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Biennial Monitoring Evaluation Report

**USDA Forest Service
Midewin National Tallgrass Prairie**

For Years 2016-2018

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4 EXECUTIVE SUMMARY

This is the first monitoring evaluation report (covering CY2016-18) for Midewin National Tallgrass Prairie since the monitoring plan was revised in 2016 as required from the 2012 Planning Rule. The monitoring revision resulted in questions that were asked in eight topic areas and indicators to monitor and aid in answering those questions. As future reports add to the tabular data presented here, there may be more opportunities to add to the data which could be monitored and the established indicators based on the management actions.

5 INTRODUCTION

5.1 PURPOSE

The purpose of this biennial monitoring evaluation report is to facilitate the determination by the responsible official of whether a change in plan components or other plan content that guide management of resources on the plan area may be needed (36 CFR 219.12(a)(1)). This report represents one part of the Forest Service's overall monitoring program for this forest unit. This report is not a decision document [36 CFR 219.12(d)(4)]. Rather, this report evaluates the monitoring questions and indicators presented in the Plan Monitoring Program (PMP) chapter of the Forest Plan, in relation to management actions carried out in the plan area, and in conjunction with the Region's Broader-scale Monitoring Strategy.

Monitoring and evaluation are continuous learning tools that inform the backbone of adaptive management (36 CFR 219.12(d)(2)). This is our first written report of this evaluation since the Midewin National Tallgrass Prairie Land and Resource Management Plan (Prairie Plan) was administratively changed to include the updated monitoring program (Chapter 6) in April 2016. This report indicates if a change to

the Forest Plan, management activities, plan monitoring program or forest assessment may be warranted based on the new information.

5.2 OBJECTIVES

The monitoring evaluation report objectives include:

- Assess the current condition (i.e., status) and trend of selected prairie resources.
- Recommendations for remedial action, if necessary.
- Make management activities and their effects consistent with the Prairie Plan.
- Data collected for each monitoring item will be aggregated and evaluated on a biennial basis, unless otherwise noted.
- Specific monitoring questions are developed to provide information essential to measuring accomplishments and effectiveness.

5.3 HOW TO USE THIS REPORT

This report is a tool and a resource for the Forest Service to assess the condition of forest resources in relation to Forest Plan direction and management actions. It is also a tool and a resource for the public to learn more about how the Forest Service is managing forest resources.

Members of the public can use this report to understand how the Forest Service collected and evaluated monitoring data in the forest plan area and the basis for conclusions reached. The term “public” used in this document is a broad term that includes private citizens but also local, state, regional and national government entities, federally recognized Indian Tribes or Native Alaska Corporations, formal collaborative

groups, cooperating agencies, special interest groups, community groups, and others.

5.4 PUBLIC MATERIAL

The Prairie Supervisor is responsible for coordinating the preparation of a monitoring evaluation report. This report addresses each of the monitoring questions listed in our monitoring plan and evaluate the results.

Members of the public can use this report to see the collected and evaluated monitoring data. The term “public” used in this document is a broad term that includes private citizens but also local, state regional and national government entities, federally recognized Indian Tribes or Native Alaska Corporations, formal collaboratives groups, cooperating agencies, special interest groups, community groups, nongovernmental organizations and others.

6 PLAN MONITORING PROGRAM

Monitoring and evaluation requirements have been established through the National Forest Management Act (NFMA) at 36 CFR 219. Additional direction is provided by the Forest Service in Chapter 30 – Monitoring – of the Land Management Handbook (FSH 1909.12). The Midewin National Tallgrass Prairie monitoring program was updated in April 2016 for consistency with the 2012 planning regulations [36 CFR 219.12 (c)(1)]. The Midewin National Tallgrass Prairie Land and Resource Management Plan (Prairie Plan) was administratively changed to include the updated monitoring program (Chapter 6). For a copy of the current monitoring program go [here](#). Monitoring questions and indicators were selected to inform the

management of resources on the plan area and not every plan component was determined necessary to track [36 CFR 219.12(a)(2)].

6.1 STATUS OF SELECT WATERSHED CONDITIONS

6.1.1 How are the watersheds at MNTTP changing over time?

Indicators: Feet of field tile management; Square feet of structures removed; Acres of road/railbed removed; Acres of active native vegetation restoration; Miles of surface drainages improved/restored; Acres of row crops converted to pasture/prairie

Some data unavailable at time of this report.

Table 1. Indicators for field tile management, structures removed, and road/railbed removed by year.

Fiscal Year	Feet of field tile management	Square feet of structures removed	Acres of road/railbed removed
2015	12,044	6,391	3.04
2016	0	28,951	1.38
2017	4,833	39,546	13.3
2018	0	91,752	33.73

Table 2. Indicators for native vegetation restoration per Prairie Plan, drainages improved/restored, and row crops converted to pasture/prairie by year.

Fiscal Year	Acres of active native vegetation restoration#	Miles of surface drainages improved/restored	Acres of row crops converted to pasture/prairie*
2015	No data	No data	859
2016	7,323	No data	0
2017	7,323	No data	0
2018	7,486	No data	164

#Entries include areas that are currently in tallgrass prairie, woodland/forest/savanna and grazing land use as per the Prairie Plan. New areas added when they are first seeded/planted to the new land use.

*Entries are the year areas were first seeded/planted to the new land use.

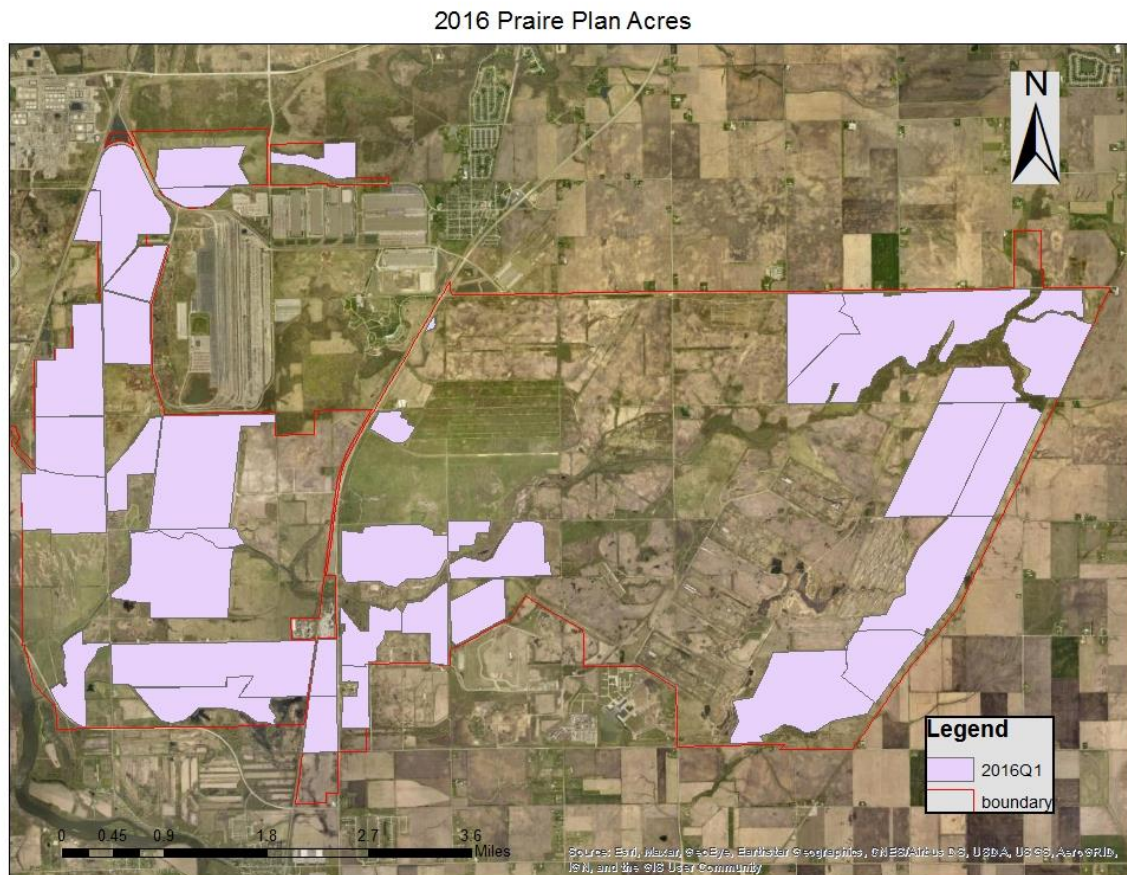


Figure 1. Map showing acres of active native vegetation restoration land use per the Prairie Plan for 2016.

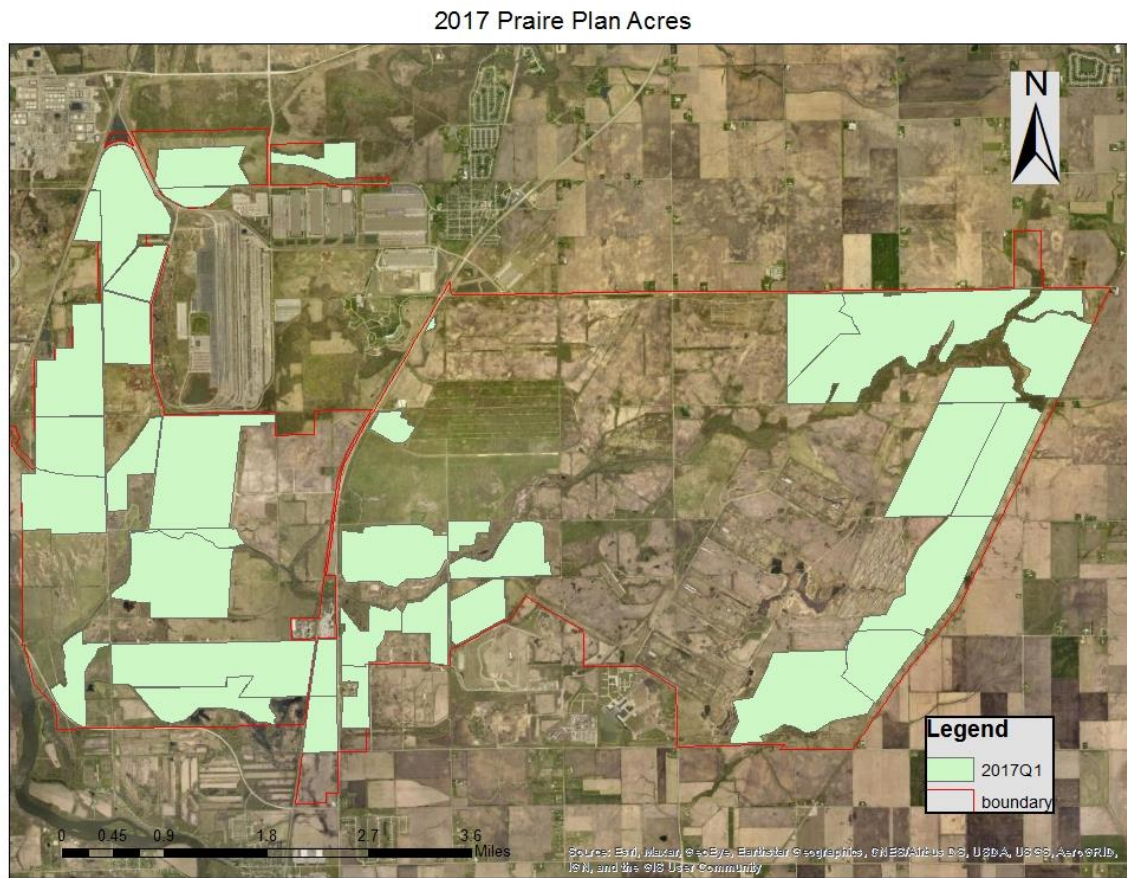


Figure 2. Map showing acres of active native vegetation restoration land use per the Prairie Plan for 2017.

