is children under the age of 16. This forest serves a mostly local client base. Nearly 64 percent of visits come from people who live within 25 miles of the forest.

Table 5. Percent of National Forest Visits by gender on Midewin Tallgrass Prairie (FY 2008).

Gender	Survey Respondents ^a	National Forest Visits (%) ^b
Female	71	22.6
Male	118	77.4
Total	189	100.0

^a survey respondents were asked to give the gender and age of themselves plus up to 3 other people in their party, therefore there are more respondents here than the number of people who completed full interviews.

^b Calculations are computed using weights that expand the sample of individuals to the population of National Forest Visits.

Table 6. Percent of National Forest Visits^a by race/ethnicity on Midewin Tallgrass Prairie (FY 2008).

Race/Ethnicity ^a	Number of Survey Respondents	National Forest Visits (%)
American Indian/Alaska Native	6	7.6
Asian	1	1.0
Black/African American	0	0.0
Native Hawaiian or other Pacific Islander	1	2.1
White	92	89.5
Spanish, Hispanic, or Latino	3	5.2
Total	103	105.4

^a “Spanish, Hispanic or Latino” was presented in a separate question because it is an ethnicity not a race. Respondents could choose more than one racial group.

^c Calculations are computed using weights that expand the sample of individuals to the population of National Forest Visits.

Table 7. Percent of National Forest Visits^a by age on Midewin Tallgrass Prairie (FY 2008).

Age	National Forest Visits (%)
Under 16	6.5
16-19	0.3
20-29	11.3
30-39	19.5
40-49	25.5
50-59	21.5
60-69	11.2
70 and over	4.2
Total	100.0

Figure 2. Age distributions for visits to Midewin Tallgrass Prairie (FY 2008).

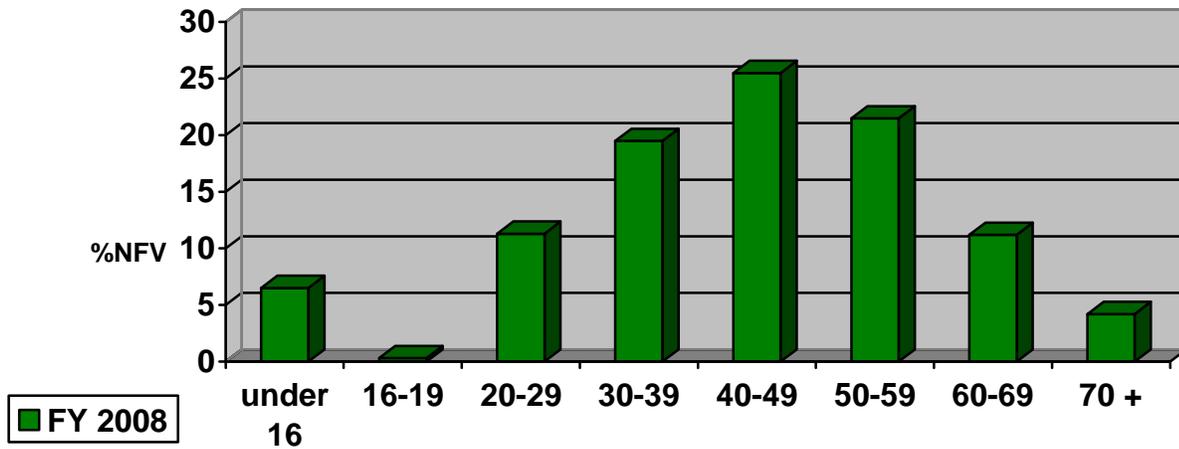


Table 8. Most commonly reported Zip Codes, states, and counties of Midewin Tallgrass Prairie survey respondents (FY 2008).

ZIP Codes	State	County	Survey Respondents (%)	Survey Respondents (n)
60421	IL	Will	11.9	14
UNKNOWN ORIGIN			10.2	12
60481	IL	Will	6.8	8
60447	IL	Grundy	4.2	5
60468	IL	Will	3.4	4
60402	IL	Cook	2.5	3
60433	IL	Will	2.5	3
60440	IL	Will	2.5	3
60441	IL	Will	2.5	3
60442	IL	Will	2.5	3
60446	IL	Will	2.5	3
60477	IL	Cook	2.5	3

Table 9. Percent of National Forest Visits by distance traveled to Midewin Tallgrass Prairie (FY 2008).

Miles from Visitors' Home to Interview Location ^a	National Forest Visits (%)
0 - 25 miles	63.2
26 - 50 miles	21.9
51 - 75 miles	4.4
76 - 100 miles	5.1
101 - 200 miles	0.0
201 - 500 miles	2.2
Over 500 miles	3.2
Total	100.0

^a Travel distance is self-reported

Visit Descriptions

Characteristics of the recreation visit such as length of visit, types of sites visited, activity participation and visitor satisfaction with forest facilities and services help managers understand recreation use patterns and use of facilities. This allows them to plan workforce and facility needs. The average national forest visit length of stay and average site visit length of stay by site type on this forest is displayed in [Table 10](#). Since the average values displayed in Table 10 may be influenced by a few people staying a very long time, the median value is also shown.

Most of the visits to the forest are day visits. The average visit to the Midewin Tallgrass Prairie lasts less than 5 hours; over half of the visits to this forest last less than 3 hours. Less than five percent of the visits involve recreating at more than one location on the forest. Despite the local nature of the visiting population, there are very few frequent visitors. Less than 8 percent of all visits are made by people who visit more than 50 times per year. Conversely, over 48 percent of the visits are made by people who visit at most 5 times per year.

