MONITORING AND EVALUATION REPORT

FISCAL YEAR 2005

Midewin National Tallgrass Prairie

USDA Forest Service

2005 ANNUAL MONITORING AND EVALUATION REPORT

MIDEWIN NATIONAL TALLGRASS PRAIRIE

This report documents Land and Resource Management Plan (Prairie Plan) monitoring completed in fiscal year 2005. It also documents our evaluation of the resulting information and data, to determine the effectiveness of management and program direction at the Midewin National Tallgrass Prairie (Midewin). The Prairie Plan has been implemented since it was approved in February 2002. Implementation of the Prairie Plan requires detailed planning at the "site-specific" level in compliance with the National Environmental Policy Act (NEPA). Project level planning is evident in the land management activities that have been designed to restore tallgrass prairie ecosystems and increase public recreational opportunities.

Opportunities for experiencing Midewin are possible by planning, public involvement, project analysis, and decision-making. Decisions are made through the NEPA process to authorize restoration, recreation, and other related projects in conformance with Prairie Plan goals and objectives. These decisions are then validated or changed through monitoring project effects and evaluating those effects over time to determine if changes in land management practices are needed.

Volunteer contributions in 2005 have enriched Midewin's restoration and recreation programs, including seed production activities, trail construction and maintenance, environmental education, heritage projects, and many other activities. Thank you to each person, group, and organization, and to all of Midewin's partners who have helped with habitat restoration and recreation improvements in 2005. You have greatly furthered the vision of advancing restoration efforts at Midewin and developing recreational facilities in conjunction with the ongoing cleanup of the former Joliet Army Ammunition Plant. Please see the Midewin National Tallgrass Prairie website at www.fs.fed.us/mntp for detailed information on present and proposed restoration activities and recreational opportunities at Midewin.

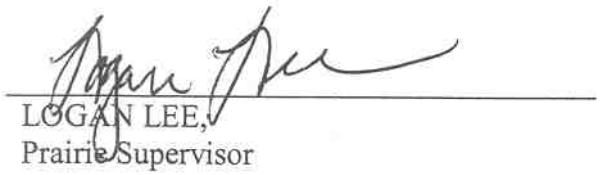
Logan Lee
Prairie Supervisor

APPROVAL AND DECLARATION OF INTENT

I have reviewed the 2005 Annual Monitoring and Evaluation Report for the Midewin National Tallgrass Prairie. This report meets the intent of annual monitoring and evaluation outlined in the Prairie Plan (Chapter 6) and complies with regulations contained in 36 CFR 219. The Midewin National Tallgrass Prairie continues to implement the Prairie Plan goals and objectives. Accomplishments to date have addressed the long-term goals in the Prairie Plan.

Monitoring and evaluation have resulted in no significant issues or reasons to change the Midewin Land and Resource Management Plan at this time. However, an amendment to the Prairie Plan will be prepared in fiscal year 2007 based on the need to add a third management area for separate management of newly-acquired Army lands requiring public land use restrictions.

This report is approved:



LOGAN LEE,
Prairie Supervisor

September 26, 2006

EXECUTIVE SUMMARY

Fiscal Year 2005

Monitoring and Evaluation Report

MIDEWIN NATIONAL TALLGRASS PRAIRIE

The purpose of monitoring and evaluation is to determine whether resource management activities conducted at the Midewin National Tallgrass Prairie are meeting the management direction and multiple use objectives described in the Land and Resource Management Plan (Prairie Plan). Monitoring determines the effects of different resource management activities and the degree to which desired conditions and objectives are being achieved through on-the-ground management. Through this process, the quality of project implementation is assessed; addressing physical, biological, social, and cultural elements along with any emerging issues. Additionally, this process allows for appropriate adjustment to allow for unanticipated changes in conditions.

The monitoring and evaluation process provides timely information about the outcomes of our decisions and the need to reassess or change the Prairie Plan or the way that we are implementing the Plan. Annual monitoring and evaluation activities are designed to confirm: 1) Prairie Plan goals and objectives are being achieved; 2) Plan standards and guidelines are being implemented as required; and 3) environmental effects are occurring as predicted and desired.

The recently implemented 2005 Planning Rule (36 CFR 219) requires that monitoring and evaluation be reported formally on an annual basis. The new rule also requires establishment of an Environmental Management System (EMS) to improve environmental performance and accountability. In 2004, Midewin initiated an EMS as a continuous cycle of planning, implementing, monitoring, and improving on land management activities.

Interdisciplinary (ID) teams have conducted the monitoring activities with substantial assistance by many of Midewin's partners and volunteers to collect and analyze field data. An ID team comprised of program leaders and specialists then met to evaluate the results of 2005 monitoring activities. This report details both the monitoring results and their evaluation.

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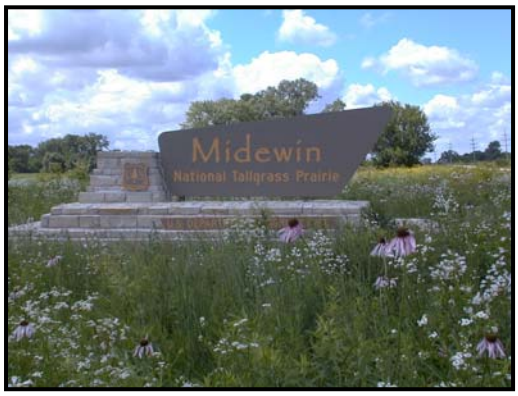


The Midewin National Tallgrass Prairie is a "prairie under construction" as restoration of tallgrass prairie ecosystems continues on the former Joliet Army Ammunition Plant landscape. The potential of Midewin is one of vast beauty and richness of biological resources that visitors will experience to greater degrees with passing years, as the result of the activities undertaken now as Prairie Plan is implemented.

The Midewin Land and Resource Management Plan (Prairie Plan) was approved in February 2002. Chapter 6 of the Prairie Plan outlines the monitoring and evaluation program. This report covers the fourth year of monitoring and evaluation, reporting on recent actions implementing the Prairie Plan. Monitoring of actions and evaluation of the results of monitoring are essential steps in effective implementation of the Prairie Plan. These steps help determine if management activities are meeting the direction of the Prairie Plan and if there is a need to change the Plan's desired conditions, goals, objectives, standards, and guidelines. Adaptation of improved management and planning decisions is the expected result of monitoring and evaluation at Midewin.

Why we monitor

Monitoring records the effects of actions taken to implement the Prairie Plan, which lists specific monitoring questions. This report responds to those questions for FY 2005 and determines:

1. Whether goals and objectives outlined in the Prairie Plan are being met;
2. Whether management prescriptions are being applied appropriately;
3. Whether the results of land management are responsive to the key issues, concerns, and opportunities;
4. Whether new issues, concerns, and opportunities are arising;
5. Whether environmental effects are occurring as predicted; and
6. Whether costs of implementing the Prairie Plan are as predicted.

Monitoring responses to these questions and the resulting evaluation of the responses are the tools used to help determine the success or shortcomings of Prairie Plan implementation, if the desired outcomes are being realized, and if the assumptions in the initial planning stages are still valid. Through this monitoring and evaluation process we are able to assess the quality of Prairie Plan implementation and the need for changes in Plan direction. Monitoring addresses the physical, biological, social, and cultural elements along with emerging issues. Evaluation addresses the results of monitoring, and makes recommendations for amendments, revisions, or changes in management direction in the Prairie Plan.

How existing data are used in monitoring and evaluation

Because we use existing information to the extent possible, monitoring is often comprised of field inspections based on sampling, where the frequency, precision, and reliability depend on relative importance and identified needs. We use a full spectrum of data collection techniques, including:

1. Site-specific observations by specialists;
2. Field assistance trips;
3. Formal management reviews; and
4. Discussions with other agencies, partners, and public users and visitors.

Ranging from simple observations to systematic data collection, monitoring is conducted at three levels:

1) ***Implementation****:* are projects accomplished as designed in conformance with Prairie Plan goals?
2) ***Effectiveness***: are projects working to meet management goals and direction?
3) ***Validation***: is Prairie Plan guidance satisfactory to comply with planning regulations, policies, and goals?

MONITORING & EVALUATION RESULTS

The monitoring results that follow reflect the specific monitoring questions in the Midewin Prairie Plan (Chapter 6) *Monitoring and Evaluation Plan*. Evaluations of the monitoring results are included with the narratives for each monitoring question. Trends that can be discerned from monitoring results are also addressed.

1. Program Accomplishments

1.1 Determine how well objectives have been met by a quantitative comparison of outputs and services with those projected by the Plan.

Table 1. Proposed and Actual Management Activities and Actual Accomplishments: FY2002-2005.

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
NFPN Forest Planning	Maintenance of existing Plan; prepare amendments as needed.	No amendment needed.	No amendment needed.	No amendment needed.	Amendment to be initiated in FY2006
NFIM Inventory Monitoring	Conduct above project level integrated resource inventories, inventory planning design, documentation, field data collection, data management and stewardship, and prepare reports. Maintain resource information systems; produce annual monitoring and evaluation report.	TES monitoring: 4,600 acres.	TES monitoring: 5,900 acres.	TES monitoring: 6,000 acres. Heritage inventory: 1,651 acres.	TES monitoring 6,500 acres. Heritage inventory: 1,961 acres under contract (Jordan Creek Watershed & Group 66A Bunker Field)
NFRW Recreation/ Heritage/ Wilderness	Outdoor recreation & management. Heritage resource protection, preservation, & interpretation. Environmental education (EE) programming. Interpretive tours &	Recreation: 3 miles of interim trails designated & mowed. Hunting access only to 2,500 acres. Heritage: 4 Passport in Time projects.	Recreation: 3 miles of interim trails designated & mowed. Hunting access on 2,500 acres. Scoping for first permanent trail. Heritage: 3 PIT projects.	Recreation: 6,400 acres opened to the public. 19 miles of interim trail designated. Planning for first trail continued. Heritage: 2 PIT projects.	Recreation: 6,400 acres open. 19 miles of interim trail maintained. West Side Trail construction initiated. Heritage: 56 NHRP-sites

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
	activities.	Underground Railroad campfire interpretive program. EE: El Valor camp. Mighty Acorns served 850 students. Total 2,600 students received EE services.	Underground Railroad campfire interp. program. EE: El Valor camp. Mighty Acorns served 740 students. Total 2,800 students received EE services.	Underground Railroad campfire interpretive program. EE: El Valor camp, plus expanded to Urban Academy. Mighty Acorns served 900 students. Total 2,645 students received EE services. 75 tours, 5 campfire programs, & 10 lectures offered.	protected, 32 new sites identified, 19 heritage resources interpreted, 1 PIT project. EE: El Valor camp & Urban Academy. Mighty Acorns served 900 students. Total 2,800 students. 67 tours, 4 campfire programs, & 10 lectures.
NFWF Wildlife Fisheries Habitat Management	Conserve and recover TES species and ecosystems (leafy prairie clover, white fringed prairie orchid, and other sensitive species). Continue restoration of Blodgett Road Wetlands; continue grassland bird habitat management through conversion of former cultivated land to either grassland or native vegetation by approximately 150 acres yearly. Manage up to 4,000 acres per year of grassland bird habitat, including invasive shrub and tree removal by hand or mechanical tools.	Managed 20 acres of dolomite prairie to conserve TES species. Blodgett Road wetland restoration: 108 acres converted from cropland. 4,000 acres under active management.	Managed 20 acres of dolomite prairie to protect TES species. Blodgett Road restoration: 200 acres converted from cropland to prairie & grassland. 5,564 acres under active management.	Managed 20 acres of dolomite prairie to protect TES species. Blodgett Road restoration: 528 acres converted from cropland to prairie & grassland. 6,472 acres under active management. 390 acres cleared of trees & shrubs for grassland bird habitat.	Managed 20 acres of dolomite prairie to protect TES species. Restoration continued at Blodgett Road, 271 acres. 317 acres converted from cropland to grassland. 8,063 acres under active management. 1,900 linear feet (12 acres) of old hedge row removed to improve grassland bird habitat.