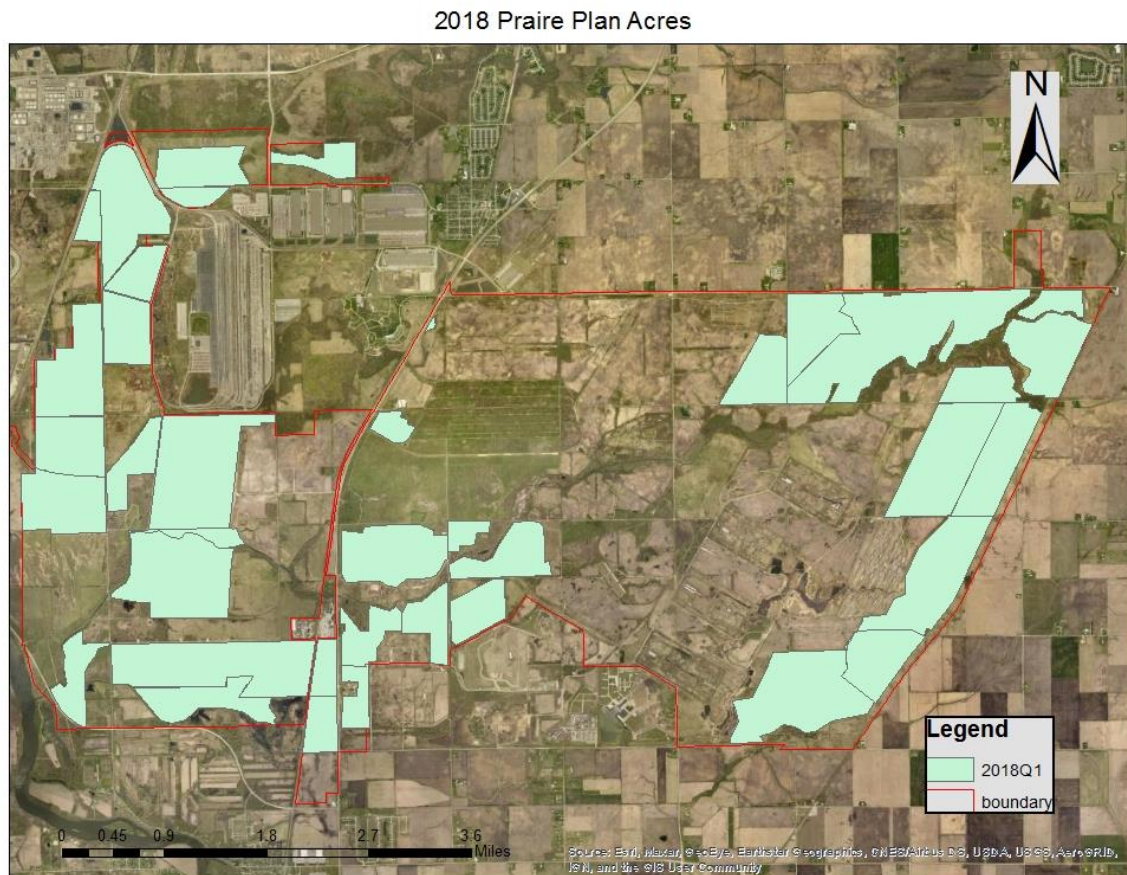


Figure 3. Map showing acres of active native vegetation restoration land use per the Prairie Plan for 2018.

6.1.2 What is the water quality of streams at MNTP?

Indicators: Macroinvertebrates (Riverwatch) - MBI, Taxa Richness, EPT Taxa Richness; Temperature (Degrees Celsius); Dissolved Oxygen (parts per million); pH; Turbidity (Jackson Turbidity Unit), Nitrate (parts per million); Flow Rate (cubic feet per second)

No data available at the time of this report.

6.2 STATUS OF SELECT ECOLOGICAL CONDITIONS

6.2.1 What is the condition of streams at MNTP?

Indicators: Macroinvertebrates (Riverwatch) - MBI, Taxa Richness, EPT Taxa Richness

No data available at the time of this report.

6.2.2 What is ecosystem status of select restoration areas?

Indicators: Frequency analysis showing native richness and invasive richness (Random Vegetation Sampling); Acres of actively managed areas; Total acres in some stage of restoration; List of when restoration areas are managed with prescribed fire

See question below (6.3.2) for data and analysis of native richness and invasive richness.

A measure of actively managed restoration areas can show how much management is occurring over time. Management would include prescribed fire, invasive control, seeding/planting, grazing (bison and cattle), etc. Reporting acres would include the entire management unit even if some of these activities are taking place only within portions of the unit.

Table 3. Indicators for managed areas treated and prairie restoration by year.

Fiscal Year	Acres of actively managed areas	Total acres in some stage of restoration#
2016	8,763	3,192
2017	8,564	3,192
2018	9,200	3,192

#Entries include areas that are restored to tallgrass prairie or dolomite prairie as per the Prairie Plan. New areas added when they are first seeded/planted to the new land use.

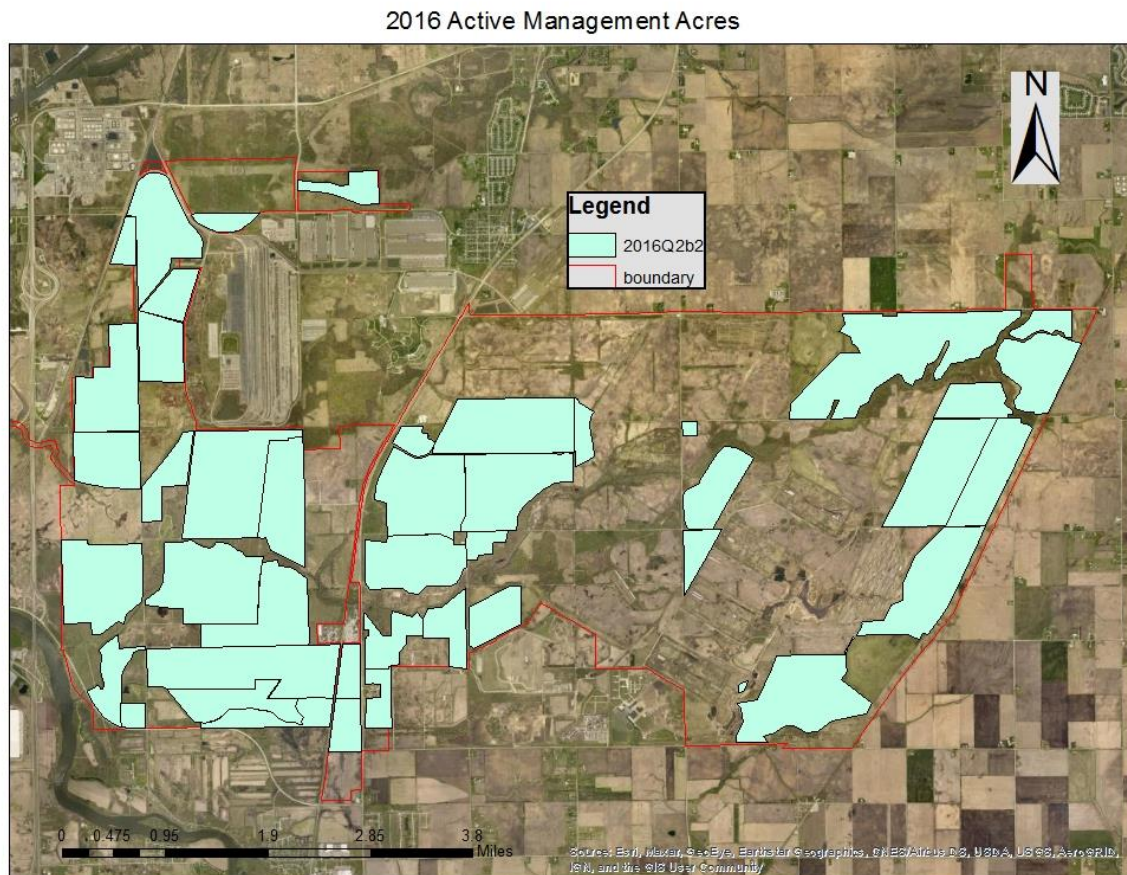


Figure 4. Map showing acres of all actively managed acres treated in 2016. Active management includes prescribed fire, invasive control, seeding/planting, grazing, mowing and other activities.

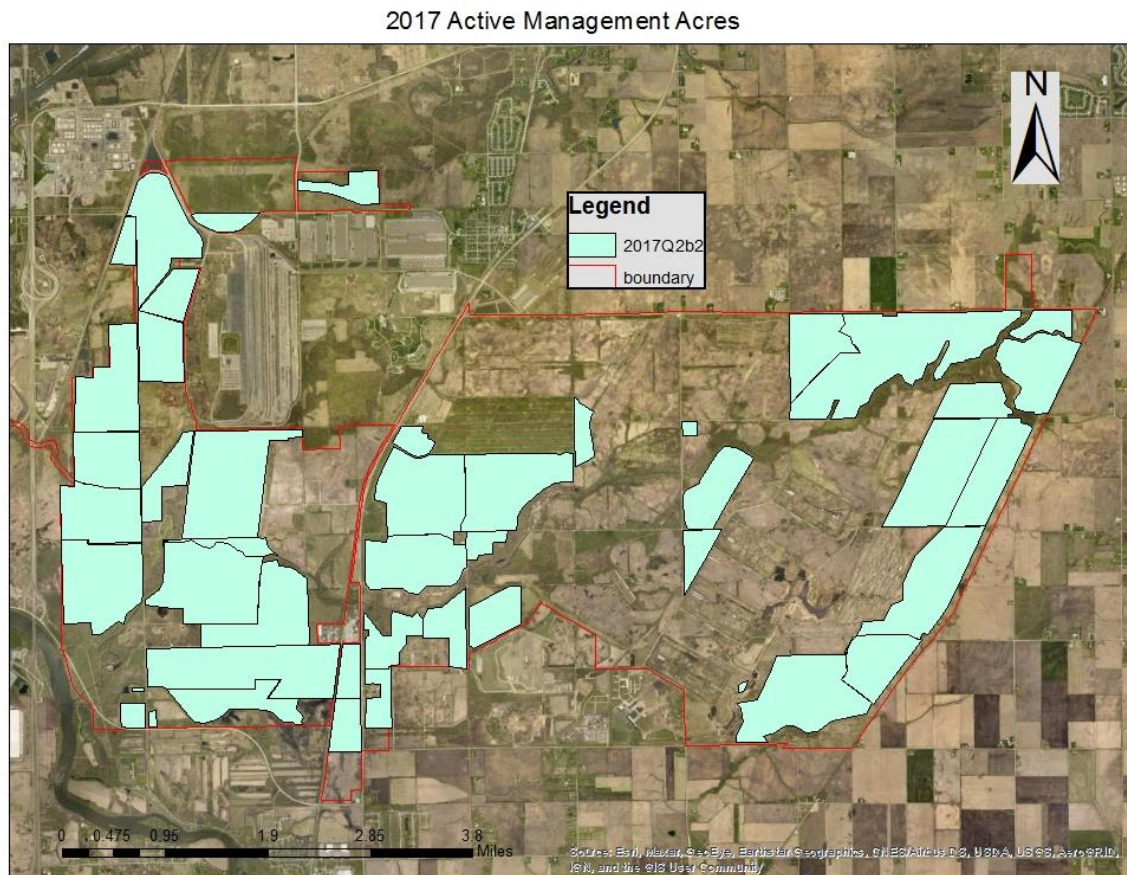


Figure 5. Map showing acres of all actively managed acres treated in 2017. Active management includes prescribed fire, invasive control, seeding/planting, grazing, mowing and other activities.