Table 10. Visit duration on Midewin Tallgrass Prairie (FY 2008).

Visit Type	Average Duration (hours)	Median Duration (hours)
Site Visit	2.7	2.0
Day Use Developed	2.0	0.3
Overnight Use Developed	NA	NA
Undeveloped Areas	2.7	2.0
Designated Wilderness	NA	NA
National Forest Visit	4.4	2.6

Many of the respondents on this National Forest went only to the site at which they were interviewed (Table 11). Some visitors went to more than one recreation site or area during their national forest visit and the average site visits per national forest visit is shown below. Also displayed are the average people per vehicle and average axles per vehicle. This information in conjunction with traffic counts was used to expand observations from individual interviews to the full forest population of recreation visitors. This information may be useful to forest engineers and others who use vehicle counters to conduct traffic studies.

During the interview, visitors were asked how often they visit this national forest for all recreational activities, and how often for their primary activity. Table 12 summarizes the percent of visits that are made by those in each frequency category for this National Forest.

Table 11. Group characteristics for Midewin Tallgrass Prairie (FY 2008).

Characteristic	Average
Percent of recreational visitors who visit just one National Forest site during their entire National Forest Visit	95.5
Average number of national forest sites visited during each National Forest Visit	1.0
Average Group size	1.7
Average number of Axles per vehicle	2.0

Table 12 Percent of National Forest Visits by annual visit frequency to Midewin Tallgrass Prairie (FY 2008).

Number of Reported Annual Forest Visits	Percent of National Forest Visits (%)	
	All Activities	Main Activity
1 – 5 times per year	48.7	51.8
6 – 10 times per year	15.5	17.7
11 – 15 times per year	8.1	3.9
16 – 20 times per year	8.0	7.0
21 – 25 times per year	1.0	1.0
26 – 30 times per year	3.0	4.9
31 – 35 times per year	1.0	2.0
36 – 40 times per year	1.9	0.0
41 – 50 times per year	4.9	3.9
51 – 100 times per year	1.9	1.9
101 – 200 times per year	4.0	4.0
201 – 300 times per year	0.0	0.0
Over 300 times per year	1.9	1.9

Activities

After identifying their main recreational activity, visitors were asked how many hours they spent participating in that main activity during this national forest visit. Some caution is needed when using this information. Because most national forest visitors participate in several recreation activities during each visit, it is more than likely that other visitors also participated in this activity, but did not identify it as their main activity. For example, on one national forest 63 % of visitors identified viewing wildlife as a recreational activity that they participated in during this visit, however only 3% identified that activity as their main recreational activity. The information on average hours viewing wildlife is only for the 3% who reported it as a main activity.

Almost two thirds of the visiting population comes to hike/walk in the forest. Almost one third of those visits say that is their primary activity. Just over 40 percent view the scenery and 12 percent say that is their primary activity. Viewing wildlife (38.9%) is also a popular activity on the forest. Over 29 percent of the visits come to hunt and the same percentage say that it is their primary activity.

Use of constructed facilities and designated areas

About one-third of recreation visitors interviewed were asked about whether they made use of a targeted set of facilities and special designated areas during their visit. These results are displayed in [Table 14](#).

Table 14. Midewin Tallgrass Prairie visitor use of selected facilities and areas (FY 2008).

FACILITY/ Area	Respondents who reported using this facility (%)
Developed Swimming Site	0.0
Scenic Byway	0.0
Museum	10.3
Designated OHV Area	0.0
Forest Roads	0.0
Interpretive Displays	1.9
Information Sites	7.4
Developed Fishing Site	.2
Motorized Single Track Trail	0.0
Motorized Dual Track Trails ^b	0.0
None of these	83.0

Table 13. Activity participation on Midewin Tallgrass Prairie (FY 2008).

Activity	% of visitors who participated in this activity ^a	% who said it was their primary activity ^b	Average hours spent in primary activity ^c
Camping in developed sites	0.0	0.0	0.0
Primitive camping	0.0	0.0	0.0
Backpacking	0.0	0.0	0.0
Resort Use	0.0	0.0	0.0
Picnicking	2.4	0.0	0.0
Viewing wildlife, birds, fish, etc	38.9	12.3	1.6
Viewing natural features (scenery)	40.3	12.0	2.6
Visiting historic/prehistoric sites	12.7	0.3	3.0
Visiting a nature center	15.3	0.9	1.5
Nature Study	14.6	1.9	1.1
Relaxing	18.3	2.1	1.0
Fishing	0.0	0.0	0.0
Hunting	29.2	29.2	4.7
OHV use	0.0	0.0	0.0
Driving for pleasure	4.8	1.8	1.0
Snowmobile travel	0.0	0.0	0.0
Motorized water travel	0.0	0.0	0.0
Other motorized activities	0.0	0.0	0.0
Hiking or walking	62.2	32.5	1.6
Horseback riding	2.0	2.0	2.9
Bicycling	16.5	7.4	2.0
Non-motorized water travel	0.2	0.0	0.0
Downhill skiing or snowboarding	0.0	0.0	0.0
X-C skiing, snow shoeing	0.0	0.0	0.0
Other non-motor activity (swim, etc.)	0.0	0.0	0.0
Gathering forest products mushrooms, berries, firewood, etc.	0.0	0.0	0.0
Motorized Trail Activity	0.0	0.0	0.0
No Activity Reported	2.0	0.2	0.0

^a Survey respondents could select multiple activities so this column may total more than 100%.