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
NFRG Grazing Management	Administer & monitor grazing permits for enhancement of grassland bird habitat (approx. 800-4,000 acres/year).	1,996 acres. 6 grazing permits. 5 allotments managed.	2,461 acres. 6 grazing permits. 5 allotments managed.	3,010 acres. 6 grazing permits. 5 allotments managed.	3,729 acres. 6 grazing permits. 5 allotments managed.
NFVW Vegetation and Watershed Management	Begin implementation of South Patrol Rd and Mola-Hoff Rd wetland restoration projects (approx. 250-500 acres/yr). Continue native seed production. Develop wetland seedbed. Assess and maintain watershed conditions at Prairie, Jackson, and Grant Creeks. Monitor air quality. Control noxious weeds (approx. 200-500 acres yearly). Continue removal of woody vegetation in fence & hedge rows to connect fragmented areas. Implement NEPA decision on IPM herbicide use.	Restoration started at South Patrol Road & Mola project areas. Prairie & Jackson Creek assessments completed. 2,000+ acres treated for noxious weeds. 2 acres of old fence line removed. IPM herbicide NEPA decision signed.	Restoration continued at South Patrol Road & Mola project areas. Grant & Jordan Creek assessments completed. 4,000+ acres treated for noxious weeds. 12 acres of old fence line removed to unfragment 335 acres.	Restoration continued at South Patrol Road, Mola, & Prairie Creek Woods. Additional species & area added to seed bed production. 4,000+ acres treated for noxious weeds. 12 acres of old fence line removed to unfragment 415 acres.	Restoration continued at South Patrol Road, Rt 66 Prairie & Prairie Creek Woods. Additional species & area added to seed bed production. 3,784 acres treated for noxious and invasive plants. 1,900 linear feet (12 acres) of old hedge row removed to improve grassland bird habitat
NFLM Land Ownership Management	Administer & monitor special use permits. Continue boundary & title management.	4 special use permits for agricultural use.	4 special use permits for agricultural use.	4 special use permits for agricultural use.	4 special use permits for agricultural use; 3,594 acres
NFLE Law Enforcement	Support Forest Service LE activities.	LE activities supported.	LE activities supported.	LE activities supported.	LE activities supported.

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
WFPR Wildfire Preparedness	Meet minimum firefighting production capability at Most Efficient Level.	Capacity = 10 chains of fireline built per hour	Capacity = 10 chains built/hour	Capacity = 10 chains built/hour	Capacity = 10 chains built/hour
WFHF Hazardous Fuels Reduction	Plan, treat, and manage vegetation by mechanical treatment, prescribed fire, and other strategies. Monitor and document treatment. Continue to implement 2001 Prescribed Fire EA decision. Treat approximately 200 – 1,000 acres/year.	Fuels treatment: 187 acres burned; 646 acres mowed.	Fuels treatment: 2,205 acres mowed.	Fuels treatment: 500 acres mowed.	Fuels treatment: 717 acres burned; 5,487 acres mowed.
CMFC Facilities Capital Improvements and Maintenance	Implement annual maintenance of Administrative Site. Design and build a visitor center.	Supervisor's Office, horticulture building, & machine shed constructed.	Continued SO complex construction. Opened new office in March 2003.	Hotshot fire crew facility constructed. Garage constructed.	No new facilities constructed in FY2005.
CMRD Roads Capital Improvements & Maintenance	Eliminate backlog of deferred maintenance for administrative roads (approx. 5 miles/year). Decommission unneeded roads in sensitive habitat, near tracts of native vegetation, & those that fragment grassland habitat or traverse wetlands or streams (approx. 10 miles/year, as funds allow).	No roads decommissioned . 6 miles maintained to operation maintenance levels.	No roads decommissioned .13 miles maintained to operation maintenance levels.	3 miles decreased to Level II Standard. 15 miles maintained to operation maintenance level.	No roads decommissioned .6 miles maintained to operation maintenance level.
DMDM Backlog Maintenance	Demolish former Army facilities and infrastructure as funds allow. Started with 22 transite warehouses and 16 railroad trestles.	NEPA completed for demolition. Contracts prepared. 5 structures demolished.	Demolished 48 miscellaneous buildings, 11 timber railroad trestles, 8 warehouses, & 8 foundations.	Demolished 4 warehouses, 1 power station, & 2 guard houses. Removed 5 miles of chain link fence.	Demolished 9 building foundations, one warehouse and two road bridges. Removed 1.3 miles of chain link fence.

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
CMTL Trail Capital Improvements & Maintenance	Designate & maintain interim trails. Design & build permanent trails.	Designated & mowed 3 miles of interim trails.	Designated & mowed 3 miles of interim trails. Scoping conducted for first permanent trail.	19 miles of interim trails designated & mowed. Planning continued for West Side permanent trail.	19 miles of interim trails maintained by mowing. Construction for West Side permanent trail began.
LALW Land and Water Conservation Fund	Emphasize acquisitions that further Plan objectives and improve access for restoration and recreation.	Acquired 78-acre Morgan Woods Tract.	Acquired 95-acre Russell Tract.	No new lands acquired.	No new lands acquired utilizing this fund.
PRPR Midewin Restoration Fund	Collect authorized fees from salvage projects and implement priority projects.	N/A	N/A	N/A	N/A
FDFD Recreation Fee Demo Program	Improve visitor facilities & services.	Maintained parking lots; provided portable toilets; provided interpretive programs.	Maintained parking lots; provided portable toilets; provided interpretive programs.	Maintained parking lots; provided portable toilets; provided interpretive programs.	Maintained parking lots; provided portable toilets; provided interpretive programs.
PIPI Midewin Rental Fees	Collect fees for authorized agricultural use & implement grassland habitat management projects, including needed equipment, fencing, mowing, and seeding of grasses.	Cattle fence installed for grassland bird management. 800 acres of brush cleared. 48 acres converted from cropland to grassland.	Cattle fence installed for grassland bird management areas. 1,500 acres brush cleared. 210 acres converted from cropland to grassland. Purchased seed cleaning equipment & dust collection system.	Implementation highlights: Herbicide treatment of 2,620 acres for invasive control. Initiated restoration of 100 acres through invasive removal. Brush control on 1,641 acres. Purchased seeds & plants. Purchased seed cleaning equipment. Purchased Type	Invasive species control on 3,727 acres. Installed green house for plant propagation. Additional seed cleaning equipment purchased. Insect survey for regional forester sensitive species. Installed fencing for grassland bird management. Removed old

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
				7 fire engine for prescribed burns. Installed deer guard in fence to protect River Rd. seedbeds. Installed cattle fence for grassland bird management.	fencing and railroad ties.
CWFS – Other Cooperative Funds	Deposit cooperator funds and donations; spend on authorized projects.	CenterPoint monitoring agreement.	CenterPoint monitoring agreement.	CenterPoint monitoring agreement. CenterPoint wetland funds used to start design of Middle Grant Ck. wetlands restoration project.	CenterPoint wetland funds applied to Middle Grant Creek wetlands restoration: Invasive control and removal of RR ties, night bunkers, debris, and concrete bunker. CorLands contract for invasives control in South Patrol Road, Rt 66 Prairie and Prairie Creek Woods; Purchased seeds for South Patrol Road. TWI prairie and wetland restoration work at Blodgett Rd.

National Forest Fund Code	Project Description	FY2002	FY2003	FY 2004	FY 2005
NFSD – SCSEP Senior Community Service Employment Project	Hire and train 2-3 senior employees each year.	3 SCSEPs employed.	3 SCSEPs employed.	2 SCSEPs employed.	2 SCSEPs employed.
HWHW Hazardous Waste	Continue environmental coordination & support. Continue wetlands & drainage confirmatory sampling for arsenic in fence lines, railroad ballast, and Kemery and Doyle Lake sediment.	Sampled 800 feet of fence lines for arsenic.	Sampled 800 feet of fence lines for arsenic. Sampled railroad ballast along portions of planned West Side Recreation Trail. Sampled Blodgett Marsh.	Sampled 1 mile of additional rail bed ballast for residual arsenic pesticide where open access & trails are planned. Initiated risk assessment for evaluation of FY03 & 04 sampling results.	Risk assessment for evaluation of FY03 & 04 sampling results completed.

Budgets: How fiscal year 2005 program funding was utilized

The Prairie Plan is the basis for developing multi-year program budget proposals and the annual program of work. Actual funding levels appropriated by Congress determined the rate of implementation of the Prairie Plan. The federal budget is appropriated on an annual basis by the United States Congress for fiscal years (from October 1 through September 30). Midewin leverages the appropriated funding received through partners and volunteers.

Table 2. Final Budgets for Fiscal Years 2002- 2005.

FUND CODE	TITLE OF FUND CODE	FY2002 FINAL	FY2003 FINAL	FY2004 FINAL	FY2005 FINAL
NFPN	Planning	$40,000	$25,000	$28,000	$58,000
NFIM	Inventory / Monitoring	$350,000	$225,000	$516,000	$375,000
NFRW	Rec./ Heritage / Wilderness	$356,000	$368,000	$555,000	$843,000
NFWF	Wildlife / Fisheries	$393,000	$375,000	$557,000	$542,000
NFRG	Grazing Management	$11,000	$20,000	$30,000	$29,000
NFVW	Vegetation / Watershed Mgt.	$317,000	$434,000	$525,000 (less $140,000 of ECAP= $385,000)	$542,000
NFLM	Land Ownership Mgt.	$75,000	$87,000	$96,000	$99,000
NFLE	Law Enforcement	$7,000	$34,000	$0	$0
WFPR	Fire Preparedness	$792,000	$792,000	$914,000	$914,000
WFHF	Hazardous Fuels Reduction	$5,000	$7,000	$71,000	$57,000
WFW2	Rehab and Restoration	$0	$0	$0	$0
NFCC	Condition Class	$0	$0	$3,000	$0
CMFC	Facilities Capital	$560,000	-$3,000	$501,000	$569,000

	Improvement/Maintenance				
CMRD	Roads Capital Improve./Maint.	$147,000	-$16,000	$199,000	$306,000
CMTL	Trails Capital Improve./Maint.	$40,000	-$7,000	$208,000	$167,000
CMII	Deferred Maintenance	$700,000	$20,000	$263,000	$175,000
CMC2	Fire Facilities – Backlog	$450,000	$31,000	$0	$0
LALW	Land Acquisition	$43,000	$0	$5,000	$25,000
NFMG	Minerals / Geology Management	$1,000	$0	$0	$0
NFMP	Monitoring	$0	$0	$0	$0
NFTM	Forest Products	$2,000	$0	$0	$0
TRTR	10% Roads and Trails	$1,000	$58,000	$54,000	$51,000
RTRT	Reforestation Trust Funds	$0	$0	$0	$0
HWHW	Hazardous Waste	$5,000	$3,000	$140,000 (ECAP)	
PIPI	Midewin NTP Rental Fees	$500,000	$500,000	$500,000	$1,295,000
DMDM	Deferred Maint. – Fund Cleanup	-$4,358	$0	$0	$0
WFW3	Rehab and Restoration	$100,000	$0	$0	$0
TOTAL		**$4,890,642**	**$2,953,000**	**$5,025,000**	**$5,954,000**

2. Agriculture Use

2.1 Are continued agriculture permits used for resource management purposes?

Agricultural special use permits have been used for resource management purposes at Midewin since 1996. Specifically, agricultural crops are used to control invasive plant species until areas can be converted to native vegetation or grassland wildlife habitat. If left idle, these areas would be a major source of invasive plants throughout Midewin. Agricultural crops are also used to prepare for planting prairie and wetland vegetation. A decision notice for *Continued Agricultural Land Use* was signed by the Prairie Supervisor in 2001.

Table 3. Row crop production (soybeans and wheat).

