



**EASTERN TALLGRASS PRAIRIE & BIG RIVERS**  
LANDSCAPE CONSERVATION COOPERATIVES

# **FY16 BUSINESS PLANS OVERVIEW**

## **Spring 2016 Project Proposals**



*A strategy prepared by LCC Technical Advisory Groups to guide immediate conservation actions to restore and connect wildlife with people on the rich soils of a functional working landscape.*



## Table of Contents

Table of FY16 ETPBR LCC Project Proposals.....	3
Project Descriptions by Focal Area .....	3
Prairie Restoration Focal Area .....	3
River Restoration Focal Area.....	4
Agroecology Focal Area .....	5
Mississippi Basin / Gulf Hypoxia Initiative .....	5
Urban Conservation Focal Area -- Ecological Places in Cities (EPiC).....	6
ETPBR LCC Conservation Outcomes & Performance Metrics.....	7



### Table of FY16 ETPBR LCC Project Proposals

Five FY16 Business Plans separately describe conservation needs, goals, and strategies for the four focal areas (prairie restoration, river restoration, agroecology, and urban conservation) and the special topic of Gulf Hypoxia. Proposed projects for funding starting in Fiscal Year 2016 are outlined below with additional background provided in the individual Focal Area business plans.

Project title	Estimated cost
Prairie - Grassland Bird Conservation Opportunities Science Translation	\$ 99,000
Prairie - Savanna Restoration Video	\$ 44,250
Prairie - Prairie Reconstruction Field Days Video	\$ 39,000
River - Floodplain Connectivity Landscape Design & Outreach Campaign	\$280,000
River - Floodplain Functions	no cost estimate
River - Floodplain Forest Management	no cost estimate
Agroecology - Midwest Native Prairie Biomass Initiative	\$100,000
Urban - Green Infrastructure Decision Support Tool	\$150,000
Urban - Urban Wildlife Target Species (Performance Metrics)	\$150,000
Mississippi Basin / Gulf Hypoxia Initiative - (a) Online spatial tool data updates & maintenance; (b) Refine Practice Fact Sheets & implementation coordination	\$ 47,500 (\$32,000 will be from FY15)
Gulf Hypoxia Initiative - Targeting Program Investment	\$150,000
Gulf Hypoxia Initiative - Impact Models	\$240,000
Gulf Hypoxia Initiative - Performance Measures	\$130,000
Gulf Hypoxia Initiative - Scenario Planning	\$198,000
Lower Wabash Landscape Conservation Design Partnership	no cost estimate
<b>GRAND TOTAL</b>	<b>\$1,627,750</b>

### Project Descriptions by Focal Area

Error! Reference source not found. **Focal Area**

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

**Savanna 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. Cost estimate range: \$25,000-\$44,000 (**\$44,250**)

**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. Cost estimate range: \$15,000-\$39,000 (**\$39,000**)



Error! Reference source not found. **Focal Area**

**Floodplain Connectivity Landscape Design & Outreach Campaign**

Development of a floodplain connectivity approach for the mainstems of the Mississippi, Missouri, Wabash, Illinois and Ohio Rivers, based on the hydrogeomorphic assessments recently completed through coordination by National Wildlife Refuge System staff. This effort would be extremely timely, considering extensive and prolonged flooding over the past year, creating an unprecedented opportunity to conserve natural resources and ecosystem services along these big rivers. Synthesize existing conservation planning and design research to formulate a prototype floodplain connectivity approach. **\$280,000**

Below are additional ideas for future projects resulting from two major events co-hosted by the ETPBR LCC partners to convene scientists and managers in the conservation community: 1) Floodplain Functions Workshop on July 29-31, 2014, in Alton, IL, co-hosted by the ETPBR, Illinois Natural History Survey, University of Iowa, United States Geologic Survey (20 participants); and 2) Floodplain Forest Workshops on September 15-17, 2015, in Dubuque, IA, the FY16 Business Plan for River Focal Area (75 participants). These project ideas do not yet have cost estimates.

