



**2012**  
*ANNUAL REPORT*

## EXECUTIVE SUMMARY

This report documents the highlights and accomplishments of the [Great Plains Landscape Conservation Cooperative \(GPLCC\)](#) in 2012.

Through increasing on-the-ground research efforts, establishing and expanding working relationships with partners, and funding relevant and important science research projects, the GPLCC's third year has been a success.

## GPLCC SCOPE

The GPLCC is a partnership that provides applied science and decision support tools to assist natural resource managers in an effort to conserve plant, fish and wildlife in the mid and short-grass prairie of the southern Great Plains. Some of the most imperiled habitats in the U.S. are found in this area, along with a number of imperiled species.

The mission of the GPLCC is to lead the development, facilitation and integration of science and management to ensure strategic natural resource conservation on the Great Plains.

The GPLCC objective is to maximize stakeholder efforts across the landscape and optimize data collection, use and management. These objectives are necessary in order to conserve habitat and priority species through the development and application of scientific data.



GPLCC Scope Map



Arkansas River Shiner

## 2012 ACCOMPLISHMENTS AND HIGHLIGHTS

**FY2012 funds were allocated to two aquatics projects and three Lesser Prairie-Chicken (LEPC) projects:**

- **Historic and Current Habitat Use by Arkansas River Shiner in the South Canadian River in Central Oklahoma as Affected by River Flow: Predictions for Habitat Under Future Climate Scenarios (FY 2012 Funding)**
  - Edie Marsh-Mathews, Associate Professor, Department of Zoology and Associate Curator, Sam Noble Oklahoma Museum of Natural History, University of Oklahoma
  - William J. Mathews, Professor, Department of Zoology, University of Oklahoma
- **Gido: Conservation Priorities for Great Plains Fish Communities Based on Riverscape Connectivity and Genetic Integrity of Populations (FY 2012 Funding)**
  - Keith B. Gido, Division of Biology, Kansas State University
  - Joshua S. Perkin, Division of Biology, Kansas State University
  - Thomas F. Turner, Department of Biology and Museum of Southwestern Biology, University of New Mexico
  - Megan J. Osborne, Department of Biology and Museum of Southwestern Biology, University of New Mexico
  - Eric R. Johnson, Kansas Department of Wildlife, Parks and Tourism
  - Kevin B. Mayes, Texas Parks and Wildlife Department, Inland Fisheries



Lesser Prairie-Chickens



Black-Tailed Prairie Dog

- **Range-wide LEPC Management Plan Development (FY 2012 Funding)**
  - WAFWA was granted funding for this project
- **Range-wide LEPC Spatial Targeting Tool for Conservation Delivery (FY 2012 Funding)**
  - ODWC was granted funding for this project
- **Range-wide LEPC meeting facilitation, coordination and literature review (FY 2012 Funding)**
  - WAFWA was granted funding for this project

**Researchers completed three research projects conducted with FY2011 funds in 2012:**

- **Black-tailed Prairie Dog (BTPD) Habitat Suitability Modeling for the Southern Great Plains (FY 2011 Funding)**
  - The results from the study will allow land managers to compare and prioritize areas of conservation importance for BTPD and provide GPLCC managers a model for plague management in response to climate change.
    - › David J. Augustine, Research Ecologist, USDA-Agricultural Research Service, Fort Collins, CO
    - › William E. Armstrong, GIS Specialist, USDA-Agricultural Research Service, Fort Collins, CO
    - › Jack F. Cully, Kansas State University Associate Professor of Biology and Assistant Wildlife Unit Leader, Kansas Cooperative Fish and Wildlife Research Unit