Fiscal Year	Acres Removed from Production	Acres Added	Total Acres in Crops
FY 1999-2000			3,831
FY 2001	112		3,719
FY 2002	48		3,671
FY 2003	260	355	3,998
FY 2004	907	141	3,664
FY 2005	317		3,594
TOTAL acres*	1,644		

*Removed from production or converted to grassland or prairie.

The acres in crop production for FY2003, 2004 and 2005 appear to be inconsistent in terms of acres removed and added. However, this inconsistency actually illustrates how agricultural plantings during one year are used to control invasive plants before conversion to prairie and wetlands. This apparent inconsistency is also a result of lands newly acquired and put into crop production.

The trend has been to remove more acres of agricultural fields from production to provide grassland bird habitat. The early years of conversions tend to require the most invasive plant species control. We have nearly reached our capacity for yearly control of invasive plant species on the areas already converted.

Presently the crop rotation is between Roundup-ready soybeans and winter wheat. Corn has been excluded from this rotation because of the chemicals (pesticides and fertilizer) necessary for corn production. The Asian soybean rust, a fungus, arrived in the continental United States in 2004 and is devastating to soybean production. The means of treating the rust is a fungicide. Currently the fungus is found in the southern states but is expected to travel north, and could have an impact on the use of soybeans for future management at Midewin. Both soybeans and wheat were used at Midewin prior to the initial planting and restoration of native vegetation. Newly-planted restoration sites appear to have fewer invasive species if the last crop was soybeans rather than winter wheat.

Additional acreage from the Army will be transferred to the Forest Service in 2006 and more in the future. Some of these areas are currently in crops or were in crops recently and are now sitting idle.

Recommendations:

- Continue agricultural practices to facilitate the prairie restoration process and to control invasive species.
- Maintain current levels of agricultural row crops until levels of invasive plant infestations in the converted areas are under control; only then convert or restore more fields to desired habitat.
- Keep newly transferred Army tracts in crop production and return temporarily idle fields back to row crops to control invasive plant species.
- Precede prairie and wetland restoration with two seasons of Roundup-ready soybean crops.
- Monitor soybean rust developments and prepare NEPA for a decision on the use of fungicides to control the fungus.

2.2 How many acres are under grazing or special use permits?

Grazing is used as a management tool to control grass height and provide habitat for grassland wildlife. From FY2002 through FY2005 there were 6 grazing permits and 5 allotments (one allotment had 2 permittees). Allotment acres totaled 1,996 in FY2002, 2,461 acres in FY2003, and 3,010 acres in FY2004. In FY2005, 3,653 acres of grazing pastures were under active grazing (excluding allotment acres that were mowed by permittees). The number of acres of land grazed will continue to increase over the next several years and should probably level off because of the need to control invasive plants in lands already converted. Several years are needed after the conversion to cool season pasture grasses before a tract is ready for grazing, which accounts for the lag

period between conversion and actual grazing expansion. Once invasive plant species control in the existing pastures reaches the maintenance phase, additional conversion from crop production to grazing can be implemented.

Table 4. Acres under grazing permits.

Fiscal Year	Acres Grazed
2002	1,996
2003	2,461
2004	3,010
2005	3,653

Additional acreage from the Army will be transferred to the Forest Service in the near future. Some of these areas are currently being grazed or were being grazed but are now sitting idle. Other tracts that will be transferred have not been managed over the past few years and are starting to become overgrown with woody vegetation or contain deteriorating fences.

Recommendations:

- Continue grazing leases to provide habitat for grassland wildlife.
- Maintain current planned levels of grazing (through 2007) on Forest Service lands until levels of invasive plant infestations in currently converted areas are under better control.
- Keep newly transferred Army tracts in grazing and return temporarily idle fields to grazing.
- Give high priority to controlling invasive trees and shrubs and repairing fences in newly transferred tracts.

2.3 How many acres of former agriculture land use are being restored?

In FY2005, 317 acres of former agricultural lands were converted to cool season grasses for grassland bird habitat.

Table 5. Acres of agricultural land restoration.

Fiscal Year	Cool Season Grass Pasture Conversion (acres)	Prairie and Wetland Conversion (acres)
2002		
2003	210	50
2004	419	488
2005	317	

Conversion of agricultural lands to cool season grass pasture and natural vegetation may slow down over the next few years because of the need to control invasive plants in lands already converted. Conversion to prairie and wetland communities has slowed because supplemental work is needed on areas already converted.

Recommendations:

- Slow down the conversion rate until invasive vegetation in already converted tracts is under better control.
- Slow down conversion to natural communities until supplemental restoration activities have decreased on tracts already converted.
- If additional staffing, funding, or partnership help becomes available, increase conversion to natural communities.

3. Air Quality

3.1 Is Midewin causing significant deterioration of air quality (contributing to air quality problems)?

During FY 2005, activities at Midewin did not result in significant sources of air pollution or contribute to the deterioration of air quality. Prior to conducting 717 acres of prescribed burns, Midewin obtained the necessary permits from the Illinois Environmental Protection Agency (IEPA), and Midewin prescribed burns did not occur during ozone action days.

4. Capital Infrastructure

4.1 Have adequate facilities been provided?

No new facilities were constructed in FY2005. Current facilities are adequate.

5. Former Army Facilities Removal

5.1 How many unsafe Army facilities or structures have been removed?

In FY2002, Midewin initiated a program to demolish former Army facilities and abandoned structures. This work continued during FY2005 with the removal of 9 warehouse foundations and demolition of 1 brick and steel warehouse and 2 road bridges. Over 1.3 miles of rusted chain link fence with barbed wire security top were also removed, along with over 700 tons of miscellaneous debris. One concrete storage bunker was demolished as part of an ongoing wetland restoration project.

The benefits of removing unneeded or unsafe former Army infrastructure are a safer, healthier environment for Midewin staff and visitors. These actions include reducing climbing/falling hazards, removing roofing materials that contain nonfriable asbestos, and eliminating structures that are hazardous nuisances. Consistent with Midewin's restoration mission, the sites can be restored for migratory birds and native vegetation species.

5.2 Are former contaminated areas being restored?

No action has been taken to date to restore any areas that were previously contaminated.

6. Ecosystem Restoration and Management

6.1 Are unfragmented blocks of grassland bird habitat being created or maintained?

In FY2005, 786 acres of unfragmented habitat were created by clearing most trees and shrubs from a grassland tract containing scattered woody vegetation. Two woody fence lines were removed; removal of 1,900 feet of woody vegetation resulted in a 125-acre unfragmented area, and removal of 5,400 feet resulted in 280 acres of unfragmented habitat. Approximately 5,000 acres were mowed to suppress invasive trees and shrubs to maintain grassland wildlife area as unfragmented habitat.

Existing habitat should continue to become unfragmented in future years to meet the requirements of the Prairie Plan, which calls for 5 unfragmented tracts that vary from 500 to 3,000 acres in size. Maintenance of existing grassland wildlife areas through mowing and prescribed burning will continue to control re-invasions of trees and shrubs. Currently small fragmented areas are being managed to form larger unfragmented areas. Large unfragmented areas over 500 acres have yet to be created, although over time the smaller areas will converge into larger areas of the recommended size.

Woody vegetation encroachment continues and is becoming worse every year in many areas. Additionally, trees and shrubs are increasing along the many roadside ditches, medians, and old railroad rights-of-way at Midewin. The present management focus is on areas under grazing, hay production, or on natural community restoration areas.

Table 6. Unfragmented habitat created/managed.

Fiscal Year	Unfragmented habitat created	Unfragmented habitat being managed
2003	1,110	1,515
2004	336	2,516
2005	786	2,797
Total*	2,232	

*Cumulative acres unfragmented to date.

Recommendations:

- Continue to unfragment grassland habitat for grassland wildlife on a yearly basis.
- Highest priority for unfragmenting should be given to existing grassland habitat areas, grazing tracts, hay fields, prairie/wetland restorations, and native vegetation remnants.
- Start to coalesce smaller fragmented tracts into larger unfragmented tracts.
- Continue mowing to control small trees and shrubs in existing management areas; open up other areas not presently being managed.
- Use herbicide treatment to better control invasive trees and shrubs and coordinate with the grazing program. Consider use of the fee credit system to achieve program needs.
- Increase the use of prescribed fire in grassland wildlife areas to help control invasive trees and shrubs.
- Maintain roadsides and medians with periodic mowing, prescribed burning, and herbicide use.
- Maintain old railroad beds with periodic mowing, prescribed burning, and herbicides; maintenance along the railroad beds may be difficult because of railroad ties left by the Army.

6.2 Are habitats being restored?

In FY2005 approximately 7,025 acres were actively managed. Restoration includes activities such as converting croplands to cool season grasses, planting native species, and implementing other restoration activities to improve existing cool season pastures and natural community areas. The initial conversion of croplands to grass fields and native vegetation is one part of restoration; the other part is the management of converted tracts and any tracts of existing native vegetation. Management includes such activities as prescribed fire, invasive plant species control, and planting native seeds and plants.

South Patrol Road Restoration

The acres of new habitat being restored will vary from year to year depending on the management needs for each tract. The trend toward restoring more acres each year will be slow due to limited resources and the need to manage the current restoration areas for invasive plant species. For example, specific tracts may be on a 3-year burn rotation and restoration might not be reported in non-burn years.

Table 7. Acres being restored.

Fiscal Year	Cumulative total of acres
2002	2,389
2003	4,107
2004	5,583
2005	7,025

Agricultural fields have been converted to grazing tracts in areas identified as grassland habitat in the Prairie Plan (Figure 3). Most of the native vegetation restoration to date has taken place on the west side of Midewin (west of State Highway 53).

Restoration activities continued with partners on three project areas. Rt 66 Prairie (formerly Mola Prairie) had invasive species control performed through a contract administered by CorLands. CorLands also administered an invasive species control contract in the South Patrol Road restoration and purchased additional seeds for overseeding this project area. CorLands also contracted woody invasive resprout control in Prairie Creek Woods. All of this work was funded through the Material Services fine settlement with the U.S. Army Corps of Engineers. Work at the Blodgett Road restoration area continued with invasive species control and native plant planting performed by The Wetlands Initiative through several grants they have received. Restoration work was started at the Middle Grant Creek project through wetland mitigation funding from CenterPoint Properties. Former Army infrastructure such as telephone poles, railroad ties, and one bunker were removed and invasive trees, shrubs and herbaceous plants were controlled.

Recommendations:

- Continue new restoration, but not at the expense of existing restoration areas that need extensive work, especially invasive plant species control.
- Continue to work with partners to insure the success of restoration projects.
- Increase restoration as funding, staffing, and/or partnership assistance becomes available.
- Prioritize new restorations to link up with existing and planned restorations.

6.3 How many acres are under management?

In FY2005 there were 7,796 acres under management. Management activities include planting, herbicide treatment for invasive plant species, mowing, and grazing to manage for grassland bird habitat. The acres under management will increase with time, but may level off in the short term, depending on the availability of resources to adequately manage the expanding acreage.

Table 8. Acres under management.

Fiscal Year	Cumulative total of acres
2002	4,004
2003	5,664
2004	7,236
2005	7,796

Recommendations:

- Continue management of existing areas.
- Manage new areas as Forest Service funding, staffing, and partnership assistance permits.

6.4 To what extent are vegetation composition objectives being met?

In compliance with Prairie Plan direction, monitoring for vegetation composition will be conducted every five years and will be reported in FY2007. We expect that biodiversity will increase over the years to meet these objectives as restoration proceeds.

6.5 To what extent is habitat management reaching desired habitat structure for RFSS birds and reaching Management Indicator goals?

In FY2005 approximately 1,600 acres of pasture lands were monitored for grass height and monitoring goals were achieved.

7. Environmental Education / Interpretation

7.1 Are tours, interpretation, and environmental education programs meeting Prairie Plan objectives?

Midewin's interpretive and environmental education programs continue to focus on Prairie Plan goals and objectives through the following program activities:

Midewin Welcome Center: The Welcome Center was open to the public for the entire fiscal year. Visitation for FY2005 was up from FY2004. The interpretive sales outlet provided by the Midewin Interpretive Association also operated for the entire year. Sales increased over the FY2004 level. For the first time, the Welcome Center was open on both Saturday and Sunday throughout the summer and into the fall hunting season.