**Floodplain Functions (no estimated costs)**

- Develop a blueprint for managing floodplains across different functions and scales.
- Develop a management plan for submerged aquatic vegetation.
- Conduct demonstration projects.
- Use Bayesian networks for developing modeling techniques that: integrate varied stakeholder perspectives, evaluate trade-offs, are based on a review of prior conceptual models, test main drivers and expected outcomes, consider spatial variability and identify similarities and differences in place and species, consider multiple floodplain objectives, use structured decision making.
- Examine the use of models and resources: Prioritize restoration sites for mapping; Identify efficient mapping methods and resources needed for mapping, Develop natural floodplain resource maps that: contain risks, benefits, and hotspots layers; provide information about the relationship of management area with the broader context in a river basin, and communicate clearly to decision makers.
- Develop a workshop for identifying: varied modelling methods, objective methods for quantifying floodplain functions, methods for measuring management and policy impacts, funding sources for conducting floodplain connectivity projects.

**Floodplain Forest Management (no estimated costs)**

- Promote research on: *Nutrient cycling, sediment transport, and invasive species*—understand the relationship between the dynamics of invasive species and nitrogen saturation in sediments, & *Flood duration*—conduct collaborative research projects involving several agencies to look at the relationship between species, flood duration, and inundation.
- Collect silvicultural data.
- Develop a standard method for terrestrial long-term resource monitoring
- Develop common site classification and a *floodplain features classification* through consistent mapping for all floodplain communities.



- Standardize the organization and use of prescription and floodplain forest data to properly inform management decisions
- Involve private drainage and levee districts in floodplain forest management

#### **Error! Reference source not found. Focal Area**

The Agroecology Technical Advisory Group (Ag TAG) developed recommendations in a series of conference calls, informed by outcomes of three major events/processes co-hosted by the ETPBR in association with the multi-LCC Mississippi Basin / Gulf Hypoxia Initiative: 1) Structured Decision Making, August 12-14, 2014, Memphis, TN; 2) Work Teams preparing practice fact sheets through online meetings in 2015; and 3) Research & Design Forum, March 1-3, 2016, Plainfield, IN.

**Midwest Native Prairie Biomass Initiative:** A developing Midwestern initiative seeks to combine sustainably harvested biomass from native grasslands and cover crops with livestock manure and waste material from food production to produce biogas by way of anaerobic digestion. This approach has potential to establish landscape scale native prairie habitat in northern Missouri with guiding input from the conservation community on approximately 18,000 acres by 2023. A native grass/forb field trial/research planting to identify the best mixture of native grasses and forbs that optimize native plant diversity, ecological benefits, and biomass yield for anaerobic digestion is necessary as a proof-of-concept. This planting would also serve as a demonstration project for outreach and education targeted at interested landowners, the bioenergy industry, prospective non-governmental partners, and policymakers to better understand the potential and benefits of biogas and biomass production. This initial demonstration project would include restoring 500 acres of cool season exotic grasses on Smithfield properties in Northwest Missouri to diverse native grasses/forbs to provide preferred nesting/brood rearing habitat, affordable energy biomass, and set the stage for a sea of land cover/management change in the Midwest. Total project cost is estimated at \$180,000 to \$200,000. The Eastern Tallgrass Prairie and Big Rivers LCC would provide approximately **\$90,000 - \$100,000** to offset approximately 50% the total cost of establishing the field trial/research/demonstration native prairie planting. A match provided by the Missouri Department of Conservation, the National Wild Turkey Federation and other partners would provide the remainder of the required funding.

**The Lower Wabash Landscape Conservation Design Partnership:** The Lower Wabash Landscape Conservation Design (LCD) Partnership is a group of federal, state, local, NGO, and private entities in Indiana and Illinois that self-organized to protect and conserve fish and wildlife habitats within an agricultural working lands context in the floodplains and associated uplands of the Lower Wabash River. An application of the Gulf Hypoxia *Precision Conservation Blueprint v1.0* being developed by seven LCCs across the Mississippi River Basin would further enable this unique partnership to strategically target and invest resources to promote conservation for multiple benefits (water, agriculture, and wildlife) at multiple scales. **No cost estimate.**

#### **Mississippi Basin / Error! Reference source not found. Initiative**

Reducing nutrient loading from the agricultural lands of the Midwest and Mississippi Alluvial Valley may significantly address hypoxia, from local waters to the recovering resources of the Gulf of Mexico. Modifying the design and/or shifting the location of conservation practices could make program dollars go farther and appeal to more land managers by producing multi-sector benefits for wildlife, water quality and agricultural production. Based on the framework and practices, The Conservation Fund was contracted to develop a prototype Precision Conservation Blueprint v1.0 GIS Targeting Tool for the Mississippi River Basin / Gulf Hypoxia Initiative to identify opportunity areas for conservation investment. ETPBR funding supports research on human dimensions and ecosystem services to support



conservation design, delivery and adoption of high value conservation practices that provide multi-sector benefits. The LCCs hosted a Research & Design Forum March 1-3, 2016, in Plainfield, IN, that assembled 66 researchers and technical program managers to formulate actionable recommendations to refine and deliver these pragmatic conservation tools.