^b respondents were asked to select one activity as their main reason one; some selected more than one, so this column may total more than 100%.

^c Computed only for those who indicated the activity was the main activity.

ECONOMIC INFORMATION

Forest managers are usually very interested in the impact of National Forest recreation visits on the local economy. As commodity production of timber and other resources has declined, local communities look increasingly to tourism to support their communities. When considering recreation-related visitor spending managers are often interested both in identifying the average spending of individual visitors (or types of visitors) and the total spending associated with all recreation use. Spending averages for visitors or visitor parties can be estimated using data collected from a statistically valid visitor sampling program such as NVUM. To estimate the total spending associated with recreation use, three pieces of information are needed: an overall visitation estimate, the proportion of visits in the visitor types, and the average spending profiles for each of the visitor types. Multiplying the three gives a total amount of spending by a particular type of visitor. Summing over all visitor types gives total spending.

About one-third of the NVUM surveys included questions about trip-related spending within 50 miles of the site visited. Spending data collected from 2000 to 2003 were analyzed at Michigan State University by Dr. Daniel Stynes and Dr. Eric White. A description of that analysis and the results are in the report “Spending Profiles of National Forest Visitors: NVUM four-year report”, available at <http://www.fs.fed.us/recreation/programs/nvum/NVUM4YrSpending.pdf>. Analysis of spending data for the 2005 – 2009 data collection periods will be completed in summer of 2010.

Spending Segments

The spending that occurs on a recreation trip is greatly influenced by the type of recreation trip taken. For example, visitors on overnight trips away from home typically have to pay for some form of lodging (e.g., hotel/motel rooms, fees in a developed campground, etc.) while those on day trips do not. In addition, visitors on overnight trips will generally have to purchase more food during their trip (in restaurants or grocery stores) than visitors on day trips. Visitors who have not traveled far from home to the recreation location usually spend less than visitors traveling longer distances, especially on items such as fuel and food. Analysis of spending patterns has shown that a good way to construct segments of the visitor market with consistent spending patterns is the following seven groupings:

1. local visitors on day trips,
2. local visitors on overnight trips staying in lodging on the national forest,
3. local visitors on overnight trips staying in lodging off the national forest, and
4. non-local visitors on day trips,
5. non-local visitors on overnight trips staying in lodging on the national forest,
6. non-local visitors on overnight trips staying in lodging off the forest,
7. non-primary visitors.

Local visitors are those who travel less than 50 road miles from home to the recreation site visited and non-local visitors are those who travel greater than 50 road miles to the recreation site visited. Non-primary visitors are those for whom the primary purpose of their trip is something other than recreating on that national forest. [Table 15](#) shows the distribution of visits by spending segment.

The majority of the visits to the forest are day visits. Almost 6 percent of the visits spend the night while away from their home. Of those, almost 4 percent spend the night within 50 miles of the forest. About half of the visiting parties spend \$20 or less per party per visit. Almost one third of the visiting

population comes from households in the \$100,000 to \$149,999 range; about 23 percent comes from households in the \$75,000 to \$99,999 range.

Table 15. Distribution of National Forest Visits^a by Spending Segment^b on the Midewin Tallgrass Prairie (FY 2008).

	Non-local Segments			Local Segments			Non-Primary ^c	Total
	Day	Overnight on NF	Overnight off NF	Day	Overnight on NF	Overnight off NF		
Percent of National Forest Visits	4.7	0.0	1.0	83.1	0.0	0.0	11.2	100.0

^a A National Forest Visit is defined as the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A National Forest Visit can be composed of multiple Site Visits.

^b The market segments shown here relate to the type of recreation trip taken. A recreation trip is defined as the duration of time beginning when the visitor left their home and ending when they got back to their home. “Non-local” trips are those where the individual(s) traveled greater than approximately 50 miles from home to the Site Visited. “Day” trips do not involve an overnight stay outside the home, “overnight on-forest” trips are those with an overnight stay outside the home on National Forest System (NFS) land, and “overnight off-forest” trips are those with an overnight stay outside the home off National Forest System land.

^c “Non-primary” trips are those where the primary recreation destination of the trip was somewhere other than the national forest under consideration.

Spending Profiles

Spending profiles for each segment for this forest can be found in the Stynes and White report noted above. Appendix [Table A-1](#) in that report identifies whether the forest has a high-spending profile (Table 7 of Stynes and White), an average profile (Table 5), or a low-spending profile (Table 8). It is essential to note that these spending profiles are in dollars spent per **party**. Obtaining per-visit spending is accomplished by dividing the spending for each segment by the average people per party for the forest and segment found in Appendix Table A-3 of that report.

Total Direct Spending

Total direct spending made within 50 miles of the forest and associated with national forest recreation is calculated by combining estimates of per-visit spending averages from the spending profiles with estimates of the number of national forest visits in the segment. The number of visits in the segment equals the percentage in [Table 15](#) times the number of National Forest visits reported in [Table 2](#) of this report.

