

AUGUST 2022

Wisconsin Driftless Conservation Plan

Achieving Collective Impact on a Regional Scale



Working to conserve imperiled ecological communities in the Driftless Area: barrens, savannas, prairies, and grasslands

COORDINATED BY:



Natural Resources
FOUNDATION
of Wisconsin

Wisconsin Driftless Conservation Plan

(Draft v1.0)

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Preface by the Natural Resources Foundation of Wisconsin

As a statewide leader for conservation and environmental education, the Natural Resources Foundation of Wisconsin (NRF) has a long history of working with key partners to advance biodiversity conservation, while connecting people to Wisconsin's lands, waters, and wildlife.

The **Driftless Area** is a 24,000 square mile region in southwestern Wisconsin and parts of Minnesota, Iowa, and Illinois. The region lacks glacial deposits, also known as glacial drift, which is where it gets its name. Instead, the limestone bedrock has been weathered and eroded by streams. It is one of the most biodiverse places in Wisconsin, providing habitat for many rare communities, though increasing development, habitat loss and fragmentation, invasive species and climate change threaten the plants and wildlife that live in this region.

In 2021, the Natural Resources Foundation of Wisconsin facilitated a robust planning process using the [Open Standards for the Practice of Conservation](#) to develop a collaborative plan to conserve the biodiversity of the Driftless Area of Wisconsin – specifically focused on **barrens and savanna communities, prairie communities, and surrogate grasslands**. This process culminated in the following plan, which will help us implement and assess program and policy implementation strategies identified by project partners; for example, any future Driftless Area Restoration Initiative or Regional Conservation Partnership Program grant opportunities.

The Natural Resources Foundation of Wisconsin hopes that this plan will help foster collaborative conservation by engaging key stakeholders and providing a framework for collaborative conservation in the Driftless. We used the **Open Standards for the Practice of Conservation** planning process to develop a holistic plan that will offer a common vision for Driftless Area conservation among local, state, regional, and national partners, and provide a roadmap forward for conservation efforts across both public and private lands that is rooted in climate resiliency.

The Open Standards for the Practice of Conservation (also known as the Conservation Standards), which were first developed in 2004, represent the leading adaptive management framework in the field of biodiversity conservation and ecosystem management. Thousands of conservation practitioners around the globe are using these Standards to plan, manage, monitor, and adapt and learn from their projects and programs.

NRF partnered with [Foundations of Success \(FOS\)](#) to co-facilitate the Conservation Standards process in 2021. FOS is a mission-driven organization established to accelerate and amplify the collective impact of the global conservation community by providing practitioners with the skills and tools needed to be more effective and efficient in their efforts to foster thriving ecosystems, conserve natural resources, and advance human well-being. FOS is a member of

the [Conservation Measures Partnership \(CMP\)](#), which developed and oversees the Conservation Standards.

Special thanks to our working group members and special advisors, without whom this work would not have been possible.

Working Group

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Caitlin Williamson	Natural Resources Foundation of Wisconsin
Lindsey Taylor	Natural Resources Foundation of Wisconsin
Arlyne Johnson	Facilitator, Foundations of Success
Cindy Becker	Driftless Area Land Conservancy
Ann Calhoun	The Nature Conservancy
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Marty Moses	Pheasants Forever
Rick Remington	Landmark Conservancy
Craig Thompson	Wisconsin Department of Natural Resources

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We are grateful for the Eddie Schwartz Conservation Fund of the Windward Fund, which provided funding to support the development of this plan.

Executive Summary

In 2021, conservation partners in the Driftless Area began collaborating on a conservation plan for barrens and savanna communities, prairie communities, and surrogate grasslands in the Driftless Area of Wisconsin. These natural communities were selected as focal priorities by the Natural Resources Foundation of Wisconsin because of their habitat for native pollinators and grassland birds.

This plan identifies the highest priority threats to our conservation targets—**savanna and barrens communities, prairie communities, and surrogate grasslands of the Driftless Area**—and discusses the highest priority strategies to both restore natural communities and reduce the priority threats.

The Natural Resources Foundation of Wisconsin hopes that this plan will help foster collaborative conservation by engaging key stakeholders and provide a framework for collaborative conservation in the Driftless. We used the **Open Standards for the Practice of Conservation** planning process to develop a holistic plan that will offer a common vision for Driftless Area conservation among local, state, regional, and federal partners, and provide a roadmap forward for conservation efforts across both public and private lands that are rooted in climate resiliency.

Conservation targets

Our conservation targets are what we want to conserve with this plan. The following natural communities were identified because of their importance as habitat for pollinators and grassland birds in the Driftless Area.

- **Barrens and savanna communities** - Barrens are found on sandy soils with grasses, low shrubs, small trees, and scattered large trees. In southern and west-central Wisconsin, oak barrens are the most common. Barrens are rare and threatened on a global scale, but Wisconsin has one of the best opportunities in North America to preserve and restore them. In the Midwest, savannas were historically a bridge between the prairies of the west and the deciduous forests of the east, a continuum of prairie to forest. This mosaic community was maintained by frequent fires. Today, it is also one of the rarest plant communities in the world (WI DNR 2021 Barrens & Savannas).
- **Prairie communities** - Prairies do not have trees or tall shrubs and are instead dominated by grasses, sedges and forbs. More than 400 species of native plants can be found in Wisconsin's six types of prairies: dry prairie, dry-mesic prairie, mesic prairie, sand prairie, wet prairie, and wet-mesic prairie (WI DNR 2021, Prairies). Less than 0.5% of the original acreage of native prairie and grassland ecosystems that once existed before European settlement is still around today, making them one of the most

diminished and threatened plant communities in the Midwest and the world. Due to these changes, it is estimated that 15-20% of the state's original grassland flora is now considered rare (WI DNR 2021, Grasslands).

- **Surrogate grasslands** - Surrogate grasslands now make up most of the grassland habitat in the state and have a similar structure to former Wisconsin prairies. Mammals and birds are able to use surrogate grasslands such as hayfields and pastures to survive, though even those habitats are being converted into more intensive agricultural crops, such as corn or soybeans. These surrogate grasslands include set aside fields planted to non-native cool-season grasses (such as smooth brome, bluegrass) or native warm-season grasses (such as big bluestem, side oats grama) and other agricultural habitats such as hayfields, small grains, fallow fields, old fields, and pastures. Surrogate grasslands can even be orchards, parks, golf courses, and roadsides. Some of the highest concentrations of surrogate grasslands in Wisconsin occur in the Driftless Area, in the Western Coulee and Ridges and Southwest Savanna Ecological Landscapes (WI DNR 2021).

Priority threats

The working group identified 17 different threats to our conservation targets and then prioritized the threats using three main criteria: scope, severity, and irreversibility. After prioritizing these targets, these were the top five threats to our conservation targets in the Driftless Area:

- **Invasive species** - Invasive species was ranked as a high priority threat due to the extensive scope (most sites in Wisconsin have invasive species at some level) and the challenges of reversing invasive species (i.e., prevention is more efficient than control). The working group agreed that there is a growing threat of invasives in the state and the problem continues to grow in scope.
- **Fire suppression** - The working group ranked fire suppression as a high priority threat due to the intense need for prescribed fire across the state. Fire has been limited on the landscape since the early 20th century to limit damage to timber, crops, and property. In most soil types and moisture regimes in Wisconsin's climate, prairies in the absence of regular fire will lead to more woody species and become less diverse over time. There are many benefits of fire, including limiting woody encroachment, stimulating early and robust growth of native grassland plants, deterring growth of some non-native invasive species, stimulating flowering and fruit production of native grassland plants, and increasing plant species diversity.
- **Residential & commercial development** - Residential and commercial development is included as a third high priority threat. Fragmentation by land use changes disrupts the

movement of animals that depend on barrens, and makes the remaining habitat unsuitable for species that depend on large areas. Pollinators also rely on a diversity of flowering plants for nectar and fragmentation scatters habitat.

- **Recreational activities** - The working group ranked recreational activities as a medium priority threat across targets. This includes destruction from off-road vehicles as well as heavy foot traffic. The working group noted that many recreational activities take place on private properties, including trails or roads being bulldozed for snowmobiles and ATVs. Mountain bike trails can also be built through highly sensitive areas.
- **Incompatible grassland management** - Incompatible grassland management is included as a medium threat specifically to our surrogate grasslands conservation target. Grasslands need to be managed in specific ways to reach highest potential for ecological benefit.

Priority conservation actions

Prioritizing our strategies is a very important step because it is common for project teams to select strategies based on what they know how to do, their own experiences, or best estimates, as opposed to assessing what is the most strategic way to achieve their goals with the resources they have.

We brainstormed strategies that aligned with the [Conservation Measures Partnership \(CMP\) Actions Classification](#). Our working group rated each strategy for **potential impact, feasibility, and urgency** (see criteria for these rankings in Appendix II). These scores were summed to rank strategies to address each direct threat and each conservation target. The following categories are the strategies included in this version of the plan (more details, including models, can be found in the Strategy mapping and prioritization section of the plan):

- Ecosystem stewardship
- Conservation easements
- Ecosystem restoration
- Direct economic incentives
- Internal organization management & administration
- Protected area acquisitions
- Basic research and status monitoring
- Alliance and partnership development
- Outreach and communications
- Land use zoning and designation
- Training and individual Capacity development

- Laws and regulations
- Changing behavior with positive incentives

One of the most important pieces of this plan is to ensure that implemented strategies—and their progress—are being tracked and analyzed so we can learn from our efforts. This information can then be rolled up across the region so we can better understand how significant of a conservation impact we are making as partners, and discuss how we can improve our work together to have a larger collective impact.

Theories of change help us understand and recognize our assumptions for how a strategy will benefit our conservation targets. We accessed a generic theory of change for each of the strategy categories above from the [Conservation Actions and Measures Library \(CAML\)](#). These diagrams come with sample objectives and indicators that Driftless Area partners can use to monitor their own work in the region, allowing us to pull this data together and see how we are doing as a collective.

Effective tools to monitor individual conservation efforts can be found in Appendix IV.

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List of abbreviations

CAML – Conservation Actions Measures Library
 CMP – Conservation Measures Partnership
 CS – Conservation Standards
 DALC – Driftless Area Land Conservancy
 DNR – Department of Natural Resources
 FOS – Foundations of Success
 NRF – Natural Resources Foundation of Wisconsin

PART I: DRIFTLESS CONSERVATION PLAN

How we made this plan & why

In the first part of this plan, we will discuss how we created the Driftless Conservation Plan, the processes we used, and the results of these efforts.

In the second part of this plan, we will discuss the ways that you can use this plan as a partner.



INTRODUCTION

Biological Significance of the Wisconsin Driftless Area and Conservation Need

The Driftless Area is one of the most biodiverse places in Wisconsin and the Midwest. This unique area, due to its unglaciated past, contains a high concentration of unique topographical and geological features such as cold-water streams, ridges, and coulees. The Driftless Area protects numerous rare natural communities, such as oak savanna, goat prairie, hemlock and pine relicts, oak forest, cliffs and caves, algal talus slopes, and spring-fed cold-water streams. Because of the unique landscape and variety of habitats it provides, the Driftless is home to dozens of imperiled wildlife species, particularly bird and pollinator Species of Greatest Conservation Need.

However, numerous threats including development, habitat loss and fragmentation, invasive species, and climate change threaten not only the wildlife and natural communities found here, but also threaten the human communities that also call the Driftless home. Record-breaking and more frequent storm events have resulted in extreme flooding events that have devastated the region, causing evacuations and even deaths. Now more than ever, the conservation sector needs to come together to develop strategic, impactful initiatives that address the highest priority needs for the Driftless Area, while taking into account climate resiliency, and working together to address these needs, leverage resources, and work collaboratively.

Although distinct plans exist such as specific watershed plans, or grassland birds plans, there is not a comprehensive plan specifically for the Driftless Area that addresses key conservation targets including oak savanna and prairies, or the rare and threatened birds and pollinators that are found in the Driftless, particularly through the context of a changing climate. This plan provides a framework for evidence-based conservation that will make a meaningful impact on the Driftless Area in Wisconsin, and can be replicable in other geographic regions.

Purpose of plan

The Driftless Conservation Plan has three main purposes, including to:

- Help conservation partners work together on a larger, more collaborative scale, tying together regional conservation efforts for barrens and savanna communities, prairie communities, and surrogate grasslands,
- Provide tools for organizations to effectively measure whether or not their strategies are working, which can help us assess why they may not be working, and
- Help ensure that conservation organizations and partners in the Driftless Area are working together towards common goals.

We will ensure that this is a “living” plan that evolves as we learn from our own and each others’ actions.

To create this plan, we used the Conservation Standards, which were first developed in 2004. The Conservation Standards represent the leading adaptive management framework in the field of biodiversity conservation and ecosystem management. Thousands of conservation practitioners around the globe have used them to plan, manage, monitor, and adapt and learn from their projects and programs.

The Conservation Standards uses a five-step management cycle (Figure 1). First, to assess the conservation situation, by creating a project scope and vision and identifying conservation targets, critical threats, and other factors impacting the threats. Second, is to create a plan with goals and strategies that also outline assumptions. The third step is to work within the work plan, timeline, and budget to begin implementing the plan. Fourth, to analyze whether or not the chosen strategies are working and adapt the plan as necessary. The fifth and final step of the Conservation Standards is to document and share what we have learned about our conservation efforts with other partners in the region and what we have learned about regional collaborative conservation with other regions and states.

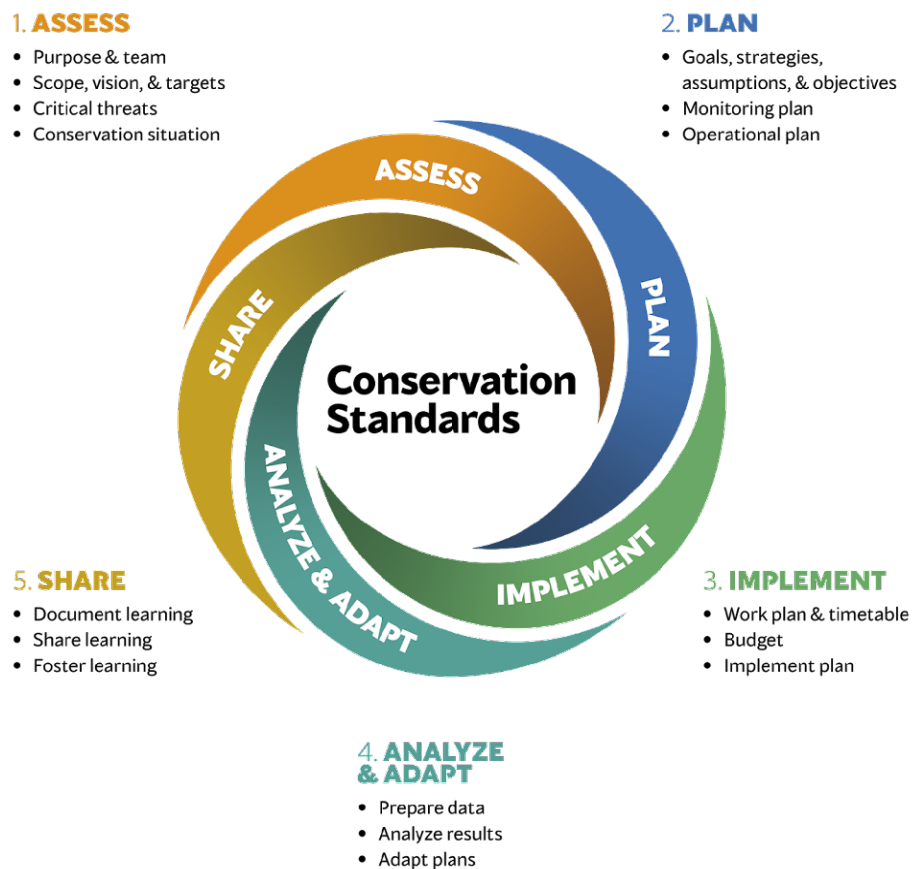


Figure 1. Five steps of the Conservation Standards adaptive management cycle..

Scope of plan

The scope of the Driftless Conservation Plan takes place within the Driftless Area of Wisconsin. This is a pilot project that we hope will be able to be used by other regions and states in the future.



Figure 2. Map of the Driftless Area of Wisconsin, Minnesota, Iowa, and Illinois. Courtesy of the Minneapolis St. Paul Magazine.

Partnership efforts: planning process & teams

In addition to achieving a greater collective conservation impact across the Driftless Area of Wisconsin, we also wanted to include a diverse set of perspectives both in development and review of the plan. The coordination team includes: David Clutter, Executive Director at the Natural Resources Foundation of Wisconsin; Caitlin Williamson, Director of Conservation Programs at the Natural Resources Foundation of Wisconsin; Arlyne Johnson, Senior Program Officer at Foundations of Success; and Lindsey Taylor, who helped write this plan as part of her M.S. Environmental Conservation capstone from University of Wisconsin-Madison, and now works at the Natural Resources Foundation of Wisconsin as the Conservation Programs Coordinator.

The coordination team assembled a working group to work through the Conservation Standards planning process and share expertise and perspectives from across the region. Members were chosen by identifying representatives of some of the most engaged practitioner organizations in Wisconsin's Driftless Area. This group includes Cindy Becker (Driftless Area Land Conservancy), Ann Calhoun (The Nature Conservancy), Abbie Church (Mississippi Valley Conservancy), Marty Moses (Pheasants Forever), Rick Remington (Landmark Conservancy),

and Craig Thompson (Wisconsin Department of Natural Resources). We are extremely grateful to our working group for the time they have dedicated to the production of this plan.

Finally, there is a larger stakeholder group that is engaged with the plan and provides feedback. This is a group of more than 30 stakeholders from different organizations throughout the Driftless Area, including but not limited to non-profit organizations, government agencies, and the Ho-Chunk Nation.

This plan is the outcome of the work of the Natural Resources Foundation of Wisconsin and the working group, with input from stakeholders.

Acknowledgements

The Natural Resources Foundation of Wisconsin would like to thank the working group members and organizations that made this project possible: Cindy Becker (Driftless Area Land Conservancy), Ann Calhoun (The Nature Conservancy), Abbie Church (Mississippi Valley Conservancy), Marty Moses (Pheasants Forever), Rick Remington (Landmark Conservancy), and Craig Thompson (Wisconsin Department of Natural Resources). NRF would also like to thank Arlyne Johnson with Foundations of Success for co-facilitating the planning process, and the stakeholders that provided feedback on this plan.



ASSESSING THE SITUATION

We first defined the basic framework for this project and assessed the overall context of the conservation situation. This included articulating the project's thematic scope, a vision of what the team hoped to achieve, and what the project would focus on, as well as identifying threats and opportunities for improving them.

Vision and scope

A vision statement describes the desired state or ultimate condition that a project is working to achieve (CMP, 2020). The **vision** we selected is:

The barrens, savanna, and prairie communities and surrogate grasslands of Wisconsin's Driftless Area are sustainably managed and strategically protected, providing a resilient, high quality, and connected ecosystem in the frame of a changing climate.

A scope defines what a plan intends to affect and where. Though we originally set out to include as much of the Driftless Area's biodiversity as possible in this plan, we decided that a more focused plan would be the most useful for partners and stakeholders. The **scope** for this plan includes the specific natural communities that we decided to focus on in the Driftless Area:

High priority barrens, savanna, and prairie natural communities, and surrogate grasslands within priority conservation areas of the Driftless Area landscapes of Wisconsin.

Conservation targets

The Driftless Area is a large and complex region. Choosing conservation targets will help our project focus efforts and more easily assess whether efforts to conserve those targets are effective. A conservation target could be a single species or an entire community or ecosystem.

Our **conservation targets** focus on conserving habitat for pollinators and grassland birds in the Driftless Area. Because of the large scope of this plan, the working group decided to narrow our conservation targets to create a more usable and effective plan, which meant leaving out forest and woodland communities. We hope there will be a future planning effort to learn more about the threats facing forests and the best strategies to reduce those specific threats.

The conservation targets for this plan are:

- **Barrens & Oak Savannas**

Barrens are found on sandy soils with grasses, low shrubs, small trees, and scattered large trees. In southern and west-central Wisconsin, oak barrens are the most common. Barrens are rare and threatened on a global scale, but Wisconsin has one of the best opportunities in North America to preserve and restore them (WI DNR 2021 Barrens & Savannas).

In the Midwest, savannas were historically a bridge between the prairies of the west and the deciduous forests of the east, a continuum of prairie to forest. This mosaic community was maintained by frequent fires. Today, it is also one of the rarest plant communities in the world (WI DNR 2021 Barrens & Savannas). Savannas and barrens provide important habitat for threatened and endangered pollinators and grassland birds.

- **Prairie Communities**

Prairies do not have trees or tall shrubs and are instead dominated by grasses, sedges and forbs. More than 400 species of native plants can be found in Wisconsin's six types of prairies: dry prairie, dry-mesic prairie, mesic prairie, sand prairie, wet prairie, and wet-mesic prairie (WI DNR 2021, Prairies). Less than 0.5% of the original acreage of native prairie and grassland ecosystems that once existed before European settlement is still around today, making them one of the most diminished and threatened plant communities in the Midwest and the world. Due to these changes, it is estimated that 15-20% of the state's original grassland flora is now considered rare (WI DNR 2021, Grasslands). Prairie communities provide essential habitat for threatened and endangered pollinators and grassland birds.