Previous multi-LCC funding supported development of tools and research products to target collective conservation actions for wildlife, water quality and agricultural production to strategically maximize the value of every conservation dollar for the Mississippi River Basin and Gulf of Mexico by: 1) identifying immediate opportunities to target investments in conservation delivery programs; and 2) developing integrated models for impacts, proactive scenario planning, and large-scale performance measures.

- ***Gulf Hypoxia Initiative: Tool Refinement*** – (a) Update and maintenance of the online spatial tool data produced under contract with The Conservation Fund; (b) Refine Practice Fact Sheets, communications and coordination to implement recommendations from the March 2016 Research & Design Forum. **\$47,500**
- ***Gulf Hypoxia Initiative: Targeting Program Investment*** – Program-level guidance for local and regional investment in large watershed pilot areas identified by the recently completed Precision Conservation Blueprint v1.0 spatial analysis. **\$150,000**
- ***Gulf Hypoxia Initiative: Impact Models*** – Integrate existing models from multiple sectors to target and predict impacts of conservation investments on suitable habitat, water quality loading, social networks, and economic valuation of agricultural ecosystem services. **\$240,000**
- ***Gulf Hypoxia Initiative: Performance Measures*** – Integrate large-scale, long-term cross-sector monitoring to develop a suite of leading indicators to track response of fish and wildlife species, water quality factors, and socioeconomic targets for agricultural productivity. **\$130,000**
- ***Gulf Hypoxia Initiative: Scenario Planning*** – Convene the conservation community to package proactive strategies that appeal to landowners under conditions of extreme weather, commodity pricing, land use trajectories, and climate vulnerability. **\$198,000**

[Error! Reference source not found.](#)

**Green Infrastructure Decision Support Tool:** This project will create a decision support tool usable by decision makers at the local, community, and regional scales to implement green and blue infrastructure to create ecological places within cities. By creating this tool, decision makers will understand the process for creating ecological places in cities, why it is important to insert nature into their gray infrastructure, and how the work being done at smaller scales can add up to have an impact at the larger scale. Examples of things that could be evaluated at each scale: at the local scale projects will be smaller, focused on restoration; community scale projects will focus on asset mapping; the regional scale will be focused on landscape conservation design. Funding for part of this project is asked to be considered (Data Collection/Creation of Tool). Cost estimate range: \$30,000-\$310,000 (**\$150,000**)

**Urban Wildlife Target Species (Performance Metrics):** This project is intended to shed light on which species thrive in urban areas, what their impact are on the larger population, and communicating the value of urban ecosystems for certain species. First we would summarize current literature on urban wildlife. Information on species that thrive in urban ecosystems will be cataloged to: 1) create a comprehensive list of urban wildlife and fish species that will be used to inform the process of selecting target species for urban areas and 2) used to identify gaps in scientific research on the value of urban ecosystems for some species such as migratory birds, etc. Secondly we would, conduct an evaluation of urban habitat and impacts to larger wildlife population dynamics. Research will be geared toward understanding the ecological value of urban species in the context of the landscape scale. Research will



be geared towards list of target species for urban ecosystems and any research gaps identified in the previous stage. Additional research can be done to understand the value of species at the local and community scale. The most expensive part of this project would be to profile and pilot campaigns in 4 cities. Using the list compiled during the data collection period evaluations of these species will occur within four cities. These projects will focus on understanding current baselines species distribution and abundance and understanding habitat conditions within the city metropolitan area. Monitoring of species populations and on the ground habitat improvements will take place utilizing citizen scientists, interns, etc. This project needs to be well-integrated with ongoing efforts (e.g. CW Priority Species, State Wildlife Action Plans) and can model work being done on the Monarch LCD project. (Data Collection/Understand why urban species matter) Cost estimate range: \$30,000-\$500,000 (**\$150,000**)

### ETPBR LCC Conservation Outcomes & Performance Metrics

In December 2015, the National Academy of Sciences released its report “[A Review of the Landscape Conservation Cooperatives](#)” which included eight specific recommendations and other observations and guidance for continuing to improve the LCC Network and individual LCCs. LCC staff formed a “Next Steps” team to develop and prioritize draft actions for implementing the NAS findings.