Midewin Explorations Interpretive Activities Program: Based on the decline in participation experienced in FY04, the FY2005 program was altered. Equestrian tours and daytime bicycle tours were eliminated. The popular twilight bicycle tours were retained. The evening campfire programs continue to attract significant participation as

did the two twilight cemetery tours. The number of tour participants in FY2005 was 450, a decrease of 25% from FY2004.

Midewin Lecture Series: This series of 10 biweekly evening lectures during the winter months returned to the Midewin conference room. This decision grew out of feedback from the public that seeing the new Forest Service facility was of more importance to them than being crowded in the SO conference room, as well as a desire to boost support for the Midewin Interpretive Association. The Midewin Lecture Series is growing in popularity.

Mighty Acorns Youth Stewardship Program: During FY2005, students from 5 buildings representing 4 public school districts and one private school participated in the Mighty Acorns program at Midewin. The decline in the number of buildings participating is accounted for by the restructuring of attendance areas by the Homer Township School District. Total student participation in the Mighty Acorn program at Midewin remained at 900 for the 2004-2005 school year. There are currently at least two additional school districts that would like to join the Midewin Mighty Acorns program. The ability to maintain the existing Mighty Acorns program and to provide some expansion is dependent on recruitment of additional volunteers.

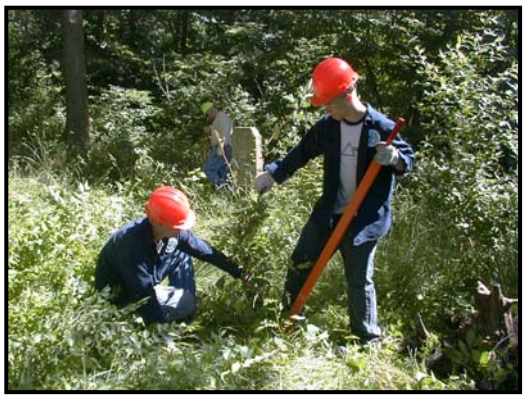
El Valor Partnership: During FY2005, Midewin supported the 5th year of the Forest Service El Valor Science & Technology day camp. Plans were made to expand the summer camp program to a second location during FY2006 have been put in place. The **Urban Academy for Environmental Discovery,** begun in November 2003 (FY04), successfully operated for a second year using the water resources curriculum developed during FY04. If expansion of the summer program to the South Chicago location is successful during FY2006, the Urban Academy program may be expanded to the second location in FY2007.

Youth Conservation Corps: Midewin hosted a YCC crew for eight weeks during the summer of 2005, providing employment and environmental education for 7 local high school youth.

Summary:

Through the programs above, Midewin provided interpretive activities for 930 individuals in FY2005, an increase of 9% from FY2004.

During FY2005, 2,800 individuals participated in environmental education programs at Midewin, an increase of approximately 6% from FY2004.



Recommendations:

- Continue to focus tour program on management goals, and explore ways to provide the same benefits of interpretation to the new audience of dispersed recreation visitors to Midewin.
- Work with the Volunteer Coordinators to expand the pool of volunteer group leaders for the Mighty Acorns.
- Continue to work with El Valor to refine the curriculum and logistics of the Urban Academy and the expansion of the Science and Technology Summer Camp to the South Chicago location.
- Develop self-guided interpretive products that enhance the visitor experience and are consistent with the Prairie Plan and the Interpretive Master Plan.

8. Fire Management

8.1 Has a fire/smoke management plan for Midewin been developed and followed?

The Fire Management Plan and the Smoke Management Plan were both completed during FY2005.

8.2 Have fire burn plans been developed and followed?

In FY2005, burn plans that were developed in FY2002 were reviewed and updated for prescribed burns at the Blodgett Road, South Patrol Road, Mola restoration areas and the River Road seed beds.

9. Hazardous Materials

9.1 To what extent have hazardous substance sites been mitigated?

No hazardous materials were removed and no sites were mitigated during FY2005. In FY2005, *A Supplemental Investigation of Engineering Controls for Rail Beds* to evaluate the results of sampling conducted in FY03 and 04 was completed.

10. Heritage Resources

10.1 To what extent are National Register-eligible sites being identified, protected, and preserved?

In FY2005, 56 National Register of Historic Places (NRHP)-eligible or unevaluated sites were identified and/or protected. Thirty-two new sites, both historic and prehistoric, were identified through Phase I surveys, and three sites were relocated. Of these, 12 sites will require further investigations to determine their eligibility for listing in the NRHP. All heritage resources evaluated for listing in the NRHP, those requiring further study, or those that have not been evaluated, are protected from adverse effects of prairie activities. Protection is achieved by periodic monitoring of site conditions, monitoring during activities, avoidance of sites during project actions, scheduling activities for certain times of year, and other mitigative measures such as fencing.

Table 9. Site identification, protection, & preservation.

Site # and type	Action
5 historic cemeteries	Monitoring & Protection
17 heritage resources	Monitoring & Protection
26 heritage resources	Protection
8 heritage resources	Identification & Protection

10.2 To what extent are National Register-eligible sites being appropriately examined, reported, and interpreted?

During FY2005, 19 heritage resources were examined, reported, and/or interpreted. Examination and reporting determine whether sites are eligible for the NRHP. Selected sites are interpreted for the public by tours, Passport in Time volunteer projects, and Mighty Acorns environmental education projects. The Youth Conservation Corps (YCC) and Midewin Heritage Association (MHA) assist the Prairie Archaeologist in maintaining the McCune Cemetery and select farmsteads.

Table 10. Site examination, reporting, & interpretation

Site Name & Type	Action
5 historic cemeteries	Interpreted
9 Farmsteads	Interpreted
3 Schoolhouses	Interpreted
2 Prehistoric sites	Interpreted

10.3 To What extent are traditional cultural properties being identified and protected?

Traditional cultural properties (TCP) are protected by non-disclosure of specific information or locations and by periodic monitoring to assure that TCPs are not impacted by project actions, vandalism, or natural deterioration.

10.4 What cumulative effects are management actions having on cultural resources and/or traditional cultural properties?

In FY 2005, all eligible or unevaluated heritage sites and potential TCPs were protected from the direct and indirect effects of management actions. Monitoring found that no cumulative effects on heritage resources have resulted from activities at Midewin. Cumulative effects of an adverse nature are avoided by different methods, including diverting activities away from sites or avoiding site surface disturbances through scheduling activities at times of the year when the ground is frozen or dry. Proper planning and communication between resource specialists has helped to minimize or eliminate adverse effects, including cumulative effects, on archaeological resources. Cumulative effects are being managed through Midewin's Environmental Management System (EMS), which promotes continual improvement of land management effects by adaptive management actions. Monitoring and protection of a prehistoric site in the Middle Grant Creek restoration area was successfully conducted following the EMS process.

11. Integrated Pest Management

11.1 To what extent are noxious weeds and invasive species expanding or being reduced?

Controlling invasive plants at Midewin has been expanded to target more species and acres since the completion of the Prairie Plan in 2002 and the decision to authorize selected herbicides for controlling invasive plant species (2002 EA on *Herbicide Use for Invasive Plant Species and Noxious Weeds Control*). Manual methods and/or highly selective herbicides are used in sensitive habitats. Less selective herbicides are used in habitats that are not highly sensitive. Mowing is used to prevent seed set, thus reducing the spread of certain invasive plants. Mowing is also used to stem the growth of certain invasive plants, including sweet-clover, Canada thistle, and woody invaders until species competition, prescribed burning, or herbicide treatments can reduce infestations.

The following table compares changes in the expansion of noxious weeds and invasive species at Midewin from FY2002 through FY2005. The table also shows the acres of noxious weeds and invasive plant species that have been treated with mowing and/or herbicides.

Table 11. Noxious Weeds and Invasive Species

Measure	FY2002	FY2003	FY2004	FY2005
Number of NNIS (non-native invasive plant species) present on Midewin	68 species (no change from Prairie Plan).	68 species (no change from 2002).	68 species (no change from 2002- 2003).	69 species (one additional species discovered, Sericea lespedeza)
Noxious weeds/ invasive plants – acres infested	Entire site (15,189 acres) infested to varying degrees with different combinations & intensities of species.	No change from FY2002 (15,373 total acres). Less intense infestations with treatment, though invasives still widespread.	No change from FY2003 (15,454 total acres). Less intense infestations with treatment, though invasives still widespread.	No change from 2002-2004, but reduced frequency in acres treated.
Noxious weeds/ invasive plants – locations	Some species widespread; others very localized. At least 10 species restricted to less than 5 infestations (per species) not exceeding 1 acre. One infestation of purple loosestrife eliminated.	No major change from FY2002. Two infestations of purple loosestrife eliminated.	No major change from FY2003. Verified eradication of 3 infestations: 1 purple loosestrife, 1 blue globe thistle, & 1crownvetch.	As in 2002. Verified eradication of two infestations: purple loosestrife (1); and cut-leaved teasel (1). Increasing numbers of new infestations in and adjacent to dolomite prairie areas.
Acres treated for NNIS plants - herbicide	<0.1	162	889	1,409
Acres treated for NNIS plants - mowing	2,070	4,231	4,220	3585
Acres treated for NNIS plants - manual removal	12	15	20	25
Number of invasive plant species treated	11 species: garlic mustard, cut-leaved teasel, common teasel, yellow sweet clover, white sweet clover, Canada thistle, musk thistle, purple loosestrife, Autumn-olive, Osage-orange, multiflora rose	17 species: same as FY2002 plus blue globe thistle, reed canary grass, common reed, invasive cattails, Amur honeysuckle, and crownvetch.	21 species: Same as FY2002 & FY2003 plus Asiatic honeysuckle, white mulberry, red clover, & white clover.	26 species: Same as FY02 & FY03 with addition of white mulberry, red clover & white clover (also FY04); wild parsnip, poison hemlock, bird's-foot trefoil, black locust, European buckthorn & Sericea lespedeza
Invasive insects monitored through partnerships	1 gypsy moth	1 gypsy moth	1 gypsy moth	2 gypsy moth and wood-boring beetles

The apparent downward trend in acreage for mowing control between 2004 and 2005 reflects the mowing rotation for control of invasive woody plants in specific tracts. Most tracts with invasive woody plant infestations do not require annual mowing to maintain habitat structure and prevent spreading of invasives; in most cases mowing once every 2-3 years is sufficient.

A cause of concern is the increase in size and number of infestations within and adjacent to the dolomite prairie, a rare habitat containing one federal endangered plant and five Regional Forester Sensitive plant species. Many of these infestations appear to originate from larger infestations on adjacent commercial property. In 2005, gypsy moth was detected on the Midewin NTP for the first time. A single male was trapped adjacent to the county landfill. Presumably, the insect was brought in as a cocoon on landscape waste or other material being disposed at the landfill.

Habitat restoration, combined with partial funding through partnerships, has been essential in expanding integrated pest management for more species on more acreage. Staff training has been expanded in 2005 to include pesticide applicator license for seasonal employees, which has allowed increased treatment of isolated infestations both within and outside large habitat restoration projects. Additional habitat restoration, new partnerships, and staff training are needed for these positive trends to continue.

Recommendations:

- Contact adjacent landowners and encourage them to maintain control of invasive species.
- Educate adjacent landowners on need to control invasive species.
- Seek out funding partners and fund more aggressive invasive species control.
- Train field-going personnel to recognize key invasive species and report infestations to Midewin invasive species coordinator (horticulturist).
- Continue management of existing restoration projects for invasive species control.

12. Land Ownership

12.1 To what extent have land boundaries been adjusted?

Midewin acquired 2,640 acres in the last month (September) of FY2005 with the third land transfer (T3) from the Department of Defense (Army). The total acreage of land administered by Midewin at the end of FY2005 was 18,094.