Other Visit Information

There are several other important aspects of the trips on which the recreation visits to the forest are made. These are summarized in [Table 16](#). The first aspect relates to total amount spent by the recreating party on the trip. This includes spending not just within 50 miles of the forest, but anywhere. The table shows both the average and the median. Another set describes the overall length of the trips on which the visits are made. The table shows the percent of the visits that were made on trips where the person stayed away from home overnight (even though the forest visit may be just a day visit), and the average total nights away from home and nights spent within 50 miles of the forest. For those spending one or more nights in or near the forest, the table shows the percentage that selected each of a series of lodging

options. Together, these results help show the context of overall trip length and lodging patterns for visitors to the forest.

Table 16. Visitor Trip Information for Midewin Tallgrass Prairie visitors (FY 2008).

Average total trip spending per visiting party	480.0
Median total trip spending per visiting party	20.0
Percent of visitors who stayed away from home overnight on the trip that included this NF visit	5.8
Percent of visits that occur on trip with an overnight stay within 50 miles of the visited forest	3.8
For overnight visits, average number of nights within 50 miles of this forest	2.0
For those staying overnight within 50 miles of the forest, Percent indicating each type of Lodging	
NF campgrounds ON this national forest	0.0
Camping in undeveloped areas of this national forest	0.0
Cabins, lodges, hotels or huts ON this national forest	0.0
Other public campgrounds (Park Service, BLM, State, other)	0.0
Private campgrounds NOT on this national forest	1.1
Rented home, condo, cabin, lodge or hotel NOT on this nf	29.3
Private home of friend or relative	23.6
Home, cabin, or condo visitor owns	0.0
Other	46.0

Household Income

Visitors were asked to report a general category for their total household income. Only very general categories were used, to minimize the intrusive nature of the question. Results help indicate the overall socio-economic status of visitors to the forest, and are found in [Table 17](#).

Table 17. Midewin Tallgrass Prairie NF recreation visitors annual household income (FY 2008).

Household Income Categories	Percent of those interviewed who reported household income within these levels
UNDER \$25,000	0.0
\$25,000 – 49,999	22.4
\$50,000-74,999	18.7
\$75,000-99,999	23.1
\$100,000 – 149,999	31.4
\$150,000 and OVER	4.3

Substitute behavior

Visitors were asked to select one of several substitute choices, if for some reason they were unable to visit this national forest (Figures 3a and 3b). Choices included going somewhere else for the same activity they did on the current trip, coming back to this forest for the same activity at some later time, going someplace else for a different activity, staying at home and not making a recreation trip, going to work instead of recreating, and a residual 'other' category. On most forests, the majority of visitors indicate that their substitute behavior choice is activity driven (going elsewhere for same activity) and a smaller percentage indicate they would come back later to this national forest for the same activity. For those visitors who said they would have gone somewhere for recreation they were asked how far from their home this alternate destination was. These results are shown in Figure 4.

Figure 3. Substitute behavior choices of Midewin Tallgrass Prairie NF visitors (FY 2008).

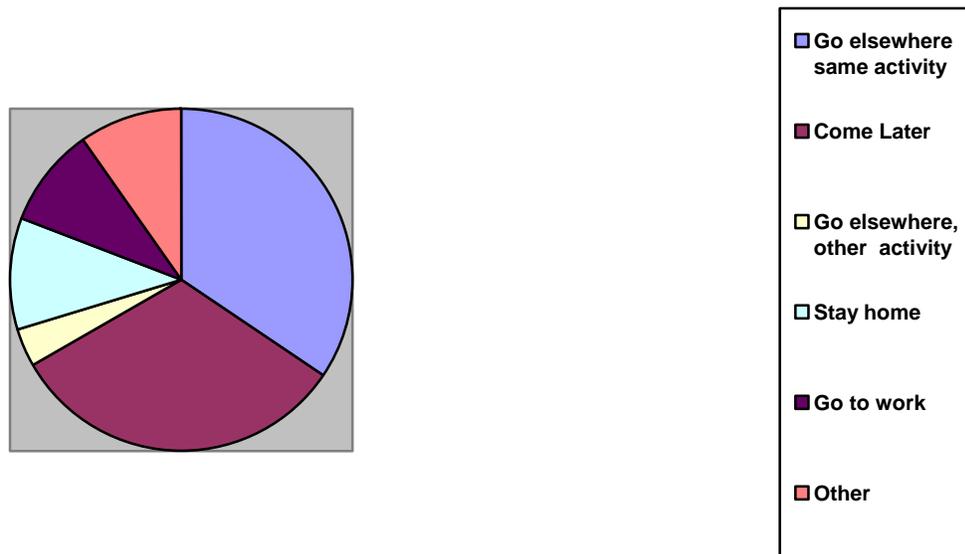
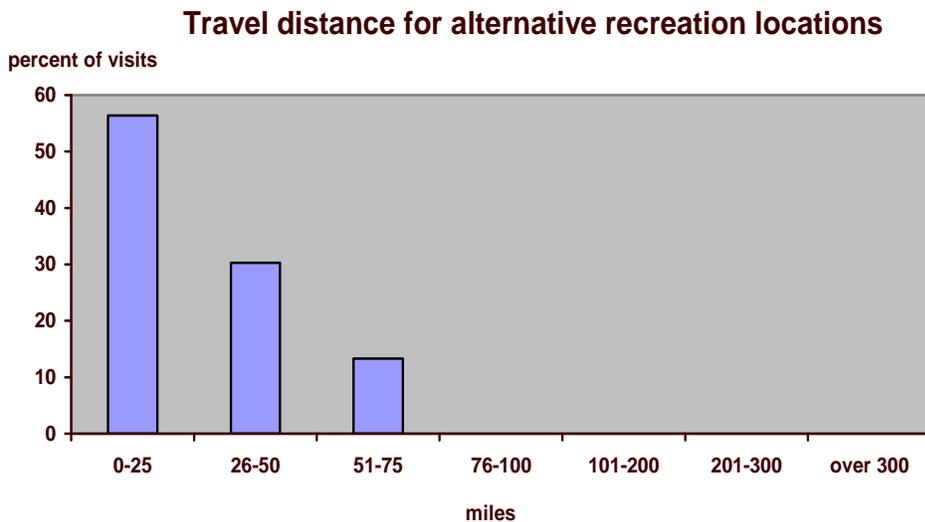