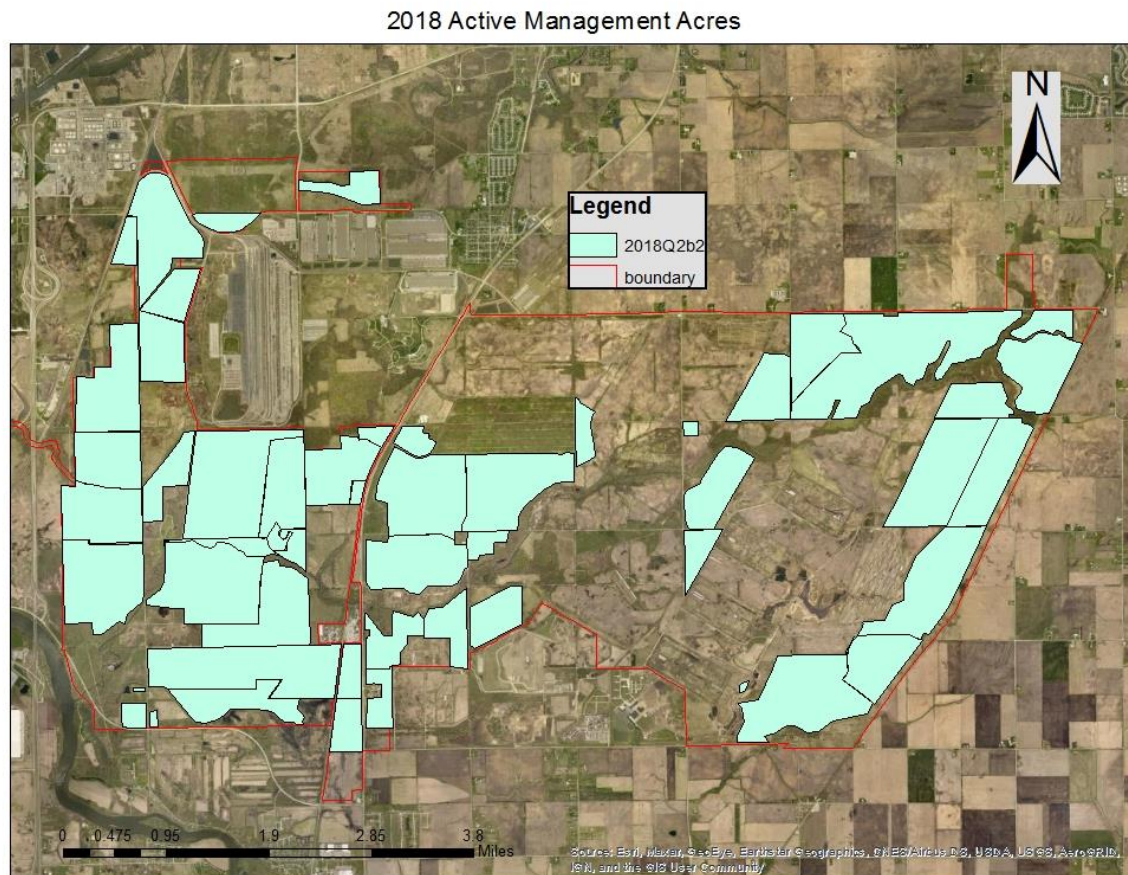


Figure 6. Map showing acres of all actively managed acres in 2018. Active management includes prescribed fire, invasive control, seeding/planting, grazing, mowing and other activities.

Monitoring the total acres under restoration will track how much of the land is undergoing prairie restoration. This is the answer to the frequent question of how much of MNTP is in restoration status. Restoration is defined as converting land use from agriculture (crop, hay and grazing), idle fields, young secondary woody growth, etc. to native vegetation.

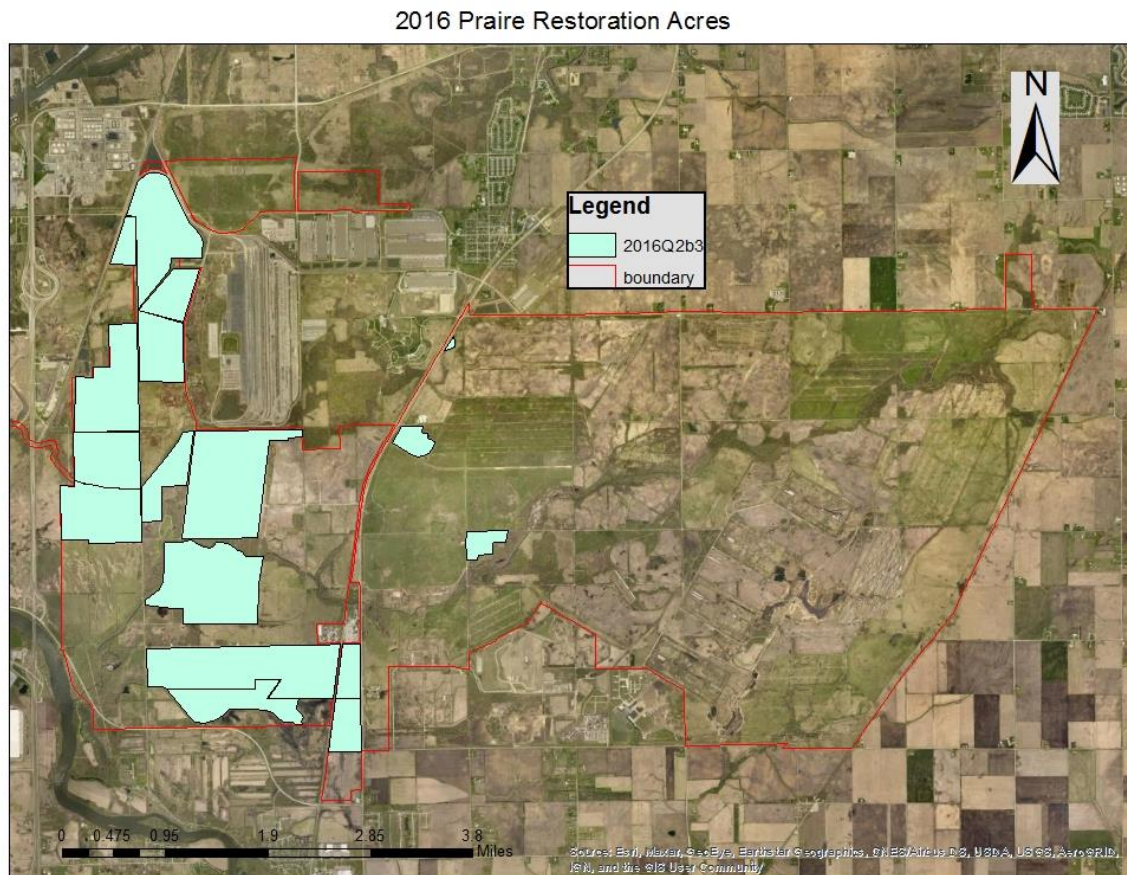


Figure 7. Map showing acres of prairie restoration in 2016. Prairie restoration includes tallgrass prairie and dolomite prairie areas.

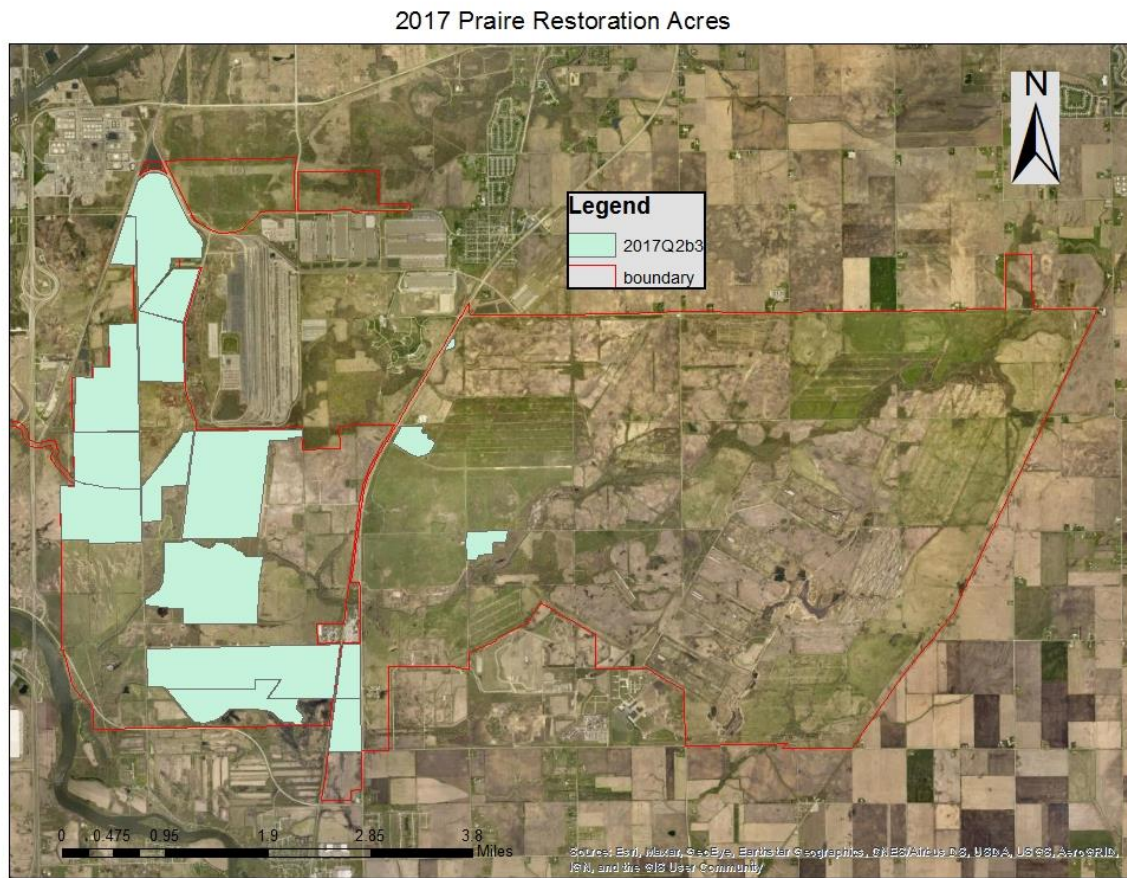


Figure 8. Map showing acres of prairie restoration in 2017. Prairie restoration includes tallgrass prairie and dolomite prairie areas.

