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## Conserving the Tallgrass Vistas of America's Heartland

Tallgrass prairie once covered 170 million acres; it has all but vanished from North America due to conversion to agriculture during the latter part of the 19<sup>th</sup> and into the early 20<sup>th</sup> century. Most loss was in the east part of the region which includes portions of Minnesota, Illinois, Missouri, Wisconsin, Indiana, and Ohio. Less than 0.1% of original prairie remains in Iowa, Illinois, and Indiana. Further west in North and South Dakota and in eastern Nebraska, Kansas, and Oklahoma, tallgrass prairie had been utilized as hay or pasture well into the 20<sup>th</sup> century. Those areas have now met their demise as prairie land was converted to commodity crops such as corn. Similarly imperiled are habitats associated with or adjacent to tallgrass prairie such as oak savannas and barrens, sand prairies, wet prairies and sedge meadows, and forested wetlands. Over the past 150 to 200 years, the flora and fauna dependent on healthy, tallgrass prairie ecosystem complexes have suffered.

With little extant prairie, conservation of prairie and grassland associated habitats is urgent. However, prairie restoration outcomes can be fraught with limitations (e.g. site location, variable soil conditions, limited seed availability, lack of personnel, incompatible surrounding and past land use, unknown hydrology, limited funding) and uncertainties (e.g. weather, invasive plant species, loss of funding) that can hinder success or lead to unanticipated negative results. A changing climate could further threaten organisms dependent on grassland habitat and make it even harder to plan for success. If planned and implemented properly, prairie restorations can support a range of vital ecosystem services including survival of grassland dependent species, pollinators and pollination services, flood water storage, groundwater recharge, filtering of agricultural nutrient run-off, fuel biomass, grazing lands, carbon sequestration, and recreation opportunities.

**Note on use of the term “restoration” in ETPBR LCC documents** – *The Society of Ecological Restoration defines ecological restoration as “the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.” Therefore, the use of the word “restoration” in this plan is meant to encompass the full range of actions from rehabilitation of existing but degraded and damaged ecosystems to the reconstruction of new habitats (e.g. planting prairie on former row-crop agricultural fields that may or may not have been prairie originally).*

### Goal

Determine where and how to focus prairie restoration projects for biodiversity conservation, taking advantage of both large-scale and small-scale opportunities (vistas and gems). This includes physical locations on the landscape as well as refinement of restoration methods, planning, coordination, education, and scientific research.

### Objectives

1. Create functional large-scale prairie ecosystems that provide wildlife habitat, particularly for declining species such as monarch butterflies and grassland birds.
2. Protect, connect, expand, and manage remnant prairies to preserve genetic diversity and local ecotypes.
3. Promote the values and management of prairie ecosystems among communities and landowners.



## Immediate Strategies

### **Prairie Strategy 1: Improve prairie restoration and management techniques**

Develop prairie restoration guidance for techniques that maximize desired outcomes (e.g. biologically diverse, healthy plant community, quality wildlife habitat, low cover of exotic and invasive plant species) while minimizing resource input such as costs, staff time, equipment, and invasive plant species management.

- (a) Identify and develop definitions of success for prairie restoration projects, associated natural communities (e.g. wet prairie, savanna), and communities within prairie (e.g. birds, pollinators, plants) including measurable biological interactions that will guide management.
- (b) Develop and promote clear guidelines and methods for monitoring and evaluating restoration projects.
- (c) Develop and share information on local ecotype seed production and availability.
- (d) Develop and promote use of Prairie Restoration Best Management Practices (BMPs) applicable to the region.
- (e) Build a dynamic knowledge exchange to house data on techniques used in prairie restoration projects, including a directory of scientists and managers with prairie restoration and management experience and expertise.
- (f) Track prairie restoration efforts and monitoring results to share with the community of practice.
- (g) Encourage long-term prairie restoration research to monitor and evaluate reconstruction and management methods.

### **Prairie Strategy 2: Identify and inventory prairie land assets**

Construct and maintain knowledge exchange tools to compile, house, and disseminate data and analyses about known prairie remnants, actively managed prairie sites, and prairie restoration projects.

