



# **Midewin National Tallgrass Prairie U.S. Forest Service Conservation Audit Report**

Audit Conducted September 6-8, 2006  
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## EXECUTIVE SUMMARY

From September 6-8, 2006, an independent team of Nature Conservancy peer-reviewers<sup>1</sup> conducted a Conservation Audit of the United States Forest Service's (USFS) Midewin National Tallgrass Prairie Project to assist the Project Team in identifying and reflecting on positives to date as well as opportunities for improvement. Specifically, the Conservation Audit involved assessing general adherence to an adaptive management framework (or "standards") using The Nature Conservancy (TNC)'s Conservation Approach and the Conservation Action Planning (CAP) process for project management.

As this was the first time that the USFS had conducted a Conservation Audit of one of its projects and also the first time that TNC's Conservation Audit Protocol was used to assess a partner's independent project, this Conservation Audit was a pilot for both TNC's Conservation Audit Program and for the USFS. This report provides a written elaboration of a *Preliminary Findings and Recommendations & Options* discussion session held with the Midewin Project Team and the Program/Prairie Supervisor on the last day of the Audit<sup>2</sup>.

The key audiences of this review are (1) the Project Team itself, (2) the Preserve's Senior Management, (3) TNC's Grassland Restoration Network and related projects, and (4) individuals supporting the Conservation Measures Partnership (CMP)'s Conservation Audit initiative.

Though TNC Conservation Audits hopefully add value to the conservation process in a multitude of ways, there are three specific impacts the process is intended to have, including:

1. Promoting Program improvement through a "quality assurance review" and discussion of the CAP Basic Practices for strong project management;
2. Generating credibility around the work and impacts of the Program; and
3. Serving as a learning vector: The Program learns from the Conservation Audit (Peer-Review) Team, the peer-reviewers learn from the Program, and the wider conservation community learns through the sharing of these Conservation Audit findings.

With specific regard to quality assurance and credibility, the essence of a Conservation Audit is answering the question: "Are the Program results credible?" The procedure for getting to this answer is made by assessing whether the Program/Project is in adherence with TNC's standard Conservation Approach, the CAP Process, which presents ten critical steps that represent best practice "standards" for Conservation Project design, action, monitoring, and adaptive management. Because Midewin is a partner project, the CAP framework was used only as guidance and not as a means to rate adherence to the 10 steps. Nonetheless, the findings and

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<sup>1</sup> The Peer-Review Team for the Midewin National Prairie Preserve Conservation Audit was: William Burnidge (TNC – Colorado Field Office, Grasslands Project Director); Chris Helzer (TNC – Nebraska Chapter, Director of Science & Stewardship); Ellen Jacquart (TNC – Indiana Chapter, Director of Stewardship, Central US Region Invasives Species Coordinator); Bill Kleiman (TNC – Illinois Chapter, Project Director: Mid-Rock River / Nachusa Grasslands); Gus Nyberg (TNC – Indiana Chapter, Kankakee Sands Project Operations Director); Brian Obermeyer (TNC – Kansas Chapter, Flint Hills Project Director); Chip O'Leary (TNC – Indiana Chapter, Kankakee Sands Program Director); Tim Reed (TNC - Global Conservation Approach Team: Conservation Audit Manager) [*Team Lead*]; Chris Wilson (TNC – Oklahoma Chapter, Nickel Preserve Director); Deanna Zercher (TNC – Illinois Chapter, Terrestrial Ecologist)

<sup>2</sup> This session was held September 8<sup>th</sup>, 2006. Thanks to all those who participated; and a special thanks to the USFS for hosting this three-day activity.

recommendations resulting from the Conservation Audit are catalogued in the main report according to each CAP step.

## Overview of Key Findings

Midewin had a significant number of **positive aspects and innovations** that were worthy of note, including:

- Key staff with history, continuity, phenomenal local expertise, and an impressive and broad range of expertise;
- An excellent use of seasonal crew and volunteers (e.g. Mighty Acorns);
- A strong education and public relations component;
- The Prairie Plan (created during the first five years) involved a wide range of expertise and is an impressive document with exceptional detail;
- A world-class facility with supporting infrastructure (building/machinery, etc.) for restoration *and* education;
- The funding mechanism is an excellent example of ensuring “revenue” for core restoration work and is very innovative for a government agency;
- The Vision for Midewin is clear and broad;
- Good mapping and understanding of the site;
- The Desired Future Condition(s) are defined in a clear and actionable manner;
- The staff recognizes the potential threat from invasives of all types, including plants, pests and pathogens, fish, etc.;
- There is a good intuitive sense of the quality of the current restoration work, and the Floristic Quality Index will augment this;
- A lot of inventory work and research has been done and is ongoing;
- Restorations look like they are on the right track and even better than the site managers suggested (diversity is low, as would be expected at this point, but overall quality is excellent – and might not need to be perfect);
- The South Patrol Road Habitat Restoration Project “report” is first rate and is a fantastic tool for sharing information; and
- Adaptive management has been used to improve specific restoration techniques, based upon assessments of what has worked and what hasn’t.

There were also a number of areas that, viewed against TNC’s CAP standards, could be improved over time. **The following recommendations were made:**

- **Scope and Targets:** To be successful in the long term, the Program needs to consider (and build into the Plan, to some degree) other areas outside of Midewin (e.g. Des Plaines, CA; Goose Lake Prairie; Grant Creek). This is particularly true for prairie remnants, which are rare remains and serve as models, sources, etc. Midewin should be involved in the coordination of this larger scope and the Prairie Parkland Partnership

should be solidified for better coordination across the 44,000 acre “macro-site,” including the key local remnants.

- **Vision:** Ensure that a big picture timeline exists – even informally – to understand at a high level what will happen in three years’ time, in 10 years, etc. to enable better assessment of progress toward Desired Future Conditions.
- **Actions and Scale:** Think at scale:
  - Not every acre has to do everything. Each piece contributes to the whole, but not necessarily in the same way.
  - Focus actions on restoring a truly functional, holistic prairie (e.g., through removal of berms, fence-lines, etc.).
  - Be “planful” about the location and impact of recreational trails and other uses.
  - Consider using as a research center to answer key questions regarding grassland birds in varying habitat types, grass heights, etc.
- **Restoration Approach:** Move as quickly as possible to native diverse systems that contain “all” of the elements (e.g., insects, grassland birds, etc.). This objective can be furthered by:
  - Integrating management tools with restoration;
  - Incorporating different habitat treatments and methods to learn as you go (rather than repeating);
  - Considering a two track system: 1) high diversity restoration and 2) native grassland (i.e. for grassland birds);
  - Ensuring a balance between pace and quality;
  - Continuing with small (i.e., 10-20-acre) restoration “experiments;”
  - Adopting over-seeding (i.e., 2,000 lbs / 200 species) with dominant matrix plan species;
  - Strategically restoring a 1,000-acre block to facilitate testing of the ability of restorations to support grassland birds; and
  - Prioritizing questions and research that will benefit a broader audience (e.g., global restoration efforts, etc.).
- **Invasives Approach:** A complete and more detailed “weed” management plan is needed (see Appendix A) that preferably is developed through a partnership exercise involving all Prairie Parklands land managers. Such an exercise should determine:
  - Priorities, including all Prairie Parklands remnants;
  - Specific measurable objectives (e.g. complete eradication isn’t always the goal);
  - Capacity gaps and associated priority actions (e.g., creating a “weed tech” position; increasing the use of volunteers; and the strengthening of capacity to integrate invasives into the Program’s educational messaging); and
  - Action steps and roles and responsibilities.

- **Cool Season Grass Areas Approach:** Determine how to maximize the opportunity to use these 7,000 acres to best contribution to the goals of the overall site. There are three potential options:
  - 1) **Continue as is** but focus invasives effort on trees and possible incoming weeds and ignoring things like teasel;
  - 2) **Patch mow and grazing**, which has benefits of killing the trees, providing for better heterogeneity, not increasing burning, and de-fragmenting the site over time, but the drawback of a slightly lower stocking rate; or
  - 3) **Adopt best management**, involving creating a patch, that is then farmed and restarted with a native seed mix and use of patch burn grazing and late spring fires. This approach has the benefits of utilizing fire to help with invasives (another tool), providing for much better plant diversity and structure, and allowing for either farming or maintaining “as is.”
- **Program Capacity and Structure:** Assess the pros and cons of a Program structure based upon land uses and management actions (e.g., agricultural fields, grassland birds, restoration, invasives) and ensure effective coordination among them all. Consider increasing capacity in wild seed harvesting, nursery and seed production, and fire.
- **Outreach:** Focus interpretation on the long-term vision and the actions required to attain it (i.e. this site is about restoration). Develop a place for the visiting public to see and learn about tallgrass prairie and cultivate the understanding that fire and grazing are necessary to maintaining this ecosystem.

The Midewin National Tallgrass Prairie Project Team, and the U.S. Forest Service, is thanked for their voluntary and eager participation in this Conservation Audit and for all of the preparation and assistance with logistics. It is hoped that the Project itself (and its management) will review these ideas and make a determination to act on those deemed most relevant and practical.

# INTRODUCTION

## Project Background

Midewin National Tallgrass Prairie, a U.S. Forest Service site, began in 1996 as an effort to restore a former military depot to examples of native prairie that once existed in this part of Illinois. The legislation forming Midewin noted four primary purposes:

1. To conserve and enhance native populations of fish, wildlife, and plants
2. To provide opportunities for scientific, environmental, and land use education and research
3. To allow the continuation of agricultural uses
4. To provide a variety of recreation opportunities that are not inconsistent with the preceding purposes

The site includes some 500 acres of remnant native (including about 160 of dolomite and typic prairie), and 18 miles of streams. Importantly, Midewin is part of a larger Prairie Parklands “macro-site” which represents additional native remnants.

The Program’s primary activities involve seed and plug production facilities, as well as seed harvesting and direct habitat restoration. Approximately 900 acres of former crop-land has been planted to prairie and wetland, and 1,700 acres of crop-land has been converted to grassland for grassland wildlife.

## A Conservation Audit of the Midewin National Tallgrass Prairie

During September 6-8th, 2006 a Conservation Audit of the U.S. Forest Service’s Midewin National Tallgrass Prairie was conducted by an independent team of peer-reviewers<sup>1</sup> to provide the Project Team a period of reflection on its thinking to date and opportunities for improvement. This report is the output of that Audit. It is a written elaboration of a *Preliminary Findings and Recommendations & Options* discussion session held with the Program Team during the last day of the Audit.<sup>2</sup> The key audiences of this review are (1) the Project Team itself, (2) Midewin National Tallgrass Prairie Management and (3) TNC’s Grassland Restoration Network, (4) and The Conservation Measures Partnership and TNC’s Conservation Audit Program (Part of the Global Conservation Approach Team (GCAT) – a body whose mission is to help TNC adopt, implement, and continually improve our Conservation Approach methodology).

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<sup>1</sup> The Peer-Review Team for the Midewin Conservation Audit was: William Burnidge (TNC – Colorado Field Office, Grasslands Project Director); Chris Helzer (TNC – Nebraska Chapter, Director of Science & Stewardship); Ellen Jacquart (TNC – Indiana Chapter, Director of Stewardship, Central US Region Invasives Species Coordinator); Bill Kleiman (TNC – Illinois Chapter, Project Director: Mid-Rock River / Nachusa Grasslands); Gus Nyberg (TNC – Indiana Chapter, Kankakee Sands Project Operations Director); Brian Obermeyer (TNC – Kansas Chapter, Flint Hills Project Director); Chip O’Leary (TNC – Indiana Chapter, Kankakee Sands Program Director); Tim Reed (TNC - Global Conservation Approach Team: Conservation Audit Manager) [*Team Lead*]; Chris Wilson (TNC – Oklahoma Chapter, Nickel Preserve Director); Deanna Zercher (TNC – Illinois Chapter, Terrestrial Ecologist)

<sup>2</sup> This session was held September 8<sup>th</sup>, 2006. Thanks to all those who participated.

## Conservation Audits - Background

TNC's work with measures of success has been ongoing for more than a decade; at the project-level, "measures of success" are an explicit component of the Conservation Action Planning (CAP) process. Conservation Audits, simply stated assessments of the credibility of these measures, were first piloted in The Nature Conservancy in 2001. TNC formalized the Conservation Audit Program in mid-FY04 under the auspices of the Conservation Measures Group (CMG), now part of the Global Conservation Approach Team (GCAT). Defined:

**A conservation audit is a *peer-review* of the processes (inputs, actions, outputs) and, where applicable, the results (outcomes/impacts) of a Conservation Project, regardless of scale.**

The purpose of this organization-wide program is three-fold:

- To improve conservation at both the project level and Conservancy-wide through a process of "quality assurance / quality control" (i.e., ensuring adherence to TNC's Conservation Approach – the Conservation Action Planning (CAP) process),
- To reinforce the credibility (internal and external) and accountability of our conservation work by objectively reviewing project teams' plans, activities, and measures of success
- To facilitate learning across the Conservancy, and throughout the conservation community, by identifying and sharing those best-practices, successes – and failures – which advance the conservation process.

An assessment of this type necessarily compares the project being reviewed to a set of standards or best-practices that have been pre-established. For TNC, these standards are represented by the Conservation Approach specified in Conservation by Design and, more specifically, the Conservation Action Planning (CAP) Process (formerly known as the 5-S Framework).<sup>4</sup> The CAP Process includes a series of 10 steps and associated practices for developing, implementing, and measuring the effectiveness of conservation strategies, and to adapt and learn over time. The assumption is that projects that utilize a robust CAP approach are more likely to achieve conservation success over time *and* be able to demonstrate it. In short, a TNC Conservation Audit focuses on:

- The Project/Program's overarching goals and design,
- The Development of Strategies and Measures,
- The Implementation of Strategies and Measures; and
- Adaptive Management (i.e., analysis, learning, adapting).