- **Surrogate Grasslands**

Surrogate grasslands now make up most of the grassland habitat in the state and have a similar structure to former Wisconsin prairies. Mammals and birds are able to use surrogate grasslands such as hayfields and pastures to survive, though even those habitats are being converted into agriculture (WI DNR 2021).

These surrogate grasslands include set aside fields planted to non-native cool-season grasses (such as smooth brome, bluegrass) or native warm-season grasses (such as big bluestem, side oats grama) and other agricultural habitats such as hayfields, small grains, fallow fields, old fields, and pastures. Surrogate grasslands can even be orchards, parks, golf courses, and roadsides (WI DNR 2021).

Some of the highest concentrations of surrogate grasslands in Wisconsin occur in the Driftless Area, in the Western Coulee and Ridges and Southwest Savanna Ecological Landscapes (WI DNR 2021).

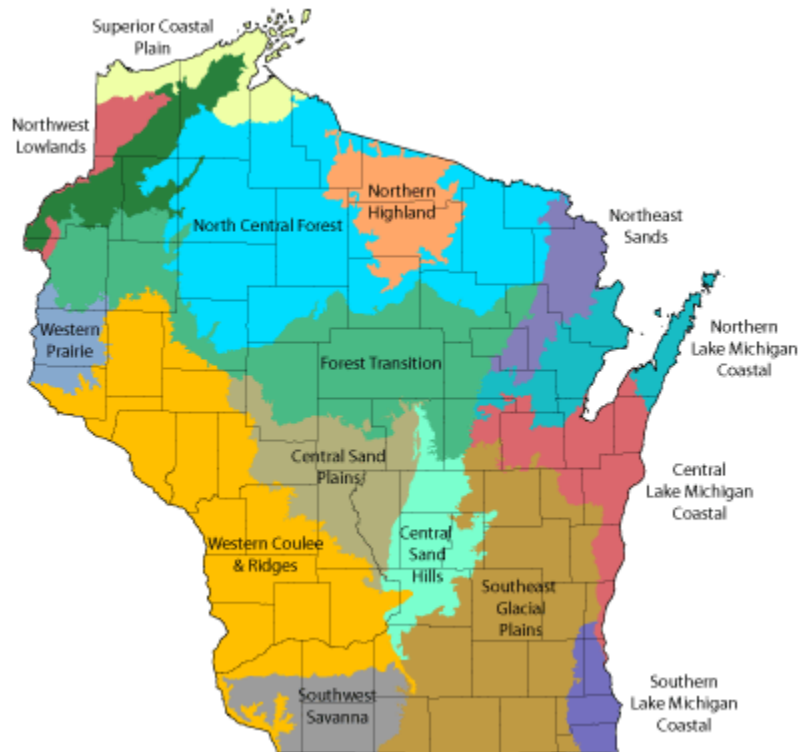


Figure 3. The Ecological Landscapes of Wisconsin by the Wisconsin Department of Natural Resources. The Driftless Conservation Plan covers both the Western Coulee & Ridges and Southwest Savanna regions.

Human Wellbeing & Ecosystem Services

Ecosystem services are services that intact, functioning ecosystems, species, and habitats provide and that can benefit people. The ecosystem services from these targets were identified as carbon sequestration, clean air, clean drinking water, the support of wildlife diversity, and the availability of cultural connection (as seen in figure 4). **Human wellbeing targets** are the components of human wellbeing that are affected by the status of our conservation targets. Our assumption is that conserving these three ecosystems will contribute to the identified ecosystem services, which in turn will result in the human wellbeing benefits depicted.

Our human wellbeing targets for this plan include:

- Physical health
- Recreation & Tourism
- Farmer dependent livelihood
- Hunting & fishing dependent food sources
- Restoration & tourism livelihoods
- Wisconsin culture of access to the outdoors

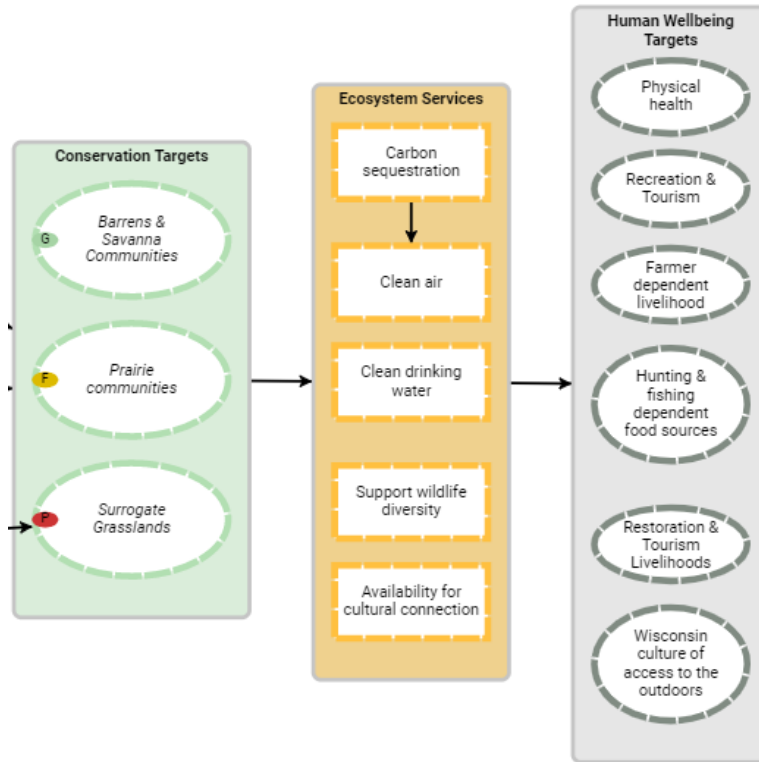


Figure 4. Our situation model shows our conservation targets in green, our ecosystem services in orange, and our human wellbeing targets in gray. Our assumption is that conserving these three ecosystems will contribute to the identified ecosystem services, which in turn will result in the human wellbeing benefits depicted.

Viability assessment and biodiversity goals

It is important to be able to assess the current health of the project targets today to help us define specific future goals and measure progress towards these goals. This is a critical part of the Conservation Standards process because it ensures that we are not making assumptions about the status of our targets and how they are changing over time. This can be a challenging process for ecosystems because they are complex with multiple ecological attributes that vary over time, making it difficult to succinctly measure change. A viability assessment helps us

address these challenges by defining how we will measure the health of these targets over time, and what is the current health of the targets.

A **viability assessment** is a tool to help us understand the current condition of our conservation targets, and what we want their condition to be in the future. Key ecological attributes are aspects of a target's biology or ecology that if present, define a healthy target. If that attribute is missing, or altered, it would lead to the degradation of that target over time. One example of a key ecological attribute for a freshwater stream target could be an aspect of water chemistry, such as pH. If the water's pH no longer sits in the appropriate range, the stream target is no longer viable.

Our team worked with ecologist Ryan O'Connor at the Wisconsin Department of Natural Resources (DNR) Bureau of Natural Heritage Conservation to complete a high-level viability assessment for our three conservation targets: barrens & savanna communities, prairie communities, and surrogate grasslands. Unfortunately, relatively little data is available on the health of the savannas & barrens and prairie communities on lands in the Driftless region.

There are several reasons for this lack of data. First, the current data from the Natural Heritage Inventory database is limited to public land, which accounts for only 3% of Wisconsin's Driftless Area—more than 97% is privately owned. Even on public land, the monitoring is limited to inventories done for master planning. More frequent monitoring by DNR staff is usually limited to checks of parking lots and quick visual inspections. Detailed assessments of the overall health or ecological integrity of sites on public lands is infrequent because there are thousands of sites across the state and there are currently only two staff members who are responsible for this type of monitoring. This means that the DNR currently only has the capacity to get to 100 or so sites **across the entire state** each year. So at the current rate, monitoring is only completed at each site about **once every 30 years**.

While part of the challenge for monitoring savannas, barrens and prairies is staff capacity, it can also be challenging to monitor consistently over time. Ryan O'Connor and Amy Staffen (also in the Bureau of Natural Heritage Conservation at the Wisconsin DNR) have developed protocols for barrens that can be done by managers to increase consistency and frequency. They also have more generic protocols for prairies and savannas but these require more experience and professional judgment. A huge area of opportunity would be securing funding to more regularly monitor sites and assess whether our strategies are working to improve the viability of these ecosystems.

With this in mind, the viability assessment for these natural communities and this plan is very high-level and generic due to the fact that there is relatively little data to draw on and we are working across a regional scale as opposed to a site-specific level. Partners are encouraged to complete their own viability assessment that more closely resembles the lands they are working to conserve within the Driftless Area.

There are **four key components of a viability assessment**: key ecological attributes of your conservation targets, indicators that are measurable, a rating scale for each indicator, and the current as well as desired future status of your target. These components align with the methods that the DNR uses to evaluate and monitor natural communities.

Wisconsin DNR Barrens Monitoring Form Version 2.2

Site Name: _____ Management Unit Name/# _____ AA Name/# _____ Date _____

AA Description _____ AA acres _____

GPS coords start _____ GPS coords end _____ Surveyors _____

Instructions: For each metric, write the corresponding measurement for your assessment area in "Your Obs" column, then enter a letter rank for that metric in the "Letter Rank" column following the ranking guidance. Convert the letter rank into a numerical score using a grade-point-average style conversion (A=4, A-=3.5, B=3, C=2, C-=1.5, D=1), and enter this number in the "Score" column.

METRIC		Ranking Guidance for each metric				YOUR OBS	LETTER RANK	SCORE (1-4)	Weighted Avg for final score
		A (Excellent)	B (Good)	C (Fair)	D (Poor)				
Barrens composition	Total % cover of native grasses and sedges, not including Pennsylvania sedge	30%+	15-29%	5-14%	0-4%				Multiply subtotal of Barrens comp by 0.6 ↓
	Number of native indicator species (see checklist with photographs)	15+	11-14	8-10	0-7				
	Total % cover of native disturbance indicators (e.g., Pennsylvania sedge, bracken fern, blackberry/dewberry, etc.)	0-20%	21-40%	41-60%	61%+				
Subtotal of Barrens comp: Avg of scores above; if 2 of the 3 metrics are D, overall Barrens comp = D						NA			
General composition	Total % cover of invasive species (as defined under Wisconsin NR 40)	<1%	1-3%	C: 4-10% C-:11-30%	31%+				Multiply subtotal of General comp by 0.15 ↓
	Relative % cover of all native plants (ratio of all natives to non-natives, including trees and shrubs)	A: >99% A- 95-99%	85-94%	60-84%	0-59%				
	Relative % cover of appropriate oak barrens trees (ratio of oak & regionally jack/red pine to other tree species)	96-100%	90-95%	80-89%	0-79%				

Figure 5. The Wisconsin Department of Natural Resources uses a barrens monitoring form similar to the viability assessment structure from the Conservation Standards. Ranking guidance for each “metric”, or indicator, can be seen.

The Wisconsin DNR developed and uses a barrens monitoring form for assessing the health of barrens communities. It breaks down the key ecological attributes like “barrens composition” into indicators or “metrics”, and for each metric there is an objective rating scale. There are also more generic versions of this monitoring form for prairies, savannas, and other systems. These protocols are usually employed at a specific site, with a rating given for the site or even management units within a larger site. For the purposes of this Driftless Conservation Plan, ideally monitoring would be conducted on a large number of sites, each receiving their own rating, and the results could be rolled up into an overall composite rating for the community as a whole across a broad region.

However, current site-level monitoring data is very limited. The viability assessment ratings for this plan relied on the limited data from DNR sites combined with professional experience to identify the status of each community group. These were then reviewed by the working group.

There are several caveats to this assessment:

1. The available data to use for the assessment was limited to public lands. This only represents a small percentage of the land area in the Driftless region, and even many of the sites on public land do not have good, recent monitoring data.
2. Individual sites will rank higher than these composite estimates, and there are also sites that will rank lower. This is a very high-level, generic assessment intended to serve as a baseline from which we can measure progress.

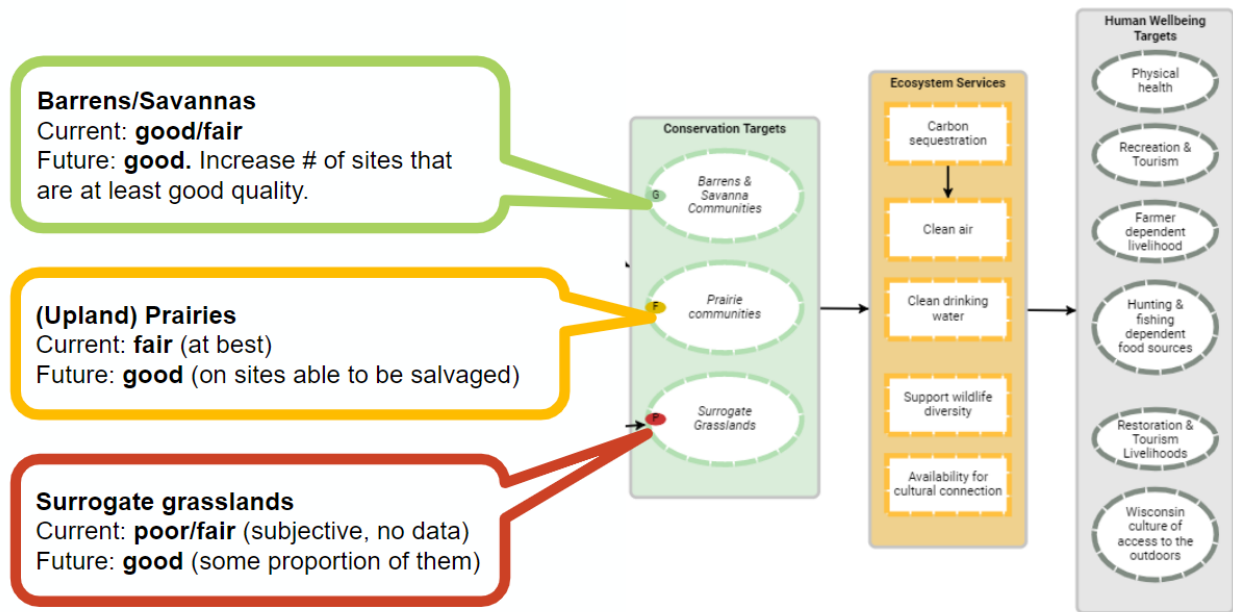


Figure 6. Viability assessment of our three conservation targets across the Driftless landscape. These ratings are high level due to the regional scope of the plan.

Barrens/Savannas ranked overall as *good/fair*, with a desired future status of *good*. This was the highest rated group, in part because these sites tend to have large acreages on public land (especially barrens) and receive the most regular management. In addition, they tend to degrade the slowest and recover the fastest following management, especially on sandy, droughty soils.

Prairies ranked overall as *fair at best*, with a desired future status of *good*.

And surrogate grasslands ranked *poor/fair*, with a desired future status of *good*. Because the DNR does not have standard criteria for evaluating surrogate grasslands, this last assessment came from expert opinion within the working group.

Table 1. High-level viability assessment for savannas, barrens, prairies, and surrogate grasslands targets in the Driftless Area completed using data on *public lands* from the Wisconsin Department of Natural Resources’ Natural Heritage Inventory database.

Conservation Target	Measure Rating	Rating Date	Source	Evidence	Desired Future Status
Barrens Communities	Good	9/8/2021	Natural Heritage Inventory Database	Sample size = 40 (17 Oak barrens, 8 Pine barrens, 15 Sand barrens) <i>Caveats:</i> May be additional sites that are not documented.	Good overall
Savanna Communities	Fair +	9/8/2021	Natural Heritage Inventory Database	Sample size = 23 (10 oak woodlands, 13 oak openings) <i>Caveats:</i> May be additional sites that are not documented, especially for oak woodland.	Good
Prairie Communities	Fair (at best)	9/8/2021	Natural Heritage Inventory Database	Sample size = 165 (115 Dry Prairie, 21 Dry Mesic, 9 Mesic, 20 Sand Prairies). <i>Caveats:</i> Sites that are being managed may be good, sites that aren't may be more poor.	Good (on sites that can be salvaged)
Surrogate Grasslands	Poor/Fair	9/21/2021	Expert opinion (Craig Thompson & Cindy Becker)	Subjective rating, no data currently exists.	Good

After estimating the current status of our targets, we were able to draft some initial long-term goals for each target. We expect that these goals can be refined over time as more data are gathered on these communities in the Driftless Area. Given current available data, the draft goals for our conservation targets are:

1. Barrens communities

Goal: To maintain an average good rating on these identified 40 sites and expand the number of known sites that are currently poor and improve them to at least a fair rating. This could be achieved through management *and* through inventory. Inventory should be emphasized on savannas/oak woodlands because they are more difficult to discover via aerial photography.

2. Savanna communities

Goal: To raise the status of known sites to good, and to increase the number of sites that are at least fair quality. This could be achieved through management *and* through inventory. Inventory should be emphasized on savannas/oak woodlands because they are more difficult to be discovered via aerial photography.

3. Prairie communities

Goal: To improve the status of known sites to good and identify sites that can be improved from poor or fair up to good.

4. Surrogate grasslands

To improve the status of known grasslands, and to complete monitoring of surrogate grasslands on private and/or public lands to create a baseline assessment of surrogate grassland status in the Driftless Area.

Direct threats & pressures

Threat descriptions and ranking

Direct threats are primarily human actions that immediately degrade our conservation targets. Changes in climate (like temperature increases and precipitation changes) are also examples of direct threats to targets, and they will be discussed in the following section.

Threat identification and rating make the implicit assessment of threats more explicit and objective. The working group came up with an initial list of 17 threats to our targets, though not all threats are equal. Some are a greater threat to our targets than others, so we used a set of criteria to rank and prioritize which threats could have a greater impact on our targets than others. Ranking threats helps us prioritize how we use our limited time and resources for addressing the most critical threats.

Table 2 shows how threat-target rankings were analyzed. It's important to note that not every threat affects every target. The threat rating criteria in the Conservation Standards used to understand the threat's impact on a target includes scope, severity, and irreversibility (criteria ranking levels can be found in Appendix II).

- **Scope / Extent:** Geographic area of impact on the conservation target that can be expected within 10 years
- **Severity:** Level of damage to the conservation target that can be expected within 10 years
- **Irreversibility:** Degree to which the effects of a threat can be reversed

The working group used these criteria to rank each threat on each conservation target, which then gave us a summary threat rating for each threat, which can be seen in Table 2.

Table 2. Threat assessment for the savannas and barrens, prairies, and surrogate grasslands conservation targets in the Driftless Area completed by the working group. Threats indicated by an asterisk (*) are the top five most highly ranked threats that were included in the final situation analysis. Summary ratings for each threat in the far right column are the sum of the threat rating for each target; it is important to note that not every threat impacts every target.

	Oak Savanna and Barrens Communities	Prairie Communities	Surrogate Grasslands	SUMMARY THREAT RATING
Invasive species*	H	H	H	H
Fire suppression*	H	VH	M	H
Residential & commercial development*	H	M	VH	H
Recreational activities / off-road vehicle traffic, heavy foot traffic*	M	M	L	M
Incompatible grassland management*			H	M
Nitrogen deposition	M	M	L	M
Mining	M	M	M	M
Utility & service lines	M	M	L	M
Conversion to plantations (pine/walnut)	L	L	M	L
Incompatible forest management	M			L
Agricultural development (non-timber crops)	L		M	L
Over browsing by deer	M	L		L
Pesticide & herbicide application	L	L	L	L
Incompatible livestock/grazing	L	L	L	L
Insects & disease	L	L	L	L
Agricultural runoff/erosion			L	L
Introduction of inappropriate genetic material		L		L

TARGET SUMMARY RATINGS	VH	H	H	
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After ranking our threats, the working group further narrowed down which threats to focus on by anonymously prioritizing the threats and selecting the top five, as indicated in bold in the table above: invasive species, fire suppression, residential & commercial development, recreational activities, and incompatible grassland management.

Invasive species

Invasive species was ranked as a high priority threat due to the extensive scope (most sites in Wisconsin have invasive species at some level) and the challenges of reversing invasive species (i.e., prevention is more efficient than control). The working group agreed that there is a growing threat of invasives in the state and the problem continues to grow in scope. Species like black locust and walnut also alter soil chemistry, and buckthorn takes over the understory of oak savannas ([source](#): discussion August 26, 2021).

Wisconsin savannas provide habitat for more than 500 species of native vascular plants, but non-native invasive species can outcompete native species by monopolizing water, nutrients, and light. The most common non-native invasive species in savannas include woody shrubs like common buckthorn (*Rhamnus cathartica*) and herbs like garlic mustard (*Alliaria petiolata*). Invasive species like buckthorn, reed canary grass, and purple loosestrife also degrade the quality of nesting and foraging habitats for birds. As grassland and prairie habitats succeed into shrubland and woodland, this changes species composition, impacting habitat quality and quantity, food abundance and variety, soil temperature and composition, and increased predator abundance (Wisconsin Wildlife Action Plan 2015).

In terrestrial ecosystems, vehicles, clothing, and horses can transport non-native seeds from one location to another through recreational activities. If clothing and footwear is not properly cleaned, it is easy for species to establish in new locations (Monz 2021).