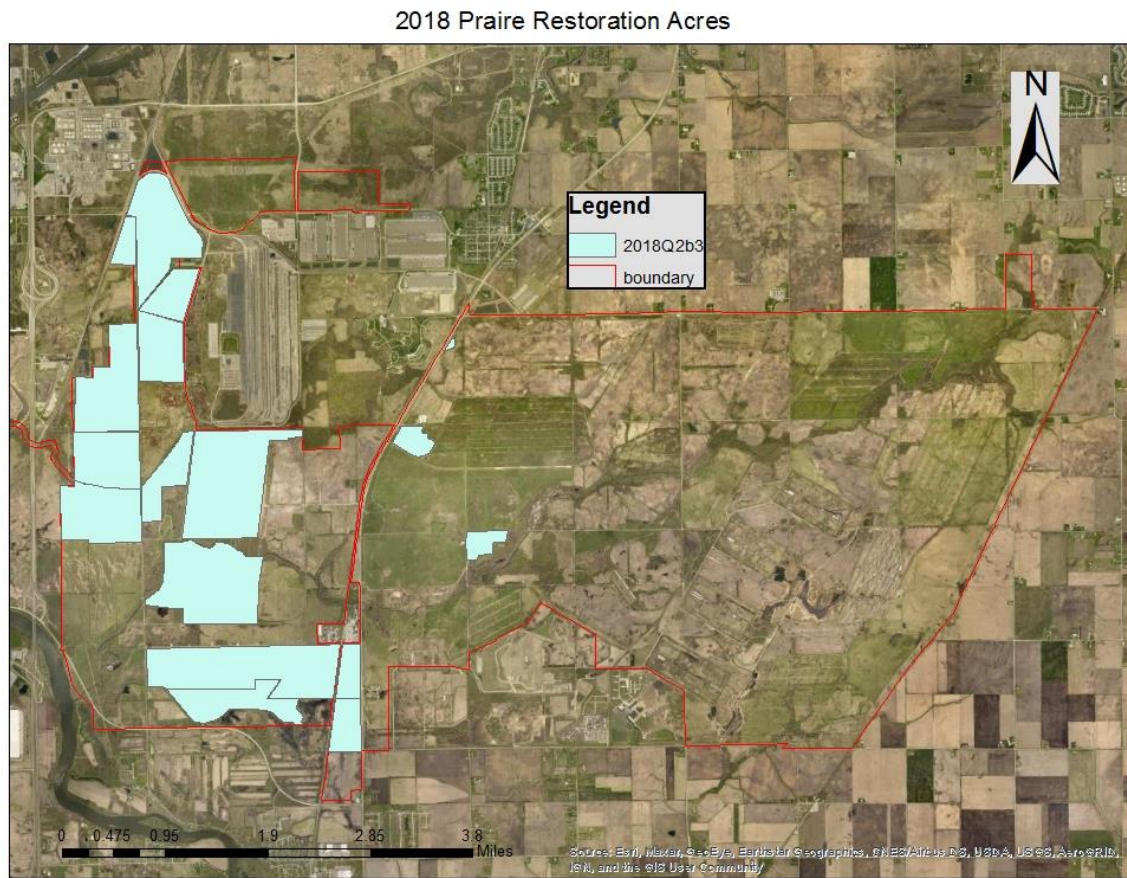


Figure 9. Map showing acres of prairie restoration in 2018. Prairie restoration includes tallgrass prairie and dolomite prairie areas.

Prescribed fire is an important component of restoring the prairie landscape. This indicator could track what restoration areas receive prescribed fire treatment and when the fire occurred. Tracking over time could show those areas not receiving enough fire treatment and plan for higher priority in upcoming burns.

Table 4. Indicators for prescribed fire burns in administrative areas, agricultural grasslands, dolomite prairie, prairie restoration areas, fuels management areas, prairie restoration areas, and savanna by year.

Fiscal Year	Acres of prescribed fire in Admin Units	Acres of prescribed fire in Ag Grasslands	Acres of prescribed fire in Dolomite Prairie
2016	45	0	262
2017	55	711	842
2018	55	1,366	558

#Acres do not include those conducted in dolomite prairie or savanna.

Table 5. Indicators for prescribed fire burns in fuels management areas, prairie restoration areas, and savanna by year.

Fiscal Year	Acres of prescribed fire for fuels management	Acres of prescribed fire in prairie restoration#	Acres of prescribed fire in Savanna
2016	516	1,514	0
2017	127	1,709	0
2018	516	2,103	50

#Acres do not include those conducted in dolomite prairie or savanna.

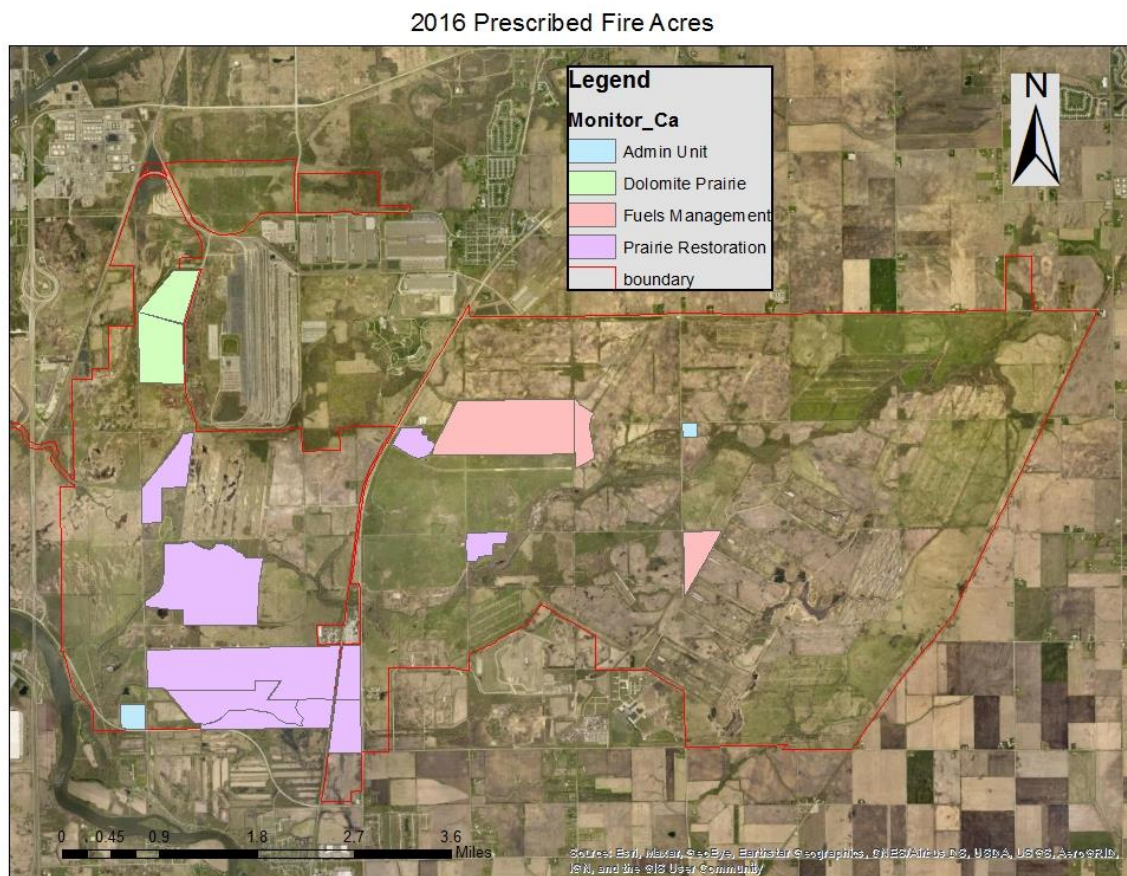


Figure 10. Map showing prescribed fire acres burned in 2016.

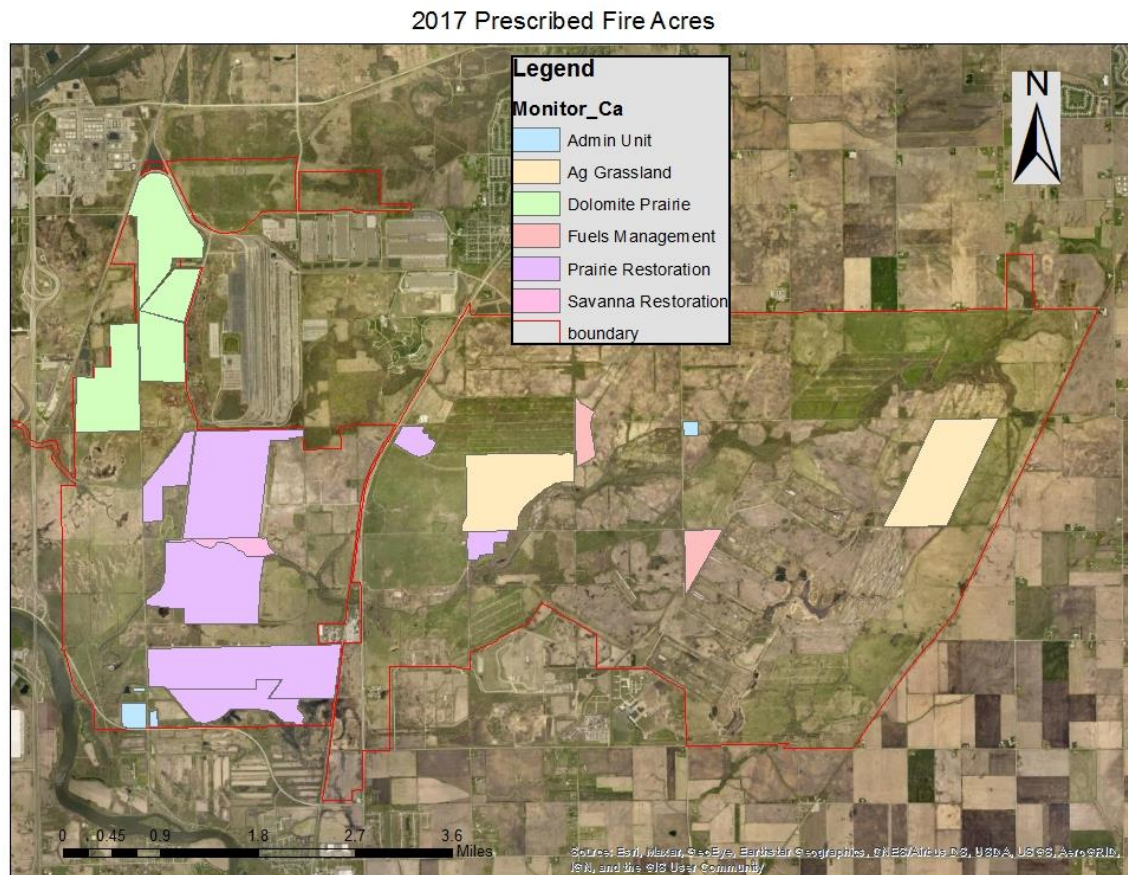


Figure 11. Map showing prescribed fire acres burned in 2017.