## Purpose of this Review

The purpose of this Conservation Audit was to undertake a constructively critical assessment of the Midewin Project to:

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<sup>4</sup> Though CAP "standards" do not represent the same degree of specificity as, for example, Environmental Management Systems standards (ISO 140000), the concept of comparing a process against a set of best-practices is consciously analogous, hence the use of the term "audit".

- Give the Project Team a chance to reflect on project activities to date with a group of objective, though experienced outsiders; this includes discussing key issues/challenges and potential solutions to them
- Allow the Project Team to learn about other potential approaches for their work, as well as share best-practices that they have developed locally
- Allow the Project Team to build confidence in its assumptions and reasoning
- Build credibility in the minds of senior management and donors and confirm that their investment are worthwhile by specifically reviewing and assessing measures of success in place and progress to date on this Project
- Allow the Peer-Review Audit Team to 1) hone their Conservation Audit methodology; and 2) take lessons learned from this Program out to other Programs in the future
- Overall, improve the process of conservation across the Conservancy (and the Conservation Community in general)

It needs to be emphasized that this Conservation Audit is in no way or form a financial audit of the Program/Project nor is it a review of personnel; any discussion of management and/or operational structure occurred only to ensure that the appropriate infrastructure (i.e., “enabling environment”) is in place to allow the project to achieve its conservation goals.

### **Target Audiences for Review:**

1. Midewin Project Team
2. Midewin National Tallgrass Prairie Management
3. Other conservation programs that could learn from Midewin’s experience (and specifically TNC’s Grassland Restoration Network)
4. TNC’s Conservation Audit Program and the Conservation Measures Partnership<sup>5</sup>

### **Review Methodology**

The Midewin Conservation Audit was conducted September 6-8<sup>th</sup>, 2006 by a Review Team made up of nine TNC “peers”, most of whom are conservation practitioners focused on prairie / grassland restoration and/or invasive species. The process was facilitated by Tim Reed.

The Conservation Audit consisted of three primary activities:

1. Relevant document review
2. Group meetings / discussions with Project staff (following the 10 Step CAP checklist)
3. Site visits across Midewin

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<sup>4</sup> The Conservation Measures Partnership (CMP) is a consortium of NGOs (including AWF, CI, TNC, WCS, and WWF, among others) committed to improving the practice of conservation. The partnership serves as an active catalyst for promoting innovation in planning, monitoring, and evaluation within the conservation community. Two key products of the CMP have been the development of Open Standards for the Practice of Conservation (a generic version of TNC’s CAP process), and the ongoing development of a universal Conservation Audit methodology.

The last day “*Preliminary Findings and Recommendations & Options*” session was held over a three-hour period on September 8<sup>th</sup>, 2006. This session, presented by the “Peer-Review” Audit Team to the Project Team interspersed with discussions around these points, was, in part, designed to allow the Project Team to correct any misinterpretations early and/or suggest further data collection where necessary [Red Text in the tables represents corrections made as a result of and/or after this session]. This report is a more detailed written elaboration of the bulleted tables (pasted into each of the ten CAP chapters which follow) which served as the basis for that discussion.

## **Report Structure**

Though somewhat “artificial” (or overly-structured) and often repetitive, this report follows the core focus and structure of the Conservation Audit itself: TNC’s Conservation Action Planning (CAP) Process. Project performance with respect to each of the ten (10) steps of the CAP process is presented in a consistent format. Each chapter begins with a brief introduction about the CAP Step, as well as a listing of the general questions raised and assessed for the particular Step.

Brief, but detailed, Conservation Audit Notes specific to this Audit are then listed, including some of the key recommendations made by the Audit Team. These notes aim to provide color and detail to the bulleted *Findings and Recommendations* presented in table format, as they were on the last day of the Conservation Audit during an open discussion between the Peer-Review Team and the Project Team.

The majority of the *Findings*, both positive, termed Notable Achievements / Innovations, and negative, termed Opportunities for Improvement, are listed in table format. These findings lead to *Recommendations & Options* for improvement going forward. The latter are also presented in bulleted form, just as they were presented to the Program Team.

For further information about this Conservation Audit, please contact Tim Reed, The Nature Conservancy’s Conservation Audit Manager, at [Treed@TNC.org](mailto:Treed@TNC.org) .

## A. PROJECT DEFINITION

Defining the project scope, the ultimate goal, and the team that will plan and implement the project is the important starting point for any conservation project.

### 1. Identifying the People involved in the Project

This step asks you to identify your most valuable resource – the people who will be involved in designing and implementing your project. The three basic practices associated with identifying the people involved in the project include: (1) Selecting the core project team, (2) Identifying other team members, including “core” partners and advisors, (3) Identifying a facilitator (as necessary). Specific questions that this step answers include:

*“Who will design your project?”*

*“Who will be responsible for ensuring the plan goes forward?”*

*“Who can give you advice?”*

*“Who will help you through this process?”*

#### ***Conservation Audit Notes:***

The Midewin project appears to be well staffed, both internally, and through the ample use of external partners, including researchers. The Prairie Plan was developed over a suitable timeframe by a group that included a sufficiently wide-range of expertise.

Midewin National Tallgrass Prairie has a staff of about 25. At the top of the organization chart is the Prairie Supervisor. Midewin also has four administration staff, six engineering staff, six recreation and public affairs staff (the education component of this project is clearly a strong asset), one law enforcement staff, a vacant position for a NEPA officer, a volunteer coordinator, an avian ecologist, and seven resource management staff. The resource management staff positions are the following: Restoration Team Leader, Ecologist, Hydrologist, Horticulturist/Botanist, GIS Specialist, Fire Management Officer, and Assistant Fire Management Officer.

In addition to these, in 2005, Midewin hired about six summer seasonal crew, and then in 2006 they had 8 summer crew and another six half year crew. This crew did the hands-on task of growing and planting and harvesting from the prairie seed plots; and managing weeds. The Review Team was glad to hear that the use of “seasonals” here has had a positive impact, as this was an important resource use demonstrated in another restoration project review in 2005.

The “on the ground” restoration work is led by two key positions: Ecologist Bill Glass, and Horticulturist/Botanist, Eric Ulaszek. Bill Glass worked with the Illinois DNR for 17 years and was in this same region most of that time. He knows the landscape, its plants, animals, and people. Eric Ulaszek is a fine field botanist and his knowledge of prairie restoration and seed production techniques are an important resource for this project.

Although the list above is extensive it should be noted that the habitat work is led by two permanent staff (the Ecologist and Horticulturist/Botanist) with a seasonal crew and contractors working for them. In short, the Project has an exceptional base staff with a strong history and intimate knowledge of the local area.

It was noted however that there still might be gaps that could be filled to provide Midewin with an even stronger Program. Specifically, resources focused on fire (as a management tool) and invasives appear to be warranted (See invasives (Threats – Chapter 4; and Appendix A) section for description of “weed technician”).

As mentioned, the U.S. Forest Service has been proactive about partnering to maximize chances the Project’s vision is efficiently and effectively realized over time. The Illinois DNR has large holdings adjacent to Midewin and will be an important partner over the long haul. Midewin staff have good relations with ILDNR which will yield benefits with various issues of weed management and other natural areas management issues. Midewin also welcomes other partner groups like the Openlands Project and The Nature Conservancy (TNC). The strength and openness of the relationship with TNC is evidenced by this Conservation Audit.

Additional specific findings and recommendations are now presented in a table and in bullet format as they were in the *Preliminary Findings and Recommendations* report:

<b>1. Identify People involved in the Project</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ Selection of core project team members and assignment of roles</li> <li>▪ Identification of other planning team member and advisors as needed</li> <li>▪ Identification of a process leader (as needed)</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
<ul style="list-style-type: none"> <li>+ Key staff with continuity, history, local expertise and an impressive range of expertise</li> <li>+ Use of seasonal crew / volunteers is excellent (i.e. Mighty Acorns)</li> <li>+ Strong education component at Midewin</li> <li>+ Plan involved a wide-range of expertise</li> <li>+ Have made good use of partners (like TNC)</li> <li>+ World-class facility and infrastructure (building / machinery, etc.) for restoration / education               <ul style="list-style-type: none"> <li>→ Funding mechanism is commendable</li> </ul> </li> </ul>				
<i>Findings: Opportunities for Improvement</i>				
<ul style="list-style-type: none"> <li>– Have expertise but not always “the resource”, i.e. not always converted into action (e.g. grassland bird management)</li> <li>– Missing certain key resources (e.g. invasives, fire, grazing/wildlife manager)</li> <li>– Fire resource appears to be insufficient (appears that capacity is limited)</li> <li>– Contract management / direction / quality control appears to take a lot of time &amp; energy</li> </ul>				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
<ul style="list-style-type: none"> <li>→ Assess the pros and cons of a “Program” structure based on land uses: i.e. ag fields, vs. grassland birds, vs. restoration, vs. invasives               <ul style="list-style-type: none"> <li>○ Need some level of coordination of all of these as “management tools”</li> </ul> </li> <li>⇒ Invasives capacity needs to be addressed               <ul style="list-style-type: none"> <li>○ A “weed tech” position would be an excellent addition, in part to manage/quality control the contractors, but primarily leading crews [See Invasives Discussion in Appendix]</li> </ul> </li> <li>→ Other capacities should be investigated:               <ul style="list-style-type: none"> <li>○ Wild seed harvesting; nursery / seed production / fire</li> </ul> </li> <li>→ Explore options of reviving the corporate council to help with visibility, funding, etc.</li> </ul>				

## **2. Defining the Project Scope & Focal Conservation Targets [5S = Systems]**

With this step you define the extent of your project and select the specific species and natural systems that your project will focus on as being representative of the overall biodiversity of your project site. This step helps your project team come to consensus on the overall goal and scale of the project and your ultimate measures of success. Specific questions that this step answers include:

*“Where is your project?”*

*“What are you trying to conserve or restore?”*

***Conservation Audit Notes:***

The vision for the Midewin National Tallgrass Prairie is clear and well articulated; the Project should be especially commended for clearly defining Desired Future Conditions.

The Project is ten years old this year. During the first five years the Project focused on creating extensive management plans (The Prairie Plan), creating large native plant seed plots, and dealing with the many issues involved in the transition from an Army ordinance plant to an ambitious prairie restoration project. (It should be noted that the Plan document itself is an exceptionally detailed and significant document; kudos to the broad and experienced team that was part of that effort).

The Project is now in a different mode. Starting four years ago, Midewin began planting their first prairies. These early plantings are just now being evaluated by the resource staff. There is a need for very large quantities of seed and a large amount of acres to control invasive weeds.

Midewin is a well researched and mapped site of 19,000 acres that is part of a larger “macro-site” called the Prairie Parklands. Midewin is by far the largest of the conservation land holdings in the Prairie Parklands macro site (The largest prairie and potential prairie concentration east of the Mississippi River). And successful restorations at Midewin should achieve successful population levels of target organisms. Though the current geographical scope of the “Project” is limited, it will be important for the Project Team to think about the macro-site as there are important remnants outside of the current scope. Additionally, many of the elements that make a prairie (rare plants and insects) are currently outside of Midewin’s direct control (Des Plaines Conservation Area, Goose Lake Prairie, Will County Forest Preserve and corporate lands with existing quality remnants). Midewin should lead the way in finding ways to constructively engage with, and even coordinate, the various state, corporate and NGO interests in the region to in act a comprehensive prairie plan for the prairie parklands macro site that maintains the regions remnants and builds well placed quality restorations as bridges between them.

The Project has a very clear and well articulated list of target species (though, from a management standpoint, the list could be made more specific by “nesting” components under a smaller “target” list). Another issue is that there appears to be a lot of focus on the success of the upland sandpiper. The role of the upland sandpiper is intricately woven into the tale of the founding of Midewin and hence holds special local interest on top of its already prominent regional interest. Unfortunately, the upland sandpiper has declined on this site and the very short grass habitat type is favorable to only two target species (upland sandpiper and loggerhead shrike). One potential downside of having an over emphasis on the success of the upland sandpiper is that it could pull effort and acres from a larger group of grassland species. Having clear and articulated population goals for each of the target species would help define the spatial goals of amounts of various types of tall, medium and short grass areas and clarify any such conflicts / trade-offs.

What the grassland restoration / conservation community needs is a plan that melds the needs of rare prairie insects dependent on particular conservative forbs and the structural requirements of the guild of prairie birds that are declining throughout the Midwest. Midewin can play a major role in this regards.