Figure 4. Reported distance visitors would travel to alternative recreation location if this NF was not available. (FY 2008).



SATISFACTION INFORMATION

An important element of outdoor recreation program delivery is evaluating customer satisfaction with the recreation setting, facilities, and services provided. Satisfaction information helps managers decide where to invest in resources and to allocate resources more efficiently toward improving customer satisfaction. Satisfaction is a core piece of data for national- and forest-level performance measures. To describe customer satisfaction, several different measures are used. Recreation visitors were asked to provide an overall rating of their visit to the national forest, on a 5-point Likert scale. About one-third of visitors interviewed on the forest rated their satisfaction with fourteen elements related to recreation facilities and services, and the importance of those elements to their recreation experience. Visitors were asked to rate the specific site or area at which they were interviewed. Visitors rated both the importance and performance (satisfaction with) of these elements using a 5-point scale. The Likert scale for importance ranged from not important to very important. The Likert scale for performance ranged from very dissatisfied to very satisfied. Although the satisfaction ratings specifically referenced the area where the visitor was interviewed, the survey design does not usually have enough responses for any individual site or area on the forest to present information at a site level. Rather, the information is generalized to overall satisfaction within the three site types: Day Use Developed (DUDS), Overnight Use Developed (OUDS), General Forest Areas, and on the forest as a whole.

The satisfaction responses are analyzed in several ways. First, a graph of overall satisfaction is presented in Figure 5. Next, two aggregate measures were calculated from the set of individual elements. The satisfaction elements most readily controlled by managers were aggregated into four categories: developed facilities, access, services, and visitor safety. The site types sampled were aggregated into three groups: developed sites (includes both day use and overnight developed sites), dispersed areas, and designated Wilderness. The first aggregate measure is called “Percent Satisfied Index (PSI)”, which is the proportion of all ratings for the elements in the category where the satisfaction ratings had a numerical rating of 4 or 5. Conceptually, the PSI indicator shows the percent of all recreation customers who are satisfied with agency performance. The agency’s national target for this measure is 85%. It is usually difficult to consistently have a higher satisfaction score than 85% since given tradeoffs among user groups and other factors. [Table 18](#) displays the aggregate PSI scores for this forest.

Another aggregate measure of satisfaction is called “Percent Meet Expectations (PME)”. This is the proportion of satisfaction ratings in which the numerical satisfaction rating for a particular element is equal to or greater than the importance rating for that element. This indicator tracks the congruence between the agency’s performance and customer evaluations of importance. The idea behind this measure is that those elements with higher importance levels must have higher performance levels. Figure 6 displays the PME scores by type of site. Lower scores indicate a gap between desires and performance.

An Importance-Performance Analysis (IPA) (Hudson, et al, Feb 2004) was calculated for the importance and satisfaction scores. A target level of importance and performance divides the possible set of score pairs into four quadrants. For this work, the target level of both was a numerical score of 4.0. Each quadrant has a title that helps in interpreting responses that fall into it, and that provides some general guidance for management. These can be described as:

1. Importance at or above 4.0, Satisfaction at or above 4.0: **Keep up the good work.** These are items that are important to visitors and ones that the forest is performing quite well;

2. Importance at or above 4.0, Satisfaction under 4.0: **Concentrate here.** These are important items to the public, but performance is not where it needs to be. Increasing effort here is likely to have the greatest payoff in overall customer satisfaction;
3. Importance below 4.0, Satisfaction above 4.0: **Possible overkill.** These are items that are not highly important to visitors, but the forest’s performance is quite good. It may be possible to reduce effort here without greatly harming overall satisfaction;
4. Importance below 4.0; Satisfaction below 4.0: **Low Priority.** These are items where performance is not very good, but neither are they important to visitors. Focusing effort here is unlikely to have a great impact.

We present tables that show the I-P rating title for each satisfaction element. Each sitetype is presented in a separate table. Results are presented in [Tables 19 - 22](#).

The numerical scores for visitor satisfaction and importance for each element by site type, and the sample sizes for each are presented in Appendix B (Tables B1 – B4). Most managers find it difficult to discern meaning from these raw tables; however they may wish to examine specific elements once they have reviewed the other satisfaction information presented in this section. Note that if an element had fewer than 10 responses no analyses are performed, as there are too few responses to provide reliable information. Finally, visitors were asked about their overall satisfaction with and the importance of road condition and the adequacy of signage. Figures 7a and 7b show the results.