- › Michael F. Antolin, Professor, Department of Biology, Colorado State University
- **Patterns and Processes of Dispersal of Black-tailed Prairie Dogs (BTPD) in a Heavily Managed Landscape of the GPLCC (FY 2011 Funding)**
  - Considered an indicator species in the North American short-grass prairie lands, the BTPD occupies an estimated two percent of its original distribution. This is due to poisoning and plague outbreaks fragmenting the remaining populations. The study conducted a population genetic analysis of BTPDs in the short-grass prairie of Colorado to the eastern periphery of their distribution in the mixed grass prairie of Kansas. The research provides a baseline assessment of how grassland productivity affects populations. These data are important for future models addressing the impact of climate change on the local extinction risk of this species.
    - › Dr. Samantha M. Wisely, Kansas State University, Associate Professor, Division of Biology, Hall
    - › Dr. Jack Cully, Kansas State University, Associate Professor and Assistant Unit Leader, USGS Kansas Cooperative Fish and Wildlife Research Unit
    - › Charles Lee, Extension Wildlife Specialist, K-State Research and Extension



Nebraska Rainwater Basin

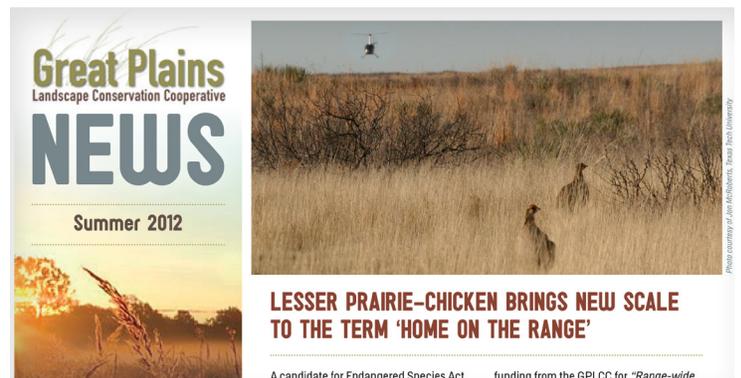
▪ **Range-wide Population Estimation and Monitoring for Lesser Prairie-Chickens (FY 2011 Funding)**

- For this project, the GPLCC funded the Western Association of Fish and Wildlife Agencies (WAFWA). This project is unique for five western states (KS, CO, OK, NM, and TX) because it is the first time that all five states inventoried LEPC with the same methodology. Further, the methodology that was used is a statistically sound and repeatable sampling technique that will be used by states in the future to continue monitoring in a statistically relevant manner. The data from the spring 2012 surveys is helping the states in their preparation of a range-wide conservation strategy for the species.
  - › Bill Van Pelt, WAFWA
  - › Lyman McDonald, WEST Inc.
  - › Jim Griswold, WEST Inc.
  - › Troy Rintz, WEST Inc.
  - › Fawn Hornsby, WEST Inc.

**Additional Highlights and Accomplishments:**

- The Audubon Society
  - The GPLCC is now coordinating with its newest partner, the Audubon Society. The Audubon Society works to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity.

- South Central and North Central Climate Science Centers
  - The GPLCC is actively coordinating with the South Central and North Central Climate Science Centers through participating in workshops and advisory committees. James Broska sits on the North Central Climate Science Center Stakeholder Advisory Committee and Heather Whitlaw sits on the South Central Climate Science Center's Steering Committee.
  - Climate Science Centers provide climate-change-impact science to Landscape Conservation Cooperatives (LCCs) within their regions, while also working with the LCCs to provide the most effective and important science information.
- The GPLCC hosted two science webinars in 2012
  - January 11, 2012: Ecological Mapping Systems of the Texas High Plain, presented by Duane German, Landscape Ecology Program Leader from Texas Parks and Wildlife Department and Lee Elliott, Senior Research Specialist from Missouri Resource Assessment Partnership.
  - August 22, 2012: Predicting Variation in Springtime Playa Occurrence and Flooded Area in Nebraska's Rainwater Basin, presented by Christopher Jorgensen, Science Coordinator, Rainwater Basin Joint Venture, Grand Island, Nebraska.
- The GPLCC wrote and distributed two newsletters to more than 670 partners and stakeholders highlighting key accomplishments, partnerships and research. [View the newsletters](#)