The Findings and Recommendations as originally presented in bulleted format follow:

<b>2. Define Project Scope &amp; Focal Conservation Targets (5S = Systems)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ Text description and basic map of project area or scope</li> </ul>				
<ul style="list-style-type: none"> <li>▪ Statement of the overall vision of the project</li> </ul>				
<ul style="list-style-type: none"> <li>▪ Selection of focal conservation targets and explanation of why selected</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
<ul style="list-style-type: none"> <li>+ Plan is an impressive document; exceptional detail</li> <li>+ Vision for Midewin is clear, broad, etc.</li> <li>+ Good mapping / understanding of the site</li> <li>+ Identification of insect component of restoration (and engagement with locally outstanding expert)</li> </ul>				
<i>Findings: Opportunities for Improvement</i>				
<ul style="list-style-type: none"> <li>– There are important remnants outside of the current project “scope”</li> <li>– Aquatic component appears to be outside of the ‘scope’ (and certainly affected by factors outside of the scope)</li> <li>– TNC would focus the target list – be clear about the specific species/communities that are essential to the vision here</li> </ul>				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
<ul style="list-style-type: none"> <li>⇒ To be successful in the long term, need to consider (and build into the plan to a degree) other areas outside of Midewin (e.g. Des Plaines CA, Goose lake Prairie, Grant Creek, etc.)               <ul style="list-style-type: none"> <li>○ This is especially the case for remnants</li> <li>○ Midewin should be involved in the coordination of this larger scope</li> </ul> </li> <li>⇒ Move toward restoring a true functional prairie through removal of berms, fence-lines, etc.               <ul style="list-style-type: none"> <li>○ Be “planful” about location of recreation trails / activity</li> </ul> </li> <li>→ Need to re-consider if upland sandpiper is a focal biodiversity target (The key question here is what is the end-vision being aimed for Midewin and how to balance the variety of habitats)</li> </ul>				

## B. DEVELOPING CONSERVATION STRATEGIES AND MEASURES

Historically, the most common (and truly challenging) part of Conservancy projects is the development of strategies. The emphasis in the most recent versions of Conservation Action Planning (CAP), however, is to build into this the *simultaneous* process of identifying the appropriate indicators that will allow project management to assess the effectiveness of their strategic actions. Such planned feedback mechanisms have been a missing ingredient in most conservation projects (not just within TNC), but these are essential if we are to adequately and efficiently manage our work. The minimum set of CAP tasks listed in Steps 3 through 7 allow us to do just this if followed correctly.

### 3. Assessing Viability of Focal Conservation Targets [5S = Systems]

This step asks you to look at each of your focal targets carefully to determine how to measure its “health” over time. And then to identify how the target is doing today and what a “healthy state” might look like. This step is the key to knowing (a) which of your targets are most in need of immediate attention and for (b) measuring success over time. Specific questions that this step answers include:

*“How do you define ‘health’ for each of your targets?”*

*“What is the current status of each of your targets?”*

*“What is your desired status for each of your targets?”*

#### ***Conservation Audit Notes:***

The Midewin Prairie Plan lays out the desired condition, the goals, and objectives for biological targets and site infrastructure. We will comment only on the biological targets.

The goals for restored plant community targets are well defined and measurable. The desired future conditions are spelled out quite nicely in the Plan. Given the size of the property, the thorough species lists, the intention to restore hydrology whenever possible, and the capability to get good plantings done, the likely success of establishing plant communities targeted in the plan is high. The viability of these targets over time will be measured by a combination of native species diversity and level of invasive infestation.

For native prairie/wetlands a comprehensive invasive control strategy will be needed (See Chapter 4 and Appendix A). Also, if prescribed fire is a key process for maintaining prairie targets, the measures in the Prairie Plan (smoke management and burn plans followed (See table 6-1) ) are insufficient – the Project will need to track the number of acres burned each year and effectiveness of burns in reducing woody encroachment.

The viability of existing prairie and savanna remnants will depend upon clear stewardship goals and a dedication to getting stewardship done. Some of the remnants look like they need immediate attention.

The long-term viability of most grassland bird species (those without very large territory ranges) seems high as most species can use either native or non-native cover of the proper structure. As stated in the Plan, viability will be measured as population numbers and number of acres under

habitat management. However, adaptive management of grasslands will be needed to document what works, especially as the Project transitions from non-native grasslands to native grasslands.

As noted in the previous chapter, one of the key targets for the site is the upland sandpiper. The Prairie Plan describes that management for this species will determine a significant portion of future activities at the site (which acres get restored, when they get planted, what plant species go in the mixes, how is grazing used, etc). Since so much effort is going to be made, we suggest that it may be useful to look at how many upland sandpipers the property could sustain. Using that estimate and looking at the region-wide distribution of upland sandpipers, decide if it makes sense for Midewin to focus large resources toward this single species.

If the decision is to go forward with upland sandpiper habitat creation, we suggest that Midewin use the opportunity to investigate unresolved management questions. The size of the site and its grazing history puts Midewin in a unique position to answer many of the habitat need questions for this species. Since so many acres are now set aside in cool season grasses with grazing, these acres can be used to test management recommendations (such as removing trees, fences between fields, grazing-no grazing-patch burn grazing, differing grass heights, native vs. non-native cover). These are all questions the Project will need answered and the results could have major implications for the species' long-term survival. (See the discussion in Chapter 5 – Strategies).

Midewin's extensive web of researchers will help ensure that most of the components of the varied set of goals and targets are addressed. Since many of the interested parties at Midewin have a state of Illinois perspective, it will be important to add a regional perspective to conservation decisions. Without putting too fine a point on it, the viability of species that are state-listed ought to be looked at from a broader regional viewpoint as well.

The aquatic targets are in need of more exploration. Midewin has indicated an aquatic biologist or hydrologist will iron this out over the next few years.

<b>3. Assess Viability of Focal Conservation Targets (5S = Systems)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
▪ Selection of at least one Key Ecological Attribute (KEA) and Indicator for each focal target				
▪ Assumption as to what constitutes a viable level (range) for each KEA				
▪ Determination of current and desired status of each KEA				
▪ Documentation of viability assessments and potential research needs				
<i>Findings: Positive – Innovations / Best-Practices</i>				
+ Have defined Desired Future Condition(s) clearly and in “actionable” ways				
+ Conducted Population Viability Analyses (P.V.As) during the initial planning work (and iterated after re-assessment)				
+ FQI (Floristic Quality Index) sampling will be adopted				
<i>Findings: Opportunities for Improvement</i>				
– Unclear if upland sandpiper is viable (is that important, yes/no?)				
– Information about viability of aquatic targets not well known (e.g. Ellipse) [12 mile stream appears to be a big opportunity]				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
→ (As planned) Utilize the Floristic Quality Index to develop baselines of current status				

#### 4. Identifying Critical Threats [5S = Stresses & Sources of Stress]

This step helps you to identify the various factors that immediately affect your project’s focal targets and then prioritize them so that you can focus your conservation actions on the most critical threats. Specific questions that this step answers include:

“What threats are affecting the status of our targets?”

“Which threats are more of a problem?”

##### **Conservation Audit Notes:**

The Conservation Audit Team was uniformly impressed with the level of expertise at Midewin regarding threats (stresses and sources) to the project’s targets and vision. Particularly, staff have a very deep understanding of the threat of invasives to their goals, including not only plants but pests and pathogens, invertebrates, and aquatic invasive species. Such expertise across this broad array of invasive threats is very rare and a great asset.

While the significance of the invasive threat is clearly recognized, goals and priorities are not as clear. An inventory of invasive plants across the Project, even at a coarse level (e.g. 10% cover of Canada thistle in this 200 acre block) would be a good starting point (i.e. baseline of threat status) for prioritizing, estimating resources needed for control, and measuring success of control efforts. Prioritization should happen not only between species but among sites, with the strongest priority to keep remnant communities clean of invasives. (For more detail on findings and recommendations for invasive species, see Appendix A).

Lack of fire is also a significant threat to the Project, and staff has the expertise to evaluate and prescribe appropriate fire regime, including fire intensity, frequency, extent and timing. What is lacking is the capacity to implement the appropriate fire regime at the necessary scale. While significant fire capacity is located at Midewin (in the form of the Hot Shot crew), it is not currently being used to implement prescribed fire at the site. Finding ways to change priorities so that greater capacity is available in utilizing fire as a management tool will be crucial.

For the aquatic systems, there are potential threats in the form of aquatic invasives (e.g. round gobies, zebra mussels), sedimentation from proposed bridge removals, and increasing non-point pollution from significant new developments in the area. Attention to these threats and potential mitigations is warranted to protect stream resources, especially in Prairie Creek.

The bulleted notes from the original Conservation Audit preliminary feedback session follow:

<b>4. Identify Critical Threats (5S = Stresses &amp; Sources of Stress)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
▪ Identification and rating of stresses affecting each focal target				
▪ Identification and rating of sources of stress for each focal target				
▪ Determination of critical threats				
<i>Findings: Positive – Innovations / Best-Practices</i>				
+ Staff recognize the potential threat from invasives (of all types: plants, pest & pathogens, fish, etc.)				
<i>Findings: Opportunities for Improvement</i>				
– Invasives threat is significant; doesn’t appear that a good, detailed quantification of this threat exists (i.e. mapping, trends over time)				
▪ As a result prioritization of action				
– Edges of the site appear to be particularly hit				
– Offsite aquatic threats are potentially important here too				
– Altered fire regime is a critical threat – but fire management capacity is a constraint				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				

- Need a complete, more detailed “weed” management plan (see Appendix A)
  - Priorities (it is important to recognize that all remnants should be the top priority)
  - Specific measurable objectives (e.g. eradication isn’t always the goal)
  - Capacity/capability gaps
  - Action steps (& roles and responsibilities)
- Early detection of secondary threats through establishment of early detection/rapid response system

**5. Conduct Situation Analysis**

This step asks you to describe your current understanding of your project situation – both the biological issues and the human context in which your project occurs. This step is not meant to be an unbounded analysis, but instead probes the root causes of your critical threats and degraded targets to bring explicit attention/consideration to causal factors, key actors, and opportunities for successful action. Specific questions that this step answers include:

- “What factors positively & negatively affect our targets?”
- “Who are the key stakeholders linked to each of these factors?”
- “What are the hypothesized causal links of all these factors to the targets?”

**Conservation Audit Notes:**

This section of TNC’s CAP “template” was not filled out during the on-site review, in part because the specific situation analysis approach TNC uses is not something that the Midewin staff have been educated about. There is no expectation that the U.S. Forest Service will have followed TNC’s process for this CAP step, though the generic questions above are useful.

This said, it is clear that the Midewin Team has a good working knowledge of the “situation” surrounding the Project and have hypothesized which actions will ultimately lead to mission success. Ideally, this understanding of the hypothesized cause and effect relationships between various factors (stresses, sources of stress) and the Projects’ biological targets (and specifically, the “key ecological attributes” necessary for target health and viability) would be explicitly stated in a series of (ideally) graphical “charts”. The act of creating such analyses (or conceptual models as they are also often called), especially when done with a broad team of local experts, can be especially enlightening, and can help the Project focus and prioritize its work. Given that Midewin is part of a larger “macro-site” of prairie remnants and restorations, such an analysis will also be useful in explicitly documenting which (actions of which) stakeholders are key to the health of the overall system. Such models are also especially useful in determining which indicators are essential for understanding the effectiveness of the actions being taken by the Project Team. Though not an immediate priority, it is the recommendation of the Peer-Review Team that such analyses (which pulled together form an over-arching understanding of the entire system) be conducted over time.

<b>5. Conduct Situation Analysis</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ List indirect threats/opportunities and associated stakeholders behind all critical threats and degraded KEAs</li> <li>▪ A “picture” (narrative or a diagram) of hypothesized linkages between indirect threats, critical threats and focal targets</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
+ <b>Project Team have a good intuitive understanding of the system here at Midewin</b>				
<i>Findings: Opportunities for Improvement</i>				

– Intuitive knowledge and hypotheses are not always explicit or documented (as far as we saw)
Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]
→ Over time, as a Team, and with partners, construct a series of graphical charts showing hypothesized cause and effect linkages between sources of stress, stresses, and Midewin’s key ecological attributes (desired future conditions)

## 6. Developing Strategies (Objectives & Actions) [5S = Strategies]

This step asks you to specifically and measurably describe what success looks like and to develop the specific actions you and your partners will undertake to achieve it. In particular, you want to try to find the actions that will enable you to get the most impact for the resources you have. Specific questions that this step answers include:

*“What do we need to accomplish?”*

*“What is the most effective way to achieve these results?”*

### **Conservation Audit Notes:**

The Peer Review Team was very impressed with the overall operation at Midewin, particularly considering the complexity and size of the Project. There is a clear general vision for the desired future condition of the site, and that seems to be collectively agreed upon by everyone we interacted with from Midewin.

The Peer-Review Team had several suggestions in terms of strategies. They were mainly oriented around three topics: (1) Prioritization, (2) Adaptive Management, and (3) Communication/Education. In addition, the theme of “Pace of Work” at the Project was seen as an important consideration within all three of those topics.

### *Prioritization*

In terms of prioritization, the Auditors felt that the top priority for the Project should be the protection and maintenance of remnant ecological communities – within the Midewin borders AND within the larger 44,000 acre Prairie Parklands macro-site. Those remnant communities are the foundation upon which a successful restoration will be built, and they must be maintained as healthy, functional systems. While they will benefit from restoration work to enlarge and connect them, importantly they will also contribute to the restored parts of the overall prairie as well. The remnants will be the source of many ecological services and species (e.g. pollinators, above-ground and below-ground fauna, genetic diversity, etc.) to the entire landscape as the restoration project develops. Control of invasive species, management that promotes and sustains biodiversity, and protection from development or other threats, should all be top priority strategies for the remnant ecosystems in and around Midewin.

While we didn’t focus very much on the aquatic resources of the site, the Review Team did feel that the quality (and significance) of the streams on the site were high enough that they warranted a high priority as well. Our understanding is that the hydrologist position is currently being re-hired, and that the maintaining the quality of the streams will be a priority for that position. We support that strategy fully, and would encourage Midewin to ensure that they work both on and off-site to help ensure the success of that effort.

