

**FY 2014 Traditional Section 6 Grant Program  
Priority list of project topics**

Below is a list prepared by biologists from TPWD and USFWS (Texas Ecological Services Offices) which reflects this year's set of project topics on taxa in most need of research. While it is extensive this is not an exhaustive list; projects and taxa not on this list are also eligible for funding consideration. Our intent was to provide avenues of research deemed most urgent. The fact that the list is extensive suggests only that there are many pressing conservation issues that need addressing in Texas.

Emphasis on proposal selection is placed largely on conservation need and scientific rigor (sampling effort, methodology, statistical power, cost-effectiveness, etc). Conservation need generally relates to federally listed taxa and species of greatest conservation need (SGCN) as described in our Texas Conservation Action Plan (<http://www.tpwd.state.tx.us/landwater/land/tcap/sgcn.phtml>). In addition, due to recent Multiple-District Litigation (see <http://www.fws.gov/endangered/esa-library/index.html#listing>) we also are interested in proposals that effectively examine issues related to those species. Given the broad realm of possibilities for eligible projects in light of the fact that Section 6 funding is normally quite limited we strongly encourage you to seek guidance from staff at TPWD and USFWS while developing your proposal.

## **PLANTS**

### **Black lace cactus (*Echinocereus reichenbachii* var. *albertii*) – federally Endangered**

- Develop a habitat model based on known natural locations serving to focus systematic surveys for previously undetected locations
- Genetic studies of black lace cactus and other closely related varieties to determine phylogeographic structure and taxonomic status
- Identify effective pollinators, their ecology and habitat requirements.
- Develop land owner contacts for known populations with the goal of conservation agreements or easements and provide incentives for conservation
- Demographic monitoring of known populations to document population trends, including assessments of mortality, recruitment, and dispersal

### **Texas golden glade cress (*Leavenworthia texana*) – proposed to be listed federally Endangered**

- Extensive, systematic surveys (using TPWD Rare Plant Survey Form) for both extant and to search for previously undetected populations, to include associated species.
- Evaluate various methods (prescribed fire, controlled herbicide use, seasonal mowing, and prescribed grazing) to determine which method or combination works to periodically remove competing vegetation and maintain an open herbaceous glade/prairie flora habitat required for Texas golden glade cress populations to persist
- Identification of hydrological requirements for management within known and potential sites

## **INVERTEBRATES**

### ***Arthropods***

#### **American burying beetle (*Nicrophorus americanus*)**

- Evaluation of species distribution and population status in northeastern Texas

**Texas emerald dragonfly (*Somatochlora margarita*)**

- Distributional survey and population status
- Evaluation of larval habitat use

**Tawny crazy ant (*Nylanderia fulva*)**

- Basic biology
- Impact on natural communities, listed species, and species of concern
- Detection and potential control mechanisms

***Cicurina* spiders**

- Taxonomic review and distributional analyses

***Texella* harvestmen**

- use of robust genetic techniques to discern species limits of Bone Cave harvestman (*Texella reyesi*) and Bee Creek Cave harvestman (*Texella reddelli*) in central Texas

**Kisatchie painted crayfish (*Orconectes maletae*)**

- Distributional survey
- Habitat use

***Freshwater mussels***

- Development of standardized survey protocols for water bodies in Texas
- Creation of best management practices for listed and candidate species.
- Any listed (state and/or federal) species, but especially encouraging proposals for studies in the Trinity River watershed and other areas at high risk for zebra mussel invasion.

**FISH**

**Any listed (state and/or federal) species or species proposed for listing**, but especially encouraging proposals that develop or test experimental management actions that aid in the recovery of threatened or endangered fishes. The two fish below are of particular concern:

**Smalleye shiner (*Notropis buccula*) and sharpnose shiner (*N. oxyrhynchus*)**

- Proposals to develop management actions for these two species, to ameliorate impacts of drought, climate change, groundwater usage, saltcedar encroachment, golden alga blooms, habitat fragmentation, surface water contamination, disease, or predation are encouraged.

**HERPS**

**Louisiana pine snake (*Pituophis ruthveni*)**

- Survey of occupied and potential habitat, documentation of currently-occupied versus historic range, and assessment of detection and reintroduction strategies in Texas. Review and revise conservation threat assessment in Texas and Louisiana.

**South Texas reptiles:** Texas tortoise (*Gopherus berlandieri*), Texas horned lizard (*Phrynosoma cornutum*), Texas indigo snake (*Drymarchon melanurus*), reticulate collared lizard (*Crotaphytus*)

*reticulatus*) [petitioned for Federal listing], Texas scarlet snake (*Cemophora coccinea*), spot-tailed earless lizard (*Holbrookia lacerata*) [petitioned for Federal listing].

- Status and distributional surveys as well as assessment of threats posed by ongoing (energy) development activities in South Texas.

#### **Brazos water snake (*Nerodia harteri*)**

- Survey of historic and potential sites and document currently-occupied versus historic range. Assess detection strategies and review and revise threats.

#### **Turtles**

- Rio Grande cooter (*Pseudemys gorzugi*), alligator snapping turtle (*Macrochelys temminckii*), Western chicken turtle (*Deirochelys reticularia*), diamondback terrapin (*Malaclemys terrapin*) status assessment.