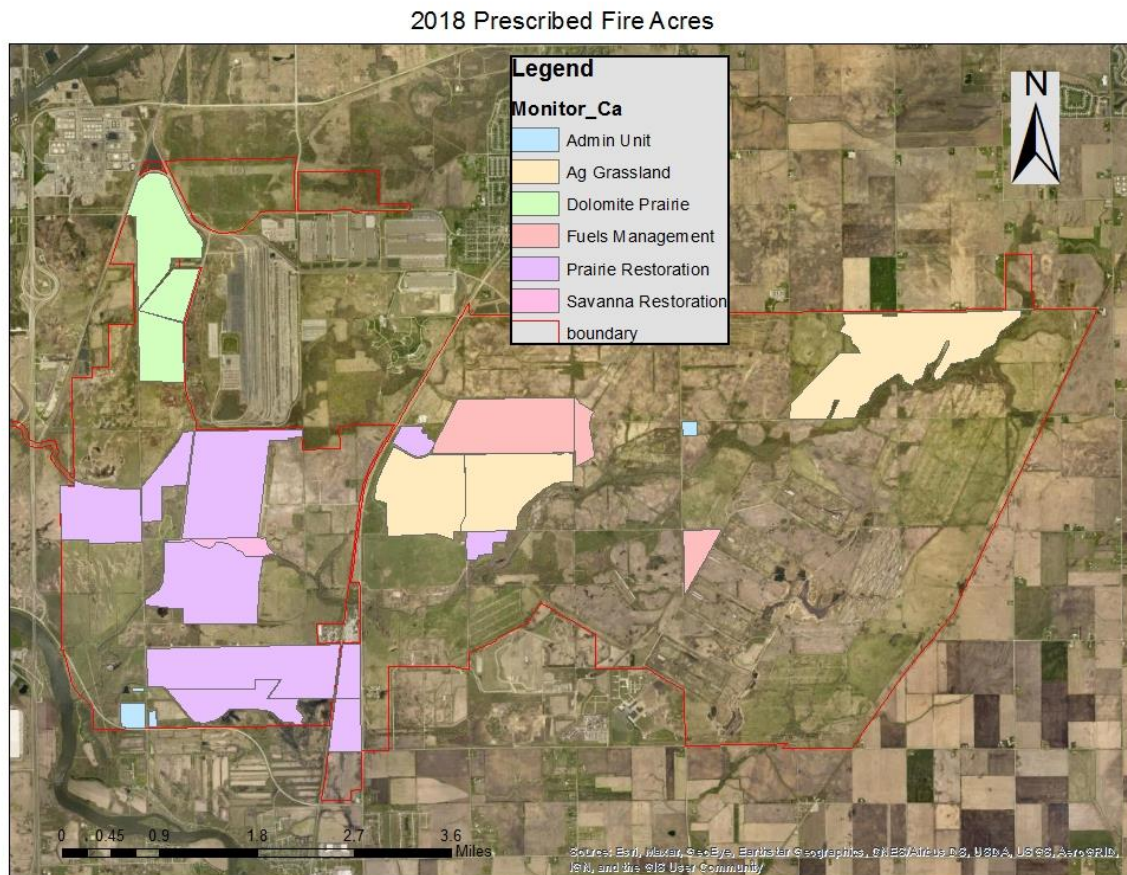


Figure 12. Map showing prescribed fire acres burned in 2018.

6.3 STATUS OF FOCAL SPECIES TO ASSESS THE ECOLOGICAL CONDITIONS

6.3.1 What is the status of grassland birds at MNTP?

Indicator: Population estimates from bird surveys

No data available at the time of this report.

6.3.2 What is the status of prairie restoration at Midewin NTP?

Indicator: Frequency analysis showing native richness and invasive richness (Random Vegetation Sampling)

In 2006, protocols were established (Plotwise Floristic Quality Assessment) to gather vegetation frequency data from restoration areas. In this protocol, four permanent vegetation monitoring

transects are established at each restoration area. Transects are monitored on a rotational basis. Currently, three of seven restorations are monitored in a calendar year. South Patrol Road Prairie is monitored yearly. Iron bridge (IB) and Grant Creek South (GCS) restoration areas were monitored in 2017. While in 2018, Southeast bison pasture (SEBP) and Lobelia Meadows (LM) were monitored. Additional areas in restoration could be added to the monitoring rotation each year until all areas are monitored on a three-year rotational basis.

This 2017-2018 reporting cycle, it was determined frequencies of select species have the potential to help us understand the quality and ecosystem function of our restorations perhaps better than floristic quality data used in the past. Species for this purpose were chosen based on their conservativeness or difficulty in establishment, among other factors. The frequency data gathered from transect monitoring is shown in Table 6. South Patrol Road Prairie (SPR) is the only restoration area in this reporting cycle that has more than one year of data available.

The total native and non-native species based on transect monitoring data are also listed in Table 6. Again, other than SPR, data for all other restoration areas is limited to one year. This data does appear to show an interesting difference between the oldest restoration, SPR and all other restoration areas monitored in this reporting cycle as far as numbers of native and non-native species. SPR has both the highest number of native species and the lowest number of non-native species.

Table 6. Frequency of select species and native/non-native species richness based in monitored transects.

Group	Scientific Name	Common Name	SPR	SPR	SEBP	LM	IB	GCS
			2017	2018	2018	2018	2017	2017
Graminoid	<i>Carex bicknellii</i>	Bicknell's sedge	2%	1%	2%	1%	-	-
Graminoid	<i>Sorghastrum nutans</i>	Indian grass	23%	32%	30%	1%	46%	25%
Graminoid	<i>Sporobolus heterolepis</i>	Prairie dropseed	2%	-	5%	1%	2%	-
Hemi-parasite	<i>Commandra umbellata</i>	Bastard toadflax	-	-	-	-	-	-
Hemi-parasite	<i>Pedicularis canadensis</i>	Wood betony	-	-	-	-	-	-
Other species of ecological concern	<i>Asclepias sullivantii</i>	Prairie milkweed	-	-	-	7%	-	-
Other species of ecological concern	<i>Amorpha canescens</i>	Lead plant	-	-	1%	-	-	-
Other species of	<i>Dodecatheon meadia</i>	Shooting star	-	-	-	-	-	-

ecological concern								
Other species of ecological concern	<i>Eryngium yuccifolium</i>	Rattlesnake master	61%	62%	58%	-	20%	2%
Other species of ecological concern	<i>Viola pedatifida</i>	Prairie violet	-	-	-	4%	-	-
Native species richness			103	93	74	87	70	66
Frequency of native species			87.3%	86.9%	71.2%	73.7%	72.9%	71.7%
Non-native species richness			15	14	30	31	26	26
Frequency of Non-native species			12.7%	13.1%	28.8%	26.3%	27.1%	28.3%

As many restoration areas have a high degree of environmental heterogeneity, permanent vegetation monitoring transects are likely to miss species otherwise present in a given restoration. Species may also be missed if bloom times are either early or late as some species are difficult to distinguish when not in flower or are ephemeral in nature. Random vegetation meander surveys are conducted in the spring and fall for each restoration in the same year permanent transect vegetation data is collected. Table 7 shows the results of meander surveys for 2017 and 2018.

As with data collected from the transect monitoring, the oldest restoration, South Patrol Road, showed the greatest values in both species richness and presence of species from our select suite of species. The chosen Graminoid species were well represented in all restorations, while the hemi-parasitic species were picked up in just one. The conservative species lead plant (*Amorpha canescens*) and shooting star (*Dodecatheon meadia*) were notably absent from younger restorations while both were present in the older South Patrol Road. Non-native species richness detected during meander surveys was similar across all restorations.

The data presented here was first collected starting in 2017 and was not done in the past. Data collection for both meander and transect vegetation monitoring are expected to continue in the future. As more data is available, data can be analyzed for trends and survey protocols may need to be altered.

Table 7. Presence (P) or absence (A) of select species and native/non-native species richness during meander surveys.

Group	Scientific Name	Common Name	SPR	SPR	SEBP	LM	IB	GCS
			2017	2018	2018	2018	2017	2017
Graminoid	<i>Carex bicknelli</i>	Bicknell's sedge	P	P	P	A	P	P
Graminoid	<i>Sorghastrum nutans</i>	Indian grass	P	P	P	P	P	P
Graminoid	<i>Sporobolus heterolepis</i>	Prairie dropseed	P	P	P	P	P	P
Hemi-parasite	<i>Commandra umbellate</i>	Bastard toadflax	A	A	A	A	A	A
Hemi-parasite	<i>Pedicularis canadensis</i>	Wood betony	A	A	A	A	P	A
Other species of ecological concern	<i>Asclepias sullivantii</i>	Prairie milkweed	P	P	A	P	P	P
Other species of ecological concern	<i>Amorpha canescens</i>	Lead plant	P	P	A	A	A	A
Other species of ecological concern	<i>Dodecatheon meadia</i>	Shooting star	P	P	A	A	A	A
Other species of ecological concern	<i>Eryngium yuccifolium</i>	Rattlesnake master	P	P	P	P	P	P
Other species of ecological concern	<i>Viola pedatifida</i>	Prairie violet	A	P	A	A	A	A
Native species richness			162	153	97	122	87	135
Non-native species richness			43	36	37	36	31	40

6.4 STATUS OF SELECT ECOLOGICAL CONDITIONS FOR T&E, CANDIDATE, AND SPECIES OF CONSERVATION CONCERN

6.4.1 What is the ecosystem status for grassland bird habitat?

Indicators: Acres of short-stature unfragmented grass dominated habitat; Acres of medium-stature unfragmented grass dominated habitat; Acres of tall-stature unfragmented grass dominated habitat; Acres of bison-grazed grass dominated habitat

Table 8. Indicators for short-grass, medium-grass, tall-grass habitats and bison grazed grassland by year.

Fiscal Year	Acres of short grass habitat@	Acres of medium grass habitat#	Acres of tall grass habitat&	Acres of bison grazed grassland*
2016	3,250	1,456	3,192	361
2017	4,034	0	3,192	973
2018	4,034	0	3,192	973

@ Includes acres grazed by cattle. These areas may also have been mowed.