The non-remnant, terrestrial portions of the site present a number of challenges and opportunities, and the Review Team had a number of varying opinions about how to prioritize

among those portions of the site. In general, there was consensus about how to prioritize invasive species control (discussed more fully elsewhere in this report, and in Appendix A), but less consensus on how to balance time and effort between the restoration of the crop-field and cool-season grass areas. It was generally felt that some progress should be made each year on both types, however.

One balancing recommendation by the Conservation Audit team was to increase structural diversity (or heterogeneity) of cool season pastures. Midewin's cool season pastures, which represent 20 percent of the site, are managed primarily for upland sandpipers (a conservation target) by moderate to heavy grazing of cow-calf pairs. The team felt that managing such a large percentage of the property for largely one species was questionable. The Review Team also questioned the current management approach for this species. Rather than uniformly grazed pastures, as the current management tends to produce, the upland sandpiper prefers a variety of habitats and vegetation heights and densities. Mowing approximately one-third of each pasture each year on a rotational basis (patch-mow grazing)<sup>6</sup> was suggested as low input strategy to provide more heterogeneity at Midewin<sup>7</sup>. Such a mowing pattern, used in conjunction with grazing, would create a shifting mosaic of grassland structural stages (heterogeneity), which has been shown to provide habitat for a broader range of grassland species. Mowing one-third of each pasture would also help control woody encroachment of autumn olive, hawthorn, and other invasive species.

#### *Adaptive Management*

Because of the scale of the Midewin Project, and the opportunity to inform other on-going and future large-scale restoration projects, the Review Team felt that it was critical for the Midewin staff to maximize their ability to learn from each action step. For example, within each crop-field restoration planting, it would be valuable to build in small experimental blocks to help answer questions about the effectiveness of treatments such as mowing weeds, excluding dominant grasses, particular seeding rates, adding plugs of various species, over-seeding existing plantings, etc. These experiments do not necessarily have to be set up or evaluated in a way that results in a peer-reviewed publication in order to be valuable – although with the interest from nearby universities, some of that level of work seems feasible. Even if the data collection from the experimental blocks consists of nothing more than qualitative observation and photo-monitoring, enough information will be gained to guide the next phases of the restoration work. Adding new restoration plantings each year and locating those plantings in several locations each year will help to increase the number of learning opportunities as well.

Another example of the need for adaptive management is in regard to grassland bird habitat creation. Our understanding is that the cool-season grass areas of the site are being maintained as grassland bird habitat until it is clear that the new high-diversity plantings will provide adequate habitat for all target species. It seems important, then, to test the high-diversity

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<sup>6</sup> Grazers preferentially select recently mowed areas because of higher quality re-growth. When only a portion of the area available to grazers is mowed, the much higher utilization of mowed patches defers grazing in the unmowed patches, resulting in an accumulation of vegetation. The interaction of these disturbances produces a patch mosaic of varying vegetative heights and densities.

<sup>7</sup> Interseeding cool season pastures with native grasses and patch-burn grazing was a preferred management strategy, but the team acknowledged that such an approach might drain much needed resources away from higher priority projects.

restorations as early as possible. To do that, it will be necessary to quickly establish a block of high-diversity restorations of sufficient size (1000 acres?) and begin testing management strategies and measuring the response of grassland birds. Strategically locating restoration plantings during the next several years so that they clump together to serve this purpose seems warranted.

### *Communication/Education*

The scale of work, the proximity to large urban areas, and the resources available for education and outreach make Midewin a fantastic and unique site to contribute to the education of the public and other prairie restoration projects. The public will be able to see remnant prairies, gain an understanding of ecological threats such as fragmentation and invasive species, and see the restoration strategies used to rehabilitate a landscape – all at the same place.

The Midewin headquarters had impressive displays and printed materials about the site and prairies. However, the team was surprised at the lack of information available to the public about the restoration work and invasive species control efforts occurring at the site. From the discussions we had with the staff, it appeared that the staff had plans for this kind of interpretive materials, but were going to begin preparing it after more of the infrastructure to accommodate public use was installed. We would encourage a faster track for that. Displays, signs, and brochures that talk about the current situation (i.e. the state of the restoration effort), the strategies being employed, and the vision for the future would give the public a complete understanding of the scope and scale of the project. It would also help gain the public's support for the dynamic nature of the work being done, particularly things like tree clearing and herbicide use which can be controversial when the reasons for the work are not clearly understood.

The participation of Bill Glass and Eric Ulaszek in TNC's Grassland Restoration Network and their regular attendance at conferences and workshops across the country show a commendable commitment of the Midewin staff to interaction with other prairie conservation and restoration professionals. The size and complexity of the Midewin Project, combined with the financial resources (from the agency and the nearby population center), provide a unique opportunity for education and experimentation that will benefit everyone working in grassland restoration across the world. Ensuring that a reasonable level of experimentation is done for each of the challenges being addressed, and that the results of those experiments are passed on to other restoration professionals will be extremely important.

In addition, the prominence of the Midewin Project within the Prairie Parklands macro-site makes it important for Midewin to lead the effort to maintain a strong partnership among all the nearby conservation groups – and to strengthen the relationship between conservation interests and the corporate, public, and government entities that surround the Prairie Parklands. The future success of the Midewin restoration project depends heavily on the quality and maintenance of the remnant and restored portions of the Parklands outside the Midewin site boundaries. And the Prairie Parklands will only be able to maintain its ecological integrity if the surrounding urban area supports that goal, including support of tools such as prescribed fire, support of watershed efforts to maintain stream quality, etc. It is clear that these needs are recognized by the Midewin staff, but the Conservation Audit Team would encourage the staff to ensure that they remain a high priority.

*Pace of Work*

On a project of this scale, determining the most efficient speed of restoration work is a very important issue, and it is clear that the Midewin staff have recognized this. The staff have clearly thought carefully about the risks of moving too quickly and either reducing the quality of restored areas and/or falling behind in the maintenance of those areas, particularly in terms of invasive species. The Conservation Audit Team had numerous discussions about the pace of work at the site and a large variety of opinions – very few of which were held universally by the group.

However, there was a consensus that the Midewin staff could face considerable negative impacts from moving too slowly on the restoration of the site (in addition to impacts from moving too quickly). One such disadvantage of moving slowly is that the public may lose interest and/or decrease their support for the project if no visible progress is being made on a consistent basis. Currently, there are few easily accessible sites where the success of the restoration project can be displayed. While satisfying the public’s expectations for progress should not be the primary guiding force in determining the pace of the Project, it will be important to recognize the public’s perception. Regardless of the pace, the public should be well-informed of the plan and the reasons behind it. It might also be a good idea to provide some aesthetically-pleasing plantings, even small ones, near the headquarters to bolster education efforts and provide evidence of success to the majority of visitors who will not likely travel much further than the headquarters building.

In terms of the restoration work pace as it relates to the ecological success of the Project, many of the Review Team members felt that it would be possible to move faster than the staff is currently moving. Increasing the efficiency of invasive species control through good planning should help with the workload associated with mitigating that threat. And the addition of more seasonal staff could help dramatically increase the seed harvest each year. The combination of those factors, along with the increasing availability of seed from Midewin’s production plots, should facilitate the ability to restore more acres/year than are currently planned. However, the Audit Team commends the staff for their caution and recognizes that the staff has the best understanding of the site and the pace of work that is feasible with available resources.

Finally, the Peer-Review Team felt that the most important thing associated with the pace of restoration work was to make at least small incremental progress each year. This is important for both adaptive management reasons and from a public perception point of view. Also, the scale of the project requires that a certain number of acres be restored each year so that the restoration work can be completed within a reasonable time period. The Conservation Audit Team and the Midewin staff appear to be in agreement that it will be feasible to continually increase the number of acres restored/year as time passes. Increasing seed harvest resources from the developing production plots and from establishing restorations will help facilitate that growth. However, it will also be necessary for the staff to plan ahead for the personnel and equipment resources that will be needed to restore and manage increasing numbers of acres in the future.

Additional, specific, findings and recommendations are presented in the table below:

<b>6. Develop Strategies: Objectives &amp; Actions (5S = Strategies)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ At a minimum, good objectives for all critical threats and degraded Key Ecological Attributes</li> <li>▪ One or more strategic actions for each conservation objective</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				

<ul style="list-style-type: none"> <li>+ Really impressive balancing of a complex situation</li> <li>+ Have defined Desired Future Condition(s) clearly and in “actionable” ways</li> </ul>
<p><i>Findings: Opportunities for Improvement</i></p> <ul style="list-style-type: none"> <li>– It’s unclear how prioritization happens (e.g. How does the allocation of restoration vs. invasives control happen)</li> <li>– Pace is in question: at current rate how long will it take to achieve objectives?</li> <li>– Large landscape, but currently only small parts being managed for a small set of species (e.g. grassland birds)</li> <li>– Strong integration between restoration work and (public) education is currently missing <ul style="list-style-type: none"> <li>▪ Disconnect between the main focus and the messages being provide to the public</li> <li>▪ Info in the visitor center isn’t focused on “the reality” and details of the main work / lack of signage</li> </ul> </li> </ul>
<p><i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i></p> <ul style="list-style-type: none"> <li>⇒ Protection / management of remnant prairie should be <i>the</i> priority (e.g. fire, mechanical, invasives control)</li> <li>⇒ Overall theme: Important to move as quickly as possible to native diverse systems (which contain all the elements – grassland birds, etc.) <ul style="list-style-type: none"> <li>→ Integrate management tools <i>with</i> restoration</li> <li>→ Incorporate different habitat treatments / methods to learn as you go (instead of repeating)</li> <li>→ Could consider a 2 Track system – (1) High diversity restoration; (2) Native grassland (i.e. for grassland birds) <ul style="list-style-type: none"> <li>○ Lower quality restoration / cool season grasses</li> </ul> </li> </ul> </li> <li>→ Consider strategic actions aimed at aquatic threats (e.g. engineering solutions to water quality stresses)</li> <li>→ Restoration Strategy opportunities <ul style="list-style-type: none"> <li>○ Triple the wild-seed harvest</li> </ul> </li> <li>→ Interpretation needs to focus on the end vision <i>and</i> the work in progress that it will take to get there</li> <li>→ Hydrologist should be involved in aquatic strategies early on</li> <li>→ Establish a “Prairie Parklands Partnership” (for the 44,000 acre “macro-site”) <ul style="list-style-type: none"> <li>○ Midewin Prairie Supervisor should be involved in this</li> </ul> </li> </ul>

## 7. Establish Measures [5S = Success]

This step involves deciding how your Project Team will measure your results. This step is needed to help your team see whether its strategies are working as planned and thus whether adjustments will be needed. It is also needed to keep an eye on those targets and threats that you are not acting on at the moment, but may need to consider in the future. Specific questions that this step answers include:

*“What is the status of (a) focal biodiversity targets, (b) threats facing them?”*

*“What do we need to measure to see if we are making progress towards our objectives and whether our actions are making a difference?”*

*“Are there other targets or threats that we need to pay attention to?”*

### **Conservation Audit Notes:**

For the purposes of the Midewin project there are two key elements that require a good set of measures. These are (1) the ecosystem remnants on or around the site and (2) both of the cultivated and cool season grass restoration areas. The ecosystem remnants, both terrestrial and aquatic, primarily require measures that will provide managers with meaningful information relative to the long-term health of these areas in the face of several key threats. Similarly, the restoration areas require measures that will enable managers to understand threats and how to abate them, but they also require measures that (1) reveal the effectiveness of different

restoration techniques (given different starting conditions) and (2) enable managers to make decisions about the management of different areas on Midewin that will best maintain and prepare them for eventual restoration.

For the prairie remnants in particular, the Conservation Audit Team was concerned about not having measures designed and implemented that would establish baseline understandings of the extent of invasive species and the current health of intact plant communities. On the ExxonMobile dolomite prairie, for example, the presence of patches of smooth brome and buckthorn was noted. Project staff felt that the extents of these invasive threats were generally static and that the remnant was not at risk from the undue expansion of these plants. However, without actually quantifying either the extent of the brome or the number of buckthorns it is very difficult to judge the rate of expansion of plant species. For a remnant as small, rare, and delicate as the ExxonMobile Prairie, the loss of a few hundred square feet is unacceptable. If the brome advances 0.5 feet per year across a 100-foot long front for four years, 200 square feet are lost. Such a loss would be very hard to detect via casual observation. Buckthorns could also pose such a stealth threat.

Removing invasive species like buckthorn is ultimately fairly easy to accomplish in a limited area, but their populations are also relatively easy to monitor by simply locating all specimens with a GPS. A baseline survey like this also provides a great benchmark against which to measure the success of control efforts. In contrast, brome patches are relatively difficult to monitor with GPS because their likely slow rate of spread will be too small to measure with any but the most accurate GPS equipment and a knowledgeable surveyor. Wire marker flags placed along the perimeter of brome patches by knowledgeable staff are an alternative method for monitoring such patches. High accuracy GPS or standard surveying equipment would also serve the purpose perfectly if staff are trained and skilled enough to consistently define the edge of patch. The GPS or survey approach would provide the added benefit of measuring the effectiveness of control methods implemented to control species like brome.

In addition to invasive species concerns, the Peer-Review Team was also concerned about the deleterious impacts that fire suppression may be having on prairie remnants around Midewin. As such, the high quality portions of the remnant prairies should be monitored with sufficient intensity and rigor to accurately evaluate both the possibly negative effects of fire suppression and the benefits of prescribed fire, when applied. Such plant community surveys may be ongoing, but, if they are not, they should be implemented.