In one multi-state study, 38 tallgrass prairie managers across 11 states were asked to describe effectiveness of restoration techniques and top threats to tallgrass prairies. The majority (68%) of managers devoted at least 25% of their total restoration efforts to invasive species management (Rowe 2010). This indicates that invasive species are a significant threat for restoration managers throughout the Midwest.

Fire suppression

The working group ranked fire suppression as a high priority threat due to the intense need for prescribed fire across the state. Fire has been suppressed on the landscape since the early 20th century to limit damage to timber, crops, and property. In most soil types and moisture regimes in Wisconsin's climate, prairies in the absence of regular fire will lead to more woody species and become less diverse over time. There are many benefits of fire, including limiting woody encroachment, stimulating early and robust growth of native grassland plants, deterring growth of some non-native invasive species, stimulating flowering and fruit production of native grassland plants, and increasing plant species diversity. Fires are also smaller due to farms and roads fragmenting the landscape. Lack of fire can also reduce climate change resiliency of fire-dependent systems by reducing drought tolerant species and traits (Wisconsin Wildlife Action Plan 2015).

The group noted that due to the habitat and species structure, fire suppression is not as serious of a threat for surrogate grasslands, though still included it as a noteworthy threat.

Residential & commercial development

Residential and commercial development is included as a third high priority threat. Fragmentation by land use changes disrupts the movement of animals that depend on barrens, and also makes the remaining habitat unsuitable for species that depend on large areas. Pollinators also rely on a diversity of flowering plants for nectar and fragmentation scatters habitat (WI DNR 2015).

Savannas and barrens are less likely to fill in around development due to the need for trees compared to prairies and grasslands. This threat also ties in closely with fire suppression: if a new housing development is built, by proximity managers are no longer able to burn the habitats near those developments. The working group noted that surrogate grassland groups may also be targeted for development due to their less valuable or desirable nature.

Recreational activities

Recreational activities was ranked as a medium priority threat across targets and includes destruction from off-road vehicles as well as heavy foot traffic. The working group noted that many recreational activities take place on private properties, including trails or roads being bulldozed for snowmobiles and ATVs. Mountain bike trails can also be built through highly sensitive areas.

These trails may also be vectors for invasive species: a recent global review suggests that areas where recreation and tourism activities are popular have a higher abundance of non-native species, and this is consistent across activities such as horse use, hiking, and motor boats (Monz 2021). In terrestrial ecosystems, a major concern is vehicles, clothing, and horses transporting non-native seeds from one location to another through recreational activities. If

clothing and footwear is not properly cleaned, it is easy for species to establish in new locations (Monz 2021).

The most widespread and well-studied mechanism of recreation disturbance to natural communities is trampling of vegetation and soil. This includes trampling by human feet, packstock hooves, or tires. Numerous effects have been found worldwide, including abrasion and breakage of vegetation, vegetation loss and compositional changes, loss of soil organic matter, and compaction and displacement of soil (Monz 2021). These are also concerns where new trails are being developed in the Driftless Area.

Incompatible Grassland Management

Incompatible grassland management was ranked as a medium threat. If grasslands need to be managed in a specific way to provide maximum ecological benefit. There are some common grassland management practices that are incompatible with grassland bird conservation. The most harmful is mowing or clipping pastures during the peak breeding season from mid-May through late June. Mowing during this time period can disrupt nests, increase nest predation, reduce food sources, and discourage grassland bird breeding pairs from staying. If a pasture is overgrazed, it will also be unfavorable for most bird species due to less lengthy grass (Ochterski 2005). Grasslands need to be mowed, hayed, and managed at the proper time of year to create habitat for birds. Extensive grazing may also lead to loss of habitat for grassland birds.

Situation Model

The diagram below (Figure 7) shows our situation model with our top five threats indicated by red boxes. These brown boxes connecting the direct threats to the targets are biophysical factors, which illustrate how a direct threat impairs aspects of a conservation target. For example, the model illustrates our assumption that the threats of residential and commercial development and incompatible grassland management is leading to grassland habitat loss, which in turn is degrading the viability of our surrogate grasslands community. Each red threat box also has a small letter in the upper-left corner that represents the summary rating for that threat, so for example this yellow “H” on fire suppression indicates a “high” threat rating.

Now that we have our targets and know what the highest-priority threats are to focus on, we will next move into climate change threats and what else is impacting these direct threats on our targets.

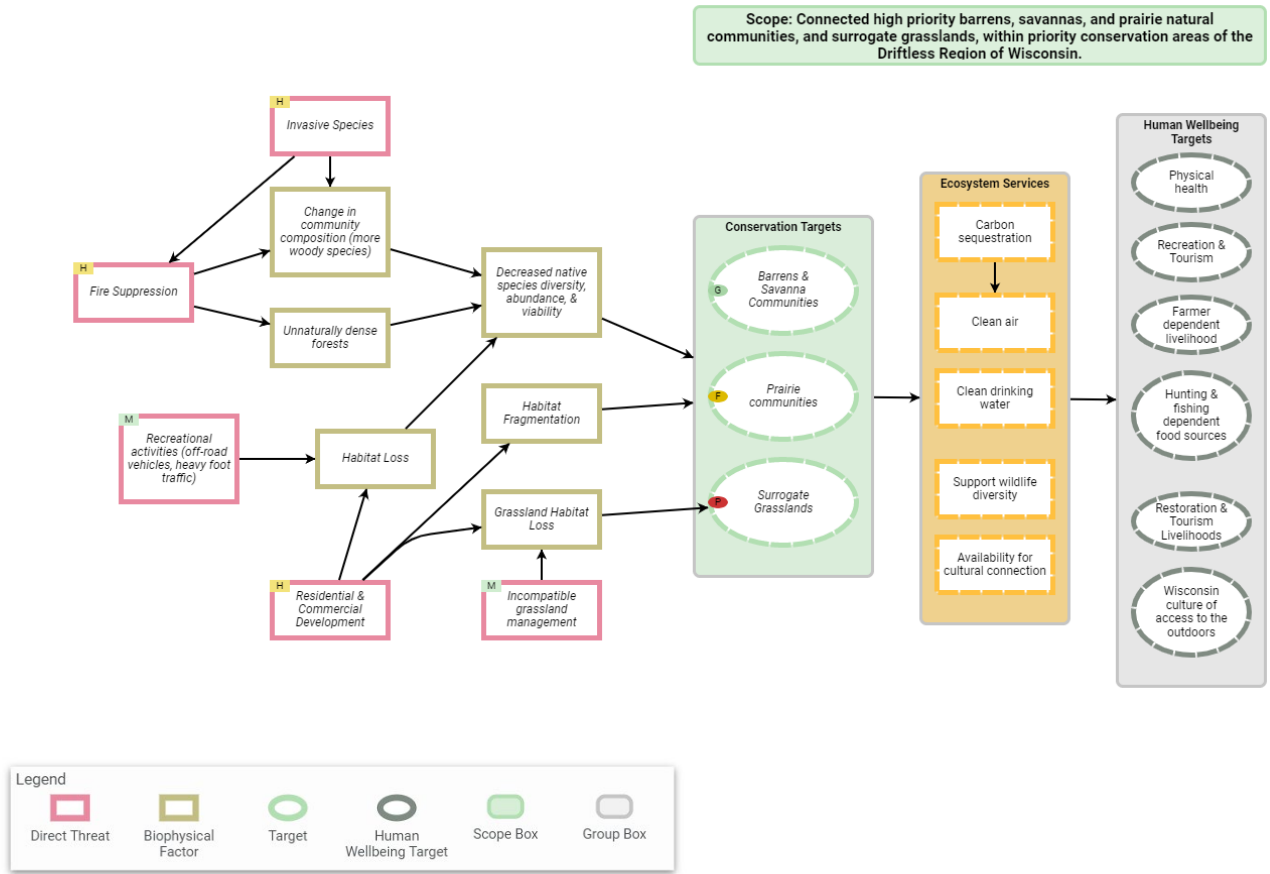


Figure 7. Situation model including our five prioritized threats (red), biophysical factors (brown), conservation targets (green), ecosystem services (orange), and human well-being targets (gray). The model illustrates our assumption that the threats of residential and commercial development and incompatible grassland management is leading to grassland habitat loss, which in turn is degrading the viability of our surrogate grasslands community

Climate vulnerability assessment

For the climate vulnerability assessment, the team drew on the work already completed by the [Wisconsin Initiative on Climate Change Impacts \(WICCI\)](#). In the Plants and Natural Communities Working Group, WICCI has already compiled Climate Change Vulnerability Assessments for broad community groups and individual natural communities in Wisconsin. These reports detail the potential impacts of climate change on the community, as well as the community's adaptive capacity, which reveals the overall estimated vulnerability of that community to climate change. This information gives a general sense of the vulnerability of the conservation target ecosystems to climate change in the Driftless Area.

The WICCI reports indicate that **barrens have a relatively low vulnerability to climate change** while the **grassland and prairie communities overall are rated as moderately vulnerable to climate change**.

The reports helped identify **climate change threats**, which included **wetter springs, higher temperatures, decreased snowfall and snowpack, and increased carbon dioxide**. This helps us connect the climate change threats to our human-induced threats to understand how the human-induced threats will likely be exacerbated by climate change. We added these climate change threats into our model to illustrate these relationships (Figure 8). For example, the model illustrates our assumption that higher temperatures, decreased snowfall and snowpack and increased CO2 will exacerbate the existing threat of invasive species. We expect this to lead to a change in community composition that will decrease native species diversity, abundance, and viability. We assume that this will negatively affect all of our conservation targets.

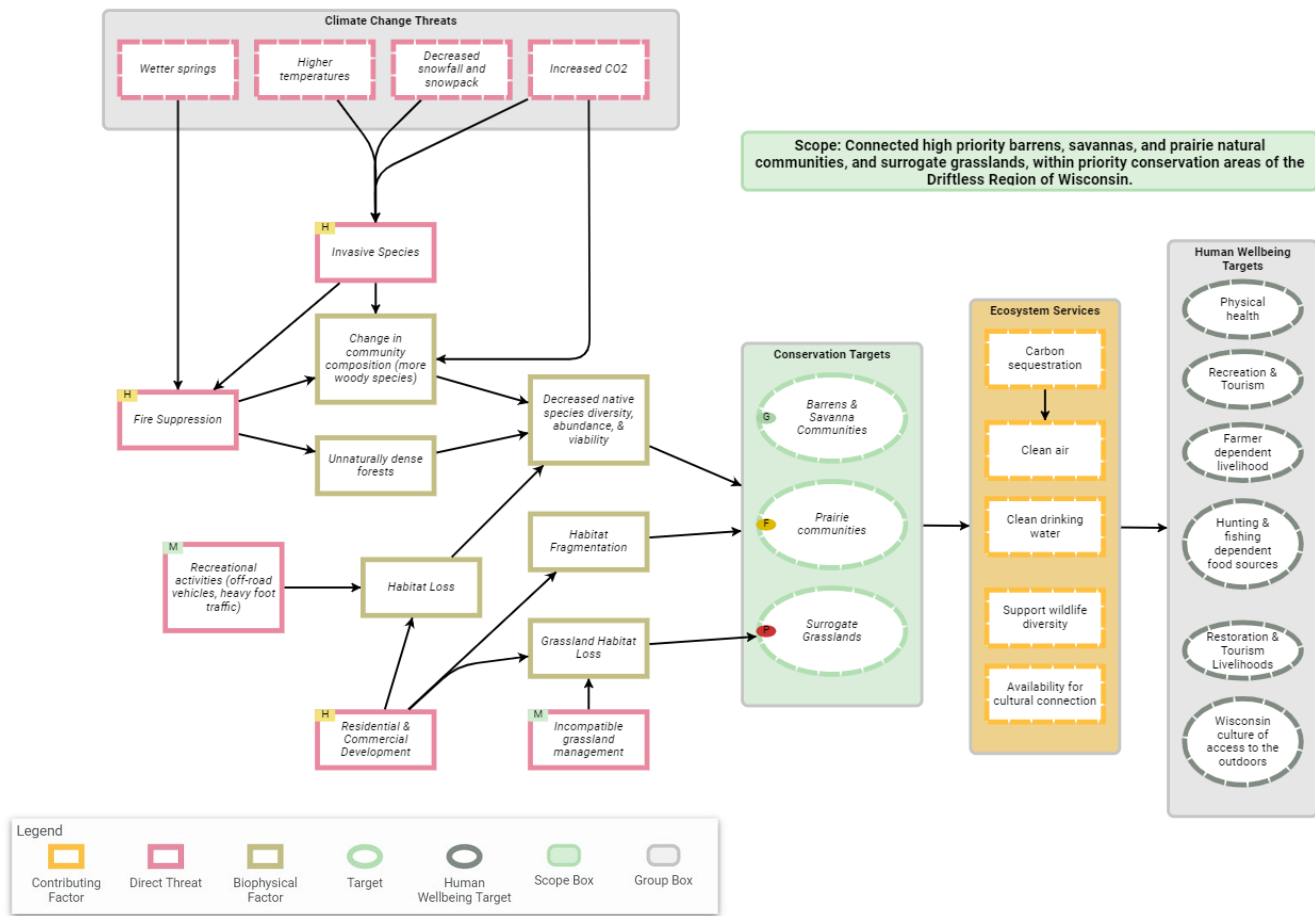


Figure 8. Climate change threats and their impact on the plan's human-induced direct threats.

How are we going to use this information?

Understanding our climate change threats can help us better understand which human-induced direct threats will be made worse with a changing climate. As can be seen in Figure 8, invasive species and fire suppression are even greater threats as a result of climate change. Strategies that aim to reduce these two threats will also be climate adaptation strategies as

wetter springs will impact how fire suppression is addressed, and invasive species strategies will have to be even more aggressive as higher temperatures, decreased snowfall and snowpack, and increased carbon dioxide exacerbates this threat.

Contributing factors and drivers

The final step in the situation analysis is to create a common understanding of the social, economic, political, and institutional systems that affect our conservation targets. These elements are known as **contributing factors**. To effectively plan to protect our conservation targets, it's important to think about the indirect threats and opportunities that influence those direct threats and the viability of the targets.

A **situation model** is the visual diagram that illustrates the situation analysis. The conservation target is what you are working to conserve. The direct threats are human actions that degrade our conservation targets, and the contributing factors are social, economic, political, or cultural factors that are driving those direct threats.

The situation model shows the assumed relationships between these factors. To make this model more digestible, each threat has its own “mini” situation model to depict these contributing factors and how they affect the direct threat, and each target also has its own situation model. As a simple example, in Figure 9 we have some factors that are related to and connected to our threat: recreational activities.

You can see that on the left, we assume that limited outreach to landowners and to the public, is leading to a lack of public awareness and disconnect from natural systems and function. We expect that this leads to lack of awareness on the negative impact recreational activities are having on ecosystems, which leads to the direct threat shown in red. We also have two other factors influencing our direct threat, which then leads to habitat loss and decreased species diversity in all of our three conservation targets. Thinking through this process helps us make sure we are understanding our assumptions and what factors are at play on our direct threats and targets.

Situation models for the other four threats and three separate conservation targets can be found in the next section (Strategy Mapping & Prioritization) along with prioritized strategies for those threats and targets.

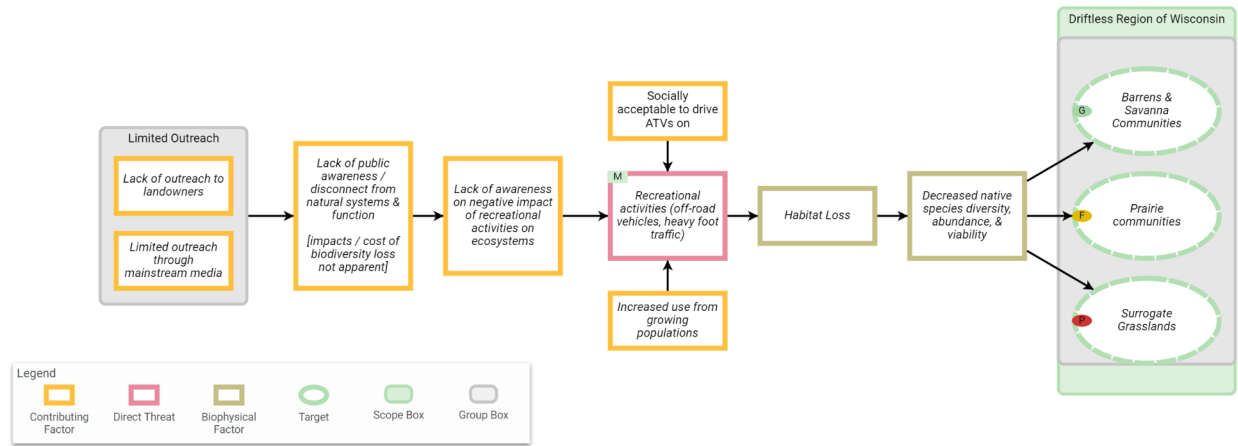


Figure 9. Situation model depicting the assumed relationships between the contributing factors (orange) leading to the threat of recreational activities (red), and the resulting biophysical factors (brown) impacting our target communities.

CREATING THE PLAN

Now that we have a better understanding of the conservation problem, the next step of making a plan using the Conservation Standards includes articulating the project's goals, strategies, assumptions, and objectives for addressing the conservation problem. It will also include a monitoring plan with illustrative examples of indicators for monitoring progress towards objectives and goals. Because this is a regional-scale plan, we will be providing high-level generic suggestions and ideas for these sections that can be adapted by implementing partner organizations to best suit their needs.



Figure 10. Step 2 of the Conservation Standards cycle.

Strategy mapping and prioritization

A strategy is a set of activities with a common focus that work together to reduce threats, capitalize on opportunities, and/or restore natural systems. Strategies are designed to achieve specific objectives and goals. The [CMP Conservation Action Classification Version 2](#) identifies three types of strategies: a **target restoration action**, which acts directly on a target to restore it, a **behavioral change / threat reduction action**, which acts on the threat or a behavior causing the threat, and an **enabling condition action**, which needs to take place before a behavioral change action can occur. These can be seen in Figure 11.

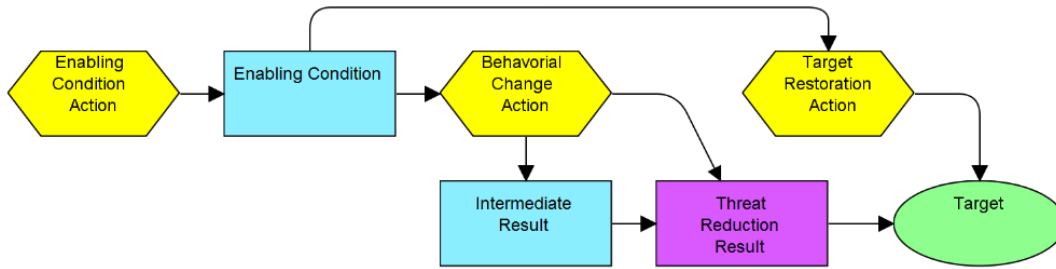


Figure 11. There are three types of strategies: a **target restoration action**, which acts directly on a target to restore it, a **behavioral change / threat reduction action**, which acts on the threat or a behavior causing the threat, and an **enabling condition action**, which needs to take place before a behavioral change action can occur.

The Conservation Actions Classification helped us identify how existing recommended strategies from the Wisconsin Wildlife Action Plan aligned with the generic actions taxonomy. We also looked for any key intervention points, or areas where it would be possible to intervene to change the situation, and added them to our model. As a working group, we finally brainstormed any additional strategies that could be used to address the conservation situation.

Prioritizing our strategies is a very important step because it is common for project teams to select strategies based on what they know how to do, their own experiences, or best estimates, as opposed to assessing what is the most strategic way to achieve their goals with the resources they have.

After identifying potential strategies, our working group rated each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). These scores were summed to rank strategies to address each direct threat and each conservation target. We acknowledge that whoever is implementing this plan has limited resources and the purpose of this ranking exercise was to provide guidance on how implementers may want to focus their efforts.

On the next pages, we provide a diagram and table that illustrates the prioritized strategies for restoring each of the target communities and for reducing the direct threats that are affecting these communities. We also provide the working group's rankings for each strategy. A higher score out of a total of 60 means a strategy that is more feasible, will have more impact, and is more urgent. After ranking our strategies, we also transferred the results directly onto our situation model, with #1 being the highest ranked strategy. This gives us a better visual of how these strategies are ranked relative to each other and to the direct threat or conservation target.