13. Recreation

13.1 Are trails constructed to standards for planned use?

Design of the five-mile, multiple-use portion of the West Side Trail was completed in FY2005. Construction of the West Side Trail began with cutting approximately two miles of sod. Due to high labor requirements, initial efforts to relocate sod to areas in need of fill material elsewhere on the prairie were later replaced with tilling the sod in place and dispersing it adjacent to the trail. The initial base fill of gravel was spread along approximately 0.8 miles of the West Side Trail by volunteers and Midewin seasonal employees.

To keep the 19 miles of interim trails maintained for pedestrian, equestrian, and bicycles, the trails were mowed frequently.

13.2 Is the Prairie being managed in accordance with prescribed ROS guidelines?

No new permanent recreation developments were made in FY 2005. Those that exist, such as the Midewin Welcome Center, are being managed in accordance with Prairie Plan-prescribed ROS standards. Trails and additional facilities are being developed in accordance with ROS guidelines.

13.3 Do recreational facilities meet the needs of the public?

The Welcome Center that was opened to the public in FY2003 is the only recreational facility at Midewin and has continued to meet the needs of the visiting public in FY2005. Interim trails are maintained by mowing the grass.

13.4 Are visitors well informed of recreation resources? Have resources been adequately interpreted?

Part of Midewin was opened to the public for recreational use for the first time in June 2004. An extensive communication effort was conducted to scope public concerns and then to produce brochures, flyers, and web pages. The programs started in 2004 continued throughout 2005. The Midewin Welcome Center was open seven days a week during the summer months and six days a week during the spring and fall. Brochure boxes were added at public access points. A public contact trailer was circulated around major access points and trail patrols were used to insure that positive personal interaction was made with many visitors. The escorted tour program continued to offer interpreted tours to lands that remain closed to the public.

14. Research

14.1 Are key information needs being pursued as research projects? What is the contribution of these projects to Midewin and to general knowledge?

In FY2005, research at Midewin continued with an emphasis on restoration and management needs and on research that will help advance the Midewin Prairie Plan. Research into processes underlying the structure and functioning of the grassland flora and fauna and the effects of restoration and management practices, with an eye on adaptive management, continues.

The following research proposals were submitted for external funding:

- **Prairie Seed Banks at Midewin National Tallgrass Prairie: A Key to its Restoration.** Brenda Molano Flores and Christopher J. Whelan, Illinois Natural History Survey. Proposal submitted to IDNR C2000 for funding award to University of Illinois at Urbana-Champaign.
- **Woody plant invasion of grasslands: Interactions between seed dispersal and microhabitat characteristics.** Daniel G. Wenny, Christopher J. Whelan, and Norberto J. Cordeiro, Illinois Natural History Survey. Proposal submitted to IDNR C2000 for funding award to University of Illinois at Urbana-Champaign.
- **Determining the potential for carbon sequestration through prairie restoration.** Christopher J. Whelan, Illinois Natural History Survey, Miquel Gonzalez-Meler, and Joel S. Brown, University of Illinois at Chicago. Proposal submitted to IDNR C2000 for funding award to University of Illinois at Chicago.

The following was proposed for consideration at Midewin:

- **Grand Restoration Experiment.** Edward Heske and Christopher Whelan, Illinois Natural History Survey, and Joel Brown, Mary Ashley, Miquel Gonzalez-Meler and Lynne Wiora, University of Illinois at Chicago, Center for Research in Urban Ecology.

The Grand Restoration Experiment (GRE) is a proposed investigation involving the Midewin, the Illinois Natural History Survey (INHS), and the University of Illinois, Center for Research in Urban Ecology and Human Dominated Landscapes (CRUE). The major objective of the proposed research is to conduct a long-term, landscape-scale experimental restoration that will examine mechanisms that structure the composition and dynamics of the tallgrass prairie and associated ecosystems. Initial focus will concentrate on above-ground trophic interactions among small mammals, particularly voles and other small rodents, insectivorous and granivorous bird species, and native tallgrass plant species. Research on below-ground processes, including the potential of soils of northeast Illinois for carbon sequestration through tallgrass prairie restoration, will also be incorporated.

New and continuing agreements to pursue scientific investigations and studies also included:

- MOU with Emily Kluger of the University of Illinois at Urbana-Champaign for inventory, research, and monitoring of prairie weevil and its effects on the *Silphium* family of plants.
- MOU with Christine Caruso to study *Lobelia siphilitica*
- MOU with Amy Chabot for loggerhead shrike monitoring.
- MOU with Francis M. Veraldi of the Army Corps of Engineers and Dr. Philip W. Willink of The Field Museum of Natural History to inventory and research fish at Midewin.
- MOU with Illinois State University to monitor biological resources.
- MOU with Nicolette Cagle of Duke University to monitor snakes.

15. Scenery Management

15.1 Is scenery of National Forest System land improving?

The criterion for prairie restoration to improve the scenery is when "*a piece of land begins to look like prairie*".

The South Patrol Road and Blodgett Road restoration areas continue to move toward this long-term scenic integrity objective.

The Route 66 (Mola Tract) restoration area located along Illinois route 53 began in FY2002. In FY2005 the vegetative component of the land began to look more like prairie, the desired scenic integrity objective. Over the coming years, the restoration is expected to continue to move toward the long-term scenic integrity objective. The Route 66 Restoration area is a high visibility tract of land located along old US Route 66 and directly across from the Supervisor's Office. It provides an important connection between the public, Midewin and the prairie.

In addition to prairie and savanna restoration, the following projects were completed that affect scenic integrity improvement:

- 1 concrete ammunition bunker was removed.
- 9 warehouse foundations were removed.
- 2 bridges were removed.
- 1.3 miles of 7-foot high chain link fences were removed.
- Approximately 312 utility poles were removed.

These projects have a small footprint on the land and cannot be measured in acreage; although, they affect the scenic integrity of the landscape on a much larger scale.

Table 12. Scenic integrity improvements.

	2004	2005
Prairie Restoration	823 acres	65 acres

16. Social and Economic

16.1 To what extent is Midewin contributing to the local economy?

Under the Illinois Land Conservation Act that established Midewin, 25% of agricultural leasing revenues are shared with local communities for support of roads and schools. This is consistent with revenue-sharing agreements on other Forest Service units and is commonly referred to as the "25% Fund." This is a national program in which 25% of the revenues generated from timber sales and other commercial activities on national forests are shared back to the counties. Midewin began contributing to local schools and roads in Will County in 1998. The 25% Fund payments to Illinois are remitted from the U.S. Treasury to the Illinois State Treasurer, who then transfers them to the Illinois Department of Natural Resources (IDNR) for distribution.

Payments to Will County are split 50/50 and paid to the Will County Treasurer for roads and to the Will County Superintendent of Schools. The school payment is further split between the Wilmington (73%) and Elwood (27%) school districts based on the proportionate acreage of Midewin in the two districts.

The Secure Rural Schools and Community Self-Determination Act of 2000 (P.L. 106-393) – also known as the Stabilization of Payments Act, gives counties a stable "25% fund payment" in the future regardless of revenues collected. This means that reductions in agricultural leasing at Midewin will have no effect on future payments to Will County. The amount paid to Will County under this calculation was $229,601 for FY2005.

In addition, payments under the Payment in Lieu of Taxes (PILT) program were initiated in 1999 for Midewin. The former Joliet Arsenal lands had not been included in federal acreage under Army administration, and were submitted to the Bureau of Land Management for inclusion in the calculations in 1998, resulting in a first PILT payment to Will County in 1999. The PILT payment to Will County for FY2005 was $3,037.

Table 13. FY2005 Payments to Will County.

25% Fund	$229,601
PILT	$3,037

Summary for FY2005:

In the nine years since the establishment of Midewin, Will County has received $1,841,238 in direct federal payments for support of roads and schools.

17. Threatened, Endangered Species and Regional Forester's Sensitive Species

17.1 To what extent are NFS lands and their management contributing to the recovery, conservation, and viability of threatened, endangered, or proposed species and to what extent are actions prescribed in recovery plans being implemented?

In FY2005, population counts were completed for ear-leaf foxglove, leafy prairie clover, glade mallow, glade quillwort, small white ladies slipper, Pitcher's Stitchwort, and Sullivant's coneflower. Acres were surveyed for grassland birds (6,500 acres), wetland birds (200 acres), RFSS insect species (100 acres), ear-leaf foxglove (15 acres), false mallow (20 acres), glade quillwort (20 acres), Pitcher's stitchwort (20 acres), leafy prairie clover (20 acres), small white ladies slipper (14 acres) and Sullivant's coneflower (50 acres) for a total of 6,959 acres. The total 6,959 acres includes some tracts counted several times for surveys for different species.

Table 14. Population counts and acres surveyed.

FY 2002	Population counts = 2 Acres surveyed = 4,592
FY 2003	Population counts = 5 Acres surveyed = 5,948
FY 2004	Population counts = 7 Acres surveyed = 6,620
FY 2005	Population counts = 7 Acres surveyed = 6,959

Plants and grassland birds are being adequately monitored at this time. As more wetlands are re-created at Midewin, monitoring of wetland birds and amphibians will need to be increased. Monitoring of the Regional Forester's Sensitive Species (RFSS) insects was started in FY2005. This insect monitoring is especially important as the prescribed fire program increases and burning takes place in higher quality natural communities.

Recommendations:

- Continue monitoring Regional Forester's Sensitive Species as identified in the Prairie Plan.
- Increase amphibian, wetland bird, and insect monitoring.

17.2 To what extent are NFS lands and their management contributing to the viability of Regional Forester's Sensitive Species and other species of concern?

In compliance with Prairie Plan direction (p. 6-13), monitoring of RFSS and other sensitive species will be conducted on a rotational basis so that in any given year, a subset of species is monitored. Each subset is to be monitored only every five years.

Through the help of volunteers and partners, monitoring of some species has taken place at more frequent intervals. Monitoring that has been ongoing on a yearly basis is discussed below along with monitoring that was established in FY2004 or FY2005.

Leafy Prairie Clover *Dalea foliosa* (Federally Endangered):
Leafy prairie clover is a short-lived perennial plant. Weather conditions are major factors on seedling germination and survival, so the number of seedlings can fluctuate wildly from year to year. A more stable measurement would be the vegetative and flowering plants, whose numbers should not fluctuate as much. Demographic monitoring was started in FY2002. With only four years of data to assess, it is difficult to determine trends; however, the population appears to be safe at this time. Deer browse has been a problem in the past, but surrounding the plants with cages has been successful in limiting browse.


Leafy Prairie Clover

Table 15. Leafy prairie-clover population sampling.

Fiscal Year	# Seedlings	# Vegetative Plants	# Flowering Plants	Total # Plants
2002	0	83	9	92
2003	161	15	64	240
2004	31	76	144	251
2005	26	53	115	194

Recommendations:

- Continue to complete yearly demographic monitoring.
- Once land surrounding these populations is transferred to Forest Service, commence a management program of prescribed burning and invasive species control to decrease invasive plant threats.
- Continue to cage the population to prevent deer browse and monitor deer population numbers.


Glade Quillwort

Glade Quillwort *Isoetes bulteri* (RFSS):
The glade quillwort is a plant found in association with dolomite prairies. Population size monitoring, demographic monitoring and threat documentation have been established for this plant with the assistance of the Chicago Botanic Garden and the Chicago Wilderness Plants of Concern monitoring program. With only three years of data for population monitoring and two years of data for demographic monitoring, strong inferences cannot be drawn at this time. The increase in FY2004 was the result from

new observations within subpopulations rather than an increase within the subpopulations. The decrease in 2005 appears to have been the result of several factors, the flooding of one population by beaver activity and the result of duff buildup from *Poa compressa* due to the lack of fire. The protocols for the demographic monitoring continue to be developed.

Table 16. Glade quillwort population sampling.