#### **Spot-tailed earless lizard (*Holbrookia lacerata*)**

- Conduct site assessment in currently occupied sites and create niche model based on habitat parameters. Survey potential sites. Compare current versus historic distribution and ecological parameters (diet and prey availability). Provide management guidelines for landowners.

#### **Houston toad**

- implementation of a headstarting and/or captive propagation program to augment existing populations or to establish new populations in designated priority areas
- any research or recovery projects for the Houston toad, particularly examination of red-imported fire ant control to increase survival of juveniles and adults in prairie environments

### **BIRDS**

#### **Lesser Prairie Chicken (*Tympanuchus pallidicinctus*)**

Various components of LPC ecology remain poorly documented by empirical data. Additionally, the effects of anthropogenic development and prescribed conservation actions on LPC habitat use and productivity are generally poorly understood. The following list identifies priority research projects by the Lesser Prairie Chicken Interstate Working Group:

- Improved understanding of anthropogenic impacts on LPC habitat use, productivity, and gene flow
  - a. Can some impacts be minimized by sound suppression?
  - b. What are the thresholds for cumulative impacts?
- Better understanding of population level responses to currently prescribed management practices; especially grazing prescriptions, tree shearing, fence marking, etc.
- Effect on LPC habitat use and vegetative communities from various types of chemical treatments for reducing shrub cover (especially for sand sagebrush).
- Improved understanding of LPC habitat use and movements relative to juxtaposition of specific native vegetation communities and cropland
- Specific effects of climate change on LPC distribution, survival, and productivity
  - a. Can the effects be remediated somewhat by management practices?
  - b. Are there locations outside current conservation priority areas that can be identified as having a high likelihood of becoming more climatically suitable in the future?
  - c. Vulnerability assessment

- Role of Conservation Reserve Program lands as habitat (nesting, brooding, wintering) and importance of scale in a cropland mosaic
- Presence and distribution of West Nile virus across range, particularly with respect to water development projects for prescribed grazing.

#### **Red Knot (*Calidris canutus*)**

- Determine flyway affinities of Red Knots in Texas using genetic and isotope markers to determine percent composition of Texas Red Knots using each flyway as well as locating molting sites and wintering sites.
- Human disturbance impacting Red Knots, Piping Plovers, and other birds using Gulf coastal beaches. What are the impacts to daily foraging and roosting requirements due to high stress caused by cars, unleashed dogs, general recreational activities, etc.

#### **Black Rail (*Laterallus jamaicensis*)**

Determine occupancy of Black Rail in various coastal wetland types.

- Examine habitat covariates (e.g., size, emergent vegetation cover, salinity) that explain occupancy Black Rail in wetland habitats, especially restored locations that have management histories.
- Estimate abundance of breeding Black Rails along the Gulf Coast.
- Identify areas of conservation priority, by using occupancy modeling or other, for conservation planning purposes. This will assist with prioritizing future habitat projects in the coastal region.
- Develop a rangewide and ongoing survey along the Gulf Coast of Texas which will be used to estimate occupancy and population parameters.
- Determine management recommendations and disturbance regimes for Black Rail habitat in Texas.

#### **“Western” Yellow-billed Cuckoo (*Coccyzus americanus*)**

- This Distinct Population Segment (DPS) from the western U.S., being considered for listing, is known from Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, and Presidio counties, Texas, but systematic surveys in this area of the Trans-Pecos ecoregion are lacking. If possible, searches should include Southwestern Willow Flycatcher as baseline occurrence data are virtually nonexistent, despite persistent suspicion that there may be extant populations in Texas.

#### **Black-capped vireo**

- A precise statistical evaluation of current methodologies for estimating abundance and density at local scales. Using a data-based approach rigorously examine each widely used method (e.g., Distance, Double-sampling, Occupancy approach) against estimates from a known, color-marked population.
- Assess values of population-level parameters (e.g., patch size, fecundity, dispersal, recruitment, habitat, etc) which will ensure long-term survival in this species.
- Examine relationship between avian host communities and habitat as these relate to brood parasitism and predation.

#### **Whooping crane (*Grus americana*)**

- Proposals regarding population viability analyses or funding for whooper watch

#### **Red-cockaded woodpecker (*Picoides borealis*)**

- Proposals to restore habitat and enhance populations on the W. Goodrich Jones and I.D. Fairchild State Forests of Texas, which have declining populations

## **MAMMALS**

### **Black Bear**

- develop temporal and spatial model for black bear re-colonization in East Texas from nearby source populations in SE Oklahoma and SW Arkansas, and possibly Louisiana

### **Kangaroo Rat**

- Genetic diversity.

### **Pecos River muskrat**

- Distribution survey and population status.

### **Mountain Lion**

- South Texas population viability/genetic stability.

### **Ocelot:**

- monitoring restored thornscrub, recovery work to assure maintenance of drinking water during droughts, identification of optimal road crossings, research regarding serology and pathology, creation of a tissue bank, database creation for medical and genetic data, or educational and outreach planning and materials.