Prioritized Strategies for Restoring Barrens and Savanna Communities

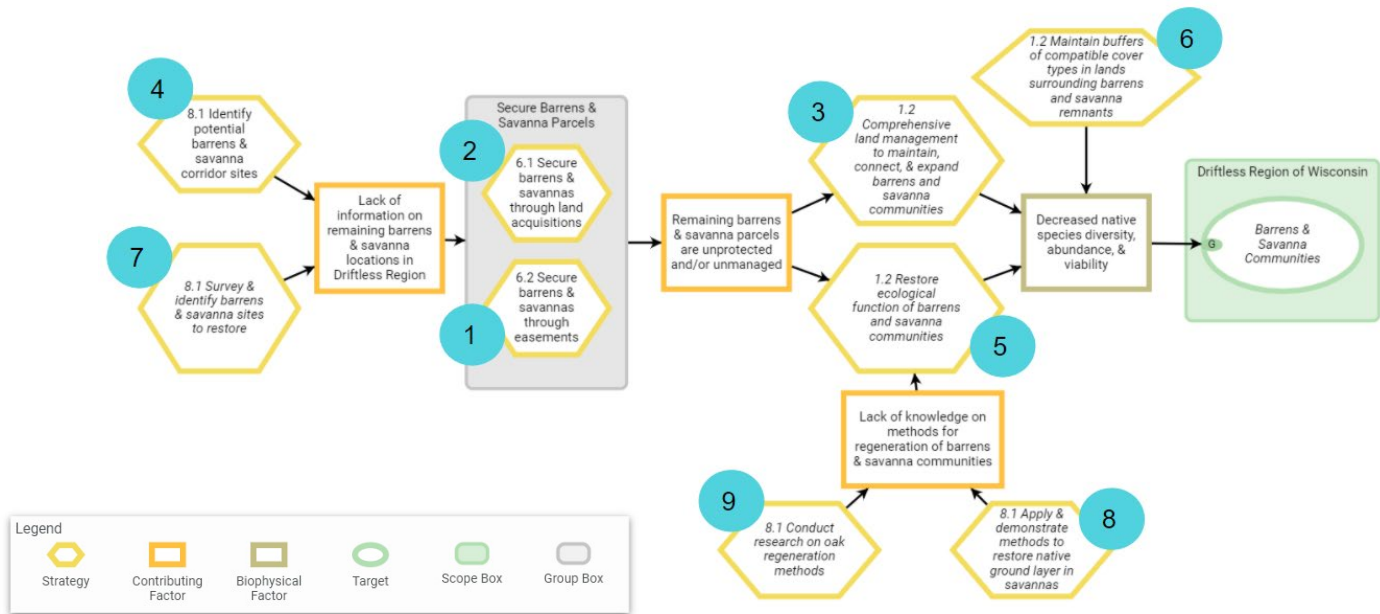


Figure 12. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to protect and restore Barrens & Savanna Communities. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Barrens and Savanna Communities		
Prioritized strategies for restoring barrens and savanna communities.		
Rank	Proposed Strategy	Total (n = 60)
1	6.2 Secure barrens & savannas through easements	49
2	6.1 Secure barrens & savannas through land acquisition	47
3	1.2 Comprehensive land management to maintain, connect, & expand barrens and savanna communities	45
4	8.1 Identify potential barrens & savanna corridor sites	45
5	1.2 Restore ecological function of barrens and savanna communities	44

Barrens and Savanna Communities Prioritized strategies for restoring barrens and savanna communities.		
6	1.2 Maintain buffers of compatible cover types in lands surrounding barrens and savanna remnants	42
7	8.1 Survey & identify barrens sites to restore	39
8	8.1 Apply & demonstrate methods to restore native ground layer in savannas	38
9	8.1 Conduct research on oak regeneration methods	36

Prioritized Strategies for restoring Prairie Communities

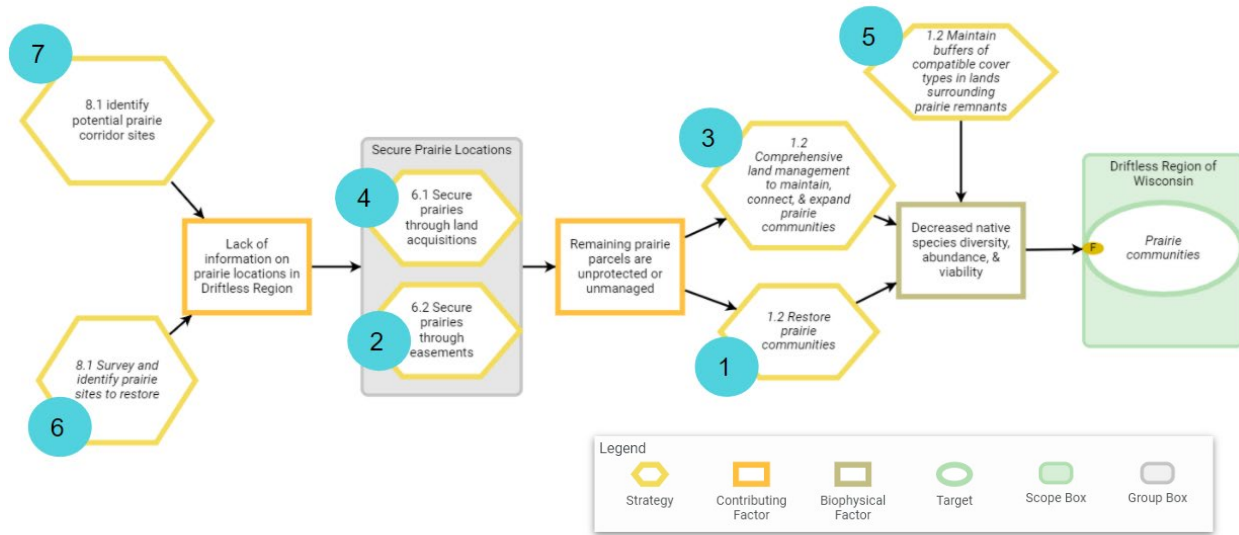


Figure 13. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to protect and restore Prairie Communities. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Prairie Communities		
Prioritized strategies for restoring prairies.		
Rank	Proposed Strategy	Total (n = 60)
1	1.2 Restore prairie and steward sites	48
2	6.2 Secure prairie sites through easements	47
3	1.2 Comprehensive land management to maintain, connect, & expand prairie communities	45
4	6.1 Secure prairie sites through land acquisition	45
5	1.2 Maintain buffers of compatible cover types in lands surrounding prairie remnants	42

Prairie Communities Prioritized strategies for restoring prairies.		
6	8.1 Survey and identify prairie sites to restore	42
7	8.1 Identify potential prairie corridor sites	40

Prioritized Strategies for restoring Surrogate Grasslands

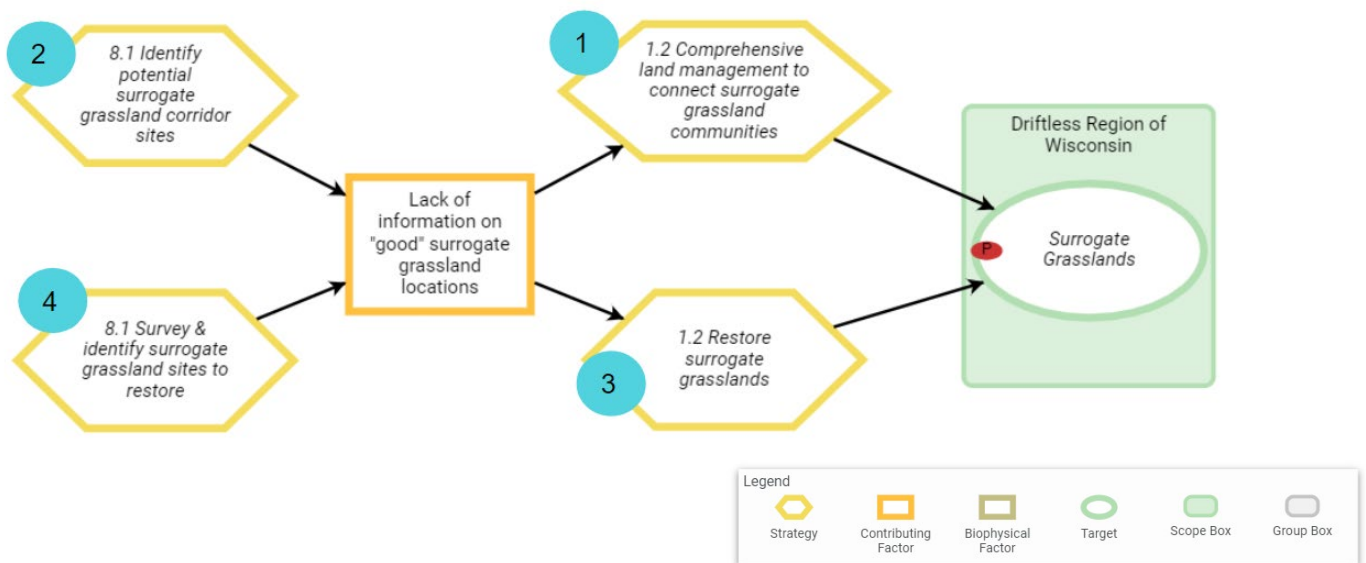


Figure 14. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to protect and restore Surrogate Grasslands. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Surrogate Grasslands Prioritized strategies for restoring grasslands.		
Rank	Proposed Strategy	Total (n = 60)
1	1.2 Comprehensive land management to connect surrogate grassland communities	47

2	8.1 Identify potential surrogate grassland corridor sites	47
3	1.2 Habitat restoration of surrogate grasslands	43
4	8.1 Survey and Identify degraded & low-quality surrogate grassland sites to restore	41

Prioritized Strategies for reducing the threat of Fire Suppression

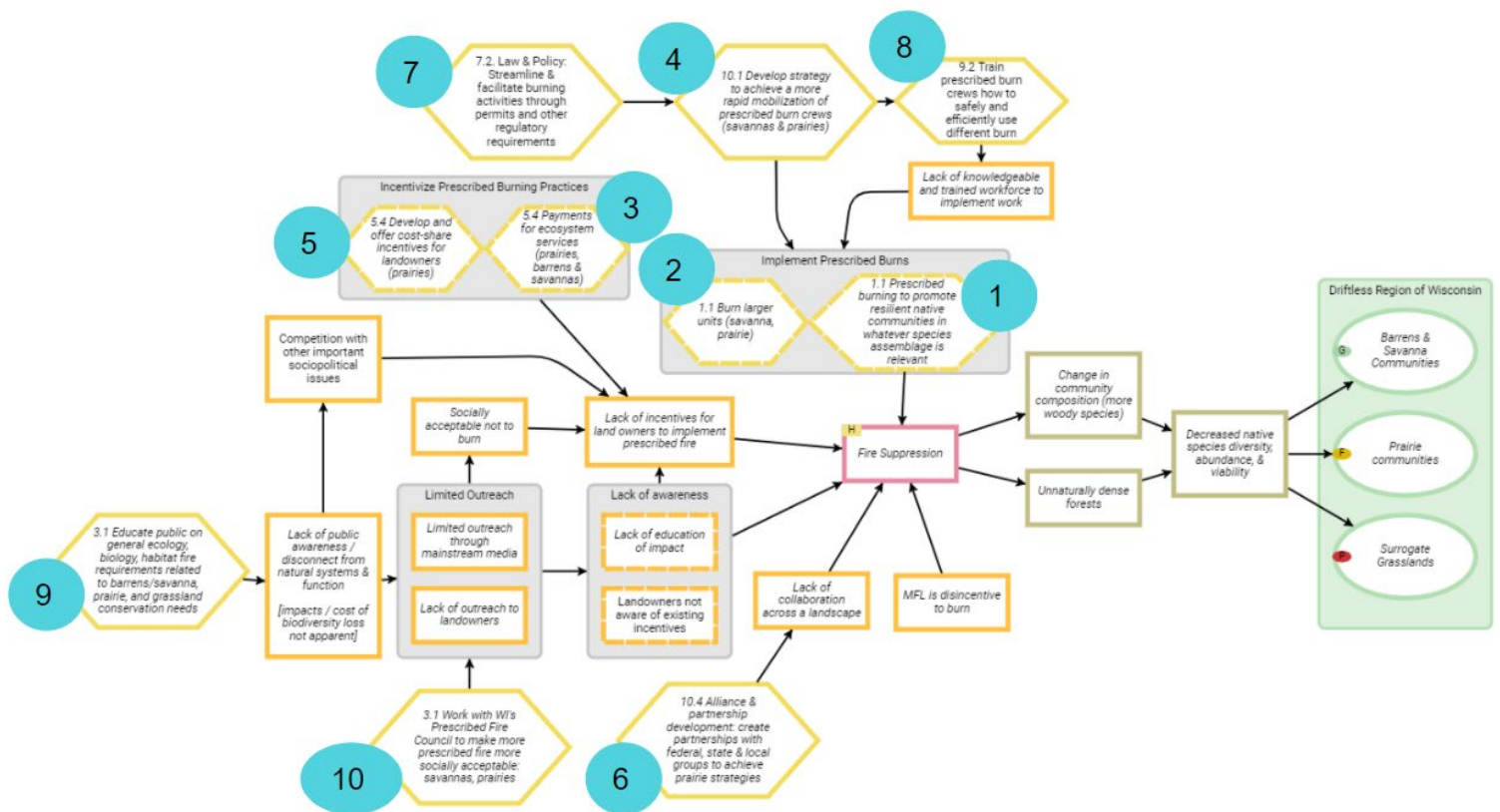


Figure 15. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to reduce the threat of Fire Suppression. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each

conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Threat: Fire Suppression		
Prioritized strategies for the reducing the threat of fire suppression.		
Rank	Proposed Strategy	Total (n = 60)
1	1.1 Prescribed burning to promote resilient native communities in whatever species assemblage is relevant	50
2	1.1 Burn larger units (barren/savanna, prairies)	47
3	5.4 Payments for ecosystem services (prairies, barrens/savannas)	46
4	10.1 Develop strategy to achieve a more rapid mobilization of prescribed burn crews (savannas & prairies)	45
5	5.4 Develop and offer cost-share incentives for landowners (prairies)	43
6	10.3 Alliance & partnership development: create partnerships with federal, state & local groups to achieve prairie strategies	41
7	7.2 Law & Policy: Streamline & facilitate burning activities through permits and other regulatory requirements	40
8	9.2 Train prescribed burn crews how to safely and efficiently use different burn windows	38
9	3.1 Educate public on general ecology, biology, habitat fire requirements related to barrens/savanna, prairie, and grassland conservation needs	37
10	3.1 Work with WI's Prescribed Fire Council to make more prescribed fire more socially acceptable: savannas, prairies	36

Prioritized Strategies for reducing the threat of Invasive Species

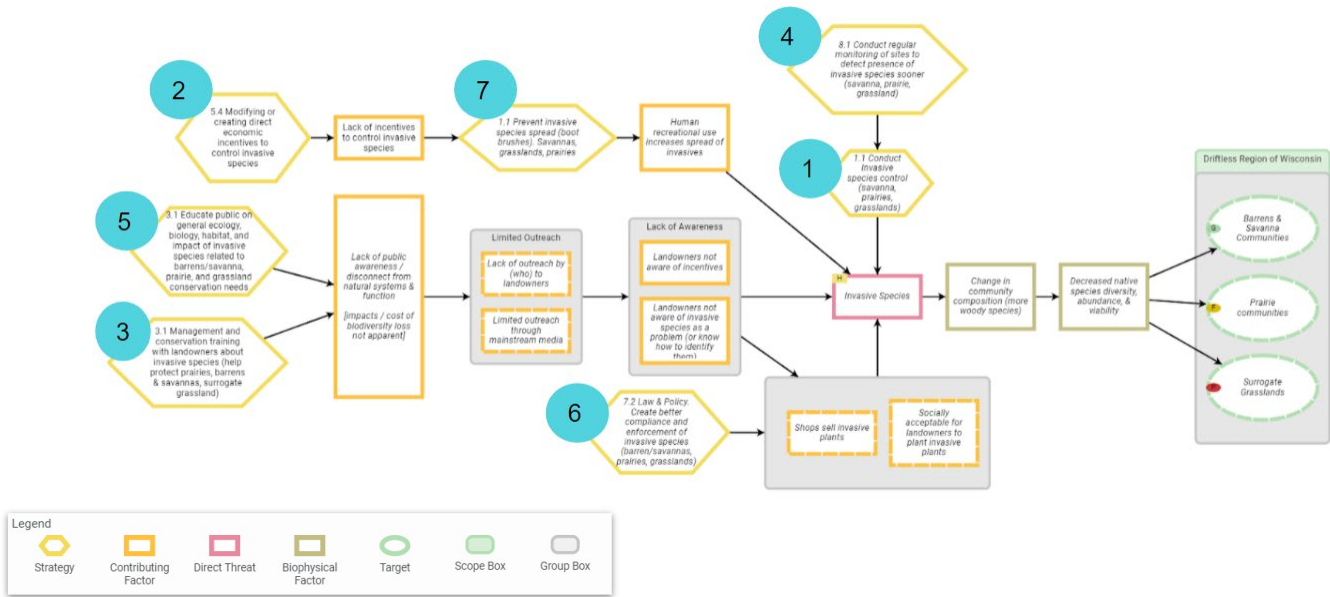


Figure 16. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to reduce the threat of Invasive Species. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Threat: Invasive Species		
Prioritized strategies for the reducing the threat of invasive species.		
Rank	Proposed Strategy	Total (n = 60)
1	1.1 Conduct invasive species control (savanna/barrens, prairies, grasslands)	48
2	5.4 Modifying or creating direct economic incentives to control invasive species	46
3	3.1 Management and conservation training with landowners about invasive species (barren/savannas, prairies, grasslands)	44
4	8.1 Conduct regular monitoring of sites to detect presence of invasive species sooner (barren/savannas, prairie, grassland)	44

Threat: Invasive Species

Prioritized strategies for the reducing the threat of invasive species.

5	3.1 Educate public on general ecology, biology, habitat, and impact of invasive species related to barrens/savanna, prairie, and grassland conservation needs	36
6	7.1 Law & Policy. Create better compliance and enforcement of invasive species (barren/savannas, prairies, grasslands)	32
7	1.1 Prevent invasive species spread (i.e. boot brushes.) (savanna/barrens, prairies, grasslands)	30

Prioritized Strategies for reducing the threat of Residential & Commercial Development

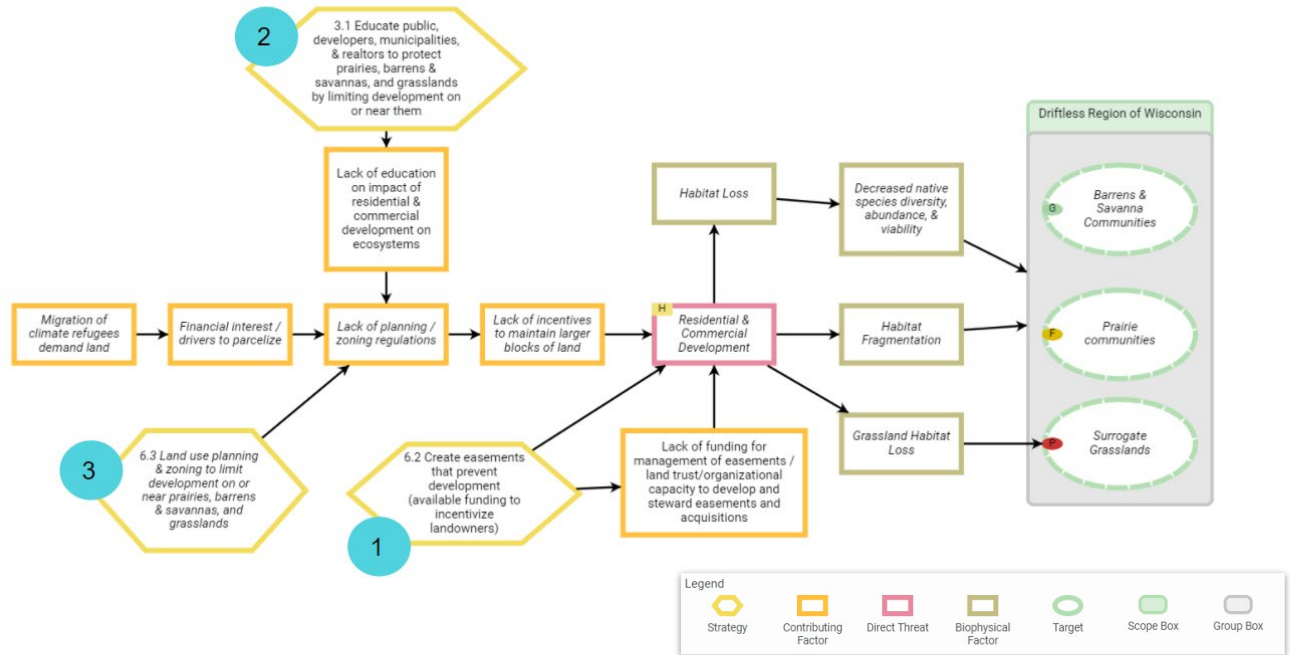


Figure 17. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to reduce the threat of Residential & Commercial Development. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Threat: Residential & Commercial Development		
Prioritized strategies for the reducing the threat of residential and commercial development.		
Rank	Proposed Strategy	Total (n = 60)
1	6.2 Create easements / acquisitions that prevent development (Available funding to incentivize landowners)	47
2	3.1 Educate public, developers, municipalities, & realtors to protect prairies, barrens & savannas, and grasslands by limiting development on or near them	41
3	6.3 Land use planning & zoning to limit development on or near prairies, barrens & savannas, and grasslands	40