Fiscal Year	Population Size
2003	163
2004	408
2005	277

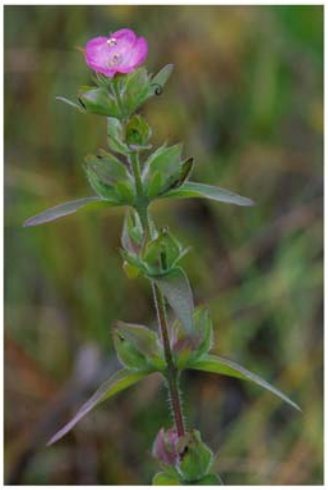
Specific Recommendations: Continue to monitor yearly and develop monitoring and demographic protocols with partners. Once land surrounding these populations is transferred to Forest Service, commence a management program of prescribed burning and invasive species control to reduce the identified threats.

Sullivant's Coneflower *Rudbeckia fulgida var. sullivantii* (RFSS):
Sullivant's coneflower is a fairly common perennial plant at Midewin within appropriate habitat. Monitoring was initiated in FY2003 to determine the impacts of management (grazing, prescribed burning, mowing, invasive control) on the plant. The Chicago Botanic Garden and Chicago Wilderness Plants of Concern monitoring program are partners in this monitoring. Several more years of data will be necessary to determine the impacts of management on Sullivant's coneflower.

Recommendations:

- Continue to monitor on a yearly basis the impacts of management upon Sullivant's coneflower until definitive recommendations can be made.
- Continue to monitor deer population numbers.

Ear-leaf False Foxglove *Tomanthera auriculata* (RFSS):
Ear-leaf false foxglove is an annual plant with a history of annual fluctuations of population numbers that are abundant in some years and essentially absent in other years, only to reappear again. Populations are located in three widely dispersed locations. Population size has been monitored since 2001. The Chicago Botanic Garden and Chicago Wilderness Plants of Concern monitoring program are partners in this monitoring. Overall the population appears to be doing well, although some sub-populations may vanish from sight during some years. Deer browse and invasive shrubs appear to be the major threats to the ear-leaf false foxglove.



Ear-leaf False Foxglove

Table 17. Ear-leaf false foxglove population sampling.

Fiscal Year	Blodgett Road Population	Foxglove Prairie Populations	Total Population Size/Number of Stems
2001	165	1785	1,950
2002	359	775	1,134
2003	205	31	236
2004	150	950	1,100
2005	582	1193	1,775

Recommendations:

- Continue to monitor on a yearly basis for at least 10 years to get a good sense of population numbers and management.
- Continue to remove invasive brush and monitor deer populations.

False Mallow *Malvastrum hispidum* (RFSS):

The false mallow is an annual plant found in dolomite prairies with population numbers that may fluctuate yearly. Three permanent representative macroplots have been established to monitor plant numbers and density from year to year. The goal is to use the macroplots to detect impacts of restoration management practices. The Chicago Botanic Garden and Chicago Wilderness Plants of Concern monitoring program are partners with Midewin. With the annual nature of false mallow and only three years worth of data, reliable trends cannot be established yet.

Table 18. False Mallow macroplot populations by fiscal year.

Fiscal Year	Plot 1 Population	Plot 2 Population	Plot 3 Population	Total Population
2003	459	164	N/A	623
2004	111	34	317	462
2005	215	14	210	439

Recommendations:

- Continue to monitor on a yearly basis for at least 10 years to get a good sense of population numbers and management.
- Continue to remove invasive herbaceous plants and brush.
- Continue to monitor deer population numbers.

Pitcher's Stitchwort *Minuartia pitcheri* (RFSS):

Pitcher's stitchwort is another annual dolomite prairie plant that can have large annual fluctuations in population size. The Chicago Botanic Garden and Chicago Wilderness Plants of Concern monitoring program are partners with the Forest Service at Midewin. The monitoring protocol has been developing over the past three years. A total of 5 photoplots have been established to visibly show population changes from year to year. The goal is to be able to show changes with management practices. During 2004 and

2005 total numbers of plants and density was determined. With only three years of available data, no definitive trends can be inferred. Invasive plant species are probably the greatest threat to this plant.

Table 19 shows the sample size and plant density in all *M. patula* plots for 2004 and 2005. Plot 2 was flooded due to beaver activity during 2005 and plot 6 was new in 2005.

Table 19. Pitcher's Stitchwort plant count and density by sample plot.

Year	Plot 1 Count	Plot 1 Density	Plot 2 Count	Plot 2 Density	Plot 3 Count	Plot 3 Density	Plot 4 Count	Plot 4 Density	Plot 6 Count	Plot 6 Density
2004	5	NA	7	0.08	375	5.10	63	0.82	NA	NA
2005	63	1.50	NA	NA	129	1.75	15	0.20	198	2.48

Recommendations:

- Continue to monitor on a yearly basis for at least 10 years to get a good sense of population numbers and management.
- Implement invasive plant species control.

Crawe's Sedge *Carex crawei* (RFSS):

Crawe's sedge is small perennial sedge that can be found in dolomite prairies and other calcareous areas. The Chicago Botanic Garden and Chicago Wilderness Plants of Concern monitoring program are partners in this monitoring. Subpopulation monitoring was established in FY2004 to detect any subpopulation changes with management activities. It will take several years to determine any trends. Threats to the population are invasive species.

Recommendations:

- Continue yearly monitoring with partners.
- Implement invasive plant species control.

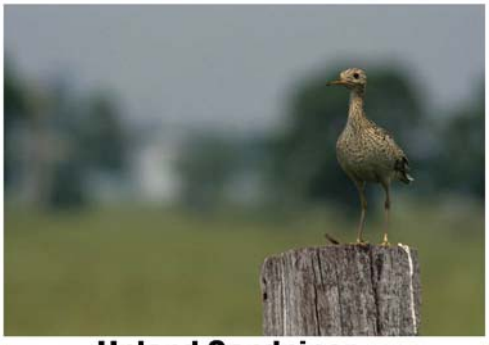
RFSS Grassland Birds:

Four RFSS grassland bird species have been monitored for several years. Henslow's sparrow (*Ammodramus henslowii)* prefers taller grass heights and is usually found in idle grasslands or prairie restorations. Bobolinks (*Dolichonyx oryzivorus)* tend to prefer the medium height grasses, lightly grazed areas, hay fields, or idle grasslands. Loggerhead shrikes (*Lanius ludovicianus migrans)* and upland sandpipers (*Bartramia longicauda)* prefer short grass heights, usually grazed tracts. Loggerhead shrike habitat requires scattered small trees and shrubs to nest in, while upland sandpipers prefer open, relatively treeless expanses. Although there is some fluctuation in the population numbers from year to year, each of the four species appears to be stable at this time.

Table 20. Grassland bird population number.

Fiscal Year	Bobolink	Henslow's Sparrow	Upland Sandpiper	Loggerhead Shrike (nests)
2001	278	41	15	9
2002	281	15	11	7
2003	234	16	20	9
2004	325	12	21	8
2005	321	20	20	12

The numbers in Table 20 are only from NFS lands. Additional grassland bird habitat is located on lands managed by the Army. Some of these grassland birds move around, depending on the quality of the habitat, and may be more common on Forest Service lands one year and then on Army lands the next year. None of these four species are at the population numbers estimated to be necessary for viable populations. The planned addition of Army lands to Midewin will increase the population numbers. As more restoration takes place, the population numbers will increase and possibly approach the numbers needed for viable populations.



Upland Sandpiper

The bobolink population is doing well, although the species is at about half the number needed for a viable population (680 pairs) over 50 years. When considering lands managed by the Army, the population size is probably within 100 pairs of being viable.

Henslow's sparrow populations can fluctuate depending on management; for example, they are sensitive to fire. The high population seen in 2001 cannot be explained. It is estimated that 65 pairs are needed for a viable population over 50 years. Currently, counts at Midewin indicate the presence of one-third of the 65 pairs needed for a viable population. As more prairie is restored and the present restored prairie matures, this percentage is expected to increase.

The loggerhead shrike population has been fairly steady, usually around 10 nests (10 pairs) on the combined Forest Service and Army property. However, during some years not all of the nests were located. It is estimated that 48 pairs are necessary for a viable population over 50 years. There appears to be habitat for more shrikes than currently are found on Midewin. The number has been relatively stable since the Forest Service began managing the property, and is expected to increase with time.

Loggerhead Shrike

Although the upland sandpiper population appears to be stable, their number is nevertheless down from the late 1980s and early 1990s when the yearly populations were over 100. Because it is estimated that 123 pairs are needed for a viable population at Midewin, the upland sandpiper faces the greatest challenge of all the grassland birds. Although suitable habitat has been increasing, the population size has not increased accordingly. The large population drop from the 1980s and early 1990s cannot be explained, although problems elsewhere, such as within the bird's winter range in South America, may account for the decrease.

Other RFSS Species:
Available monitoring data for other RFSS is not sufficient for adequate analyses at this time. Most of these species are in such low numbers, difficult to monitor or sporadic in use of Midewin that monitoring is difficult. Species that have been monitored include three birds: American bittern, least bittern, king rail; and three insects: red-veined leafhopper, Eryngium stem borer moth, and blazing star stem borer moth.

Recommendations:

- Continue monitoring federally-listed and RFSS species.
- Increase monitoring of each species to a yearly basis if increased staffing, funding, and/or partnership assistance becomes available.
- Increase restoration and management of habitat for loggerhead shrikes and upland sandpipers.
- Encourage research efforts designed to: 1) ascertain problems that affect loggerhead shrikes and upland sandpipers, and 2) determine why these species have not responded to increased suitable habitat conditions.
- Monitor the other RFSS species.

18. Transportation and Utilities

18.1 How many miles of roads are decommissioned?

The goal stated in the Road Analysis Plan for Midewin (2002) and tiered to the Prairie Plan is to decommission roads based on Level II (closure, removal of building materials, grading, and stabilizing) or Level III obliteration (closure, removal of building materials, restoring soil, and revegetation). Level I is road closure without restoration. In FY 2005, no roads were decommissioned.

18.2 To what extent are road closures effective in preventing off-road vehicle travel?

Off-road vehicle travel is prohibited at Midewin. The posting of signs and enforcement of rules have served as effective deterrents to prohibit vehicle travel. Areas that were previously disturbed by illegal travel have shown signs of repair following signing and enforcement actions. In FY 2005, the sign posting and enforcement (including violation notices with dollar fines and written notices similar to a warning ticket) resulted in continued decreases in off-road use.

19. Watershed, Riparian, and Wetlands

19.1 What is the condition of watersheds within Midewin?

Several studies were conducted on watershed conditions at Midewin between 1997 and 2000. Studies included macro-invertebrates, streamflow data collection, mussel inventories, and water quality sampling of stormwater runoff, surface water, and ground water at various locations. In accordance with Forest Service Manual (FSM) 2500 and the Prairie Plan, watershed conditions at Midewin are evaluated as Condition Class I, II, or III (ranging from highest to lowest watershed quality).

Condition Class II is defined in FSM 2500: "Watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses."

Condition Class III is defined in FSM 2500: "Watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. A majority of the drainage network may be unstable. Physical, chemical, and biologic conditions suggest that soil, riparian, and aquatic systems do not support beneficial uses."

The table below compares watershed condition classes from fiscal years 2002 and 2003 combined, and FY2004. The FY2002 and FY2003 designations were derived from the 2000 assessment and from additional stream studies**.**

Table 21. Watershed Condition Classes.

Watershed	FY 2002-2003 Class	FY 2004 Class
Jackson Creek	II	II
Prairie Creek	II	II
Grant Creek	II	III
Jordan/Lower Forked Creek	II	II

The Grant Creek watershed declined from a Condition Class II in FY2000, 2002, and 2003, to a Condition Class III in FY2004, mainly due to its continuing decline in geomorphic and hydrologic integrity. The major contributors to this decline are:

- An increase in the severity and extent of bank erosion of Grant Creek due to a couple of major flooding events early in 2004 and tree removal projects along the banks and on bars in the creek.
- An increase in the impervious surface area of the watershed. Much development occurred at the neighboring industrial park in FY2004.