The overall satisfaction results showed that almost 69 percent of the people who visited were very satisfied with the overall quality of their recreation experience. Another 26 percent were somewhat satisfied. Less than 2 percent expressed any level of dissatisfaction. Composite Index scores for Developed Sites showed developed facilities and perception of safety being above the 85% national satisfaction target. All satisfaction elements were above the 85% target for Undeveloped Areas. The Percent Meets Expectation scores showed that developed facilities was higher than 85% for both Developed Sites and Undeveloped Areas. The Importance-Performance scores were quite good for the General Forest Areas. The majority of the visiting population is somewhat to very satisfied with road condition and adequacy of signage forest-wide. Over one third of the visiting population feels that road conditions and adequacy of signage is very important forest-wide

Figure 5. Percent of Midewin Tallgrass Prairie visits by overall satisfaction rating (FY 2008).

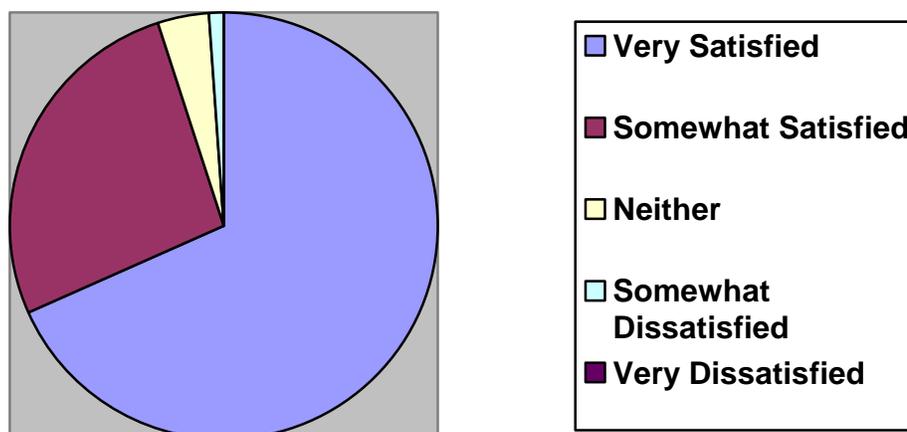


Table 18. Percent Satisfaction Index^a scores for aggregate categories, Midewin Tallgrass Prairie (FY 2008).

Items Rated	Satisfied Survey Respondents (%)	
	Developed Sites ^b	Undeveloped Areas (GFAs)
Developed Facilities (includes restroom cleanliness and facility condition)	100.0	92.5
Access (includes parking availability, parking lot condition, road condition and trail condition)	60.0	87.0
Services (includes availability of information, signage, employee helpfulness)	71.4	86.1
Perception of Safety	100.0	96.0

^aThis is a composite rating. It is the proportion of satisfaction ratings scored by visitors as good/satisfied or very good/very satisfied. It is computed as the percentage of all ratings for the elements within the grouping that are at or above the target level, and indicates the percent of all visits where the person was satisfied with agency performance.

^b This category includes both Day Use and Overnight Use Developed Sites.

Figure 6. Percent Meets Expectations scores for Midewin Tallgrass Prairie visits (FY 2008).

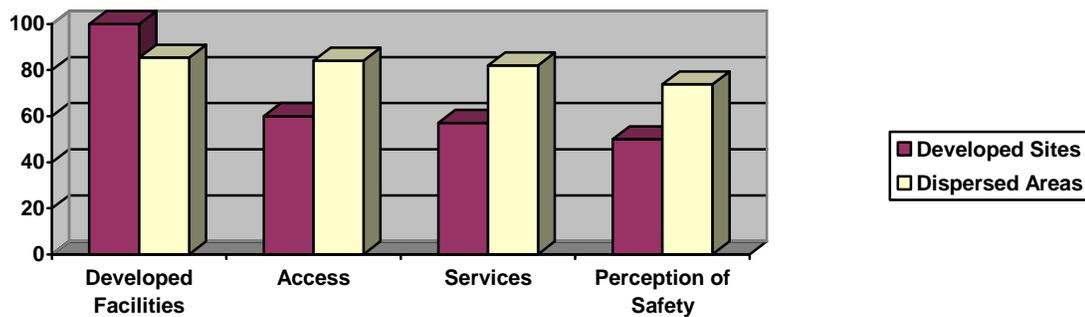


Table 19. Importance – Performance ratings for satisfaction elements, Day Use Developed Sites, Midewin Tallgrass Prairie (FY 2008).

ITEM	I-P Rating
Restroom cleanliness	*
Developed facility condition	*
Condition of environment	*
Employee helpfulness	*
Interpretive display	*
Parking availability	*
Parking lot condition	*
Rec. info. available	*
Road condition	*
Feeling of safety	*
Scenery	*
Signage adequacy	*
Trail condition	*
Value for fee paid	*

* Indicates fewer than 10 people responded, so no information is provided due to small sample size.

Table 20. Importance – Performance ratings for satisfaction elements, Overnight Use Developed Sites, Midewin Tallgrass Prairie (FY 2008).

ITEM	I-P Rating
Restroom cleanliness	NA
Developed facility condition	NA
Condition of environment	NA
Employee helpfulness	NA
Interpretive display	NA
Parking availability	NA
Parking lot condition	NA
Rec. info. available	NA
Road condition	NA
Feeling of safety	NA
Scenery	NA
Signage adequacy	NA
Trail condition	NA
Value for fee paid	NA

Table 21. Importance – Performance ratings for satisfaction elements, General Forest Areas, Midewin Tallgrass Prairie (FY 2008).