Prioritized Strategies for reducing the threat of Recreational Activities

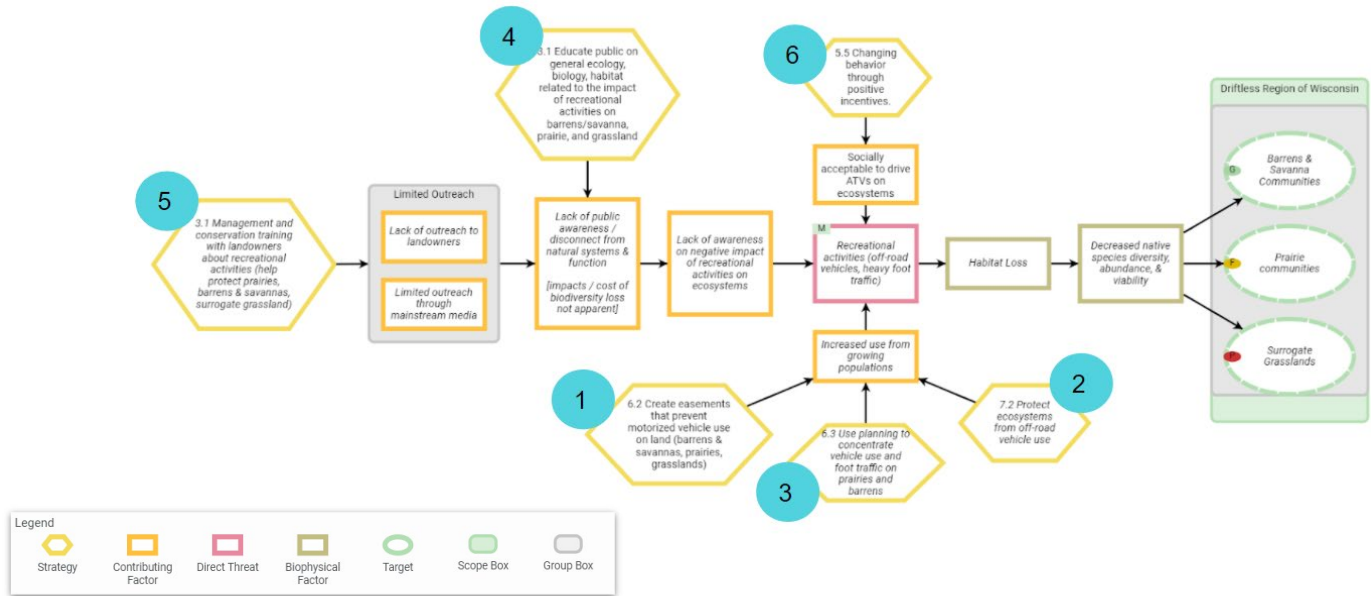


Figure 18. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to reduce the threat of Recreational Activities. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Threat: Recreational Activities (off-road vehicles, heavy foot traffic)		
Prioritized strategies for the reducing the threat of recreational activities.		
Rank	Proposed Strategy	Total (n = 60)
1	6.2 Create easements that prevent motorized vehicle use on land	45
2	7.1 Protect ecosystems from off-road vehicle use	44
3	6.4 Use planning to concentrate vehicle use and foot traffic on prairies and barrens	40
4	3.1 Educate public on general ecology, biology, habitat related to the impact of recreational activities on barrens/savanna, prairie, and grassland	37

Threat: Recreational Activities (off-road vehicles, heavy foot traffic)		
Prioritized strategies for the reducing the threat of recreational activities.		
5	3.1 Management and conservation training with landowners about recreational activities (help protect prairies, barrens & savannas, surrogate grassland)	35
6	5.5 Changing behavior through positive incentives.	35

Prioritized Strategies for reducing the threat of Incompatible Grassland Management

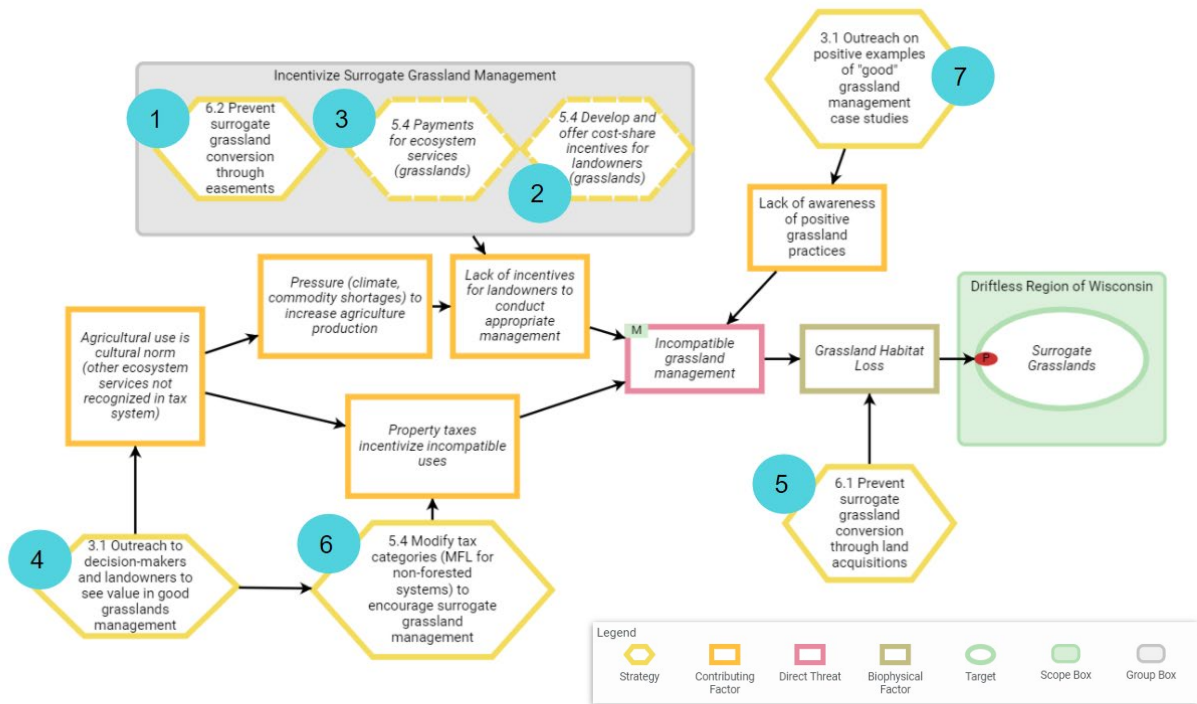


Figure 19. This situation model depicts how the prioritized strategies (from table below) could be applied to address the contributing factors in the diagram to reduce the threat of Incompatible Grassland Management. Our working group rated and ranked each strategy for potential impact, feasibility, and urgency (see criteria for these rankings in Appendix II). The table below illustrates how these scores were summed to rank strategies to address each direct threat and each conservation target. A higher score out of a total of 60 means that a strategy is expected to be more feasible, will have more impact, and is more urgent for restoring a conservation target.

Threat: Incompatible Grassland Management		
Prioritized strategies for the reducing the threat of incompatible grassland management.		
Rank	Proposed Strategy	Total (n = 60)

Threat: Incompatible Grassland Management		
Prioritized strategies for the reducing the threat of incompatible grassland management.		
1	6.2 Create easements to prevent grassland conversion	46
2	5.4 Develop and offer cost-share incentives for landowners (grasslands)	45
3	5.4 Payments for ecosystem services (grasslands)	45
4	3.1 Outreach to decision-makers and landowners to see value in good grasslands management	43
5	6.1 Acquire grasslands to prevent grassland conversion	42
6	5.4 Modify tax categories (i.e. managed forest law (MFL) for non-forested systems) to encourage surrogate grassland management	41
7	3.1 Outreach on positive examples of "good" grassland management case studies	40

Prioritizing strategies across all threats and targets

The strategy ranking is only to serve as background information and guidance to a conservation organization working on these ecological communities in the Wisconsin Driftless Area. There are no implications of choosing one strategy over another—this depends on the partner organization’s specific situation, strengths, and resources.

In the next section, we will discuss how partner organizations can use this information to inform and evaluate their own conservation efforts in the Driftless Area.

PART II: HOW TO USE THE PLAN

How you can use the Driftless Conservation Plan to better inform your own efforts in the Driftless Area

In this second part, we will discuss the ways that you can use this plan as a partner working in the Driftless Area.

Learn how to use this plan to design your own conservation planning efforts, how to implement and prioritize strategies, and how to evaluate your efforts using theories of change.



DESIGNING YOUR CONSERVATION PLAN

One way this plan can be applied by partners is by using the situation analysis models with prioritized strategies to develop a conservation or strategic plan. Partners can either use the models as is, or change aspects of the model so they better align with the work the organization is doing.

Driftless Area Land Conservancy (DALC) did just this. DALC used the situation model and added and removed targets, threats, and strategies so the diagram better aligned with the work the organization focuses on. Starting with the Driftless Conservation Plan's diagram as a "draft" model is a helpful way to kickstart a more localized planning process.

IMPLEMENTING YOUR CONSERVATION STRATEGIES

In the case of this high-level Driftless Conservation Plan, we hoped to create a plan that could be used by conservation practitioners and organizations throughout the region even after the planning process was complete.

Using the information in previous sections of this plan, implementation partners can create a specific work plan that will detail the tasks, activities, and responsibilities associated with the actions they hope to take. Partners could also create a timeline of activities and how and when you will be monitoring. Identifying which strategies you would like to prioritize using the situation models and theories of change can help focus your individual efforts and see how they will be contributing to a larger vision for the Driftless Area to protect savannas and barrens, prairies, and surrogate grasslands.

It is important to implement the strategic plan and the work plan according to schedule, and monitor the results of your actions. **Setting up a system for data collection, storage, and future access** will help us all analyze our progress and results and better understand the impacts of our actions across the region. This is a crucial step in implementing your conservation plan because it will allow us to monitor which of our conservation actions are having the greatest impact, and we can roll up this data across the region to make a large collective impact in the Driftless Area.

Data Systems for Tracking Implementation Progress

There are a variety of options for data collection, but these are the minimum requirements you should be sure to have available:

- Status field for strategies and activities
- Date field
- Comments field
- Ability to sort and filter
- Flexibility to control access
- Access to previous data
- Ideally, ability to talk to other project systems

Here is a list of potential systems you can use to monitor your conservation actions and implementation progress:

- **Miradi (desktop or MiradiShare online):** Miradi uses color coded categories that allows implementers to track how they are doing in their activities (completed, on-track, minor & major issues, scheduled for future, abandoned, etc). You can see details from different progress reports for each activity. There is also a table or diagramatic view to see the progress reports.
- **Spreadsheets (Excel, GoogleSheets, or similar):** The advantage to spreadsheets is they are completely customizable depending on your project needs. You can even design a spreadsheet to look similar to the Miradi tracking system. The drawback to keep in mind is that you may have data stored in multiple places, which means any changes will need to be replicated across your platforms. You can use conditional formatting and pick lists to make data organization and visualization easier and clearer. Online platforms such as Google Sheets means that multiple team members can make edits at the same time instead of passing around a hard copy document.








	A	B	C
1	Strategies & Activities	Progress	Progress Details
2	 1. Campaign to Stop Shark Fin Soup Demand	Minor Issues	During the annual review, we realized that the campaign strategy will only reach the "good" actors and that we will need to add an enforcement strategy that capitalizes on the new national legislation protecting sharks.
3	 1. Campaign to Stop Shark Fin Soup	On-Track	
4	 Plan campaign with CAI	Completed	Campaign planning now completed
5	 Implement outreach campaign	On-Track	Now starting up but needs push
6	 2. Rat Elimination	Major Issues	Trapping strategy is moving forward as planned, but it's not clear whether the rat barriers on boats are preventing re-introduction of rats.
7	 2a. Trap Rats on Key Islands	On-Track	
8	 2b. Policy to Mandate Rat Barriers on Visiting Boats	On-Track	
9	 Research rat barrier technology to inform policy	Completed	Research completed

Figure 20. Example of a project tracking spreadsheet. Image: Conservation Measures Partnership.

Data Systems for Tracking Results Progress

There are a variety of options for data collection, but these are the minimum requirements you should be sure to have available:

- Record progress on goals and objectives
- Record progress on any result
- Access to previous data
- Date field
- Flexibility to control access
- Comments field
- Ability to talk to other project systems

Here is a list of potential systems you can use to monitor your conservation actions and implementation progress:

- **Miradi (desktop or MiradiShare online):** Miradi also uses color coded category for users to show progress on a result, such as achieved, on-track, partially achieved, not achieved, not yet, and no longer relevant. This information can be viewed in a table format or using the theory of change diagram with updates saved into the diagram.
- **Spreadsheets (Excel, GoogleSheets, or similar):** Spreadsheets offer another way to track progress towards results, objectives, and indicators.

EVALUATING OUR CONSERVATION EFFORTS

Generic theories of change and effectiveness measures

Understanding assumptions is an important piece of how we think our strategies will contribute to achieving desired conservation results. These assumptions are called a **theory of change**. Using a theory of change can help us monitor and evaluate if our strategies are working or not to achieve expected conservation outcomes.

Defining a theory of change helps teams clarify their assumptions about how they assume a conservation strategy will contribute to improving the situation. It tells us how we expect strategies will act on contributing factors, reduce direct threats, and achieve the goal of improving the viability of conservation targets.

A results chain is a diagram that depicts a theory of change. The basic components of a results chain can be seen in Figure 21. The strategy leads to the intermediate result (or the desired future state of a contributing factor) which leads to the threat reduction results (or the desired future state of a threat) which leads to the impact on our target. A good theory of change is results oriented, can be read as a series of “if...then” statements, and demonstrates change. It is also reasonably complete but not too complex.

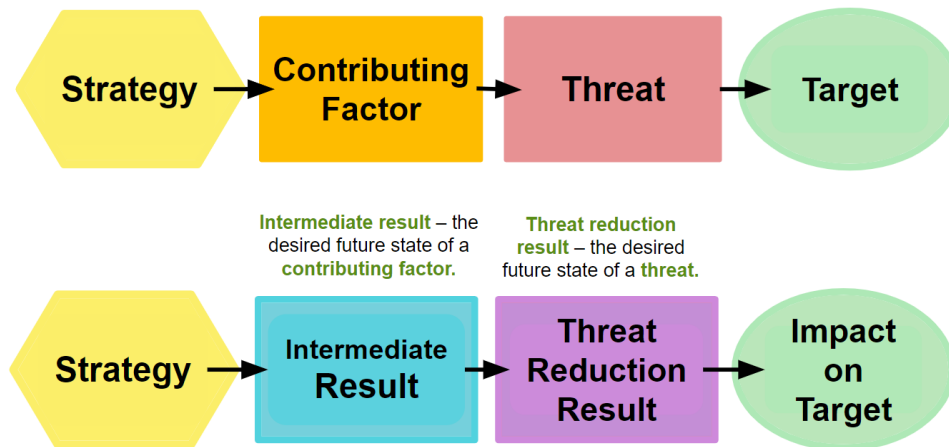


Figure 21. Basic components of a theory of change (bottom) as it relates to the situation model (top). FOS, 2020. Planning for Conservation: A Conservation Standards How-To Guide. Foundations of Success, Bethesda, Maryland.

The Conservation Measures Partnership (CMP) is a collective of many national and international conservation organizations. CMP has developed a [Conservation Actions and Measures Library](#) (also known as CAML) which has a generic or “high level” results chain that depicts the theory of change for each of the actions included in the CMP Conservation Actions Classification.

In this plan, we have developed a generic theory of change from CAML for each type of strategy that was identified in the Driftless Conservation Plan strategy using the generic theories of change from CAML. These theories of change have been created and vetted by teams of conservationists from around the world, and even include draft objectives and indicators. We have these generic theories of change understanding that you as partners will be modifying them to fit your own needs and align more specifically with your work.

In Figure 22 you can see what one of our generic theories of change looks like for our Conservation Easements strategy type. Our intermediate results are in blue, with our conservation target in the green circle on the right. This has been tweaked just a little to align with the Driftless Area, but is still very high-level and generic.

The placeholders for indicators and objectives can be seen along the bottom of select intermediate results. Indicators are symbolized by the purple triangle and objectives are the blue rectangle labels. Placing objectives and indicators along your theory of change helps you measure the effectiveness of a strategy and be realistic about the time required to achieve the final results. Monitoring these indicators can help us understand if we are actually making progress towards our goals.

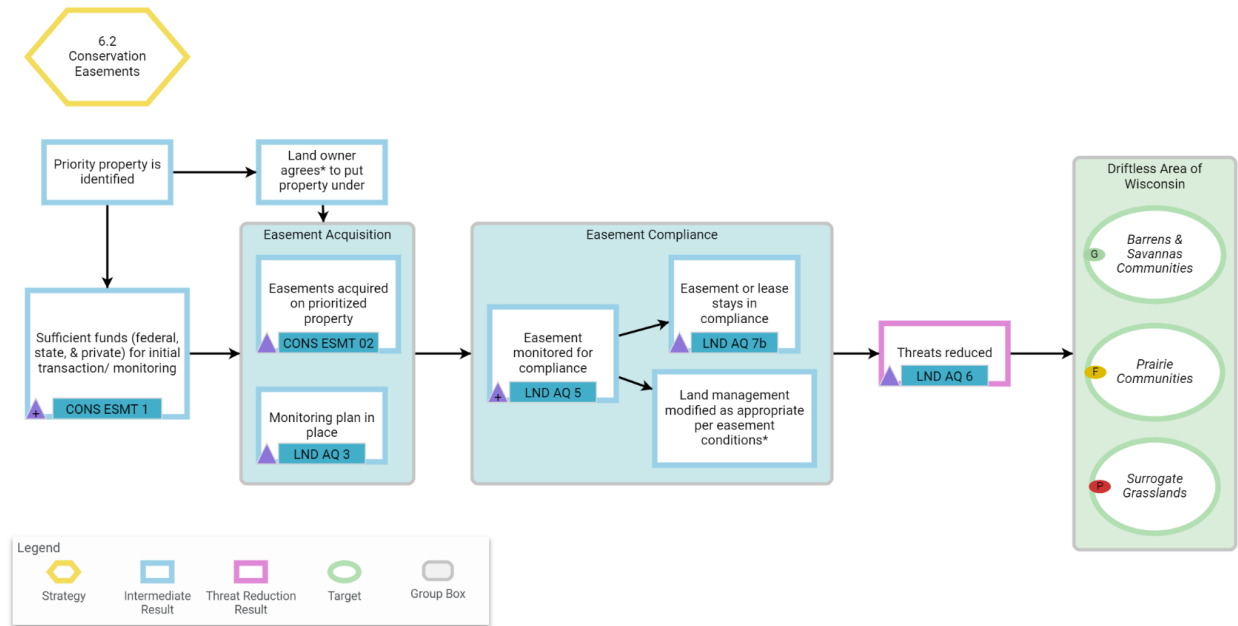


Figure 22. Generic high-level theory of change for “conservation easements” strategies from CAML. Our strategy is indicated by a yellow hexagon and the blue boxes are intermediate results. Some intermediate results have a generic objective (dark blue rectangle) and an indicator (purple triangle) that teams can use to create their monitoring plan.

In **Appendix IV**, we have listed each generic theory of change diagram along with tables describing the objectives and indicators for each model. An example for this model is shown below.

Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
CONS ESMT 1	Sufficient funds (federal, state, & private) for initial transaction/monitoring	By X timeframe, sufficient funds allotted for initial transaction & annual monitoring.	Amount received/needed for initial transaction Rollup: %/# of acquisitions that acquired X % of needed transaction cost with non-federal partnership	

How to Use These Theories of Change

As mentioned above, we have created these generic theories of change understanding that you as partners will be modifying them to fit your own needs and align more specifically with your work. We tested this process in our working group using a generic theory of change for Conservation Easements and Mississippi Valley Conservancy as a sample organization. Using the theory of change in Figure 22 above as a template, the working group tweaked this theory of change below (Figure 23) to make it more applicable and specific to the work that Mississippi Valley Conservancy does. This is just one example of how the theory of change could be adapted.

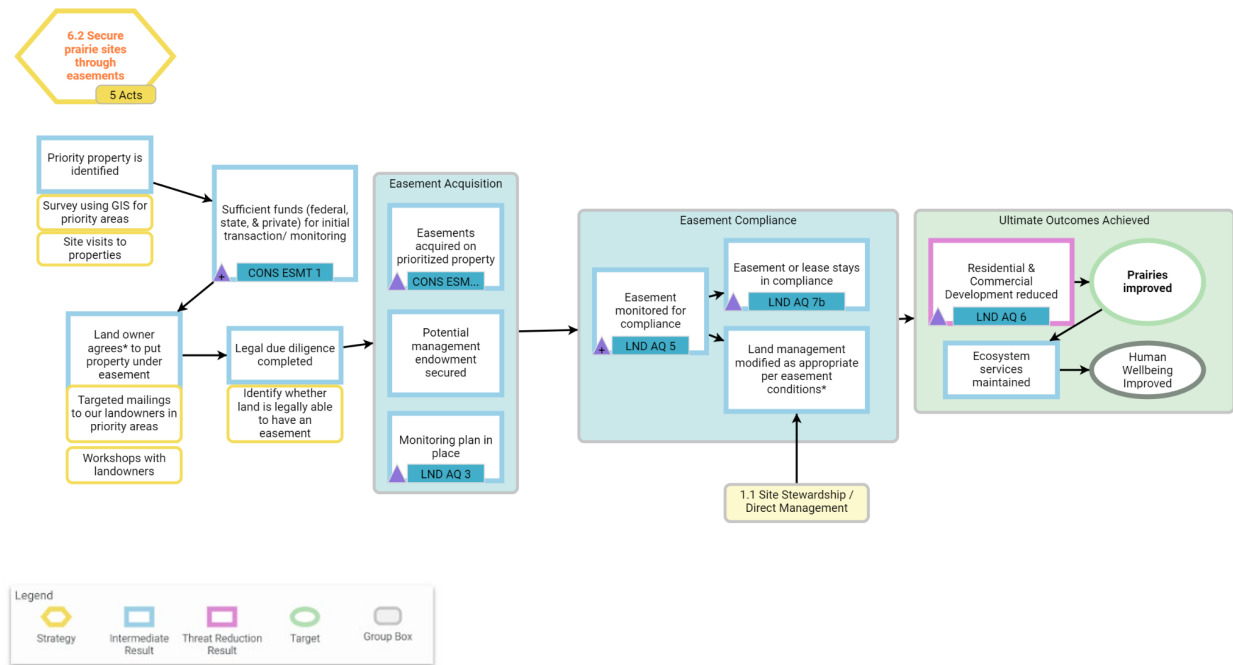


Figure 23. Example of the adapted 6.2 Conservation Easements model created by the working group. Activities have been added in yellow boxes, and some of the intermediate results have been reorganized to better fit the work of the example organization.