Includes acres mowed, hayed or fallow only

& Includes acres of dolomite prairie and tallgrass prairie only

* Includes areas where bison are known to have grazed during part of the year.

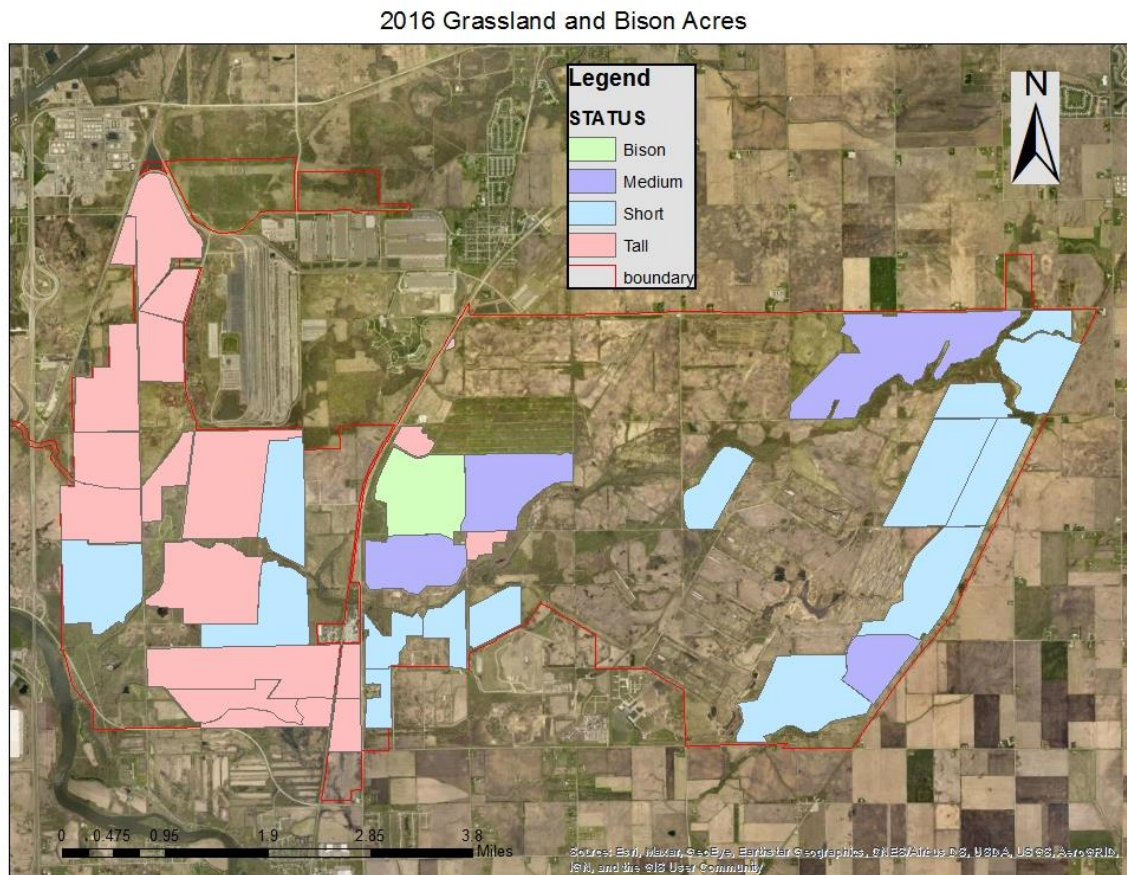


Figure 13. Map showing areas of short stature, medium stature, and tall stature grasslands and bison grazed grassland for 2016. For definitions of these areas, see Table 8.

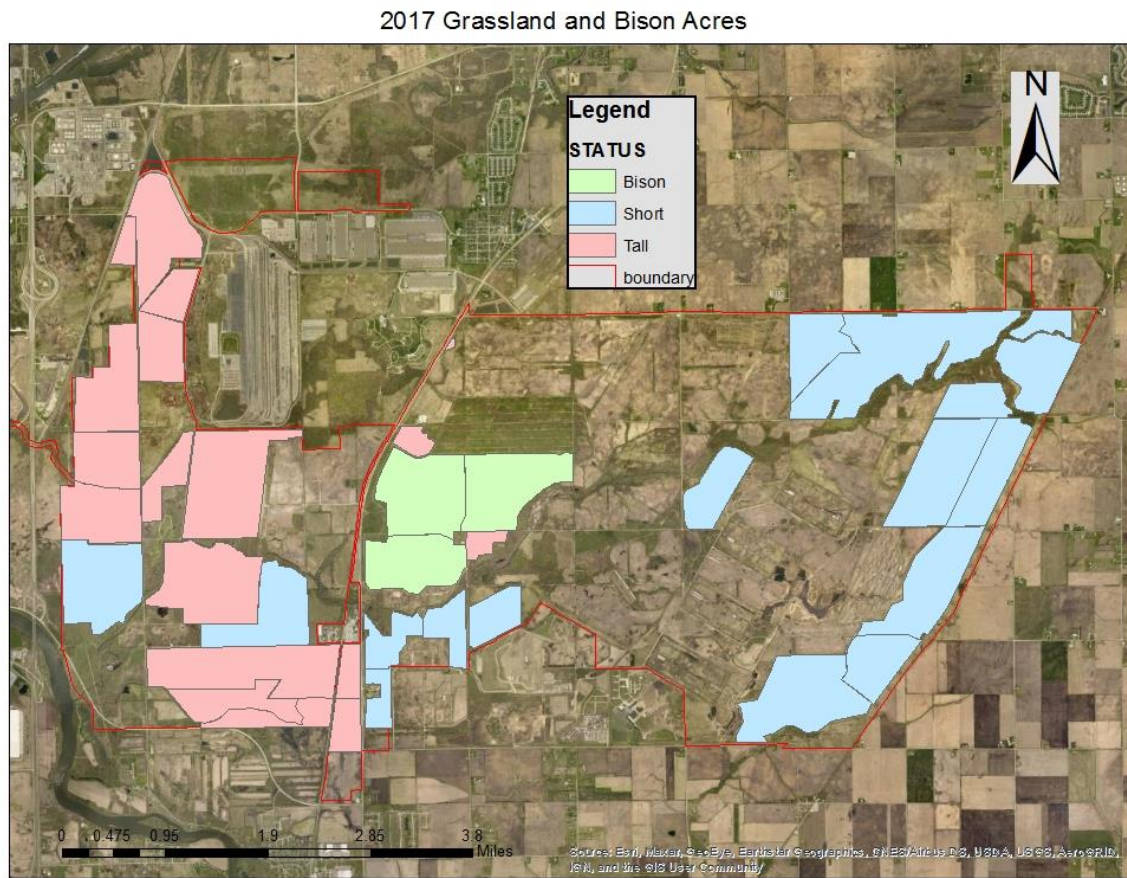


Figure 14. Map showing areas of short stature, medium stature, and tall stature grasslands and bison grazed grassland for 2017. For definitions of these areas, see Table 8.

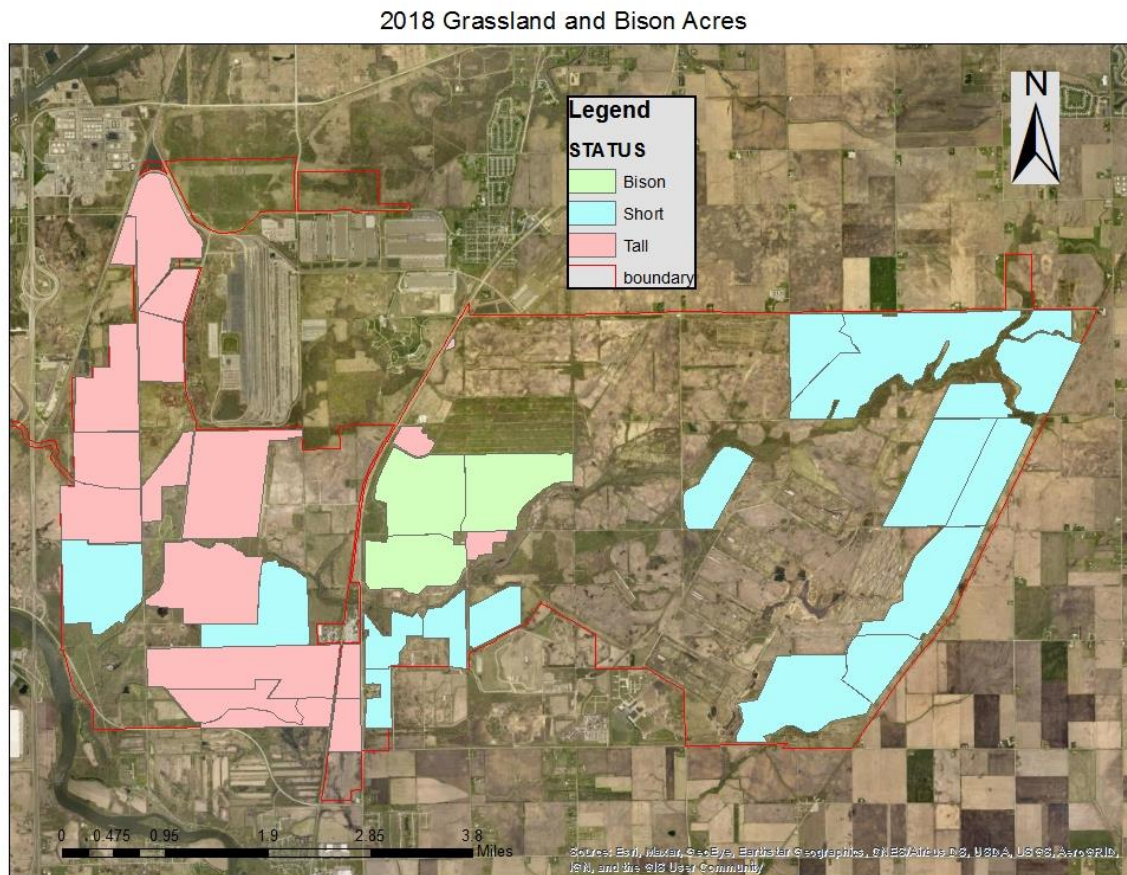


Figure 15. Map showing areas of short stature, medium stature, and tall stature grasslands and bison grazed grassland for 2018. For definitions of these areas, see Table 8.

The following data and analysis are provided by Dr. Jim Herkert of the Illinois Audubon Society:

Two summary graphs are attached. The first one “Robel Data Field-Level Box Plot 2002-2018_all fields” is a box-and-whisker plot of the field-level data by year. For this, Dr. Herkert first calculated field-level means and then plotted all of the field means by year. The bar in the middle of each box is the Median for the year, the shaded “box” includes the middle two quartiles (25%-75%) and the bars off the top/bottom of the boxes are the upper and lower quartiles. Symbols are extreme samples.