As a side note, it may be appropriate to develop and implement measures for the hydrology of important remnants at Midewin. Even minor hydrologic changes in streams or on dolomite prairies may require immediate action because of the threat they pose to the species and communities in question.

The streams on Midewin were also understood by the Audit Team to be remnant aquatic communities of better than average condition. As such, they should not be overlooked as a measures program is designed for the site. Recommendations regarding aquatic community monitoring are limited here because the Review Team did not focus on these resources and the particular expertise of the team was not in aquatic systems. Nevertheless, the Project Team should seek and obtain any necessary expertise relative to effective measures for the aquatic systems of Midewin with an eye toward quantifying how activities outside the site's fence may be impacting this remnant resource.

Invasive threats in restoration areas may be assessed using measures similar to those described for Midewin's remnant communities, so no further elaboration is provided on that point (and elaboration is made in Appendix A). Different measures may, however, be valuable in assessing the effectiveness of different restoration techniques given different initial site conditions. Such measures may be as simple as documenting the condition and use of a particular site in the years and seasons prior to site preparation and planting and documenting a set of post restoration variables (e.g., proximity to sources of invasive species, climatic conditions, over-seedings, prescribed burns, etc.) that influence a particular restoration's success and progress. Additional measures related to initial site conditions and post restoration variables could also be evaluated and might include soil types and chemistry, residual agricultural chemicals, insect infestations following restoration, proximity to remnant communities, etc. Managers must evaluate such measures and select those that are appropriate (and feasibly "implementable") to design a program that will yield cost-effective information that can be used to continuously improve future restorations.

A final and possibly low priority set of measures could be designed to enable Project staff to make decisions about the management of different areas on Midewin that will best maintain and prepare them for eventual restoration. For example, it may be important to measure the condition of the cool grass pastures at Midewin to identify whether they may be changing in ways that would reduce the efficiency of their eventual restoration (e.g., is there a new invasive grass or shrub moving into the pastures that would hinder future restoration?). If such changes were detected through a measures program, the Project could take corrective action to reduce their future restoration costs.

In conclusion, Midewin's managers will have to consider the relative merits of different measures when compared to other needs and priorities, but it is essential to implement a measures program here as without it, so much is unknown. In making these decisions, Project managers should note the importance of (1) protecting the high quality remnants, (2) the value of using measures to avoid the high cost of repeating efforts, and (3) collecting data that will enable other efforts to restore the much diminished and still highly threatened tall grass prairies of North America. A high quality measures program at Midewin will pay dividends for much larger restoration efforts in Illinois, in the US, and potentially abroad.

Below are the original *Findings and Recommendations* as presented to the Program Team:

<b>7. Establish Measures (5S = Success)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ A list of indicators and methods to track effectiveness of strategic actions</li> <li>▪ A list of indicators and methods to assess status of targets and threats which are not currently being worked on</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
<ul style="list-style-type: none"> <li>+ Good intuitive sense of quality of current restoration work / Floristic Quality Index will augment this</li> <li>+ A lot of inventory work / research (e.g. invertebrate, bird, etc.)</li> <li>+ Good relationship with local universities / colleges to get data collected</li> </ul>				
<i>Findings: Opportunities for Improvement</i>				
<ul style="list-style-type: none"> <li>– Not measuring threat status (invasives in particular) as well as needed</li> </ul>				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
<ul style="list-style-type: none"> <li>→ Prioritize questions/research that will benefit a broad audience (global restoration efforts, etc.)</li> <li>→ In the future, potentially could use insect community monitoring (Ron Panzer) to demonstrate that restorations have reached status equivalent of the remnants</li> </ul>				

## C. IMPLEMENTING CONSERVATION STRATEGIES AND MEASURES

Implementation seems straightforward to most project team members but it is not as simple as it appears. Many conservation projects are little more than grand plans that never get put into production. Many others are flurries of activity with poor strategic connections and equally poor assignment of roles and responsibilities; Team members are unsure of how what they do relates to the larger objectives of the project. This section of the CAP Process aims to assess these important Steps to ensure that all the significant planning gets coordinated into action.

### 8. Developing Work Plans

This step asks you to take your strategic actions and monitoring indicators and develop specific plans for doing this work. Specific questions that this step answers include:

*“What do we specifically need to do?”*

*“Who will be responsible for each task?”*

*“What resources do we need?”*

#### ***Conservation Audit Notes:***

The Peer-Review Team did not spend much time looking at specific, operational work plans (as would be the case at a TNC-based project), but did discuss priorities and responsibilities with the Project Team during the Conservation Audit. Many of these thoughts have been captured in above sections, but key points are summarized here:

The Conservation Audit Team felt that the top priority at Midewin should be remnant ecological communities. These communities will serve as critical sources of ecological services and species for future restoration efforts at Midewin, and thus must be protected. As has been noted, the most serious threat to remnant ecological communities is invasives. An integrated invasives plan for remnant communities is critical. Restoration of fire along with supplemental mechanical and chemical treatments is needed. Getting on top of invasives in restoration plots is probably the second most important area to concentrate control efforts.

The Review Team recommended a plan to evaluate success of restoration plots. The Peers also felt that more incremental success needed to be documented, meaning that some type of restoration was needed each year. Also, more experimentation with different (tweaking) restoration methods was suggested. Although there was less consensus on how to manage cool season pastures, the Review Team felt that these areas could be enhanced for grassland birds (a target) by increasing structural diversity (possibly patch-mow grazing). The creation of a more detailed plan about how to de-fragment the areas (e.g., taking out tree rows and fences) was also discussed.

One recommendation here was to ensure that clear milestones are created at this stage of the Project. In other words, what does Midewin look like 3 years out, 5 years out, 10 years out? (on its way to the desired (“final”) future conditions. These don’t need to be long descriptions, but rather provide a sense of the relative stages of the Project in terms of acreage in various degrees of “completion”. Doing this will help the Project Team ensure that its pace is appropriate to the design.

Bullets as identified and discussed with the Project Team follow:

<b>8. Develop Work Plans</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
▪ Lists of major action steps and monitoring tasks				
▪ Assignments of each step or task to specific individual(s)				
▪ Brief summary of project capacity and a rough project budget				
▪ If necessary, objectives and strategic actions for obtaining sufficient project resources				
<i>Findings: Positive – Innovations / Best-Practices</i>				
+ Project funding appears to be solid, (and from an innovative Agency process); this will allow for more accurate and consistent Project planning going forward				
+ Project has outstanding physical infrastructure / resources to do the restorations properly				
<i>Findings: Opportunities for Improvement</i>				
- Longer term “plan” milestones not always clear				
- Some capacity issues were noted, specifically around fire and invasives (Step 1)				
- A lot of monitoring (especially with invasives) was discussed, but clear plans don’t appear to be at hand				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
→ Ensure a big picture timeline exists (even informally) to understand (at high level) what will happen by 3 years, 10 years, etc.				
→ Monitoring plans (as one example, FQI surveys in restoration fields to monitor success)				
→ Develop a plan to increase heterogeneity of grassland bird habitats (e.g., patch-mow grazing)				
→ Develop prioritized plan for invasive species (with protection of remnants being priority number one)				
→ Develop burn plan, with remnants being the top priority followed by restoration plots				
→ Coordinate (with the new hydrologist) a plan to conserve aquatic targets at Midewin (e.g., monitoring of invasives, non-point pollution, sedimentation, etc)				
→ Develop plan to build fire capacity (i.e. fire as a management tool) at Midewin				

## 9. Implementing (Actions and Measures [5S = Success])

Ok, so now you have your action and monitoring plans. But they will not do any good sitting on the shelf – the challenge here is to implement them to the best of your ability. Although this is the most important step in the whole CAP process, the only requirement is:

- **Put your plans into action** – Do the work that you have set out for yourself. Expected products include:
  - Action!
  - Monitoring!

### *Conservation Audit Notes:*

The Peer-Review Team was impressed with the status of the current native prairie restorations based on the relatively short time frame since the initial plantings. For example, one of the restoration sites looked good for only having gone through three growing seasons. Overall, Midewin’s action on-the-ground has led to restorations that are off to a good start and appear to be on the right path to becoming high quality prairie restorations. As good as these current restorations are, the Audit Team recommends that Midewin consider over-seeding the restorations with the dominant matrix plants. The entire Review Team recognized that it will be important to balance the amount of additional effort that is needed to achieve a high quality restoration without spending too much effort toward a “perfect” restoration.

Based on the current rate of acres being restored, the continued management efforts needed to ensure the restoration success of those acres, and the overall large scale of Midewin, the Audit Team felt the timeline to achieve the desired future conditions would be longer than estimated. The Audit Team recommends that Midewin evaluate the opportunity of “moving faster” and increasing the current rate of restoration; and for certain, don’t pause. One suggestion that could increase the rate of restoration would be to improve the ability of the current staff to delegate key activities to others, such as controlling invasives. Implementing the strategies for a restoration project of Midewin’s size takes a considerable amount of on-the-ground man power and it was evident that the current capacity was a constraint to achieving Midewin’s vision. The Peer-Review Team recommend that the Project have a staff person (e.g. “Weed Technician”) who would be responsible for managing and coordinating the on-the-ground invasives control efforts and the summer invasive control field crews. If capacity is increased by a weed technician and the use of summer field crews continues, then it appears feasible that the current rate of restoration could be increased.

Monitoring is also an important step in adaptive management and provides the insight needed to be strategic. Monitoring plans have been discussed (and in cases developed) for Midewin; however, it was unclear if the monitoring plans were being implemented to the degree necessary to provide essential feedback. Implementing an effective monitoring program will be an important tool by providing feedback on the success (or failure) of the restoration efforts and identifying future management actions, especially around invasives, etc.

One option of moving forward that would aid in informing future restoration methods could be to restore small areas (e.g. 10-20 acres) using different treatments. Incorporating different habitat treatments on a small experimental scale could help refine large scale restoration efforts not only at Midewin but other grassland restorations as well.

Midewin has done an outstanding job of utilizing volunteers in their restoration efforts. Clearly, having a dedicated staff position to coordinate the volunteer efforts has done a great deal towards maximizing volunteer participation. Continued use of volunteers for a wide variety of activities that include seed gathering, weed pulling, etc., should not only achieve action on-the-ground but will also engage the public in the transformation of Midewin.

9. Implement	1	2	3	4
<ul style="list-style-type: none"> <li>▪ Actions!</li> </ul>				
<ul style="list-style-type: none"> <li>▪ Measures!</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
<ul style="list-style-type: none"> <li>+ Current restorations are really good (for their age) and indicate that the Project is on the right track (while diversity is low, overall quality is excellent – and might not need to be perfect)</li> </ul>				
<i>Findings: Opportunities for Improvement</i>				
<ul style="list-style-type: none"> <li>– Current rate of restoration means longer time frame to achieving final vision</li> <li>– Delegation of key activities (invasives) could be improved [Capacity constraint is evident]</li> <li>– Have good monitoring plans, but its unclear if these have been implemented</li> </ul>				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
<ul style="list-style-type: none"> <li>→ Need to consider the option of “moving faster”, especially if invasive control</li> <li>→ Incorporate different habitat treatments / methods to learn as you go (instead of repeating)               <ul style="list-style-type: none"> <li>○ Continue to move forward with small (say 10-20 acre) restoration “experiments”</li> </ul> </li> <li>→ As good as these current restorations are, this doesn’t preclude over-seeding (with dominant matrix plant species)</li> <li>→ Continue to involve volunteers in a wide variety of activities like weed pulling</li> </ul>				

## D. CLOSING THE CYCLE

One of the key missing ingredients in conservation work to date (across the conservation community) is a true adaptive management process. In most cases, this is because adequate feedback mechanisms (i.e., measures systems) have not been put into place to allow practitioners and management to really assess their progress and make appropriate, educated adjustments. There are a large number of projects that collect a significant amount of monitoring data but simply never analyze it. And even those that do invest in strong analysis often don't communicate and share the results broadly enough to make the best use of their findings. This section of the CAP Process describes and defines the key tasks that build in these important features into a conservation project. Ultimately, "evidence-based" Conservation, and true adaptive management, is the objective for all of our work.

### 10. Analyze, Learn, Adapt & Share

This step first asks you to systematically take the time to evaluate the actions you have implemented, to update and refine your knowledge of your targets, and to review the results available from your monitoring data. This reflection will provide insight on how your actions are working, what may need to change, and what to emphasize next. This step then asks you to document what you have learned and to share it with other people so they can benefit from your successes and failures. Specific questions that this step answers include:

*"What are our monitoring data telling us about our project?"*

*"What should we be doing differently?"*

*"How will we capture what we have learned?"*

*"How can we make sure other people benefit from what we have learned?"*

More specific questions the Conservation Audit Team considered were:

*"Are the types of data you are collecting providing meaningful information to inform viability and threat status of conservation targets?"*

*"Did you use the data to make adjustments to your understanding of target viability and threat status?"*

*"Was data used to make adjustments to objectives, strategic actions, and work plans?"*

*"Have you identified your key partners and audiences and developed appropriate strategies and products with which to communicate with them?"*

#### **Conservation Audit Notes:**

The essence of the Conservation Action Planning cycle is "adaptive management". It is also the component most often missing from the great majority of TNC's Project work (and most conservation projects). We simply haven't yet thought of CAP as a "philosophy"; rather we've viewed CAP, especially the (Excel) Project Management Workbook as an upfront plan to get out of the way so that we can begin to take action. Action of course is needed... but it needs to be well focused and directed action, and then action that gets reflected on! In other words, we need to make our conservation work dynamic by "closing the loop".