#### Categories of NAS Review Recommendations

1. Strategic plan (note: this is strongly linked with performance evaluation)
2. Performance Evaluation
  1. At two levels – LCC level, network level
  2. SIAS
  3. Partnership and collaboration realm
  4. Integrate science plan into strategic plan
  5. Hierarchical structure of performance metrics and goals
  6. How LCC efforts are resulting in conservation success
3. Improving collaborations and coordination
4. Landscape Conservation Design
5. Communicating value and more

The need for performance metrics was a primary thread throughout the recommendations, reflecting 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 (

Development of performance metrics will be a major task of all Technical Advisory Groups and may result in future project funding requests.

Table 1). 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>
- Rivers – Great Rivers Ecological Observatory Network



[http://www.ngrrec.org/News-Stories/WaltonGrant3\\_14/](http://www.ngrrec.org/News-Stories/WaltonGrant3_14/)

- Agroecology – National Ecological Observatory Network (NEON)  
<http://www.sciencemag.org/news/2012/09/usda-announces-long-term-agro-ecology-network>
- Urban Conservation – not known
- Mississippi Basin / Gulf Hypoxia Initiative – America’s Watershed Initiative Report Card  
<http://americaswatershed.org/reportcard/>

Development of performance metrics will be a major task of all Technical Advisory Groups and may result in future project funding requests.

**Table 1: Examples of ETPBR LCC priority resources within each Focal Area 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.
<b>River Reconstruction</b>	Greater Redhorse (increase distribution and connectivity). Support a proportion of the continental population for spring and fall migration for: Green-winged Teal (12.5%); Mallards (22%)	Restore long stretches of free-flowing and interconnected big river ecosystems
<b>River Protection</b>	Pallid sturgeon (self-sustaining, genetically diverse population of 10,000 wild adults); Shovelnose sturgeon (680,000 adults with regular recruitment, increase size and age structures, decreased mortality)	Protect, connect and expand existing intact free-flowing and interconnected short segments of large rivers and small headwaters
<b>River Connectivity</b>	Paddlefish (maintain annual 30-40% spawning potential of unfished population); Pugnose minnow (increase distribution and connectivity)	Enhance connectivity between upland and lowland habitats along big river corridors
<b>River Appreciation</b>	TBD	Promote appreciation among water users for functional riverine ecosystems.



<b>Agroecology Conservation</b>	Develop and promote wildlife conservation practices that: a) improve connectivity among uplands, floodplains and channels; b) enhance viability of functional ecological processes; and c) restore native prairie and riverine communities as an integral part of food, fiber and fuel production systems	In addition to species listed for prairie and riverine systems, support wetland species such as Pectoral sandpiper (increase by 10% to 528,000); Marsh wren (increase by 50% to 7,500)
<b>Agroecology Ecosystem Services</b>	Develop and promote conservation practices that improve water quality and wildlife habitat within the Midwest as well as reducing downstream nutrient export to the Gulf of Mexico hypoxic zone.	Double proportion of farmers adopting conservation practices in locations critical for water quality and agricultural productivity (e.g., double native grass stream buffers in Illinois to 56%, C Miller 2016).
<b>Reconnect People to Nature in the City</b>	Reconnect people to nature by integrating green infrastructure into community revitalization	TBD
<b>Resilient Urban Communities</b>	Establish ecologically-resilient urban communities within their larger landscapes by championing habitat conservation at multiple scales	TBD
<b>Urban Ecosystem Services</b>	Showcase how the social and economic benefits of healthy natural landscapes can promote green economies and foster community health and cohesion.	TBD
<b>Monarch Butterfly Conservation</b>	Promote the values and management of prairie ecosystems among communities and landowners.	TBD

Sources: ETPBR LCC. Operations and Strategic Plan with Focal Area Business Plans. March, 2014; US Fish & Wildlife Service. Surrogate species version 1.0: Eastern Tallgrass Prairie and Big Rivers Population Objectives Status Report. October 10, 2014; Miller, C. 2016. Farming and conservation in Illinois. Illinois Natural History Survey. Preliminary results.