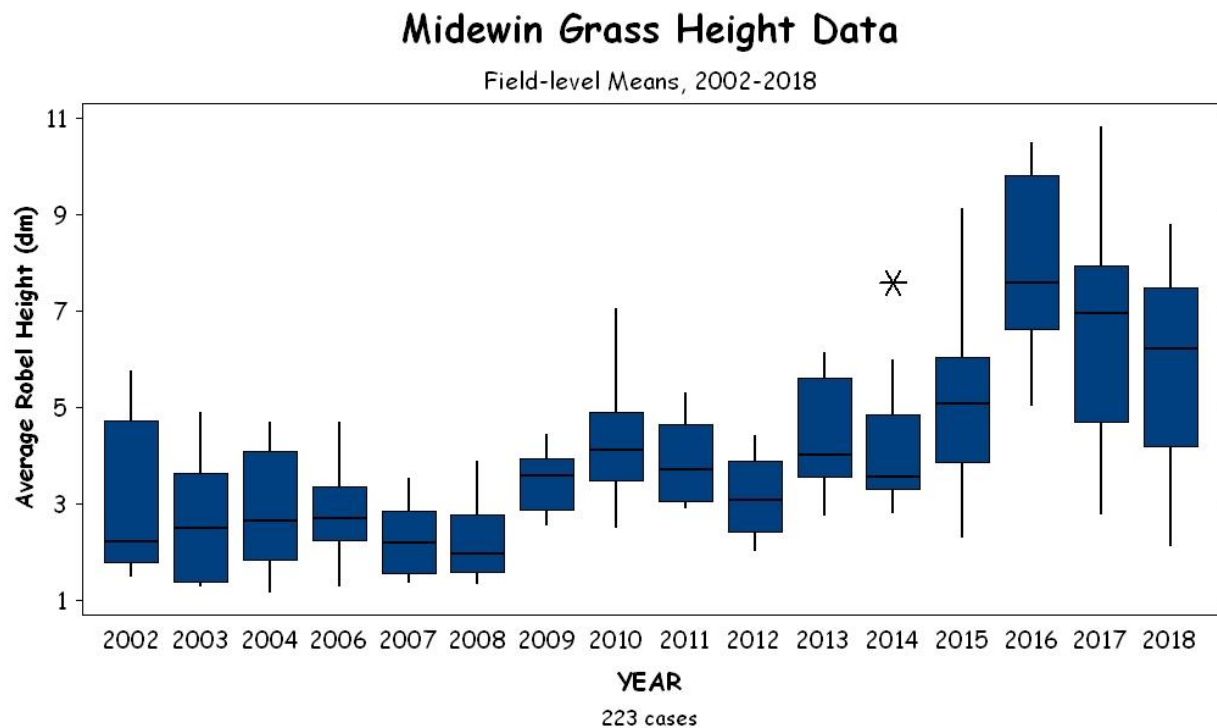


Figure 16. Graph showing the average grass height from 2002 to 2018 for both prairie restoration areas and grazed grasslands.

Given that a number of fields are being restored and not grazed anymore, Dr. Herkert also looked at just pastures. Those data are shown in the second graph “Robel Data Field-Level Box Plot 2002-2018_pastures only.” The pasture graph only includes data from fields in which the yearly field sample forms indicate “grazed” in the status category.

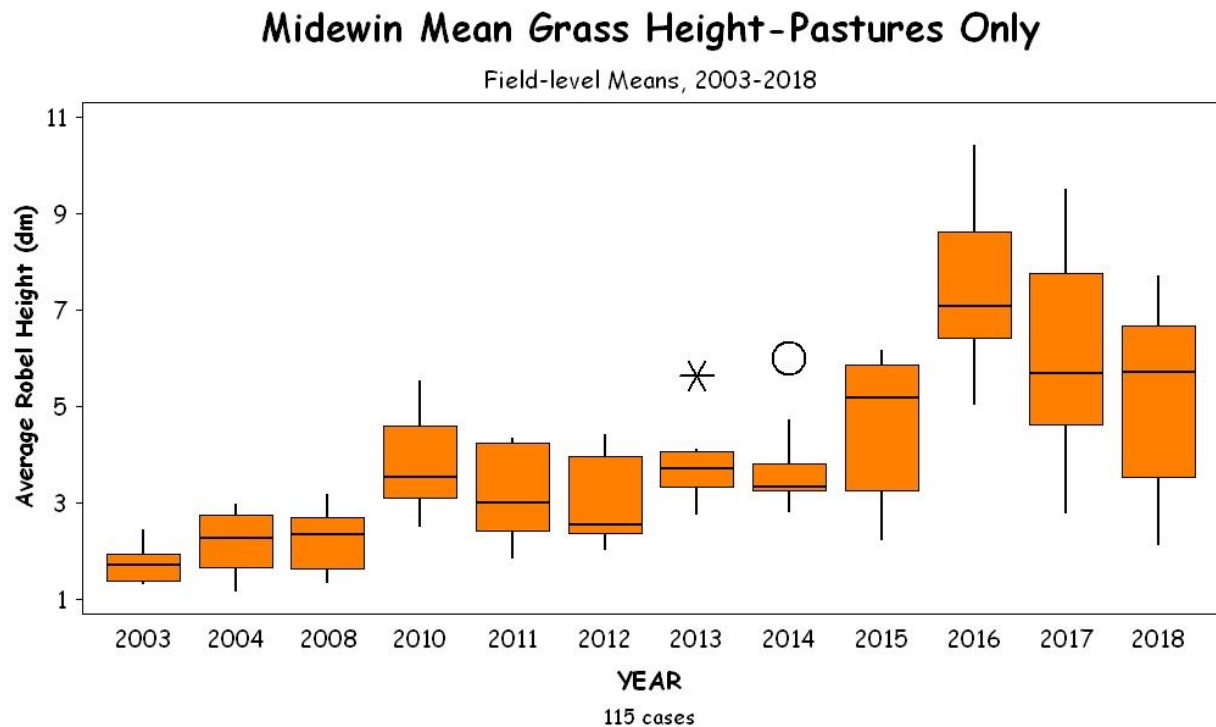


Figure 17. Graph showing the average grass height from 2002 to 2018 for grazed grasslands only.

Vegetation height has been trending upward for some time, but appears to have moved up sharply in the last few years. According to Dr. Herkert, this would not be good news for grassland birds that like shorter vegetation heights, including birds like grasshopper sparrow, savannah sparrow, upland sandpiper, and to a lesser extent bobolink.

6.4.2 What is the ecosystem status for wetland species?

Indicators: Acres of newly restored wetlands; Acres of newly enhanced wetlands; Acres of wetlands managed

No data available at the time of this report.

6.4.3 What is the ecosystem status for insects?

Indicator: Total acres of tallgrass prairie/wetlands within MNTTP

Table 9. Indicator for tallgrass prairie/wetlands by year.

Fiscal Year	Total acres of tallgrass prairie/wetlands@
2016	3,192
2017	3,192
2018	3,192

@ Includes acres of tallgrass prairie and dolomite prairie

6.4.4 What is the ecosystem status for woodland/forest/savanna species?

Indicator: Acres of woodland/forest/savanna being managed

Table 10. Indicator for woodland/forest/savanna by year.

Fiscal Year	Acres of woodland/forest/savanna being managed
2016	248
2017	185
2018	353

6.4.5 What is the ecosystem status for dolomite prairie species?

Indicator: Acres of dolomite prairie being managed; Acres of dolomite prairie managed with prescribed fire

Table 11. Indicators for dolomite prairie managed and dolomite prairie managed with prescribed fire by year.

Fiscal Year	Acres of dolomite prairie being managed	Acres of dolomite prairie managed with prescribed fire
2016	890	262
2017	890	842
2018	890	558

6.4.6 What is the ecosystem status for aquatic species?

Indicator: Macroinvertebrates (Riverwatch) - MBI, Taxa Richness, EPT Taxa Richness

No data available at the time of this report.

6.5 VISITOR USE, VISITOR SATISFACTION AND RECREATION OBJECTIVES

In 2000 the USDA Forest Service began implementing National Visitor Use Monitoring (NVUM) with two concurrent goals. First, to produce estimates of the volume of recreation visitation to National Forests and Grasslands. Second, to produce descriptive information about that visitation, including activity participation, demographics, visit duration, measures of satisfaction, and trip spending connected to the visit.

All national forests and grasslands are surveyed on a five-year cycle. National Visitor Use Monitoring first took place at Midewin National Tallgrass Prairie in 2003 and subsequently in 2008, 2013, and most recently in 2018. Following is a summary of key results that help the Prairie make critical decisions regarding visitors in planning and implementation of all types of projects. The complete 2018 National Visitor Use Monitoring report for Midewin National Tallgrass Prairie that includes a description of survey methods can be found at https://apps.fs.usda.gov/nvum/results/ReportCache/2018_A09015_Master_Report.pdf.

6.5.1 5a. How many MNTP visits have occurred?

Indicators: Annual Visitation Estimate (Number of visitors); Annual Visitation Frequency (Returning visitors)

This data shows how many visits MNTP had and how often people visit (i.e. return visitors). Over time this data may show the trends for total visits and returning visits for people coming to Midewin.

Table 12. Annual visitation estimate by year of National Visitor Use Monitoring.

Visit Type	2018 Visits (1,000s)	90% Confidence Level (%)#	2013 Visits (1,000s)	2008 Visits (1,000s)	2003 Visits (1,000s)
Total Estimated Site Visits*	71	±23.0	79	17	29.5
Day Use Developed Site Visits	6	±16.2	4	0	NA
General Forest Area Visits	65	±25.1	74	16	NA
Total Estimated National Forest Visits§	54	±24.0	74	16	NA
Special Events and	0	±0.0	0	0	NA

Organized Camp Use‡					
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* A 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.

‡ 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.

§ 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.

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.”

Percent of National Forest Visits* by Annual Visit Frequency

Table 13. Percent of National Forest visits by annual visit frequency by year of National Visitor Use Monitoring.

Number of Annual Visits	2018 Visits (%)†	2013 Visits (%)†	2008 Visits (%)†	2003 Visits (%)†
1 - 5	50.7	41.8	48.7	NA
6 - 10	13.3	15.6	15.5	NA
11 - 15	11.3	8.4	8.1	NA
16 - 20	12.8	10.0	8.0	NA
21 - 25	1.5	5.1	1.0	NA
26 - 30	5.8	0.3	3.0	NA
31 - 35	0.2	0.0	1.0	NA
36 - 40	0.3	4.1	1.9	NA
41 - 50	0.4	6.0	4.9	NA
51 - 100	3.0	3.4	1.9	NA
101 - 200	0.3	1.9	4.0	NA
201 - 300	0.4	3.2	0.0	NA
Over 300	0.0	0.2	1.9	NA

* 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.

† The first row indicates the percent of National Forest Visits made by persons who visit 1 to 5 times per year. The last row indicates the percent of National Forest Visits made by persons who visit more than 300 times per year.

6.5.2 What are the demographics of MNTP visitors?

Indicators: Gender of visitors, Age distribution of visitors; Race/Ethnicity distribution of visitors; Household Income distribution of visitors

This data show demographics of visitors and over time could show changes. This can help to show underserved audiences and focus outreach to these audiences to become aware of the recreational opportunities at MNTP.