Some of the intermediate results boxes have been moved around to create a flow that was more appropriate for the organization’s process, and “activities” that help project teams achieve their strategies are indicated in the yellow boxes below results. Adding activities to a theory of change helps a team determine what activities are needed to implement and when in order to achieve the desired results, objectives and goals.

This is a direct and impactful way to apply this plan to your own work as a partner in the Driftless region. With light modifications, generic results chains can be tweaked to better fit an

organization's mission while still helping us understand collectively where our strategies are or are not working.

Here is a list of the generic theories of change that are included in the Driftless Conservation Plan, one for each category of strategy from the Conservation Measures Partnership Actions Taxonomy Classification:

- 1.1 Site Area Stewardship & Management
- 1.2 Habitat Restoration
- 3.1 Outreach & Communications
- 5.4 Economic Incentives
- 6.1 Protected Area Designation &/or Acquisition
- 6.2 Conservation Easement
- 6.3 Land Use & Planning
- 8.1 Basic Research & Status Monitoring
- 10.1 Internal Organizational Management & Administration
- 10.3 Alliance & Partnership Development

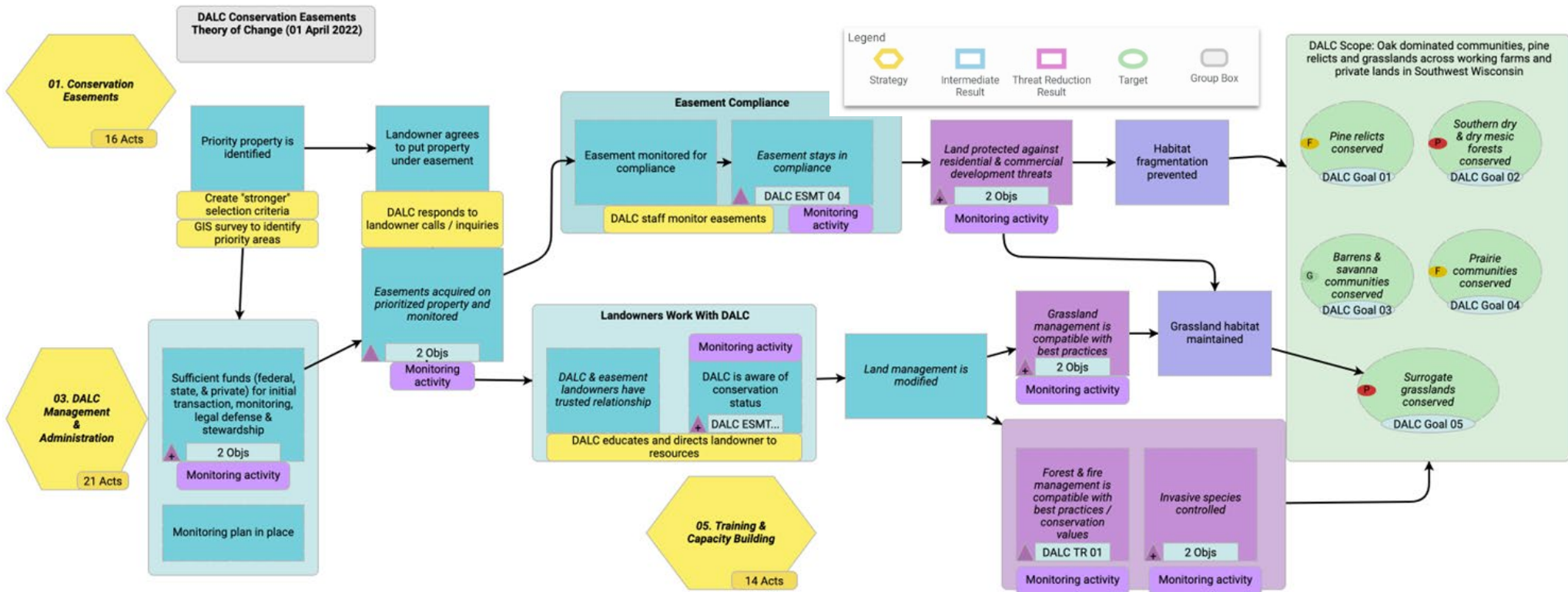


Figure 24. Driftless Area Land Conservancy used the Conservation Easements theory of change from this Driftless Conservation Plan to create their strategic plan and monitoring plan which can be seen here. Indicators are illustrated as purple triangles and objectives are indicated by light blue boxes, both at the bottom of the intermediate results.

HOW TO USE THIS PLAN TO ANALYZE OUR EFFORTS AND ADAPT AS NEEDED

Once we have been implementing our strategies across the Driftless Area and tracking our implementation and results progress, we can use this data to better understand which of our actions are working and which need to be adapted.

Ideally, practitioners and organizations that are implementing the Driftless Conservation Plan will meet individually and collectively on an annual basis for a “pause-and-reflect” workshop. This is a time to discuss results and progress as a group and to see what actions and activities may need to be adjusted to continue making progress.

These are questions we can ask ourselves each year as we revisit our plan:

1. Did we do what we said we would?
2. Are we seeing the desired results? If not, why not?
3. How should we adapt to improve the effectiveness of our strategies and achieve better outcomes?

HOW TO USE THIS PLAN TO SHARE OUR LEARNING

Now that we have been implementing our plan, tracking the progress of our activities and the results, and adapting our strategies accordingly, it's important to share what we have learned with other partners in the region, and beyond. What's working? What's not, and why? The purpose of this regional scale plan is to work together to define and implement common strategies, track our results together, and share and learn from each other as we go. This is how we can have a larger collective impact in the Driftless Area—collaborating, instead of working apart.

This type of collaborative effort helps assure that we maintain a focus on the highest priority conservation needs, especially as we face a changing climate, while also testing conservation and communication tools and strategies, research methodologies, and possible policy options to move our work forward. The purpose of organizing this regional plan is to all work together to define and implement common strategies, track results, share and learn.

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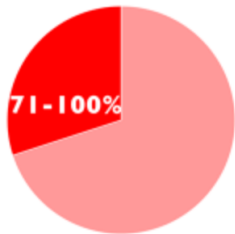
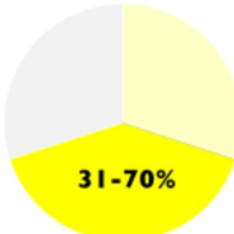
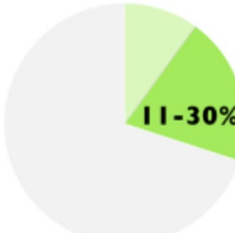
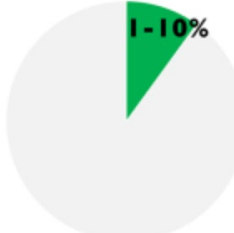
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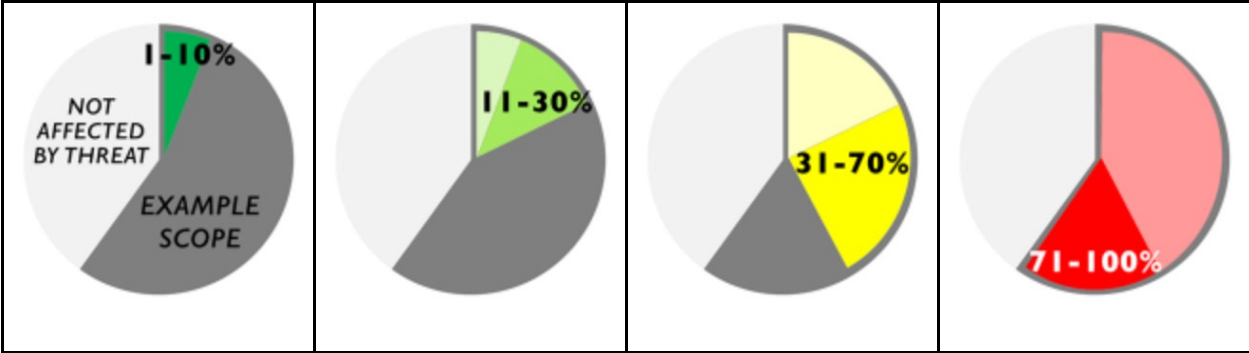
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Appendix I. Threat and Strategy Rating Criteria

Threat Rating Criteria & Rating Scale

The following criteria were used to prioritize the threats in this plan:

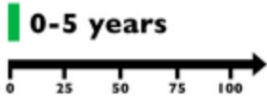
Scope Proportion of the BFI expected to be affected by the threat within 10 years given the continuation of current circumstances & trends.			
<p>Very High Threat is likely to be pervasive in its scope, affecting the BFI across all or most (71-100%) of its occurrence/population</p> 	<p>High Widespread in its scope, affecting the BFI across much (31-70%) of its occurrence/population</p> 	<p>Medium Restricted in its scope, affecting the BFI across some (11-30%) of its occurrence/population</p> 	<p>Low Very narrow in its scope, affecting the BFI across a small proportion (1-10%) of its occurrence/population</p> 
Severity Within the scope, level of damage to the BFI from the threat that can reasonably be expected given the continuation of current circumstances & trends. For ecosystems & ecological communities, typically measured as the degree of destruction or degradation of the BFI within the scope. For species, usually measured as the degree of reduction of the BFI population within the scope.			
Within the scope, the threat is likely to only slightly degrade/reduce the BFI or reduce its population by 1-10% within 10 years or three generations	Within the scope, the threat is likely to moderately degrade/reduce the BFI or reduce its population by 11-30% within 10 years or three generations	Within the scope, the threat is likely to seriously degrade/reduce the BFI or reduce its population by 31-70% within 10 years or three generations	Within the scope, the threat is likely to destroy or eliminate the BFI, or reduce its population by 71-100% within 10 years or three generations



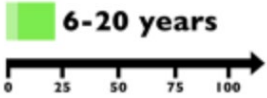
Irreversibility

Degree to which the effects of a threat can be reversed & the BFI affected by the threat restored, if the threat no longer existed.

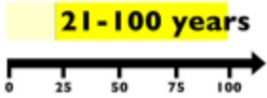
Effects of the threat are easily reversible and the BFI can be easily restored at a relatively low cost and/or within 0-5 years (e.g., off-road vehicles trespassing in wetland)



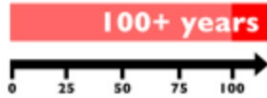
Effects of the threat can be reversed and the BFI restored with a reasonable commitment of resources and/or within 6-20 years (e.g., ditching and draining of wetland)



Effects of the threat can technically be reversed and the BFI restored, but it is not practically affordable and/or it would take 21-100 years to achieve this (e.g., wetland converted to agriculture)



Effects of the threat cannot be reversed and it is very unlikely the BFI can be restored, and/or it would take >100 years to achieve this (e.g., wetlands converted to a shopping center)



Strategy Prioritization Criteria

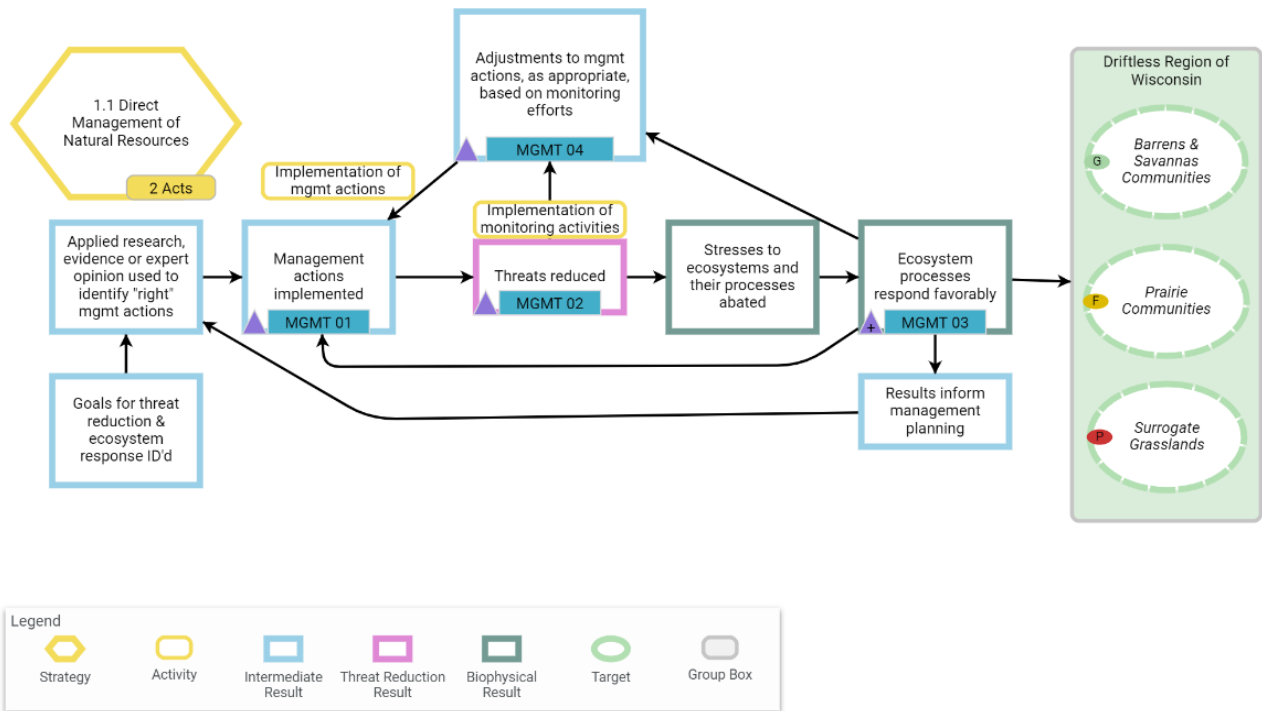
The following criteria were used to prioritize the strategies in this plan:

Potential Impact: Degree to which the strategy (if implemented) will lead to desired changes in the situation at your project site	
4	Very High – The strategy is very likely to completely mitigate a threat or restore a target.
3	High – The strategy is likely to help mitigate a threat or restore a target.
2	Medium - The strategy could possibly help mitigate a threat or restore a target.
1	Low – The strategy will probably not contribute to meaningful threat mitigation or target restoration.
Feasibility – Degree to which your project team could implement the strategy within likely time, financial, staffing, ethical, and other constraints	
4	Very High – The strategy is ethically, technically, AND financially feasible.
3	High – The strategy is ethically and technically feasible, but may require some additional financial resources.
2	Medium – The strategy is ethically feasible, but either technically OR financially difficult without substantial additional resources.
1	Low – The strategy is not ethically, technically, OR financially feasible.
Urgency - Degree to which your project team needs to take action immediately	
4	Very High - action needed within next 2 years
3	High - action needed within next 3-5 years
2	Medium - action needed within next 5-10 years
1	Low - Not urgent

Appendix II. Generic Theories of Change

Below is a generic theory of change for each category of strategy included in the Driftless Conservation Plan. Objectives are indicated by blue boxes at the bottom of results boxes, and purple triangles illustrate indicators. The written objectives and indicators have been pulled into tables following each diagram. There is also a table illustrating the strategies from each category throughout the plan.

1.1 Site Area Stewardship & Management

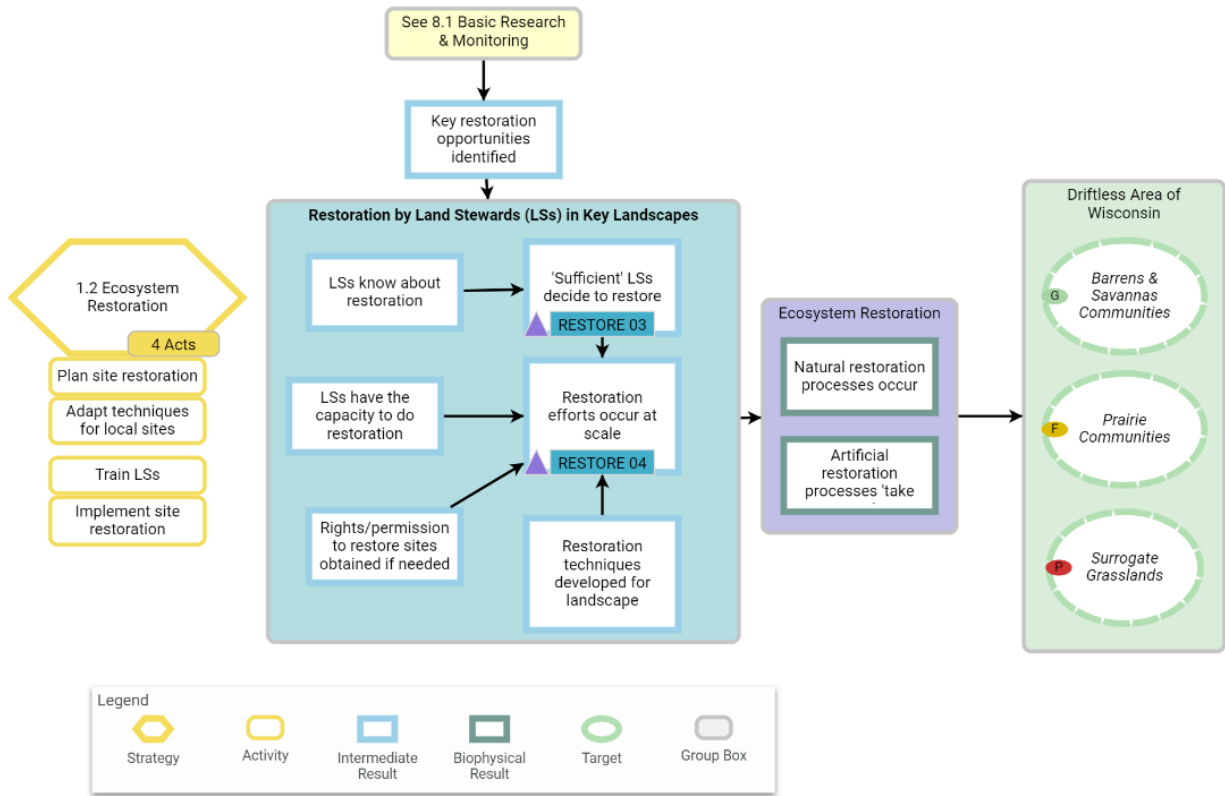


Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
MGMT 01	Management actions implemented	Within X months/years of receiving funding, at least X% of mgmt actions are being implemented as planned.	% of management actions implemented as planned Roll-up: % of actions done by plan % initiatives that fall into each category of implementation status	
MGMT 02	Threats	Within X years of the	Evidence that direct management	What threat(s) were you

	reduced	start of the action, the desired threat reduction is seen	action is reducing key threats Roll-up: % of initiatives that show the expected reduction in key threats being addressed by direct mgmt actions	hoping to address through the management action(s) and do you have evidence that the action(s) are leading toward reductions in any of these threats?
MGMT 03	Ecosystem processes respond favorably	Within X months/years of implementing direct management actions, ecosystem processes respond as expected from direct management leading to fulfillment of stated objectives.	Degree to which target SGCNs respond as expected from direct management actions Roll-up: % of initiatives in which target SGCNs at least partially benefit Degree to which target habitats/processes respond as expected from direct management Roll-up: % of initiatives in which target habitats/processes at least partially benefit	
MGMT 04	Adjustments to mgmt actions, as appropriate, based on monitoring efforts			Note: No objective or indicator because neither tell the reviewer if the team made the right choice. Important, however, to ask questions to help teams think about using monitoring results to adjust.