GPLCC Summer 2012 Newsletter



The Arkansas River Shiner



- The GPLCC provided current research, documents and new partnerships and outreach via the updated [GPLCC website](#).
- The GPLCC held the first joint meeting with the Steering Committee and Science Team September 19-20 in Lubbock, Texas. This meeting allowed the two groups to discuss science priorities and accomplish the following objectives:
  - Establish a common understanding of the GPLCC with regard to why LCCs were established nationally, and how LCCs fit into the Strategic Habitat Conservation (SHC) framework
  - Discuss and identify the unique role of the GPLCC
  - Establish a common understanding of the kinds of science the GPLCC seeks to prioritize
  - Review Science Committee role, function, responsibility and authority
  - Identify preferred mechanisms for future coordination, collaboration, decision-making and communication flow between the Science Committee and the Steering Committee

## 2012 SCIENCE NEEDS AND PRIORITIES

2012 science priorities for research were established and the GPLCC Steering Committee agreed to focus GPLCC science and research funding on the three priority areas below:

### 1. Prairie Fish:

- The Arkansas River Shiner is an ideal organism for further study and collaboration toward effective adaptation or mitigation strategies because its range covers so much of the GPLCC, and it represents the challenges for existence faced by other species in similar circumstances, and because existing data and technologies are available to facilitate identification of parameters for effective management practices.

A GPLCC-funded study is currently under way to determine the important habitat features for Arkansas River Shiners, and to model the varying flow scenarios under future climate scenarios. The study is being conducted in Oklahoma's South Canadian River, and led by Edie Marsh-Mathews (University of Oklahoma) and William J. Mathews (USFWS Tulsa Field Office)

- Stream fragmentation is a primary challenge for the survival of multiple aquatic Great Plains species. The GPLCC is therefore sponsoring a set of riverscape-scale evaluations of habitat connectivity, fish communities and a population level genetic analysis for pelagic spawning species. One of the products of these evaluations will



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be the development of a tool that enables prioritization of barriers for remediation, and to do so at the least cost while achieving maximum relevant habitat connectivity gains.

The study is being led by Professor Keith Gido and a complement of experts from Kansas State University, the University of New Mexico, the Kansas Department of Wildlife, Parks and Tourism, and the Texas Parks and Wildlife Department.

## 2. Playas:

- Playa wetlands are scattered across the GPLCC region, supporting more than 200 species of birds and other wildlife. However, numerous agricultural and other land conversion activities result in sedimentation of the playas and loss of function. Because playas are critically threatened in this way, they are an ideal candidate for further research, and the GPLCC priority list.

The GPLCC has identified three priority playa projects for FY 2013 funding, which include research in the following areas:

- Research to understand whether grass plantings or grass buffers are most effective at allowing inundation, preventing sedimentation and establishing effectively in the semi-arid Great Plains. This research will help to identify how to modify or manage current buffers to function properly
- Research to identify the number and distribution of playas and playa complexes in the Great Plains and to understand the spatial arrangement necessary to support migrating and wintering wetland birds and other playa-dependent species
- Research to analyze the socioeconomic impediments to playa conservation

## 3. Lesser Prairie-Chicken (LEPC):

- A candidate for Endangered Species Act (ESA) protection since 1998, the LEPC has markedly moved up the priority list. The LEPC's native range covers a great deal of the GPLCC territory, including portions of Colorado, New Mexico, Texas, Oklahoma and Kansas. Conservation on private lands for this species in particular will benefit from a large diversity of science on a wide range of topics.

Ultimately, three research projects were selected for FY 2012 funding related to the LEPC, which include Range-wide LEPC Management Plan Development, Range-wide LEPC Spatial Targeting Tool for Conservation Delivery, and Range-wide LEPC meeting facilitation, coordination and literature review. The GPLCC grant recipient for LEPC research was WAFWA.