The willingness of Midewin staff to participate in this Conservation Audit reflects their support

for the basic tenets of adaptive management. The Peer-Review Team found numerous examples of the philosophy of adaptive management in action throughout the Project (e.g. altering restoration techniques based on results, adopting new techniques to maximize seedbed production, pursuing changes in hydrology due to observed impacts on dolomite prairie). While these have not necessary followed a formal, data-driven process, they have effectively used on-the-ground lessons to modify future actions.

The Peer-Review Audit Team also found the Habitat Restoration Project reports to be first-rate documents that provide very useful maps, timelines, and good discussions of challenges and opportunities. These detailed “histories” are especially important given the large quantities of information that must be maintained regarding restorations. Staff members will not be around forever, nor will their vast mental databases of project information. It is vital for staff to continuously record critical information such as preliminary findings, impressions, lessons learned, and plans for future changes to restoration protocols.

The unparalleled quality, capacity, and scale of the Midewin Prairie restoration Project create an ideal opportunity to conduct research around restoration techniques and the dynamics of a restored tallgrass prairie ecosystem. Staff should use each new planting as an opportunity to experiment with different treatments (within sub-plots), even on very small scales. By planting as little as 10 acres in a season (rather than waiting a few years to resume the current rate), much can be learned from testing variations in site prep, seed mix, planting technique, timing, etc. As the restored areas become more sizeable, research should be conducted using fire/grazing/haying to determine management scenarios to provide habitat for the full suite of grassland birds.

While Midewin is clearly well-positioned to evolve into a principal research center, it is equally important that the site become a center for coordinated information exchange and education for restoration practitioners. Staff should look for opportunities to export their knowledge to other sites, but also must create enduring systems for information exchange. Lessons learned through the adaptive management process will allow staff to continuously improve their work, but these lessons will be most important for the larger grassland restoration community across much of middle North America.

<b>10. Analyze, Reflect, Adapt &amp; Share</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<ul style="list-style-type: none"> <li>▪ Appropriate (and scheduled) analysis of data</li> <li>▪ Updated viability and threat assessments</li> <li>▪ Modifications to objectives, strategic actions, and work plans (as warranted)</li> <li>▪ Regular document updates</li> <li>▪ Identification of key audiences and appropriate communication products for each</li> </ul>				
<i>Findings: Positive – Innovations / Best-Practices</i>				
<ul style="list-style-type: none"> <li>+ South Patrol Road Habitat Restoration Project “report” is first rate (a fantastic tool for sharing information)</li> <li>+ Invertebrate work has already added certain species onto Midewin’s list</li> <li>+ Great adaptive management around specific restoration techniques (e.g.</li> </ul>				
<i>Findings: Opportunities for Improvement</i>				
<ul style="list-style-type: none"> <li>– A lot of the really important learnings appear to be in staff heads rather than well documented</li> </ul>				
<i>Recommendations: [ ⇒ High Priority → Medium Priority - Low Priority ]</i>				
<ul style="list-style-type: none"> <li>→ Use Midewin as a key research center to answer 90% of the questions around, for example, grassland birds in varying habitat types, grass heights, etc.</li> <li>→ Continue to take opportunity to always “re-evaluate” / rethink at regular intervals (don’t be afraid to challenge the status quo)</li> <li>→ Consider the possibility of conducting smaller “experimental” restoration plots (within bigger plantings) each year to answer key questions [i.e. rather than “skipping a year”, make use of the opportunity, but on a smaller scale]</li> </ul>				

## CONCLUSION

In summary, the Midewin National Tallgrass Prairie is viewed as being in good alignment with TNC's Conservation Action Planning (CAP) process. The Program had a number of strengths, for which it should be commended. Key **notable achievements and innovations** include:

- Key staff with history, continuity, phenomenal local expertise, and an impressive and broad range of expertise;
- An excellent use of seasonal crew and volunteers (e.g. Mighty Acorns);
- A strong education and public relations component;
- The Prairie Plan (created during the first five years) involved a wide range of expertise and is an impressive document with exceptional detail;
- A world-class facility with supporting infrastructure (building/machinery, etc.) for restoration *and* education;
- The funding mechanism is an excellent example of ensuring “revenue” for core restoration work and is very innovative for a government agency;
- The Vision for Midewin is clear and broad;
- Good mapping and understanding of the site;
- The Desired Future Condition(s) are defined in a clear and actionable manner;
- The staff recognizes the potential threat from invasives of all types, including plants, pests and pathogens, fish, etc.;
- There is a good intuitive sense of the quality of the current restoration work, and the Floristic Quality Index will augment this;
- A lot of inventory work and research has been done and is ongoing;
- Restorations look like they are on the right track and even better than the site managers suggested (diversity is low, as would be expected at this point, but overall quality is excellent – and might not need to be perfect);
- The South Patrol Road Habitat Restoration Project “report” is first rate and is a fantastic tool for sharing information; and
- Adaptive management has been used to improve specific restoration techniques, based upon assessments of what has worked and what hasn't.

There were also a number of areas that, viewed against TNC's CAP standards, could be improved over time. **The following recommendations were made:**

- To be successful in the long term, the Program needs to consider (and build into the Plan, to some degree) other areas outside of Midewin (e.g. Des Plaines, CA; Goose Lake Prairie; Grant Creek). This is particularly true for remnant areas. Midewin should be involved in the coordination of this larger scope and the Prairie Parkland Partnership should be solidified for better coordination across the 44,000 acre “macro-site,” including the key local remnants.

- Ensure that a big picture timeline exists – even informally – to understand at a high level what will happen in three years’ time, in 10 years, etc. to enable better assessment of progress toward Desired Future Conditions.
- Think at scale:
  - Not every acre has to do everything. Each piece contributes to the whole, but not necessarily in the same way.
  - Focus actions on restoring a truly functional, holistic prairie (e.g., through removal of berms, fence-lines, etc.).
  - Be “planful” about the location and impact of recreational trails and other uses.
- Move as quickly as possible to native diverse systems that contain “all” of the elements (e.g., insects, grassland birds, etc.). This objective will be furthered by:
  - Integrating management tools with restoration;
  - Incorporating different habitat treatments and methods to learn as you go (rather than repeating); and
  - Considering a two track system: 1) high diversity restoration and 2) native grassland (i.e. for grassland birds).

The Project Team, and the U.S. Forest Service, is thanked for their voluntary participation in this Conservation Audit and for all of their preparation and assistance with logistics. Special thanks to Bill Glass, Eric Ulaszek, and Logan Lee for their interest in Conservation Auditing and for their persistence in making this Conservation Audit happen. Their hospitality was greatly appreciated by all.

While the recommendations made during this Conservation Audit are not formally binding (i.e. accountable to TNC’s Conservation Audit Program), it is intended that the Project itself and the Prairie Management review these ideas and make a determination to act on those deemed most relevant and practical. TNC’s Peer-Review Audit Team is inspired by the fantastic opportunity Midewin represents and the potential for significant restoration / ecosystem rehabilitation of tallgrass prairie.

## APPENDIX A – TNC’s INVASIVES “CHECKLIST” & COMMENTS

Invasive species are the single largest threat to the success of the Midewin National Tallgrass Prairie restoration. This checklist covers the basic elements of abating the threat of invasive species, following the format used by most federal agencies: Assessment/Risk Analysis, Prevention, Early Detection/Rapid Response, and Control/Management.

Checklist	Y	~Y	~N	N	Comments
<b>Assessment/ Risk Analysis</b>					
<b>Threat assessment</b> completed and invasives of all taxa (plants, animals, pests and pathogens, aquatics) which threaten conservation targets are identified.		x			While no formal threat assessment exists, there is a tremendous storehouse of information in staff members who are very familiar with threats of all taxa throughout the region. This includes pathogens like soybean rust (the fungicide treatment for which is tremendously toxic to aquatic systems) and the potential for round gobies to move into streams.
<b>Inventory</b> of invasives completed to NAWMA standard.			x		There is a general understanding of what’s where – many areas have low levels of many invasives and then there are some hotspots heavily covered in particular invasives. Species present in small amounts – leafy spurge and globe thistle – are mapped. However, there is no mapped inventory of invasive plant species overall. It appears there are real differences between levels of invasion in different areas of the project and capturing those differences would allow for better prioritization and measurement of control effort success.
<b>Predictions</b> have been made of likely rate of spread and most vulnerable sites for each invader (including impact of processes like fire)		x			Broad experience on the part of staff allows them to reasonably predict which invaders pose the greatest threat and where they will likely invade.
<b>Prioritization</b> by degree of threat to targets is completed.		x			The Eleven Worst list for plants is a great start and a demonstration that staff have a good sense of overall priorities, but a little more prioritization would be a great help to the project. Given the limited resources for invasive control, it is important to separate the crucial from the merely important. The TNC Weed Template ( <a href="http://tncweeds.ucdavis.edu/">http://tncweeds.ucdavis.edu/</a> ) is a relatively quick and easy way to prioritize invasives based on four factors – threat to the targets, size of infestation, difficulty of control, and value of habitat impacted. This prioritization also helps set objectives for control and estimate resources needed. Importantly, this prioritization should be done at the level of the Prairie Parklands region to assure that invasives on one property are not re-invading another property that has just been cleared.
<b>Potential invaders</b> are identified and prioritized		x			Potential invaders are those species not yet on site and which represent a high threat to the project. Some potential invasives have been identified – for instance, soybean rust and zebra mussel – but a more comprehensive list could serve to focus attention on high priority species. For instance, giant hogweed is an invasive plant not currently at Midewin but which has been popping up in open areas around the Midwest (in one case, apparently coming in on equipment used in restorations). Another example, Japanese stilt grass, first arrived in southern Illinois and Indiana about 15 years ago and the advancing front is moving north, having reached the west central part of Indiana two years ago. It is likely that it will reach the northern part of Indiana and Illinois in the next five years and should be watched for at trailheads. Reviewing other potential invaders and

				creating a list so all are aware to watch for these species should be a priority.
<b>Prevention</b>				
<b>Entry pathway</b> identified?	x			Yes – staff are aware that key vectors at Midewin include equipment, birds, and trails. Beyond the boundaries of Midewin, the Joliet import/export hub represents a potential entry point for a variety of invasives (pests, pathogens, plants) and attention is needed to address that entry way by all partners in the area.
<b>Dispersal pathway</b> identified?	x			Equipment, birds, hikers, horses, wind are all ways existing invasives are further dispersing in the property.
<b>Prevention strategies</b> identified and implemented? (Equipment cleaning clauses, boot brush stations, etc.)		x		<p>Some entry and dispersal pathways have simple mitigations.</p> <p><b>Equipment</b> - Equipment cleaning clauses should be in place in contracts– but it’s important to assure through inspection they are being followed. Sometimes such clauses are not followed because contractors have no equipment cleaning station to use; check with contractors to make sure they have facilities to ensure compliance. If facilities do not exist, consider providing a station at Midewin for the greater Prairie Parklands. All that’s needed is a site with high pressure water hoses where the drainage water will not flow to natural lands. Equipment owned by the property needs to be cleaned when moving from an invaded field to a clean field to keep from moving invasive propagules.</p> <p><b>Birds</b> – It’s not possible to control the birds which spread invasive seeds, but by minimizing existing invasive seed sources spread can be reduced significantly. Autumn olive is perhaps the most dramatic example of an invasive being spread throughout the project by birds.</p> <p><b>Trails</b> – unfortunately, trails can greatly increase entry and dispersal of invasives. This is a particular concern on the restoration sites, which are more vulnerable to invasion. Trails have been sited to minimize impacts, but to assure that these trails do not contribute to resource degradation through the increase of invasive species, commitment to specific mitigation measures by staff is necessary. These include:</p> <ul style="list-style-type: none"> <li>• Monitoring – there needs to be a person assigned (potentially a weed technician – see below under <b>Resources Needed</b>) the responsibility to assure all trail miles are checked on a specified periodic basis to watch for the key subset of invaders that are 1) likely to come in on the trail and 2) are a high threat to the restorations. Trained volunteers from hiking clubs or horse rider associations are a great way to assure monitoring takes place.</li> <li>• Control – once invasives are detected, someone needs to have responsibility to follow up and control invasions.</li> <li>• Interpretive signing at all trail heads letting users know that invasives are a threat and how to avoid moving them (brush off clothes, clean out cuffs, brush off boots)</li> <li>• Boot brush stations established at trailheads for use by visitors to keep small seeded invasives from entering the site. For more information on boot brush stations and interpretive signs, see <a href="http://www.mipn.org">www.mipn.org</a></li> </ul>
<b>Early Detection/ Rapid Response</b>				
<b>Detection targets</b> selected			x	Preventing the establishment of new invasives through a robust EDRR program is a crucial and cost effective way to address this issue. Given the number of people visiting this site – general public, researchers, volunteers, hunters, lease holders, contractors, etc. – an EDRR program can be simple and effective. Step one is to define the detection targets. These would be the key subset of species that are not yet on site or present in only small quantities, are readily identifiable, and represent a significant threat to the project.
<b>Identification educational materials</b> provided to those			x	Step two is to develop educational materials aimed at the appropriate audience. Since it is intended that public visitation will increase greatly over the next several years, there’s a wonderful opportunity to reach many people