1.1 Site Area Stewardship & Management Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Fire Suppression	1.1 Prescribed burning to promote resilient native communities in whatever species assemblage is relevant	50
Fire Suppression	1.1 Burn larger units (barren/savanna, prairies)	47
Invasive Species	1.1 Conduct invasive species control (savanna/barrens, prairies, grasslands)	48
Invasive Species	1.1 Prevent invasive species spread (i.e. boot brushes.) (savanna/barrens, prairies, grasslands)	30

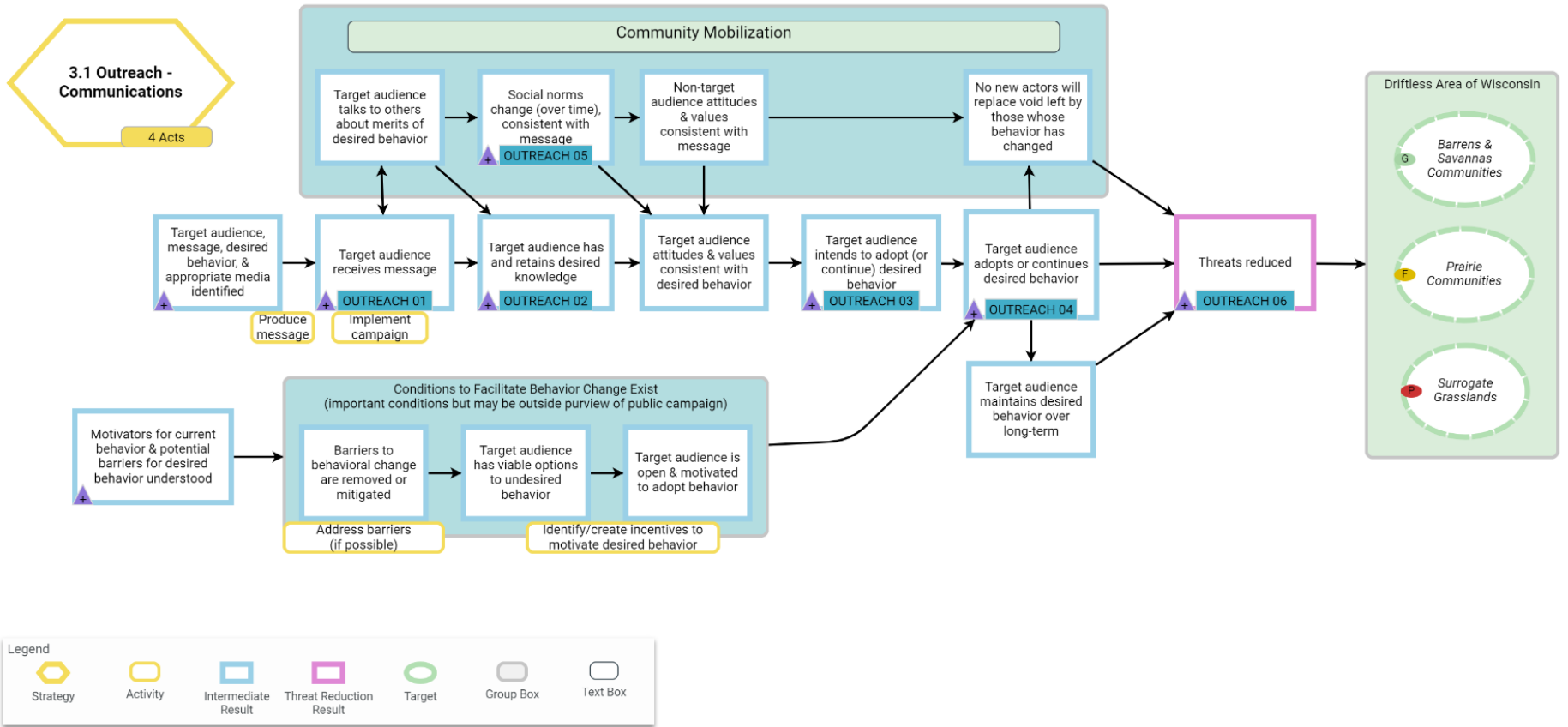
1.2 Habitat Restoration



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
RESTORE 03	'Sufficient' LSs decide to restore	By year X, 'sufficient' LSs in each jurisdiction have signed on to restoration efforts. 'Sufficient' = needed to meet program's proposed restoration targets (number of projects and total area)	Total area of land committed to program (ha)	
RESTORE 04	Restoration efforts occur at scale	By year X, the program in each jurisdiction is on track to meet its proposed restoration targets (number of projects and total area)	Total area on track (ha)	

1.2 Habitat Restoration Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Barrens & Savanna Communities	1.2 Comprehensive land management to maintain, connect, & expand barrens and savanna communities	45
Barrens & Savanna Communities	1.2 Restore ecological function of barrens and savanna communities	44
Barrens & Savanna Communities	1.2 Maintain buffers of compatible cover types in lands surrounding barrens and savanna remnants	42
Prairie Communities	1.2 Restore prairie and steward sites	48
Prairie Communities	1.2 Comprehensive land management to maintain, connect, & expand prairie communities	45
Prairie Communities	1.2 Maintain buffers of compatible cover types in lands surrounding prairie remnants	42
Surrogate Grasslands	1.2 Comprehensive land management to connect surrogate grassland communities	47
Surrogate Grasslands	1.2 Habitat restoration of surrogate grasslands	43

3.1 Outreach and Communications



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
OUTREAC H 01	Target audience receives message	Within X months/years of campaign, at least Y% of target audience receives the message	% of target audience that receives message	<p>Identify your target audiences for this outreach effort, the desired behavior, and the message you wished to communicate. For each target audience, identify the primary methods used to reach the audience.</p> <p>For each target audience, identify approximately how many individuals or entities you:</p> <p>a. Wanted to reach with this effort b. Were able to reach (% objective met auto calculated and categorized)</p> <p>If Somewhat or Did not meet:</p> <p>a. Indicate why your outreach effort did not reach as many individuals or entities as hoped. b. Describe what you learned and whether you would (or did) do anything differently based on what you learned.</p>
			% of outreach actions where target audience "reach" objectives were met	
OUTREAC H 02	Target audience has desired knowledge	Within X months of campaign and thereafter, at least Y% of the target audience has the desired knowledge	% of target audience with desired knowledge	<p>- What proportion of your target audience has the knowledge the campaign aimed to share? (estimate % or use 4 point Likert)</p> <p>- What evidence did you use to document or detect knowledge gained?</p> <p>- Based on the above, to what degree do you feel you met your Knowledge Gained Objective (4 point scale)</p> <p>- If you partially met or did not meet your objective, indicate why your campaign effort did not lead to the gain in knowledge you expected.</p>
			% of public campaigns where target audience "desired knowledge" objectives were met	
OUTREAC	Target	Within X	% of target audience	For each target audience, identify

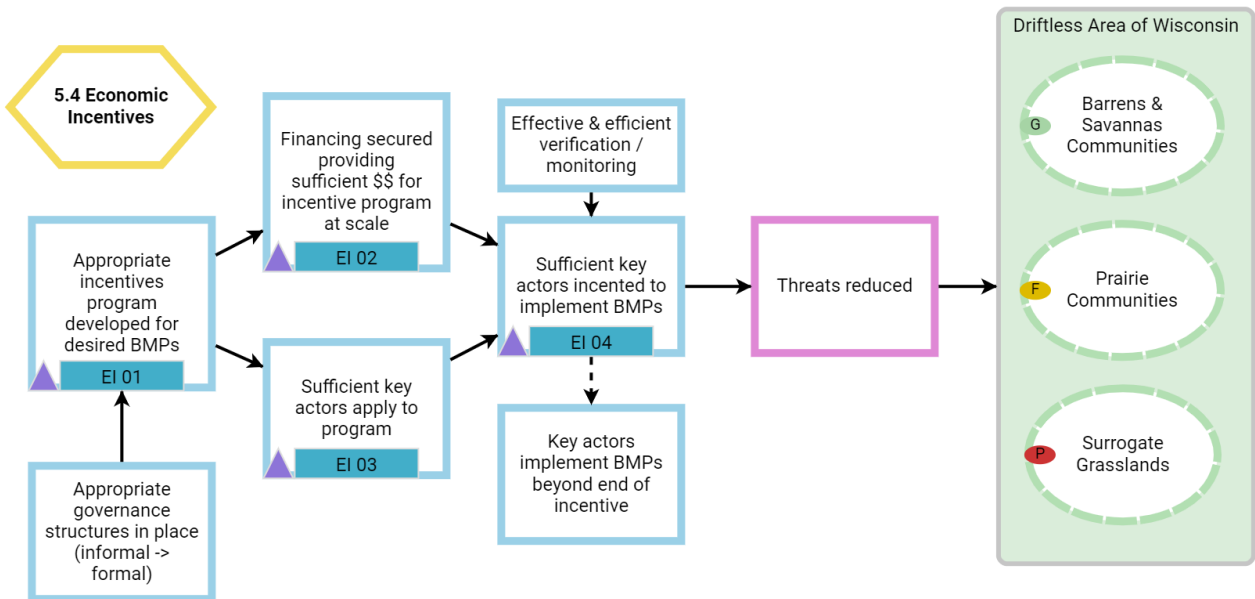
Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
H 03	audience intends to adopt (or continue) desired behavior	months/years of start of campaign, at least Y% of target audience expresses intent to adopt (or continue) desired behavior	that expresses intent to adopt (or continue) desired behavior	<p>approximately how many individuals</p> <p>a. Had the desired behavior before your campaign</p> <p>b. You wanted with the desired behavior after the campaign</p> <p>c. Expressed intent to continue or adopt the desired behavior</p> <p>c. Actually adopted the desired behavior after your campaign.</p> <p>What evidence did you use to document or detect intent and behaviors?</p>
			% of public campaigns where target audience "desired behavior" objectives were met	
OUTREAC H 04	Target audience adopts or continues desired behavior	Within X months/years of start of campaign and thereafter, at least Y% of target audience has adopted or continued the desired behavior	% of target audience that has adopted or continued desired behavior	<p>Based on the above, to what degree do you feel you met your:</p> <p>a. Behavior intent objective (4 point scale)</p> <p>b. Behavior change objective (4 point scale)</p> <p>If you partially met or did not meet your objectives, indicate why your outreach effort did not lead to the changes in behaviors you had hoped.</p>
			Rolled-up Indicator: % of outreach actions where target audience behavior objectives were met	
OUTREAC H 05	Social norms change (over time), consistent with message	Within X months of campaign and thereafter, social norms are consistent with the campaign's message	Evidence that social norms are consistent with the campaign's message	<p>Is [insert behavior X] considered socially acceptable among the people within the project area?</p> <p>Has that changed since the start of the campaign? (Y/N/DK) If yes, how has that changed (4 point Likert)?</p> <p>Note: when defining behavior X, may need to distinguish among actors of behavior and purpose of behavior (e.g., bushmeat hunting for subsistence vs. bushmeat hunting for commercial trade)</p>
			% of projects with evidence that social norms are consistent with the campaign's message	
OUTREAC H 06	Threats reduced	Within X years of the start of the action, the desired threat	Evidence of threats reduced	Do you have evidence of this public campaign action leading towards reductions in any key threats? Y/N; Please describe

Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
		reduction is seen	% of initiatives that show a reduction in key threats being addressed by public campaign efforts	

3.1 Outreach & Communications Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Fire Suppression	3.1 Educate public on general ecology, biology, habitat fire requirements related to barrens/savanna, prairie, and grassland conservation needs	37
Fire Suppression	3.1 Work with WI's Prescribed Fire Council to make more prescribed fire more socially acceptable: savannas, prairies	36
Invasive Species	3.1 Management and conservation training with landowners about invasive species (barren/savannas, prairies, grasslands)	44
Invasive Species	3.1 Educate public on general ecology, biology, habitat, and impact of invasive species related to barrens/savanna, prairie, and grassland conservation needs	36
Residential & Commercial Development	3.1 Educate public, developers, municipalities, & realtors to protect prairies, barrens & savannas, and grasslands by limiting development on or near them	41
Recreational Activities (off-road vehicles, heavy foot traffic)	3.1 Educate public on general ecology, biology, habitat related to the impact of recreational activities on barrens/savanna, prairie, and grassland	37
Recreational Activities (off-road vehicles, heavy foot traffic)	3.1 Management and conservation training with landowners about recreational activities (help protect prairies, barrens & savannas, surrogate grassland)	35
Incompatible	3.1 Outreach to decision-makers and landowners to see	43

Grassland Management	value in good grasslands management	
Incompatible Grassland Management	3.1 Outreach on positive examples of "good" grassland management case studies	40

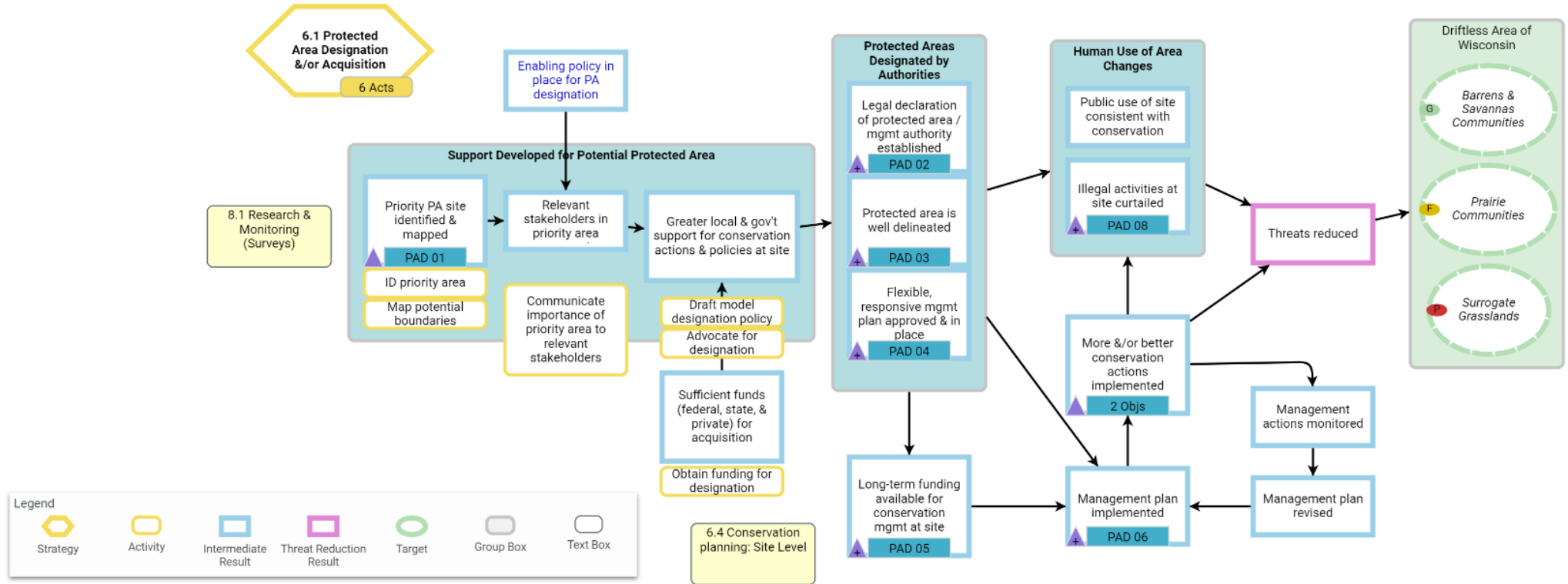
5.4 Economic Incentives



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
EI 01	Appropriate incentives program developed for desired BMPs	Prior to the start of the program, the right incentives are selected for the desired BMPs and the program is designed to implement these incentives.	Assessment of appropriate program design	
EI 02	Financing secured providing sufficient \$\$ for incentive program at scale	Prior to the start of the program, sufficient funds have been 'secured' to enable payments of desired number of key actors. 'secured' = funds are either in the bank or allocated through some policy/collection mechanism over the length of the incentive program.	Secured funds (\$ or %)	
EI 03	Sufficient key actors apply to program	Prior to the start of the program and on an ongoing basis, the program has proposals from a sufficient number of key actors to enable implementation of BMPs at desired scale.	Number of key actors submitting proposals	
EI 04	Sufficient actors incented to implement BMPS	By X timeframe and thereafter, at least x% of key actors have implemented/are implementing the BMPs at scale.	Number of key actors implementing BMPs	

5.4 Economic Incentives Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Fire Suppression	5.4 Payments for ecosystem services (prairies, barrens/savannas)	46
Fire Suppression	5.4 Develop and offer cost-share incentives for landowners (prairies)	43
Invasive Species	5.4 Modifying or creating direct economic incentives to control invasive species	46
Incompatible Grassland Management	5.4 Develop and offer cost-share incentives for landowners (grasslands)	45
Incompatible Grassland Management	5.4 Payments for ecosystem services (grasslands)	45
Incompatible Grassland Management	5.4 Modify tax categories (MFL for non-forested systems) to encourage surrogate grassland management	41

6.1 Protected Area Designation



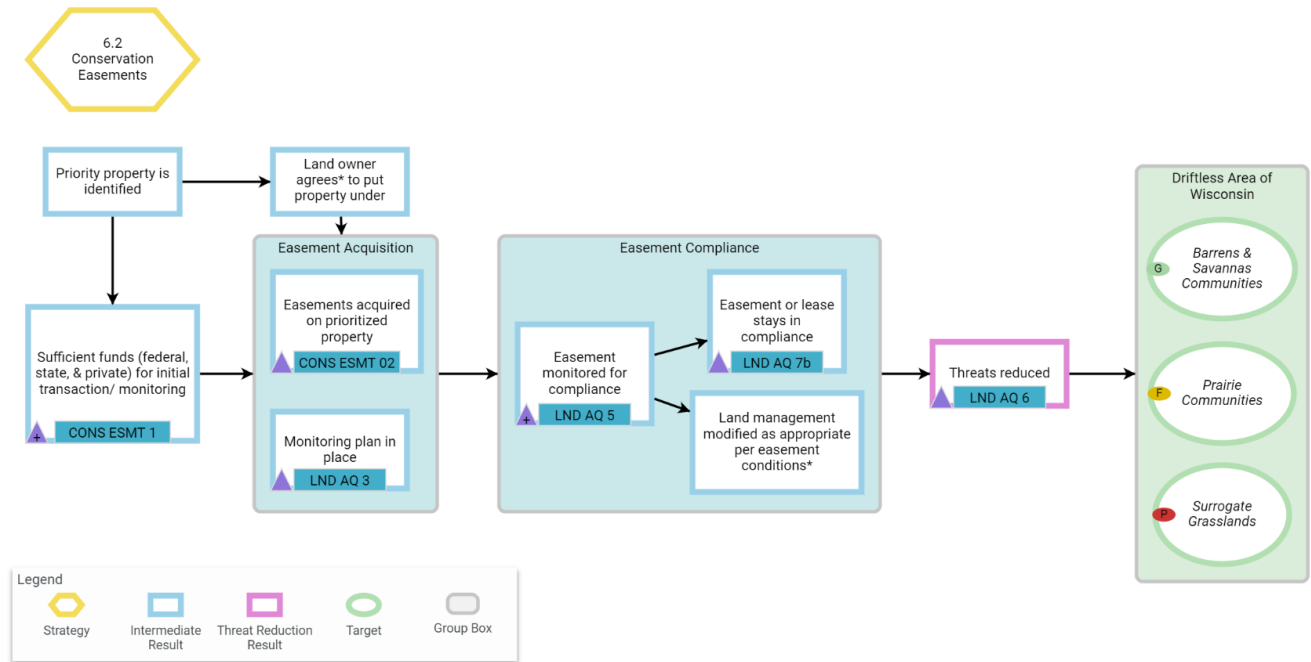
Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
PAD 01	Priority conservation areas are identified & mapped	By X date, priority conservation areas and habitat elements are identified and mapped.	Evidence of map or map file of priority conservation areas and habitat elements	-Name and location for all areas you are working to formally protect -Include map or image files, if possible
PAD 02	Legal declaration of conservation area happens	By X date, the site(s) identified as a priority for conservation action is declared a protected area(s).	% of initiatives where site(s) have been declared protected areas	
			Evidence that site(s) is declared a protected area	Has the site received official, legal declaration as a protected area? If no, please indicate which of the following are true: Site is under review and likely to receive legal designation within the next year; site is under review and likely to receive legal declaration within the next 3 years; site is under review but unlikely to receive legal declaration within the next 3 years; site is unlikely to receive legal declaration) If possible, please provide evidence of the legal declaration (e.g. copy of the signed law, link to govt website, link to media story)
PAD 03	Conservation area is well delineated	By X date, the conservation area is well delineated with appropriate boundary markers.	% of PA boundary that is appropriately marked	Approximately what proportion of the protected area boundary is appropriately (clearly) marked? (Actual % or 4 point Likert - All, Most, Some, Little / none)
			% of conservation areas that are well-delineated with appropriate markers	
			Evidence conservation area is well delineated with appropriate boundary markers	In your opinion, are the existing boundary markings sufficient for people to know where the boundaries are? (Y/N/DK or 3 point likert - Completely sufficient, Mostly sufficient, Not sufficient) If they are not, what plans or opportunities are there to improve them? (Is it possible?)

Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
PAD 04	Flexible, responsive management plan approved & in place	By X date, the conservation area has a flexible, responsive* management plan that is approved by the relevant legal authorities and desired stakeholders. *A management plan that is consciously designed to stay viable with decreases in funding and stay efficient with expanded capacity due to increased funding.	Evidence conservation area has a flexible, responsive management plan that is approved by the relevant legal authorities and desired stakeholders	Has a management plan been developed? Has it been approved by the relevant legal authorities? by desired stakeholders? (Y/N/Under Review) To what degree does the plan accommodate decreases or increases in funding? (4 point Likert). Please explain.
			% of conservation areas with a flexible, responsive management plan approved by the relevant legal authorities and desired stakeholders	
PAD 05	Long-term funding available for conservation management at site	By X, the projects or actions in the conservation area are receiving enough funds to establish a protection presence.	% of initiatives with evidence that projects or actions are receiving enough funds to establish a protection presence	
			Evidence that projects or actions are receiving enough funds to establish a protection presence	Do the projects or actions in this conservation area have enough funds to establish a protection presence? Y/N/DK (Or 3 point Likert: Mostly/Completely, Some, Greatly lacking). Please clarify your evidence or the basis for this assessment. To what degree has the funding to the conservation area changed over the last X years? (4 point Likert: increased a lot; increased somewhat; no change decreased somewhat; decreased a lot)
PAD 06	Management plan is implemented	By X date after management plan has been approved, at least X% of priority actions identified in the management plan are being	% of priority actions identified in the management plan that are being implemented	Identify priority actions in management plan (high priority) To what degree is the action being implemented (3 point - full implementation, partial, not being implemented, N/A too early to start)

Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
		implemented.	% of initiatives that have met their management plan implementation objective	
PAD 07-1	More & better conservation actions implemented	By X, more conservation actions are being effectively implemented in the conservation areas.	Trend in # of conservation actions at site	Since the protected area designation, to what degree have the conservation actions at the site increased or decreased? (5 point likert: increased a lot, increased somewhat, stayed same, decreased somewhat, decreased a lot)
PAD 07-2	Few priority actions remain unfunded or not implemented	By X, few high priority actions remain unfunded or not implemented	Trend in # of conservation actions at site	Since the protected area designation, to what degree have the conservation actions at the site increased or decreased? (5 point likert: increased a lot, increased somewhat, stayed same, decreased somewhat, decreased a lot)
PAD 08	Illegal activities at site curtailed	By X date after legal designation of protected area, illegal activities causing key threats have declined or stabilized.	% of conservation areas with evidence that illegal activities causing key threats have declined or stabilized; % of illegal activities that show a decline	
			Evidence that illegal activities causing key threats have declined or stabilized	<p>List the threats you are trying to address through PA designation. For each, please indicate</p> <p>How has the threat changed since the designation of the protected area (5 point likert - decreased substantially, decreased somewhat, stayed the same, increased somewhat, increased substantially)</p>

6.1 Protected Area Designation Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Barrens and Savanna Communities	6.1 Secure barrens & savannas through land acquisition	47
Prairie Communities	6.1 Secure prairie sites through land acquisition	45

6.2 Easements & Resource Rights

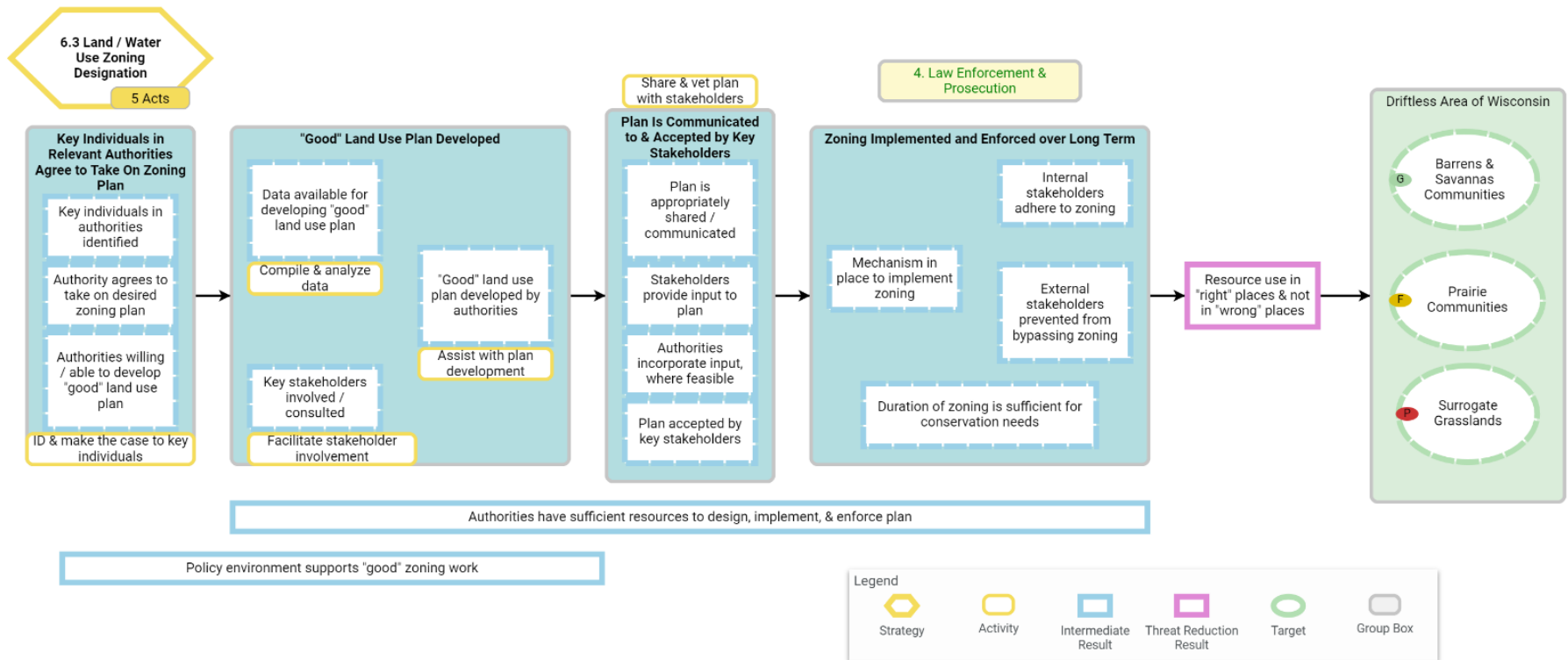


Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
CONS ESMT 1	Sufficient funds (federal, state, & private) for initial transaction/monitoring	By X timeframe, sufficient funds allotted for initial transaction & annual monitoring.	Amount received/needed for initial transaction Rollup: %/# of acquisitions that acquired X % of needed transaction cost with non-federal partnership	
CONS ESMT 02	Easements acquired on prioritized property	By X timeframe, priority property is put in an easement.	Existence of easement	
LND AQ 3	Monitoring plan in place Management & monitoring plan developed	Within X months of priority site being identified, clear management and monitoring plans have been developed.	Existence of a management and monitoring plan that outlines steps required to achieve desired conservation results	Was a mgmt plan created that outlines steps required leading to desired conservation results (eg SGCN populations and habitat conditions)? Who is responsible for implementing this mgmt plan?

Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
			Rollup: % of protected land with management and monitoring plans that outline steps required to achieve desired conservation results	Was a monitoring plan created? Who is responsible for implementing this monitoring plan?
LND AQ 5	Easement monitored for compliance	Within X months/years of land acquisition/lease/easement, agency is implementing appropriate management and monitoring plans at that site.	Evidence of management plan being implemented Rollup: % of land acquisition actions in which management plans are being implemented	What is the extent that the management plan is being implemented? If the management plan is being implemented, are the actions achieving the desired goals identified in the plan? If mgmt plan is not achieving desired goals, why not? If mgmt is not having the desired effect, are mgmt plans being updated to reflect new info? Is there a monitoring plan in a place that includes either a species or habitat monitoring component? What is the extent to which the monitoring plan is being implemented?
LND AQ 7b	Easement or lease stays in compliance	Each year after the easement is established, the easement is shown to be in compliance.	Evidence of easement compliance per year Rollup: % of easements or leases in compliance	What proportion of years since the easement/lease contract beginning has the landowner remained in compliance? During the past three years, has the agency had to initiate legal action to compel a landowner to comply with the terms of this easement/lease agreement?
LND AQ 6	Major threats reduced	Within X years of completing the acquisition, the desired threat reduction is seen.	Evidence that mgmt plan is reducing key threats Rollup: % of initiatives that show a reduction in key threats being addressed by mgmt plan	What threats were you hoping to address through your mgmt plan, and do you have evidence that the plan is leading toward reduction of any of these threats?

6.2 Easement and Resource Rights Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Barrens and Savanna Communities	6.2 Secure barrens & savannas through easements	49
Prairie Communities	6.2 Secure prairie sites through easements	47
Residential & Commercial Development	6.2 Create easements / acquisitions that prevent development (Available funding to incentivize landowners)	47
Recreational Activities (off-road vehicles, heavy foot traffic)	6.2 Create easements that prevent motorized vehicle use on land	45
Incompatible Grassland Management	6.2 Create easements to prevent grassland conversion	46

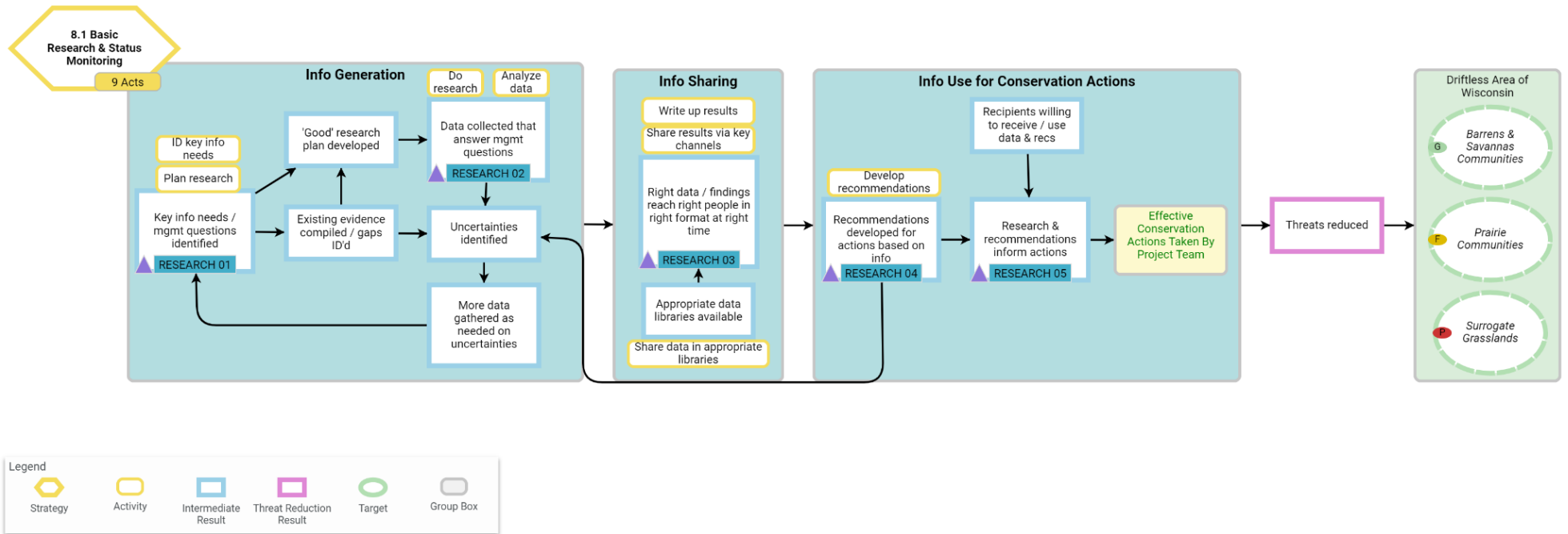
6.3 Land Use & Planning



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions

6.3 Land Use & Planning Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Residential & Commercial Development	6.3 Land use planning & zoning to limit development on or near prairies, barrens & savannas, and grasslands	40

8.1 Basic Research & Status Monitoring



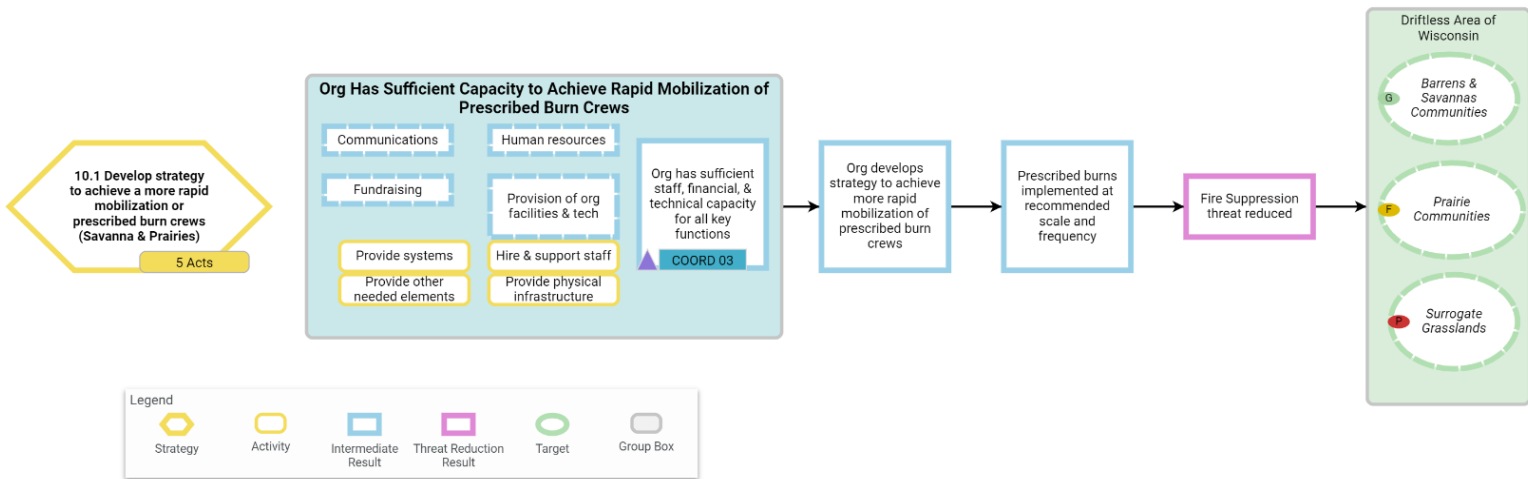
Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
RESEARC H 01	Key info needs / mgmt questions identified	Before the start of research/monitoring, key info needs & / management questions are identified.	List of needs / questions	
RESEARC H 02	Data collected answer mgmt questions	By x timeframe, data collected answers management questions identified.	Evidence that data clearly provides answers to mgmt questions	
RESEARC H 03	Right data / findings reach right people in right format at right time	Within X timeframe from start of research, right data / findings reach the right people in the right format at the right time.	Evidence that data has reached the audience	*see questions listed below table
RESEARC H 04	Recommendations developed for actions based on info	Within X timeframe of the start of the data collection effort, recommendations for conservation action have been developed based on info.	Evidence that data collection effort resulted in conservation action recommendations	
RESEARC H 05	Research & recommendations inform actions	By the end of the project, research & recommendation inform conservation actions.	Evidence data are being used to inform Conservation Actions	

Objective RESEARCH 03 Indicator Monitoring Questions: Reviewing the audiences/users you identified in the application, please answer the following for each audience/user:

- You identified X as an important audience. Has this audience accessed results and recommendations from your research? (Y/N/DK/Too early?)
- On what are you basing this assessment (e.g., website hits, requests for documents, meetings where information is shared)?
- What format have you used to share your results and recommendations with this audience? Why did you choose this format?
- Please indicate how effective this format has been for your audience. (4 point Likert: Very effective, Somewhat effective, Less effective, Not all effective)
- On what are you basing this assessment? (e.g., feedback from audiences, best guess, etc.)
- If your audience has not accessed your results and recommendations, please explain why this is the case and what you intend to do to address this issue.

8.1 Basic Research & Status Monitoring Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Barrens and Savanna Communities	8.1 Identify potential barrens & savanna corridor sites	45
Barrens and Savanna Communities	8.1 Survey & identify barrens sites to restore	39
Barrens and Savanna Communities	8.1 Apply & demonstrate methods to restore native ground layer in savannas	38
Barrens and Savanna Communities	8.1 Conduct research on oak regeneration methods	36
Prairie Communities	8.1 Survey and identify prairie sites to restore	42
Prairie Communities	8.1 Identify potential prairie corridor sites	40
Surrogate Grasslands	8.1 Identify potential surrogate grassland corridor sites	47
Surrogate Grasslands	8.1 Survey and Identify degraded & low-quality surrogate grassland sites to restore	41
Invasive Species	8.1 Conduct regular monitoring of sites to detect presence of invasive species sooner (barren/savannas, prairie, grassland)	44

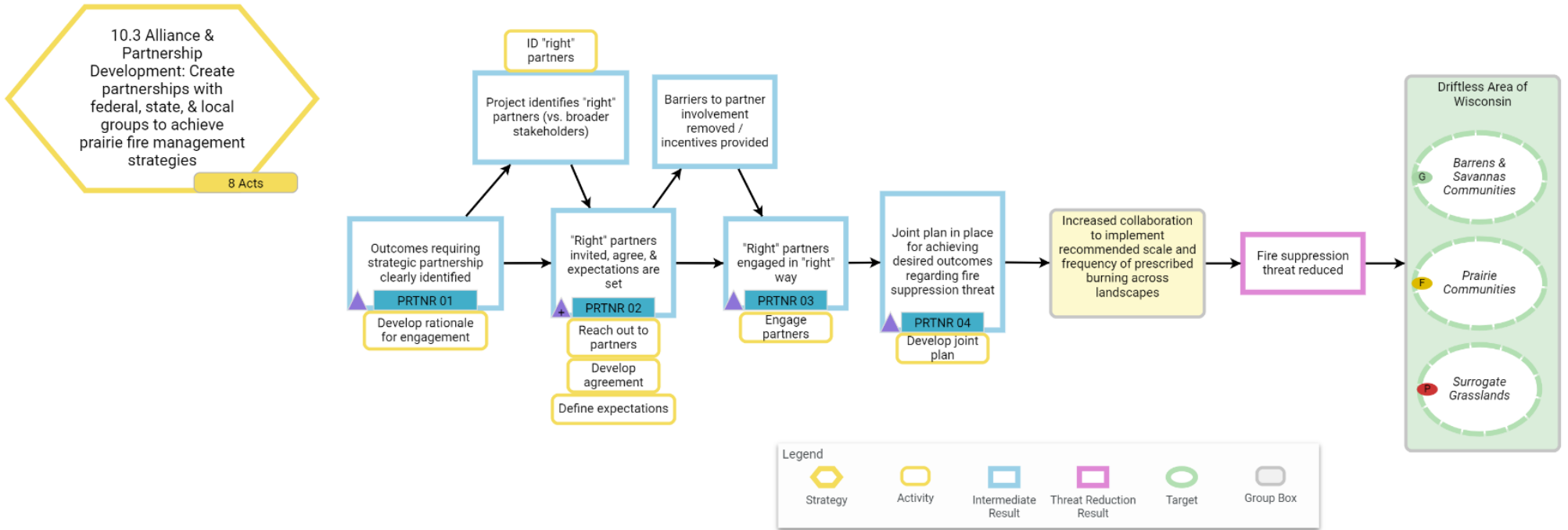
10.1 Internal Organizational Management & Administration



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
COORD 3	Effective coordination, administration, and compliance	<p>Effective coordination, administration, and compliance with overall program.</p> <p>Effective = timely submission and close-out of grants and compliance with all applicable laws and regulations</p>	Assessment of effective coordination	<p>Assessment of effective coordination, administration and compliance in relation to criteria:</p> <p>Very consistent Consistent Less consistent Inconsistent Not applicable Not yet</p>

10.1 Internal Organizational Management & Administration Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Fire Suppression	10.1 Develop strategy to achieve a more rapid mobilization of prescribed burn crews (savannas & prairies)	45

10.3 Alliance & Partnership Development



Label	Result	Objective	Specific Measure (Indicator)	Monitoring Questions
PRTNR 01	Outcomes requiring strategic partnership clearly identified	Within X timeframe, the desired outcomes that require partnership to achieve are clearly identified.	Evidence of desired outcomes	What are you trying to achieve that requires partnerships?
PRTNR 02	"Right" partners invited, agree, & expectations are set	<p>A compelling justification for who are the "right" partners to achieve the desired outcomes provided. "Right Partners" = needed to accomplish overall project objectives.</p> <p>Note that in many cases, these may be existing rather than new partners. Note also that partners are a subset of broader stakeholders.</p>	<p>Evidence of "Right" partners invited</p> <p>List of partners needed to achieve desired outcomes</p>	<p>a. Who are the partners you need to engage to help you achieve your objectives or help you successfully implement your conservation actions?</p> <p>b. Why are these the "right" partners for your work?</p>
			Evidence of agreement among partners	
			Evidence of mutual understanding of expectations	
PRTNR 03	"Right" partners engaged in "right" way	<p>Partnership agreement developed and documented. Targeted partners participate in convened meetings or other appropriate activities.</p> <p>"Right way" = engaged in a way that maximizes likelihood of engagement.</p>	Evidence of engagement in "right" way	<p>(from TNC Sample Partnership Measures Plan)</p> <p>a. To what degree are project staff engaged and committed to the project?</p> <p>b. To what degree are partnership meetings successful (i.e., productive, focused, effective)?</p> <p>c. To what degree is the partnership operating in a healthy manner?</p> <p>d. What unintended outcomes are occurring?</p> <p>e. If partners are not engaging, what are the barriers?</p>
PRTNR 04	Joint plan in place for achieving desired outcomes	By X timeframe, a joint plan for achieving desired outcomes among partners is in place.	Existence of plan	

10.3 Alliance & Partnership Development Strategies		
Conservation Target / Threat	Strategy	Relative score (n=60)
Fire Suppression	10.3 Alliance & partnership development: create partnerships with federal, state & local groups to achieve prairie strategies	41