- (a) Build a dynamic knowledge exchange to house data on the status, history, and location of land areas in prairie.
- (b) Develop mechanisms for practitioners and researchers to access data, input new information, and identify methods to support improved reconstruction and management strategies.

### **Prairie Strategy 3: Design and integrate prairie conservation plans at the landscape level**

Expand conservation plans to regional and multi-state scales to address large-scale long-term stressors such as habitat fragmentation, climate change, hydrologic dysfunction, and invasive species.

- (a) Identify and inventory collective opportunities to implement regional plans for prairie conservation, building from existing efforts such as the Minnesota Prairie Conservation Plan, state Wildlife Action Plans, the Conservation Atlas for Midwest Grasslands, the Monarch Conservation Implementation Plan, and the Bird Conservation Area model for grassland birds in Iowa.
- (b) Develop landscape conservation designs (LCDs) that prescribe prairie conservation project locations, size, and methods where they might have the greatest conservation impact and where physical features and social capacity maximize multiple ecosystem benefits.
- (c) Based on LCD outcomes or guided by conservation plans, develop strategies to effectively implement on-the-ground (e.g. acquisition, easements, reconstruction, management, evaluation) prairie restoration.



Upon request of the ETPBR LCC Steering Committee, the Prairie Technical Advisory Groups, led by the Coordinator, will re-evaluate these strategies and prepare high priority project recommendations based on these strategies and current science or management needs.

### **Proposed FY16 Projects for Error! Reference source not found.**

**Grassland Conservation Science Translation** – Package and distribute spatial models and management guidelines for conservation of Midwest grassland birds and other prairie species, based on current knowledge of landowner motivations and market drivers. **\$99,000**

**Savannah Restoration Video** - Fire suppression and settlement diminished oak savannas from a historic 50 million acres in the Midwest to a fragmented fraction of their former expanse. Remaining sites are protected and maintained by individuals, government or non-profit organizations. Production of an instructional video would capture and share expert knowledge in concert with the online and/or print best practices guidelines that are under development by staff at Neal Smith National Wildlife Refuge. **\$25,000-\$44,000**

**Prairie Reconstruction Field Days Video** - Given that travel costs can limit participation of staff and students in regional field days hosted regularly by National Wildlife Refuges in our region, a series of videos would be produced to document best practices and science needs for reference by a broader "virtual" audience. Case studies in standardized or emerging prairie reconstruction techniques would be captured in interviews and supporting footage (b-roll) from key restoration managers/experts, edited into a series of case studies. **\$15,000-\$39,000**

### **ETPBR LCC Prairie Restoration Outcomes & Performance Metrics**

Performance metrics reflect the outcome-based approach that LCCs are taking to produce landscapes capable of sustaining natural and cultural resources. Examples of possible landscape-scale performance metrics for the ETPBR LCC are based on the current objectives for each Focal Area, informed by the US FWS Region 3 Surrogate Species created for the ETPBR LCC and associated research (**Error! Reference source not found.**). These metrics will continue to be refined with input from Technical Advisory Groups.

Potential opportunities for collaboration with existing or emerging monitoring networks include:

- Prairie – PRIAT Prairie Reconstruction Database and framework for evaluating tallgrass prairie reconstruction methods and management  
<https://tallgrassprairielcc.org/project/building-science-and-outcome-based-monitoring-framework-measuring-effectiveness-prairie>



**Table 1: Examples of prairie resources with measurable objectives and performance metrics.**

<b>Focal Area</b>	<b>Performance Metrics</b>	<b>Measurable Objectives</b>
<b>Prairie Reconstruction</b>	Grasshopper sparrow (double current population to 7 million); bobolink (double current population to 800,000); upland sandpiper (double current population to 138,408)	Create functional large-scale prairie ecosystems that provide wildlife habitat, particularly for declining species such as monarch butterflies and grassland birds.
<b>Prairie Protection</b>	Henslow’s sparrow (stable or increasing from 160,000 breeding adults)	Protect, connect, expand, and manage remnant prairies to preserve genetic diversity and local ecotypes.
<b>Prairie Appreciation</b>	TBD	Promote the values and management of prairie ecosystems among communities and landowners.