ITEM	I-P Rating
Restroom cleanliness	Keep up the Good Work
Developed facility condition	Keep up the Good Work
Condition of environment	Keep up the Good Work
Employee helpfulness	Keep up the Good Work
Interpretive display	Possible Overkill
Parking availability	Keep up the Good Work
Parking lot condition	Keep up the Good Work
Rec. info. available	Keep up the Good Work
Road condition	Keep up the Good Work
Feeling of safety	Keep up the Good Work
Scenery	Keep up the Good Work
Signage adequacy	Concentrate Here
Trail condition	Keep up the Good Work
Value for fee paid	*

* Indicates fewer than 10 people responded, so no information is provided due to small sample size.

Table 22. Importance – Performance ratings for satisfaction elements, designated Wilderness, Midewin Tallgrass Prairie (FY 2008).

ITEM	I-P Rating
Restroom cleanliness	NA
Developed facility condition	NA
Condition of environment	NA
Employee helpfulness	NA
Interpretive display	NA
Parking availability	NA
Parking lot condition	NA
Rec. info. available	NA
Road condition	NA
Feeling of safety	NA
Scenery	NA
Signage adequacy	NA
Trail condition	NA
Value for fee paid	NA

Figure 7a. Overall Satisfaction with Road Condition and Signage Adequacy on the forest, FY 2008.

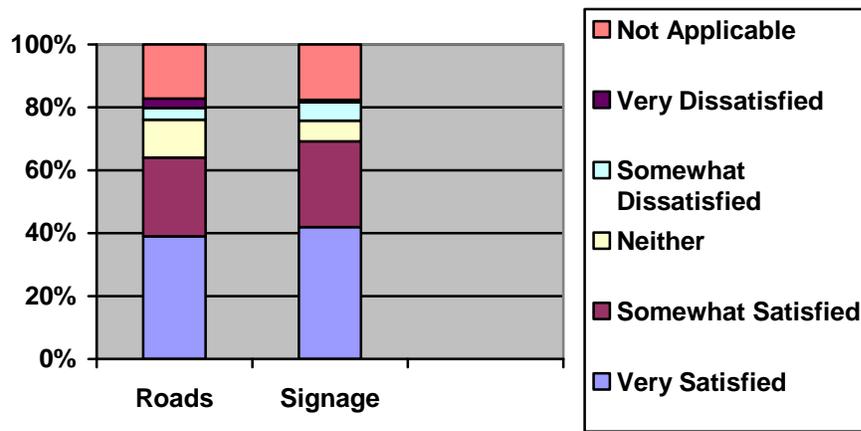
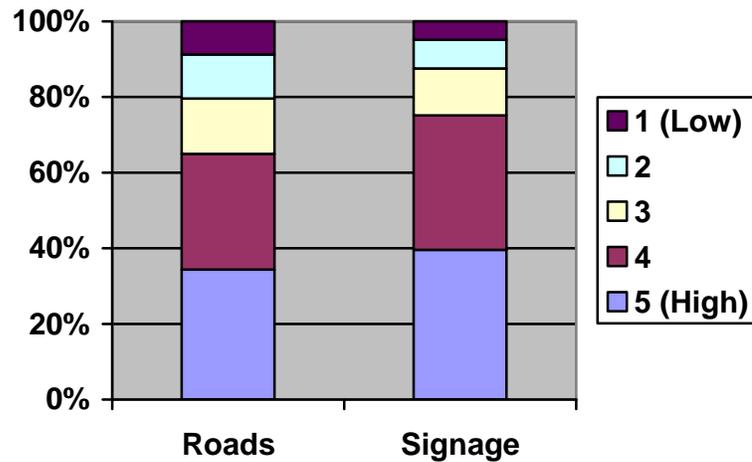


Figure 7b. Overall Importance ratings for Road Condition and Signage Adequacy on the forest, FY 2008.



Crowding

Visitors rated their perception of how crowded the recreation site or area felt to them. This information is useful when looking at the type of site the visitor was using since someone visiting a designated Wilderness may think 5 people is too many while someone visiting a developed campground may think 200 people is about right. Table 23 shows the distribution of responses for each site type. Crowding was reported on a scale of 1 to 10 where 1 denotes hardly anyone was there, and a 10 indicates the area was perceived as overcrowded.

Table 23. Midewin Tallgrass Prairie recreation visitor perception of crowding by site type. (FY 2008).

Perception of Crowding by Site Types (Percent site visits %)		
Crowding Rating	Day Use Developed Sites ^c	Undeveloped Areas (GFAs)
10 Overcrowded	0.0	0.0
9	0.0	0.0
8	0.0	0.0
7	0.0	0.0
6	0.0	14.1
5	0.0	0.0
4	33.3	0.9
3	33.3	20.6
2	33.3	64.4
1 Hardly anyone there	0.0	0.0

Disabilities

Providing barrier-free facilities for recreation visitors is an important part of facility and service planning and development. One question asked if anyone in their group had a disability. If so, the visitor was then asked if the facilities at the sites they visited were accessible for this person (Table 24).

Table 24. Accessibility of Midewin Tallgrass Prairie facilities by persons with disabilities (FY 2008).