Region 9 has guidelines for assessing watershed conditions, and a watershed assessment using those parameters was completed in 2000. The following table shows those results:

Table 22. FY 2000 watershed assessment results.

Watershed	Restoration Priority	Protection Priority
Jackson Creek	1	1
Prairie Creek	3	2
Grant Creek	2	4
Jordan/Lower Forked Ck.	4	3

The lower number is highest priority.

Based on the data and observations of water resources in the years since the FY2000 watershed assessment, some changes in priorities were recommended for FY2004.

Table 23. FY 2004 watershed assessment results.

Watershed	Restoration Priority	Protection Priority
Jackson Creek	2	2
Prairie Creek	3	1
Grant Creek	1	3
Jordan/Lower Forked Ck.	4	4

19.2 How many acres of riparian lands have been restored?

Monitoring takes place in the context of changes in species composition (native vs. non-native) for acres of riparian land. In FY 2002 and 2003 combined, approximately 17 acres in Prairie Creek Woods were restored to riparian habitat.

19.3 To what extent are management activities affecting riparian areas?

In accordance with Prairie Plan direction, monitoring of the effects of management activities on riparian areas will occur every five years in the form of watershed assessments. Monitoring to date has indicated the need for increased management to slow bank erosion in Grant Creek and to prevent woody debris from entering streams.

19.4 How many acres of wetland have been restored?

In accordance with Prairie Plan direction, frequency of monitoring will be every five years for wetlands. Monitoring takes place in the context of changes in species composition (native vs. non-native) for acres of wetlands. By FY2003, 287 acres of wetland had been restored for the Blodgett Road restoration project and 536 acres of wetland were restored for the South Patrol Road restoration project. For both project areas, 82 additional acres were restored in FY2004. In FY2005 no additional acres were

added to wetland restoration, additional restoration continued in the area where wetland restoration was already started.

19*.5 To what extent are management activities affecting wetland areas?*

Current information about the extent of effects by management activities on wetland areas is not yet available.

Recommendations:

- Watershed monitoring frequency should be increased from every five years to every year or every other year. The lands of Midewin and the surrounding area are undergoing rapid change, and the effects of many restoration activities can be seen within a year's time, allowing corrective actions to take place immediately, if necessary. A five year gap in monitoring frequency may not be beneficial or may negate the effectiveness of corrective actions.
- An official water well policy should be developed for Midewin to bring future wells into compliance with state and federal regulations.
- Land uses in surrounding areas should be monitored. Urbanization is continuing at a very rapid pace in surrounding communities and industrial parks. Because growth and development may have a detrimental effect on our water resources at Midewin, it would be beneficial to track the percentage of impervious vs. pervious surface in Midewin's watersheds on a regular basis.

20. Water Quality

20.1 What is the condition of water bodies on Midewin?

1. Groundwater Quality Monitoring and Evaluation

Ten Midewin monitoring wells installed by the U.S. Geological Survey (USGS) in FY2003 were monitored by the USGS until September 30, 2004. The depth to water is the only parameter currently monitored in these wells. A water quality sampling program is expected to be in place for these and other wells at Midewin during FY2006.

Montgomery Watson Harza (MWH) is contracted to monitor wells that were installed for the Army, as required by the Record of Decision. Most of the wells are situated on property that has not yet been transferred to Midewin. In May 2004, the first U.S. Environmental Protection Agency five-year review period ended, and an assessment and report were published[1].

[1] Final Five-Year Report – Groundwater Operable Unit, Joliet Army Ammunition Plant, Wilmington, IL: Montgomery Watson Harza, April 2004.

During the recent five-year review period, the number of the Army's groundwater operable units (GOUs) decreased from 12 to 11. As remediation continues into the next five-year period, more units will be closed as remediation goals are met. The groundwater management zone boundaries at the South Ash Pile (residue from Army operations, not yet transferred to Midewin) were extended. Otherwise, the monitoring of natural attenuation of contaminated groundwater by MWH is continuing as planned, with two data collection visits per year.

Carlson Environmental, also under contract, conducts shallow groundwater sampling for CenterPoint Properties at six locations, three of which are on Midewin. The other three locations are in the vicinity of Midewin at Deer Run Industrial Park. The six sites have been tested for explosives and volatile organic contaminants (VOC); no explosives or VOCs were detected in the groundwater samples collected during July 2004, indicating no change from the 2003 results.

The largest threat to groundwater quality on Midewin at this time continues to be urbanization. The shallower aquifers will certainly be affected by increased storm water runoff. The quantity of groundwater is not likely to change, but there may be more contaminants present initially, such as nutrients, petroleum products, heavy metals, and other substances common in urban runoff.

Groundwater monitoring information for FY2005 is not available at this time.

Recommendation:

- Perform quarterly water quality testing for the most common urban contaminants in several wells beginning in FY2006. Army consultants will continue to monitor the natural attenuation of remaining groundwater plumes.

2. Surface Water Quality Monitoring

Carlson Environmental sampled stormwater runoff and surface water for CenterPoint at four stations (1 and 4 on Jackson Creek, and 6 and 7 on Grant Creek) in the Deer Run Industrial Park vicinity. Copper, zinc, chloride, total suspended solids (TSS), and nonpolar fats, oil, and grease (FOG) were sampled, providing the following results:

Table 24. Surface water quality monitoring.

Analyte	EPA Bench-mark Value	North Outfall	South Outfall	Stream Site 1	Stream Site 2	Stream Site 6	Stream Site 7	North Outfall (flush)	North Outfall (comp)	South Outfall (flush)	North Outfall (comp)
Total copper	0.0636	ND	ND	0.018	0.017	ND	ND	ND	ND	ND	ND
Total zinc	0.117	ND	ND	0.11	**0.14**	0.087	0.088	ND	ND	ND	**0.57**
TSS	100	22	15	**430**	**380**	70	60	11	3.3	20	20
FOG	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	**NE**	380	350	44	43	44	64	350	350	94	94

(ND = Not detected; NE = Not evaluated)

Surface Water Quality Evaluation

Concentrations of total copper, chloride, and FOG were well below EPA benchmark values. However, in one storm event, concentrations of total zinc and TSS exceeded benchmark values (bold figures above).

Because the TSS concentrations were high both upstream and downstream of Deer Run, the industrial park is not likely to be responsible for the elevated TSS levels. The slightly elevated zinc concentration at Station 4 is also not believed to be caused by the stormwater runoff of the industrial park, since the flush zinc concentrations at both outfalls were not detectable.

Development of Deer Run Industrial Park has resulted in a large increase in impervious surface used for vehicles, vehicle storage, and maintenance. It is encouraging, then, that no fats, oil, or grease was detected in any of the samples. With continuing development of the industrial park and surrounding communities, water quality will be an ongoing concern for Jackson and Grant Creeks.

Surface water quality information for FY2005 is not available at this time.

Physical Parameters Monitoring

Physical parameters are monitored at the same locations by Carlson Environmental, and the results for FY2004 are as follows:

Table 25. Physical parameters monitoring.

Sampling location	pH	Temperature (F)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)
Station 1 (Jackson Creek)	6.84	55.2	20.10	1.013
Station 2	6.80	54.9	23.40	1.025
Station 3	6.78	55.6	21.90	1.019
Station 4	6.91	54.6	17.20	0.985
Station 5 (Grant Creek)	7.30	57.6	19.00	0.885
Station 6 (Grant Creek)	6.82	54.6	18.94	0.946
Station 7 (Grant Creek)	7.03	55.8	19.25	0.842

Physical Parameters Evaluation

All physical parameter results are within normal limits. The pH at Station 5 has increased from 7.04 in 2003 to 7.30 in 2004. Otherwise, no significant change occurred between these two years in the physical parameters noted above.

Surface physical parameter information for FY2005 is not available at this time.

3. Macroinvertebrate Monitoring

Macro invertebrate surveys were conducted using volunteers in the Illinois RiverWatch monitoring program, which is part of the Illinois EcoWatch program. Macro invertebrate data exist for Grant Creek, Prairie Creek and Jackson Creek on the Midewin National Tallgrass Prairie. Three indexes of stream quality are determined at each sampling point within a stream: taxa richness (TXR), Ephemeroptera + Plecoptera + Trichoptera taxa richness (EPT), and macro invertebrate biotic index (MBI). MBI scores provide a general overview of stream health. Taxa richness is an indicator of the diversity of aquatic life. EPT taxa richness is an indicator of the diversity of highly sensitive aquatic organisms. Data for these indexes are presented below.

Table 26. FY2003-2005 RiverWatch monitoring macro invertebrate data and quality rating*.

Stream	Taxa Richness (TXR)			EPT Taxa Richess (EPT)			Macro invert. Biotic Index (MBI)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Grant	13 (G)	10 (F)	6 (VP)	6 (E)	3 (F)	1 (VP)	5.07 (F)	5.31 (F)	5.32 (F)
Jackson	8 (P)	3 (VP)	14 (E)	2 (P)	0 (VP)	6 (E)	5.67 (F)	5.27 (F)	6.15 (P)
Prairie1	15 (E)	--	13 (G)	6 (E)	--	6 (E)	5.76 (P)	--	4.65 (G)
Prairie2	10 (F)	12 (G)	10 (F)	3 (F)	4 (G)	2 (P)	5.49 (F)	4.94 (G)	6.22 (P)
Prairie3	17 (E)	14 (E)	9 (F)	7 (E)	4 (G)	1 (VP)	4.46 (G)	4.30 (E)	6.43 (VP)

*Quality rating where E = excellent, G = good, F = fair, P = poor, VP = very poor. Quality rating is based on tentative revised 2004 rating table on RiverWatch macro invertebrate identification sheet.

Macro invertebrate Monitoring Evaluation

From FY2003 to 2005, Grant Creek taxa rating have been decreasing while the MBI rating has remained stable. In Contrast, Jackson Creek taxa rating have been increasing while at the same time the MBI rating has been decreasing. Two of three sites on Prairie Creek (sites 2 and 3) show a decrease in rating for taxa indexes as well as MBI, while site 1 indicates stable taxa and MBI ratings. Based on this macro invertebrate monitoring information, the diversity of organisms is decreasing in Grant Creek, increasing in Jackson Creek and decreasing overall in Prairie creek. General stream health is decreasing in Jackson Creek and overall in Prairie Creek and is staying the same in Grant Creek.

4. Streamflow Monitoring

Some stream flow information (such as velocity, depth, and discharge) was collected in FY2004 for Grant Creek at West Patrol Road and Prairie Creek at West Patrol Road.

As a result of urbanization in the surrounding region, Midewin's streams have become more "flashy" during storms, negatively impacting stream corridors. As more impervious surfaces develop, larger volumes of water run into creeks at much higher velocities for shorter times, causing severe erosion and sedimentation. Water quality is also affected as more suspended solids are present in the water, both from runoff and from the water's ability to carry more particles. As communities are developed and populations grow upstream from Midewin, new water treatment plants and other point sources will

discharge directly into streams, increasing the base flows of Jackson, Prairie, and Grant Creeks.

Streamflow monitoring information for FY2005 is not available.

Future Concerns

Nonpoint source pollution continues to be a problem for Midewin's streams. However, in spite of nutrient runoff causing increased algae in Prairie and Grant creeks at certain times of the year, the waters remained relatively clear. The biggest threat to Midewin's streams in coming years is urbanization. Data collection and analysis, monitoring, and surveys of Midewin water resources will continue on a regular basis. The next water quality monitoring update is due in FY2008, but may need to be completed sooner based on rapidly expanding urbanization and commercial development.

WATER RESOURCES SUMMARY

The overall quality of water resources appears to have ranged from fair to almost good. Nutrient runoff is always a concern. Water quantity in Midewin streams should increase overall due to urbanization in the surrounding region, but its rate of increase is unknown. A higher base flow could benefit some of Midewin's streams. However, if the water quality is low, then the higher base flow would result in more negative impacts to water quality in the future. Also, flashiness of streams that flow through Midewin will continue to increase as more development occurs in surrounding communities and upstream areas.