Table 14. Percent of National Forest Visits* by Gender by year of National Visitor Use Monitoring.

Gender	2018 National Forest Visits (%)‡	2013 National Forest Visits (%)‡	2008 National Forest Visits (%)‡	2003 National Forest Visits (%)‡
Female	27.7	14.3	22.6	11.5
Male	72.3	85.7	77.4	88.5

* 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.

† Non-respondents to gender questions were excluded from analysis.

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

Table 15. Percent of National Forest Visits* by Age by year of National Visitor Use Monitoring.

Age Class	2018 National Forest Visits (%)‡	2013 National Forest Visits (%)‡	2008 National Forest Visits (%)‡	2003 National Forest Visits (%)‡
Under 16	23.7	3.4	6.3	5.7
16-19	3.2	3.5	0.3	4.49
20-29	12.4	6.8	11.3	4.46
30-39	11.5	24.0	19.6	16.70
40-49	11.8	20.1	25.6	35.20
50-59	21.5	21.5	21.5	22.20
60-69	9.4	10.0	11.3	11.26
70+	6.5	7.3	4.2	0.52

* 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

† Non-respondents to age questions were excluded from analysis.

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

Table 16. Percent of National Forest Visits* by Race/Ethnicity by year of National Visitor Use Monitoring.

Race †	2018 National Forest Visits (%)§#	2013 National Forest Visits (%)§#	2008 National Forest Visits (%)§#	2003 National Forest Visits (%)§#
American Indian / Alaska Native	1.1	6.6	7.6	0.0
Asian	0.5	0.5	1.0	1.7
Black / African American	2.2	0.1	0.0	0.0
Hawaiian / Pacific Islander	0.2	0.0	2.1	0.0
White	96.1	96.1	89.5	98.1

Hispanic / Latino	9.3	3.9	5.3	0.1
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* 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.

Respondents could choose more than one racial group, so the total may be more than 100%.

† Race and Ethnicity were asked as two separate questions.

‡ Non-respondents to race/ethnicity questions were excluded from analysis.

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

Note: In the 2003 NVUM survey, race category names varied slightly from later reports. To allow for comparison, those 2003 categories have been converted as closely as possible to align with later reports.

Table 17. Percent of National Forest Visits* by Annual Household Income by year of National Visitor Use Monitoring.

Annual Household Income Category	2018 National Forest Visits (%)	2013 National Forest Visits (%)	2008 National Forest Visits (%)	2003 National Forest Visits (%)
Under \$25,000	0.5	12.7	0.0	NA
\$25,000 to \$49,999	23.6	14.8	22.4	NA
\$50,000 to \$74,999	8.2	12.3	18.7	NA
\$75,000 to \$99,999	28.4	14.3	23.1	NA
\$100,000 to \$149,999	15.1	21.2	31.4	NA
\$150,000 and up	24.2	24.7	4.3	NA

* National Forest Visits are 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.

6.5.3 How satisfied are MNTP visitors?

Indicator: Percent of NF visits by overall satisfaction rating

This data shows the satisfaction of visitors to MNTP, while other data show satisfaction with developed facilities, access, services, and feeling of safety. Tracking this data can show areas that are deficient from a user perspective and indicate areas MNTP may need to improve.

Table 18. Percent of National Forest Visits by Overall Satisfaction Rating by year of National Visitor Use Monitoring.

Overall Satisfaction Rating	2018 National Forest Visits (%)	2013 National Forest Visits (%)	2008 National Forest Visits (%)	2003 National Forest Visits (%)
Very Satisfied	70.2%	64.7	68.4	NA
Somewhat Satisfied	22.9%	27.2	26.6	NA
Neither Satisfied nor Dissatisfied	6.2%	4.0	3.9	NA

Somewhat Dissatisfied	0.0%	1.8	1.0	NA
Very Dissatisfied	0.8%	2.3	0.1	NA

* National Forest Visits are 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.

6.6 OTHER STRESSORS

6.6.1 What impact are invasive species having on restoration areas?

Indicator: Frequency analysis showing native richness and invasive richness (Random Vegetation Sampling)

See question 6.3.2 above for an analysis of native richness and invasive richness.

6.7 PROGRESS TOWARD MEETING THE DESIRED CONDITIONS AND OBJECTIVES IN THE PLAN

6.7.1 How is MNTP meeting the goal to manage the land and water resources of Midewin in a manner that will conserve and enhance the native populations and habitats of fish, wildlife, and plants?

Indicators: Macroinvertebrates (Riverwatch) - MBI, Taxa Richness, EPT Taxa Richness; Population estimates from bird surveys; Frequency analysis showing native richness and invasive richness (Random Vegetation Sampling)

Some data not available at the time of this report. See question 6.3.2 above for an analysis of native richness and invasive richness.

6.7.2 How is MNTP meeting the goal to provide opportunities for scientific, environmental, and land use education and research?

Indicators: Number of people attending tours and interpretative programs, Number of people attending education programs, List of scientific studies conducted at MNTP

Table 19. Indicators for numbers of people attending tours and interpretive programs and education programs by year.

Fiscal Year	Tours and Interpretive	Educational Programs
2016	4,894	2,616
2017	4,523	5,813
2018	4,468	2,536

Included in the Educational category are what we call “Special Request Programs”. These refer to tours or programs that are *not* advertised as part of our yearly Public Program schedule, but are requests from schools, libraries, environmental clubs, Scouts, etc. to have either a “Guided” tour of Midewin NTP on-site, or to have a staff/volunteer give a presentation/talk at their location (off-site). In 2017 there was a HUGE number of these requests due to our increase in

Public outreach – frequent website updates, increased social media presence, news articles and interviews, and let’s not forget the introduction of the bison herd and the PBS Travels with Darley show! You may also wonder why these numbers didn’t persist into the following FY’s – The Public Services team began a large Self-Guided push in 2018 with products like the OnCell App, the Self-Guided Farm History Tour brochure, and the Bison/Prairie tour bags. In addition, once a group has been on a guided tour, we encourage that teacher, scout leader or whomever it may be to return to Midewin NTP with their students or groups on their own, using the self-guided items. These visitors are utilizing our self-guided options which are not being counted as part of the “guided” educational programming.

A list and short description of research show what outside research is being conducted at MNTP and the topics of scientific study. Over time this information may show trends in areas of scientific research being conducted at Midewin.

2016

2 Permits

University of Notre Dame - Archeology Permit West Side

Chicago Field Museum - Butterfly Research at Iron Bridge Trailhead

2017

4 Permits

Governor’s State University – White Footed Mouse Research

University of Notre Dame - Archeology Permit West Side

Olivet Nazarene University - Rusty Patch Bumble Bee

Incorporated Research Institution for Seismology - Earthquake monitoring system

2018

3 Permits

University of Illinois – Chicago - Carbon Sequestration Study

Incorporated Research Institution for Seismology - Earthquake monitoring system

BP - Franklin Ground Squirrel Study

6.7.3 How is MNTP meeting the goal to allow the continuation of agricultural uses of lands within Midewin?

Indicators: List of row crop and grazing permits by acres

When reviewing agriculture special use permits and grazing permits, we obtain the number of acres per permit. These numbers are reported annually. Agricultural use permits are used for resource management purposes; to manage grassland ecosystems, control invasive plant species and to develop native grassland vegetation and habitat. Agricultural crop permits are also used to prepare sites for planting prairie and wetland vegetation, as well as grassland and prairie habitat. The agricultural production controls invasive species prior to planting and provides an excellent seedbed to plant native prairie seed. Grazing is used as a management tool to control grass height and provide habitat for grassland wildlife. In alignment with the Prairie Plan there could be an increase in the number of acres grazed as agricultural crop lands are removed from

crop production and converted to grassland and prairie habitat. This could improve management of grassland habitat within the allotments.

Table 20. Indicator for agricultural crop permits by year.

Fiscal Year	Number of Ag Permits	Total Acres of Ag Permits
2016	4	3,377
2017	6	3,375
2018	6	3,325

Table 21. Indicator for grazing permits by year.

Allotment	Tracts	Acres	Years
E2	8,10 & 215	1,039	2016, 2017, 2018
E3	70	125	2016, 2017, 2018
E4	206	405	2016, 2017, 2018
E5	4	176	2016, 2017, 2018
E7	41	174	2016, 2017, 2018
E8	57	111	2016, 2017, 2018
E9	73	184	2016, 2017, 2018
E11	5	328	2016, 2017, 2018
E12	214	660	2016, 2017, 2018
W1	144	347	2016, 2017, 2018
W2	108	283	2016, 2017, 2018

6.7.4 How is MNTP meeting the goal to provide a variety of recreation opportunities?

Indicator: Activity Participation by percentage

Table 22. Activity participation by year of National Visitor Use Monitoring.

Activity	2018 % Participation*	2018 % Main Activity ‡	2018 Avg Hours Doing Main Activity
Hiking / Walking	58.8	29.7	68.4
Hunting	43.3	43.3	26.6
Viewing Wildlife	42.6	14.7	3.9
Viewing Natural Features	32.0	3.2	1.0
Bicycling	22.1	4.5	0.1
Nature Center Activities	17.9	0.5	1.0

Visiting Historic Sites	15.2	0.0	3.0
Relaxing	5.1	0.0	1.0
Nature Study	4.8	1.1	3.6
Some Other Activity	1.5	1.5	6.0
Horseback Riding	1.5	1.5	6.0
Picnicking	0.4	0.4	2.0

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

‡ Survey respondents were asked to select just one of their activities as their main reason for the forest visit. Some respondents selected more than one, so this column may total more than 100%.

6.8 8. LAND PRODUCTIVITY

6.8.1 What activities at MNTP are affecting the soil productivity of the land?

Indicators: Acres of roads removed/added; Acres of trails removed/added; Square feet of buildings removed/added; Acres of row crops converted to prairie/pasture

Table 23. Indicator for roads/railbeds removed, trails added, buildings removed, and row crops converted to prairie/pasture by year.

Fiscal Year	Acres of roads/railbeds removed	Acres of trails Added	Square feet of buildings Removed	Acres of row crops converted to prairie/pasture*
2015	3.04	0	6,391	859
2016	1.38	2.52	28,951	0
2017	13.30	0	39,546	0
2018	33.73	0	91,752	164

*Entries are the year areas were first seeded/planted to the new land use.

6.9 MANAGEMENT AREA 3 – SPECIAL AREAS

6.9.1 Has there been any noncompliance of restrictions for MA 3 lands? If so, describe actions taken to remedy the noncompliance and explain the reasons for the non-compliance.

In 2008, the Prairie Plan was amended to create additional Management Areas within Midewin National Tallgrass Prairie. Management Area 3 includes those areas on the landscape that were

designated as Soil Restriction Areas and Groundwater Management Zones by the US Army. Plan Standards were created related to activity within these areas.

During 2016-2018, resource activities on lands designated as Management Area 3 have all complied with the standards set for these special areas. Therefore, no actions were needed to remedy for non-compliance activities.