Item	Percent
% of visitors interviewed with group member having a disability	11.6
Of this group, percent who said facilities at site visited were accessible	100.0

APPENDIX TABLES

APPENDIX A. – Complete list of zip codes obtained from recreation visitors

Table A-1. Origins of Midewin Tallgrass Prairie NF survey respondents (FY 2008).

HOME LOCATION	STATE	COUNTY	Percent of Total Frequency	Frequency Count
60421	IL	Will	11.9	14
UNKNOWN ORIGIN			10.2	12
60481	IL	Will	6.8	8
60447	IL	Grundy	4.2	5
60468	IL	Will	3.4	4
60402	IL	Cook	2.5	3
60433	IL	Will	2.5	3
60440	IL	Will	2.5	3
60441	IL	Will	2.5	3
60442	IL	Will	2.5	3
60446	IL	Will	2.5	3
60477	IL	Cook	2.5	3
60404			1.7	2
60416	IL	Grundy	1.7	2
60423	IL	Will	1.7	2
60431	IL	Will	1.7	2
60435	IL	Will	1.7	2
60436	IL	Will	1.7	2
60586			1.7	2
60901	IL	Kankakee	1.7	2
Foreign Country			0.8	1
46373	IN	Lake	0.8	1
60042	IL	Lake	0.8	1
60047	IL	Lake	0.8	1
60068	IL	Cook	0.8	1
60156	IL	McHenry	0.8	1
60160	IL	Cook	0.8	1

HOME LOCATION	STATE	COUNTY	Percent of Total Frequency	Frequency Count
60175	IL	Kane	0.8	1
60403			0.8	1
60408	IL	Will	0.8	1
60439	IL	DuPage	0.8	1
60448	IL	Will	0.8	1
60449	IL	Will	0.8	1
60450	IL	Grundy	0.8	1
60451	IL	Will	0.8	1
60455	IL	Cook	0.8	1
60457	IL	Cook	0.8	1
60459	IL	Cook	0.8	1
60467	IL	Cook	0.8	1
60487			0.8	1
60491	IL	Will	0.8	1
60517	IL	DuPage	0.8	1
60526	IL	Cook	0.8	1
60540	IL	DuPage	0.8	1
60561	IL	DuPage	0.8	1
60565	IL	DuPage	0.8	1
60615	IL	Cook	0.8	1
60622	IL	Cook	0.8	1
60631	IL	Cook	0.8	1
60639	IL	Cook	0.8	1
60641	IL	Cook	0.8	1
60804	IL	Cook	0.8	1
60954	IL	Kankakee	0.8	1
60964	IL	Kankakee	0.8	1
61821	IL	Champaign	0.8	1
61938	IL	Coles	0.8	1
62246	IL	Bond	0.8	1
90020	CA	Los Angeles	0.8	1

APPENDIX B. Detailed Satisfaction Results.

Table B-1. Satisfaction of Midewin Tallgrass Prairie NF recreation visitors at Developed Day Use sites (FY 2008).

ITEM	Poor	Fair	Average	Good	Very Good	Average Rating *	Number of Responses ***	Mean Importance **
Restroom cleanliness							1	
Developed facility condition							2	
Condition of environment							1	
Employee helpfulness							2	
Interpretive display							1	
Parking availability							2	
Parking lot condition							1	
Rec. info. available							2	
Road condition							1	
Feeling of safety							2	
Scenery							2	
Signage adequacy							2	
Trail condition							1	
Value for fee paid							0	

*Scale is: Very Dissatisfied = 1 Somewhat Dissatisfied = 2 Neither = 3 Somewhat Satisfied = 4 Very Satisfied = 5

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important

*** number of visitors who responded to this item.

Note: For items with less than 10 responses the data was not reported

Table B-2. Satisfaction of Midewin Tallgrass Prairie NF recreation visitors in General Forest Areas (FY 2008).

ITEM	Poor	Fair	Average	Good	Very Good	Average Rating *	Number of Responses ***	Mean Importance **
Restroom cleanliness								
	0.0	0.2	4.0	31.1	64.8	4.6	23	4.5
Developed facility condition								
	0.0	0.0	10.8	33.6	55.7	4.4	23	4.3
Condition of environment								
	0.0	0.0	3.5	29.0	67.5	4.6	29	4.5
Employee helpfulness								
	0.0	0.0	0.0	26.5	73.5	4.7	23	4.4
Interpretive display								
	1.1	0.0	8.8	60.6	29.5	4.2	22	3.9
Parking availability								
	0.0	5.8	3.0	25.4	65.8	4.5	30	4.3
Parking lot condition								
	0.0	0.0	15.8	23.0	61.1	4.5	29	4.0
Rec. info. available								
	0.0	0.9	6.8	24.7	67.6	4.6	26	4.6
Road condition								
	3.4	3.4	14.3	35.7	43.3	4.1	27	4.0
Feeling of safety								
	0.0	0.8	3.2	29.2	66.8	4.6	29	4.7
Scenery								
	0.0	0.0	9.6	5.2	85.2	4.8	29	4.6
Signage adequacy								
	0.9	13.5	19.9	21.7	44.0	3.9	27	4.3
Trail condition								
	0.0	0.0	6.6	51.9	41.5	4.3	27	4.1
Value for fee paid								
							5	

*Scale is: Very Dissatisfied = 1 Somewhat Dissatisfied = 2 Neither = 3 Somewhat Satisfied = 4 Very Satisfied = 5

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important

N obs means the number of visitors who responded to this item.

Note: For items with less than 10 responses the data was not reported.