Recommendations:

- Streamflow should be monitored regularly in order to establish rating curves for Midewin's streams. Rating curves are necessary for predicting discharge from future storm events and for determining the effects of restoration activities.
- Jackson Creek should be monitored more closely, as very little data are currently available.

21. Wildlife

21.1 What effects are management activities having on Management Indicators?

Reporting for effects of management activities on Management Indicators is to occur every five years. Comprehensive reporting will take place in 2007 according to Prairie Plan direction. Data has been collected through FY2005 and will continue to be collected.

Information collected by population counts, censuses, surveys, and land coverage is presented in the tables below:

Table 27. Management Indicators--Populations counts, censuses, and surveys.

Species or Ecological Group	Census or Sampling				Field Survey			
	2002	**2003**	**2004**	**2005**	**2002**	**2003**	**2004**	**2005**
Leafy Prairie-clover	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Henslow's Sparrow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Benthic Macro-invertebrates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
White-tailed Deer	Yes	No	No	No	Yes	Yes	Yes	Yes

Leafy prairie-clover, a Federal Endangered plant species, has been the subject of annual field surveys and censuses. General trends in the population since 2002 have been upwards, largely because of favorable precipitation since summer 2003, but also because the plants are now caged to protect them from herbivores (primarily deer). For more detail, see discussion under Threatened, Endangered, and Sensitive Species.

Henslow's sparrow is censused as part of annual grassland bird surveys. The general population trend is stable; for more detail, see discussion under Threatened, Endangered, and Sensitive Species.

Benthic macroinvertebrates are sampled as biotic indicators of stream quality. Since the Illinois Department of Natural Resources Eco-watch program was curtailed in 2003, Midewin staff and volunteers have conducted the sampling. General trends in diversity and numbers of benthic macroinvertebrates indicate that the quality of Prairie and Grant Creeks remains stable, but that there has been a decline in the quality of Jackson Creek. This decline is likely related to impacts on private land, upstream from the Midewin boundary.

White-tailed deer censuses are done by aerial surveys after hunting season closes, but are dependent upon a combination of ground and weather conditions (snow cover and calm, clear days) with aircraft availability. Such a combination has been difficult to achieve since 2002. Records are available for the number of deer harvested during annual firearm and archery seasons.

Table 28. Areal Cover of Management Indicators (Habitat by Acre).

Management Indicator	Existing Acres - Managed				New Acres - Restored			
	2002	**2003**	**2004**	**2005 (planned)**	**2002**	**2003**	**2004**	**2005 (planned)**
Native Habitats*	0	10	80	568	0	70	488	0
Short-stature Grassland Habitat	1,993	2,461	2,822	3,467	NA	210	419	317
Medium-stature Grassland Habitat	287	414	414	414	NA	NA	NA	NA
Tall-stature Grassland Habitat	1,744	1,587	NA	NA	NA	NA	NA	NA

*Native habitats includes the following management indicators: dolomite prairie, upland typic prairie, wet typic prairie, sedge meadow, marsh, seep, savanna, and woodland/forest.

Considerable expansion of the ecological restoration program at Midewin accounted for the increase in new acres restored in 2004. Five separate projects involving habitat restoration were initiated. Partners (The Wetlands Initiative, CorLands) were instrumental in the implementation of these projects. Enhancement and management of these newly restored acres through overseeding, planting, prescribed burning, mowing, and invasive plant treatment is reflected under 2005 (existing acres – managed). As management proceeds, these habitats will sort themselves out according to soils, fire frequency, species composition, and vegetation structure, and more precise acreages can be recorded for each native habitat management indicator.

Also included under “Existing Acres - Managed” are extant natural habitat remnants that received management during those years. This includes several prairie, wetland, and woodland projects. Many of these projects include remnant natural habitats surrounded by newly restored habitat.

No new acres of native habitat were restored in 2005.

Recommendations:

- Continue monitoring of Management Indicators, and expand where needed with partners (for example, The Nature Conservancy, Chicago Botanic Garden, and Illinois DNR) and volunteers.
- Proceed with new habitat restoration, but consider long-term management needs of existing and ongoing habitat projects.
- Explore alternatives for accomplishing habitat restoration and management (such as stewardship partnerships).
- Work with partners (for example, Forest Preserve District of Will County) and upstream landholders to increase watershed protection for Prairie, Grant, and Jackson creeks.

Partners and Volunteers

New and ongoing partnerships in FY2005 in support of restoration activities included wildlife habitat, heritage, soils program, and wetlands projects.

- U.S. Fish & Wildlife Service - Mead's Milkweed Recovery.
- Illinois Department of Natural Resources (IDNR) - native plants for prairie restoration.
- CenterPoint Properties and the Army Corps of Engineers to improve wetland and upland ecosystems in Middle Grant Creek and Drummond Floodplain.
- The National Fish and Wildlife Foundation to manage the Midewin Tallgrass Prairie Fund for the protection, restoration, and environmental education and interpretation of Midewin and its watersheds. In FY2005, 7 projects were awarded grants from the Prairie Fund and NFWF.
- The Nature Conservancy provided assistance with volunteer coordination and technical expertise on the management and protection of natural, historical, and recreational resources.
- Midewin supported the Chicago Botanic Gardens 2005 Janet Meakin Poor Research Symposium focusing on ten years of plant conservation, and collaborated with CBG to monitor plants of concern at Midewin with trained volunteers.
- El Valor collaborated to provide environmental education and natural resource career exploration opportunities for Latino and urban youth in south Chicago.
- CorLands assisted with restoration of prairie and wetland habitats of Midewin.
- Northeastern Illinois University agreed to monitor and collect data on sensitive insects at Midewin.
- Chicago Wilderness partnership. The Forest Service plays a significant role in biodiversity recovery in the Chicago metropolitan region by restoring and managing the grassland ecosystems and other important natural communities at Midewin for optimal biodiversity recovery; by providing technical assistance to local and regional organizations in the Prairie Parklands; and by working with a growing network of partners and volunteers in the conservation community.
- The Wetlands Initiative shared resources to cooperatively implement restoration and reconstruction of the Blodgett Marsh Dolomite Prairie and the South Patrol Road project.

Throughout FY2005, volunteers assisted Midewin staff in accomplishing its mission of ecological restoration, education, and providing appropriate recreational opportunities. Special highlights of the year include a volunteer artist's creation of life-size panels depicting prairie plants for display during the Smithsonian's Folklife Festival in Washington. Another popular volunteer project during the year was participating in Midewin's new trail construction. Table 28 below shows volunteer hours by project category, and Table 2 is a comparison of three years.

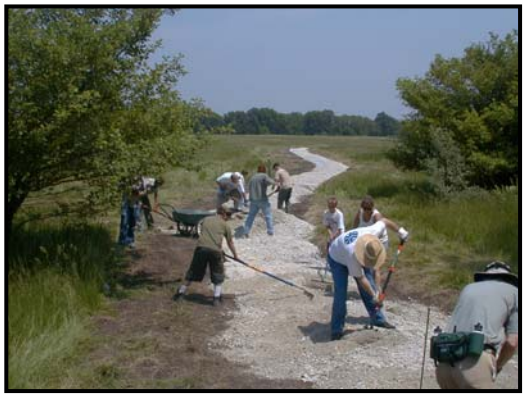


Table 29. Volunteer hours by project category.

FY05 Resource Category	Hours
1. Recreation (incl. Interpretation, Environmental Education, Trails, Outreach)	2,219
2. Heritage (incl. PIT, Heritage Association)	499
3. Wildlife, Fish, Plants (incl. Species Monitoring, Restoration)	2,175
4. Range Management (not applicable)	0
5. Forest Management (not applicable)	0
6. Watershed & Air Management (incl. Hydrology and Streams; Air Mgmt not applicable)	188
7. Protection (includes Fencing)	72
8. Research (not applicable)	0
9. Business & Finance (incl. Office and Welcome Center)	173
10. Facilities Construction off-enter (not applicable)	0
11. Facilities Construction on-center (not applicable)	0
12. Other Facilities (incl. Fleet)	18
13. Other (incl. Midewin Alliance)	293
TOTAL	**5637**

(Note: The categories reflect "Resource Category" as defined in the USFS "Senior, Youth & Volunteer Programs Accomplishment Report," FSM1800)

Table 30. FYs 2003, 2004, 2005 Comparison of Volunteers, Hours, and Percentage Changes

	FY03 Actual	FY 04 Actual	# Change Btw 03-04	% Change Btw 03-04	FY05 Actual	#Change Btw 04-05	% Change Btw 04-05
# Volunteers	337	263	-74	-22.00%	354	+91	+34.6%
# of Hours	6,533	6,383.25	-150.75	-2.08%	5,671.25	-721	-11.15%

The data reflects an increase in the number of volunteers between FY04 and FY05 (34%), which is attributed to a rise in first-time volunteers in virtually all but one category, yet a slight decline (11%) in the overall number of hours contributed. This drop in hours is explained, in part, by key staff being dispatched to assist with Hurricane Katrina recovery operations, resulting in the cancellation of this year's annual Passport

In Time (PIT) project. PIT is traditionally a very well-attended weeklong project where fully one-third of the year's volunteer hours in Heritage are accrued. Volunteer recruitment and retention throughout FY05 showed a positive trend.

Recommendation:

- Continue to build upon existing partnerships as well as create new alliances to meet Midewin's goals in the future.

U.S Army Transfer (T3) Remediated Lands

The land transfer of 2,640 acres recorded in the Federal Register on September 27, 2005 included 538 acres with land use restrictions. The restrictions include: prevent unrestricted exposure to soils with residual contamination and prevent the development and use of the property for residential, schools, childcare or playgrounds, or industrial uses. In FY2005, no soil or groundwater disturbances occurred on these newly transferred lands, nor have restricted development activities occurred on the 538 acres of remediated lands.

The Forest Service at Midewin agreed to report on the land use for these parcels in the Midewin Annual Monitoring and Evaluation Report. The most appropriate way to track and monitor land uses will be to designate a new Management Area for those lands with restrictions.

Recommendation:

- Amend the Prairie Plan to designate transferred parcels with land use restrictions and keep track of such parcels and land uses in a Geographic Information System.

SUMMARY

FY2005 activities that made progress toward fulfillment of Midewin's Prairie Plan goals and objectives included:

- Restoration of tallgrass prairie ecosystems and investment in long-term prairie ecology.
- NEPA analyses and decisions for planned restoration and recreation projects.
- Seed production of native prairie plant species to increase Midewin's capacity to meet restoration goals.
- Maintenance of existing infrastructure and prairie conditions for future use, including grazing, mowing grasses and noxious weeds, and road maintenance.
- Demolition of unneeded and unsafe infrastructure that was in use during Joliet Arsenal operation - including buildings, rail lines, and utility poles – to promote ecosystem restoration activities.
- Safe public access to portions of Midewin based on the U.S. Army's cleanup schedule.
- Environmental education programs such as Mighty Acorns, the El Valor partnership, tours, and lecture series.

As described throughout this report, monitoring has allowed us to observe and record the effects of actions taken to implement the Prairie Plan. We can conclude that:

- ❖ That the goals and objectives outlined in the Prairie Plan are being met;
- ❖ Management prescriptions are being applied appropriately;
- ❖ The results of land management are responsive to the key issues, concerns, and opportunities;
- ❖ New issues, concerns, and opportunities have been, and are continuing to be, adequately addressed;
- ❖ Environmental effects are occurring as predicted or, when they are not occurring as predicted, that land management practices are being altered in a manner that is consistent with both the Prairie Plan for adaptive management and with our Environmental Management System for continual improvement; and
- ❖ The costs of implementing the Prairie Plan have similar to those predicted.

In summary we have determined that the Prairie Plan desired outcomes are being realized and our assumptions in the initial planning stages are still valid. Monitoring has addressed the physical, biological, social, and cultural elements along with emerging issues at Midewin. The Prairie Plan will be amended to designate transferred parcels with land use restrictions and such parcels and land uses will be tracked in a Geographic Information System.