watching for species (staff, volunteers, contractors)				with a general display in the visitor center. More detailed materials and training sessions could be developed for the Mighty Acorns volunteers or other interested groups.
<b>Reporting system</b> in place			x	Step three is to establish a reporting system. Since it is hard to estimate how many reports will be receive, or what proportion of them may represent misidentifications, it is important to have a system that minimizes staff time. Reports should be on a standard form, with a photo or voucher included. A good example of such forms may be found at the Wisconsin DNR's early detection web page ( <a href="http://www.dnr.state.wi.us/invasives/futureplants/index.htm">http://www.dnr.state.wi.us/invasives/futureplants/index.htm</a> ). There is also potential to utilize the New Invaders Watch List Program in the Chicago region and partner with the Illinois Natural History Survey to use their resources for a site ED RR project.
<b>Response system</b> in place		x		Step four is to assure that accurate reports are followed up on and the invasive eradicated. Midewin has staff and seasonal crews to do this kind of follow up, though having a weed technician to direct such efforts in the field would be greatly increase the capacity and efficiency of current crews to manage the invasive threat at the appropriate scale.
<b>Control and Management</b>				
<b>Goals</b> set by species for control/management (<5% cover, eradication, etc.)			x	Goals for each species are not clear, and probably vary greatly between different types of sites – e.g. restoration fields vs. cool season grass areas. Autumn olive in particular needs a clear goal – is the goal to eradicate in restoration fields and just keep it from expanding into other sites? Given the explosion of this species around the project and the difficulty of control, it seems that setting an aggressive goal to eliminate it from the majority of the project area is warranted. But given the size of the job, a step by step action plan is necessary.
<b>Actions</b> needed to meet goal (spray with 3% Roundup in August-September each year for three years)	x			There's a very good understanding of what the needed control actions are based on lots of experience. These actions, however, are not necessarily rolled up so it's clear the total resources needed throughout the year. Autumn olive may be the most dramatic example, and a clear statement of what it will take to meet a chosen control objective for that species across the whole area would be instructive.
<b>Resources needed</b> to meet goals are identified			x	One thing that is clear is that the resources needed exceed what is currently available. While seasonal workers are an incredible asset, without daily direction effectiveness in compromised. A weed technician, perhaps hired through a Prairie Parklands partnership, is needed to direct their work, assure that an ED RR system is in place to catch new problems and respond to any reports of new invasions. The resources needed to do the NEPA planning for control efforts also needs to be considered. The analysis in progress for Prairie-wide maintenance is important and should allow a wider variety of control methods to be used. It is important to include as many possible control tools – application methods, chemicals, etc. – in the NEPA analysis so that staff have all the flexibility needed to control invasive species.
<b>Evaluation</b> method identified (monitor in June of each year and estimate % cover by unit)		x		While Plot FQI will be used to monitor plant communities, it is not clear that this method will be sufficient to assess invasives and their change over time. No clear methodology for monitoring invasives was discussed, but it is important to develop a system. A basic starting point is that all treated acres need to be visited and % kill estimated for use in planning future treatments.

# APPENDIX B: SUMMARY “CHECKLIST” OF THE CAP PROCESS

## A. Defining Your Project

### 1. Identify People Involved in Your Project

- Selection of core project team members and assignment of roles
- Identification of other planning team members and advisors as needed
- Identification of a process leader

### 2. Define Project Scope & Focal Conservation Targets (*5S = Systems*)

- A brief text description and basic map of your project area or scope
- A statement of the overall vision of your project
- Selection of no more than 8 focal conservation targets and explanation of why they were chosen

## B. Developing Your Conservation Strategies and Measures

### 3. Assess Viability of Focal Conservation Targets (*5S = Systems*)

- Selection of at least one key ecological attribute and measurable indicator for each focal target
- Your assumption as to what constitutes an acceptable range of variation for each attribute
- Determination of current and desired status of each attribute
- Brief documentation of viability assessments and any potential research needs

### 4. Identify Critical Threats (*5S = Stresses & Sources*)

- Identification and rating of stresses affecting each focal target
- Identification and rating of sources of stress for each focal target
- Determination of critical threats

### 5. Conduct Situation Analysis (*5S = Strategies*)

- A situation analysis that includes indirect threats/opportunities and associated stakeholders behind all critical threats and degraded attributes
- A “picture” – either in narrative form or a simple diagram – of your hypothesized linkages between indirect threats and opportunities, critical threats, and focal targets

### 6. Develop Strategies: Objectives & Actions (*5S = Strategies*)

- At a minimum, good objectives for all critical threats and degraded key ecological attributes that your project is taking action to address and if useful, for other factors related to project success
- One or more strategic actions for each conservation objective

### 7. Establish Measures (*5S = Success*)

- A list of indicators and methods to track the effectiveness of each conservation action
- A list of indicators and methods to assess status of selected targets and threats you are not currently working on

## C. Implementing Your Conservation Strategies and Measures

### 8. Develop Work Plans

- Lists of major action steps and monitoring tasks
- Assignments of steps and tasks to specific individual(s) and rough timeline
- Brief summary of project capacity and a rough project budget
- If necessary, objectives and strategic actions for obtaining sufficient project resources

### 9. Implement

- Action.
- Measures.

## D. Using Your Results to Adapt and Improve

### 10. Analyze, Learn, Adapt, & Share

- Appropriate and scheduled analyses of your data
- Updated viability and threat assessments
- Modifications to objectives, strategic actions, and work plans, as warranted
- Regular updates of project documents
- Identification of key audiences and appropriate communication products for each

# APPENDIX C – TNC’s CAP SELF-ASSESSMENT TOOL (DRAFT)

## Conservation Action Planning (CAP) Self-Assessment Tool

2<sup>nd</sup> Review Draft [**Highlighted Rating = TNC Standard for the 2015 Goal**]

February 18, 2006

Project Name:

Workbook Date:

Assessment Date:

Assessed by:

<b>1. IDENTIFY PEOPLE INVOLVED IN YOUR PROJECT</b>	
<b>Key Questions: <i>Is project team membership clear and are roles well-defined?</i></b>	
<b>Rating</b>	<b>Description</b>
1	<ul style="list-style-type: none"> <li>– <b>Team is only loosely defined and is missing key actors (e.g., important partners, key disciplines).</b></li> </ul>
2	<ul style="list-style-type: none"> <li>– Core team and extended team membership clear, but roles may be poorly defined or members insufficiently engaged or there are some serious gaps in representation of stakeholders/partners/disciplines.</li> <li>– Community relationships may be lacking or poor.</li> </ul>
3	<ul style="list-style-type: none"> <li>– Core and extended team is explicit (i.e., they see/think of themselves as a Team), team members are engaged, and roles are clearly assigned, including a clear project leader.</li> <li>– Key partners are represented on at least the extended team or as advisors (and see/understand their role vis-à-vis TNC’s staff).</li> <li>– Most disciplines appropriate to the project (botany, zoology, hydrology, etc) are represented on core team, extended team, or advisor groups.</li> <li>– Project has sufficient local community relations.</li> </ul>
4	<ul style="list-style-type: none"> <li>– Core project team is explicit (i.e. they see/think of themselves as a Team) and roles are clearly assigned, including a clear project leader.</li> <li>– Key partners and stakeholders are included as team members, engaged, and understand their roles</li> <li>– Core team members are clearly engaged and have sufficient time allocated.</li> <li>– All disciplines appropriate to the project (botany, zoology, hydrology, etc) are represented on core team, extended team, or advisor groups*.</li> <li>– Collaboration with partners is strong; relationships and engagement are clear.</li> <li>– Project has strong local community relations.</li> </ul> <p><i>* Advisors may change as focal targets are selected, threats identified, and strategies picked in subsequent steps</i></p>

## 2. DEFINE PROJECT SCOPE AND FOCAL CONSERVATION TARGETS

**Key Questions: How does the project fit into a regional picture of conservation? Is there a clear vision stated for the project, and has the team selected conservation targets on which to focus planning and implementation?**

Rating	Description
1	– <b>Overall goal or vision is lacking or unclear - OR - Focal targets are not selected.</b>
2	<p><u>Vision:</u></p> <ul style="list-style-type: none"> <li>– An overarching goal or Vision is stated for the project, but it may not be inspiring, general, brief, or achievable.</li> </ul> <p><u>Maps:</u></p> <ul style="list-style-type: none"> <li>– A map or text description may or may not be consistent or widely-shared, but team has some general idea of scope of project.</li> </ul> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>– Focal targets are selected, but the rationale for decisions may not be given or logic is unclear.</li> <li>– Nested targets representing ecoregional targets (if Ecoregional Assessment has been completed) are not listed or relationship of focal targets to nested targets may not be evident.</li> </ul>
3	<p><u>Vision:</u></p> <ul style="list-style-type: none"> <li>– A Vision is stated for the project, but it may not meet all criteria of being general, brief, and achievable.</li> </ul> <p><u>Maps:</u></p> <ul style="list-style-type: none"> <li>– Clear map(s) showing the scope of the project and text description are available and understood by Project Team.</li> </ul> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>– The rationale for selecting the focal targets to represent the project’s biodiversity is well documented.</li> <li>– Ecoregional targets are linked to focal targets in nested targets table, plan text, or supporting documents.</li> </ul> <p><u>Charter:</u></p> <ul style="list-style-type: none"> <li>– A written Project Charter is available</li> </ul>
4	<p><u>Vision:</u></p> <ul style="list-style-type: none"> <li>– A clear Vision is stated for the project (inspiring, general, brief, and achievable).</li> <li>– Project vision reflects the main reason this project area was chosen in Ecoregional or other regional analysis.</li> </ul> <p><u>Maps:</u></p> <ul style="list-style-type: none"> <li>– Clear map(s) showing the scope of the project and text description are available and understood by the Project Team</li> <li>– Maps are effective and show location of focal targets, other features, and scope of project.</li> </ul> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>– The rationale for selecting the focal targets to represent the project’s biodiversity is well documented.</li> <li>– Ecoregional targets are linked to focal targets within the nested targets table and/or plan text.</li> </ul> <p><u>Charter:</u></p> <ul style="list-style-type: none"> <li>– A written Project Charter is available and well-understood by project team</li> </ul>

### 3. ASSESS VIABILITY OF FOCAL CONSERVATION TARGETS

**Key Questions: What defines viability and how far off is the current viability status from the desired status? Which conservation targets are most in need of attention?**

Rating	Description
1	– <b>Key Ecological Attributes (KEAs) have not been selected for most of the focal targets.</b>
2	<p><u>KEAs:</u></p> <ul style="list-style-type: none"> <li>– Team has selected one or more KEAs for <i>some</i> of the focal targets</li> </ul> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> <li>– Indicator(s) are selected for <i>some</i> KEAs.</li> <li>– Acceptable range of variation may be missing for many indicators.</li> <li>– Current and desired status may be missing for many indicators.</li> </ul>
3	<p><u>KEAs:</u></p> <ul style="list-style-type: none"> <li>– Team has selected at least one KEA for <i>most</i> focal targets</li> <li>– KEAs represent a reasonable mix of key environmental regimes, area requirements, species composition and structure for system targets</li> <li>– KEAs represent a reasonable mix of population and habitat requirements for species targets</li> </ul> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> <li>– At least one indicator for <i>many</i> KEAs</li> <li>– An acceptable range of variation is defined for <i>many</i> indicators</li> <li>– When available, a best estimate of current and desired status is given for <i>many</i> indicators, even if it is a guess</li> </ul> <p><u>Documentation:</u></p> <ul style="list-style-type: none"> <li>– Brief documentation of literature used, experts interviewed, and rationale for choice of KEAs, indicators, indicator ratings, and current and desired status. This documentation may occur in workbook, plan text, <i>or other project files.</i></li> </ul>
4	<p><u>KEAs:</u></p> <ul style="list-style-type: none"> <li>– Team has selected at least one KEA for <i>each</i> focal target.</li> <li>– KEAs represent a reasonable <i>and comprehensive</i> mix of key environmental regimes, area requirements, species composition and structure for system targets. <i>Needs of nested targets were explicitly considered in selection of KEAs for system and assemblage targets.</i></li> <li>– KEAs represent a reasonable <i>and comprehensive</i> mix of population and habitat factors for species targets</li> </ul> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> <li>– At least one indicator for <i>each</i> KEA</li> <li>– <i>Indicators are brief, consistent across categories, and at an appropriate scale for the project.</i></li> <li>– An acceptable range of variation is given for <i>most</i> indicators.</li> <li>– When available, a best estimate of current and desired status is given for <i>most</i> indicators.</li> </ul> <p><u>Documentation:</u></p> <ul style="list-style-type: none"> <li>– Brief documentation of literature used, experts interviewed, and rationale for choice of KEAs, indicators, indicator ratings, and current and desired status is available in the workbook or plan text.</li> </ul>

#### 4. IDENTIFY CRITICAL THREATS

**Key Questions: Why are some key ecological attributes not at their desired status? What threatens the future of conservation targets? Which threats are most pressing?**

Rating	Description
1	– <b>Threats are poorly identified if at all.</b>
2	<ul style="list-style-type: none"> <li>– A comprehensive list of stresses is given for <i>some</i> focal conservation targets.</li> <li>– A comprehensive list of sources of stress is given for <i>some</i> focal conservation targets.</li> <li>– Sources of stress /stresses may not be separated/distinguished by the Project Team.</li> <li>– Some sort of determination of which threats are most critical has been made, although it may not be a formal or systematic ranking.</li> <li>– Severity, scope, contribution, and irreversibility ratings may be inconsistently applied. Stresses and sources may not be directly linked to each focal target.</li> </ul>
3	<ul style="list-style-type: none"> <li>– A comprehensive list of stresses is given for <i>each</i> focal conservation target.</li> <li>– A comprehensive list of sources of stress is given for <i>each</i> focal conservation target (or at least a distinction between stresses and sources of stress).</li> <li>– At least one source is given for each stress</li> <li>– A ranking of the sources of stress affecting each focal target and a determination of the critical threats affecting the overall project is made.</li> </ul>
4	<ul style="list-style-type: none"> <li>– A comprehensive list of stresses is given for <i>each</i> focal conservation target.</li> <li>– A comprehensive list of sources of stress is given for <i>each</i> focal conservation target (or at least a distinction between stresses and sources of stress).</li> <li>– At least one source is given for each stress</li> <li>– A ranking of the sources of stress affecting each focal target and a determination of the critical threats affecting the overall project is made.</li> <li>– Rankings are clearly agreed to by the Project Team, including partners, etc.</li> <li>– Documentation of information and assumptions made is presented in the workbook or plan text.</li> </ul>

## 5. CONDUCT SITUATION ANALYSIS

**Key Questions: What are the underlying causes of threats or opportunities for successful actions? How are they related to each other and to the stakeholders involved? What is the most effective point in the chain of causation to intervene with conservation strategies?**

Rating	Description
1	<ul style="list-style-type: none"> <li>– No situation analysis.</li> <li>– Team members have a weak understanding of (and/or ability to communicate) factors affecting the Project's focal targets.</li> </ul>
2	<ul style="list-style-type: none"> <li>– Simple diagram(s) or text narrative of the situation of some of the focal targets, critical threats, stakeholders, or linkages is presented. May be simple discussion of underlying causes and/or stakeholder influence.</li> <li>– Team members have an understanding of the factors affecting the Project's focal targets, but may not communicate them well.</li> </ul>
3	<ul style="list-style-type: none"> <li>– One or more diagrams or text narrative of the situation that shows the key, hypothesized causal relationship between focal targets, critical threats, related indirect threats, opportunities and stakeholders is presented.</li> <li>– Team members understand the factors affecting the Project's focal targets, and can communicate the situation well.</li> </ul>
4	<ul style="list-style-type: none"> <li>– One or more diagrams or text narrative of the situation that shows the key, hypothesized causal relationships between focal targets, critical threats, related indirect threats, opportunities and stakeholders is presented.</li> <li>– Team members understand the factors affecting the Project's focal targets, and can communicate the situation well.</li> <li>– Model is simple and does not show extraneous factors, yet is complete enough and specific enough to encourage understanding of the situation and provide a good basis for identifying opportunities for developing strategies and monitoring.</li> <li>– An interdisciplinary team and Stakeholders/partners are involved in developing the situation analysis, especially in identifying underlying causes of threats and opportunities.</li> <li>– Model could be used to help communicate the situation and our work to key stakeholders.</li> </ul>

## 6. DEVELOP STRATEGIES: OBJECTIVES AND ACTIONS

**Key Questions: Have measurable objectives been set and strategic actions developed to ensure that the greatest threats are abated and target viability is maintained or enhanced? Are the objectives worded in such a way that the project team will know if the conservation actions are successful?**

Rating	Description
1	<ul style="list-style-type: none"> <li>– Objectives and strategic actions not identified, or are not SMART (Specific, Measurable, Actionable, Realistic, Time-bound), and/or many critical threats or degraded KEA's are not addressed.</li> </ul>
2	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> <li>– Objectives for some of the most critical threats or degraded key ecological attributes are presented.</li> <li>– Objectives may not meet several of SMART criteria.</li> </ul> <p><u>Strategic actions:</u></p> <ul style="list-style-type: none"> <li>– Some objectives may not have strategic actions linked to them.</li> <li>– Strategic actions are identified, but may not be linked to objectives.</li> </ul>
3	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> <li>– Objectives for <i>each</i> of the <i>most</i> critical threats and degraded key ecological attributes are presented.</li> <li>– Objectives meet most of SMART criteria.</li> <li>– The number of objectives is feasible given project resources</li> </ul> <p><u>Strategic actions:</u></p> <ul style="list-style-type: none"> <li>– Each objective has one or more strategic actions linked to it</li> <li>– All strategic actions are linked to objectives</li> </ul>
4	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> <li>– Objectives for <i>all</i> critical threats and degraded key ecological attributes are presented.</li> <li>– Objectives meet SMART criteria <i>and are politically, socially, and ecologically appropriate.</i></li> <li>– The number of objectives is feasible given project resources</li> <li>– Partners are involved in the development of at least some objectives</li> <li>– Objectives are explicitly linked to the situation analysis, if one is available.</li> </ul> <p><u>Strategic actions:</u></p> <ul style="list-style-type: none"> <li>– Each objective has one or more strategic actions linked to it.</li> <li>– All strategic actions are linked to objectives</li> <li>– Partners are involved in the development of at least some strategic actions</li> <li>– Strategic actions are high-leverage and feasible.</li> <li>– Strategic actions are ranked for benefits, cost, and feasibility</li> </ul>

## 7. ESTABLISH MEASURES

**Key Questions: Will it be clear if progress is being made to achieve objectives? How will the Project Team know if threats are increasing or decreasing? How will the Project Team know if target viability is getting better or worse?**

Rating	Description
1	<ul style="list-style-type: none"> <li>– <b>Indicators and monitoring, if described, are not tied to essential elements of plan (objectives, target viability information, threats).</b></li> </ul>
2	<ul style="list-style-type: none"> <li>– Indicators are described but many stated objectives, critical threats, and key ecological attributes are not the subject of monitoring.</li> <li>– The monitoring plan may include very little or no detail on proposed methods.</li> <li>– Monitoring has been identified and is linked to at least some objectives, threats, or attributes.</li> </ul>
3	<ul style="list-style-type: none"> <li>– Indicators are described for:               <ol style="list-style-type: none"> <li>a. <i>Nearly all</i> objectives to track the effectiveness of planned strategic actions.</li> <li>b. Selected threats and targets to determine if a change in status warrants new strategic actions.</li> </ol> </li> <li>– Indicators are closely linked to the objective, threat, or KEA they are intended to measure.</li> <li>– The monitoring plan includes descriptions of proposed methods for <i>most</i> high priority indicators.</li> <li>– <i>Most</i> indicators are measurable, consistent, cost-effective and timely in response. Most indicators are at an appropriate scale.</li> <li>– The number of monitoring indicators is feasible given project resources</li> <li>– Monitoring indicators are prioritized</li> <li>– Research needs are documented</li> </ul>
4	<ul style="list-style-type: none"> <li>– Indicators are described for:               <ol style="list-style-type: none"> <li>a. <i>All</i> objectives to track the effectiveness of planned strategic actions.</li> <li>b. Selected threats and targets to determine if a change in status warrants new strategic actions.</li> </ol> </li> <li>– Indicators are closely linked to the objective, threat, or KEA they are intended to measure.</li> <li>– The monitoring plan includes a description of monitoring methods for <i>nearly all</i> high priority indicators.</li> <li>– <i>Nearly all</i> indicators are <i>sensitive</i>, measurable, <i>precise</i>, consistent, cost-effective and timely in response. <i>Nearly all</i> are at an appropriate scale.</li> <li>– The number of monitoring indicators is feasible given project resources</li> <li>– Monitoring indicators are prioritized</li> <li>– Research needs are documented</li> <li>– Partners are involved in the development of indicators, especially those conducting their own monitoring (agencies, universities, etc).</li> <li>– Monitoring program is not limited to biological or environmental sciences but incorporates social sciences and other sciences as appropriate.</li> <li>– Monitoring indicators are explicitly linked to the situation analysis, if one is available.</li> </ul>

## 8. DEVELOP WORK PLANS

**Key Questions: Is there a detailed plan outlining the steps needed to complete conservation actions and monitoring? Are roles and timelines clearly assigned? Are there enough resources allocated for the implementation of conservation actions and monitoring?**

Rating	Description
1	<ul style="list-style-type: none"> <li>– Action steps and monitoring tasks have not been identified or are unrelated to critical threats or viability information.</li> </ul>
2	<ul style="list-style-type: none"> <li>– Some action steps have been identified, but few assignments made or steps budgeted.</li> <li>– Some monitoring tasks have been identified, but few assignments made or tasks budgeted.</li> </ul>
3	<ul style="list-style-type: none"> <li>– Lists of major action steps and monitoring tasks are presented in the planning documents.</li> <li>– The team has assigned most steps and tasks to specific individual(s) and developed a rough timeline. Roles and responsibilities for tasks are agreed upon by team members and others that will be performing them.</li> <li>– Project Resources Scorecard completed and/or another assessment of funding, staffing, leadership, and external resources exists and is current.</li> <li>– At least a rough project budget has been developed.</li> <li>– Work plans are in alignment with State or Country program annual objectives.</li> </ul>
4	<ul style="list-style-type: none"> <li>– Lists of major action steps and monitoring tasks are presented in the planning documents.</li> <li>– The team has assigned steps and tasks to specific individual(s) and developed a rough timeline. Roles and responsibilities for tasks are agreed upon by team members and others that will be performing them.</li> <li>– Project Resources Scorecard completed and/or another assessment of funding, staffing, leadership, and external resources exists and is current.</li> <li>– A detailed project budget exists and is used on a regular basis.</li> <li>– Work plan is integrated into annual objectives for the State or Country program.</li> <li>– Data management and analysis is planned in advance.</li> <li>– Steps and tasks include planning for communication of results including determination of key audiences and appropriate communications products for each.</li> <li>– Steps include a process for adjusting plan elements if monitoring results show a need for change.</li> </ul>

## 9. IMPLEMENT

**Key Questions: *Is the plan being implemented? Does it get support from partners/stakeholders/upper management/ funding sources?***

Rating	Description
1	– <b>Actions and monitoring identified in plan have not been implemented to any degree.</b>
2	– Some of actions in plan are being implemented (or have been implemented). – Some of monitoring in plan is being implemented (or has been implemented).
3	– Key actions in plan are being implemented (or have been implemented). – Priority monitoring is being implemented (or has been implemented).
4	– Conservation actions follow strategic actions and action steps described in plan and/or plan is adjusted as necessary and with good rationale – Monitoring program follows indicators and methods described in plan and/or plan is adjusted as necessary and with good rationale. – Partners/stakeholders/upper management/funding sources are continually educated about the plan and are involved with, or at least informed of, implementation and monitoring status. – Sustainable sources of funding are available and planned.

## 10. ANALYZE, LEARN, ADAPT AND SHARE

**Key Questions: Is feedback / data analyzed and interpreted regularly and explicitly? Is it used to update plan elements and to re-assess assumptions and strategies to further progress towards goals and objectives? Are results being communicated with partners/stakeholders/supporters and other audiences?**

Rating	Description
1	<ul style="list-style-type: none"> <li>– Monitoring data do not exist, have not been summarized, used to adapt actions, or shared with appropriate audiences.</li> <li>– Objectives, strategic actions, and work plans are not regularly updated based on new information.</li> </ul>
2	<ul style="list-style-type: none"> <li>– Monitoring data may be summarized, but not adequately shared or used to adapt actions.</li> <li>– Some review of the implementation of work plans and progress towards achieving the intended results is made.</li> <li>– Modifications to objectives and actions may be made, but not documented or shared.</li> </ul>
3	<ul style="list-style-type: none"> <li>– Monitoring data are summarized regularly</li> <li>– Appropriate and scheduled review of the degree of implementation of the Project’s work plan is made.</li> <li>– Scheduled review of progress towards achieving results is made</li> <li>– Viability and threat assessments and the situation analysis are updated and revised as needed.</li> <li>– Modifications to objectives, strategic actions, and work plans are made as warranted with adequate explanation for the changes made.</li> <li>– At least some results are regularly shared with key audiences.</li> <li>– Progress status is regularly reported to supervisors and OU managers</li> </ul>
4	<ul style="list-style-type: none"> <li>– Monitoring data are summarized regularly.</li> <li>– Appropriate and scheduled review of the degree of implementation of the Project’s work plan is made.</li> <li>– Scheduled review of progress towards achieving results is made</li> <li>– Viability and threat assessments and the situation analysis are updated and revised as needed; <i>revisions are based on results of analysis.</i></li> <li>– Modifications to objectives, strategic actions, and work plans, are made as soon as warranted with <i>clear and complete</i> explanations for the changes made.</li> <li>– Communication products are tailored for each key audience. Interpretation is made as clear and practical as possible to all audiences, but conclusions are not overstated.</li> <li>– Managers are informed of results early and involved in revision of plan elements. Joint meetings with project partners/stakeholders/supporters are held.</li> <li>– Monitoring program is flexible and adaptable; effectiveness of indicators and methods are analyzed as well as effectiveness of strategic actions being taken.</li> <li>– Progress status is regularly reported to supervisors and OU managers</li> </ul>

# **APPENDIX D - CONSERVATION AUDIT ON-SITE SCHEDULE**

## **CONSERVATION AUDIT: Midewin National Tallgrass Prairie**

### **DRAFT Agenda**

- Sep 6: 1000 – 1300**      **Kick-off session [Midewin meeting room]**
- **Introductions**
  - **Conservation Audits (ppt – Tim Reed)**
  - **Finalize agenda / scope**
  - **Midewin background (Bill)**
- 1300 – 1700**      **Field visit**
- 1800**                      **Group dinner**
- Sep 7: 0830 – 1500**      **Field visit / continuation of discussions**
- 1500 – 2000**      **Audit Team prepares preliminary findings & recommendations**
- Sep 8 0800 – 1200**      **Feedback session (Findings & Recommendations for Bill’s Team)**