

**INTERIM REPORT**

As Required by

THE ENDANGERED SPECIES PROGRAM

TEXAS

Grant No. TX E-112-R-3

Endangered and Threatened Species Conservation

**Seedbanking the Rare Plants of Texas: years 2 and 3**

Prepared by:

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15 November 2012

## INTERIM REPORT

STATE: Texas GRANT NUMBER: TX E-112-R-3

GRANT TITLE: Seedbanking the Rare Plants of Texas: years 2 and 3

REPORTING PERIOD: 1 Sep 11 to 30 Sep 12

**OBJECTIVE(S):** To collect and secure material of 40 priority Texas species over two years, for recovery efforts while concurrently increasing interaction among partners (private landowners, agency land managers, gardens and volunteers) to improve stewardship and awareness of plant biodiversity and vulnerability.

### **Segment Objectives (see Project Statement for full details):**

**Task 1:** The project is the continuation of a multi-year effort to produce a prioritized list in order to secure ex-situ conservation collections of the Texas plant species. The complete species list will attempt to include all G1, G2, and G3 ranked species in the Texas Natural Heritage Database.

**Task 2:** Twenty species from Table 1 with the highest priority (emphasizing federally listed plants) are being collected with funding awarded in FY2009. Current funding will expand collections to an additional 40 species selected in coordination with USFWS and TPWD botanists.

**Task 3:** record information about the condition of the habitat and the populations to assist in planning for future restoration work and to share with the Texas Natural Diversity Database as well as the central database of the Center for Plant Conservation.

**Task 4:** Primary material will be deposited at the NCGRP and, where quantities permit, backed-up at the five CPC PIs under appropriate conditions particular to each species

### **Significant Deviations:**

None.

### **Summary Of Progress:**

Please see Attachment A.

**Location:** Multiple counties, Texas.

**Cost:** Costs were not available at time of this report, they will be available upon completion of the Final Report and conclusion of the project.

Prepared by: Craig Farquhar

Date: 15 November 2012

Approved by:   
C. Craig Farquhar

Date: 15 November 2012

ATTACHMENT A

**Seedbanking the Rare Plants of Texas**

**Years 2 & 3**

**Interim Annual Report**

**Project #E-112-3**

**Contract #212327**

**Reporting Period 1 Sep 2011 – 31 Aug 2012**

**Submitted by:**

**Center for Plant Conservation**

**Kathryn L. Kennedy**

**And**

**Anna Strong**

**Principal Investigators**

The state of Texas has identified over 200 species of plants that are currently at risk (Poole et al. 2007). In Texas, of the 27 species with federal recovery plans, 82% (22/27) list reintroduction or augmentation as an action needed to achieve species' recovery in the wild. Other vulnerable species that have not been federally listed have similar needs to prevent them from becoming listed. Conservation seed collections provide necessary material for research tasks identified in recovery plans (reproductive biology, genetic analysis, etc.) and for restoration in the wild.

The Center for Plant Conservation (CPC), working with its five participating institutions (PIs) who are partners for Texas conservation work, has begun a multi-partner collaborative project that will secure ex-situ (off-site) collections of optimal genetic material of Texas priority species.

The PIs working in Texas habitats include the Lady Bird Johnson Wildflower Center (Austin), Mercer Arboretum and Botanic Garden (Houston), San Antonio Botanical Garden (San Antonio), The Arboretum at Flagstaff (Flagstaff), and Desert Botanical Garden (Phoenix). Funding partners include the Meadows Foundation and private donors.

In the first segment of funding collections were seriously impeded by record drought conditions during late 2011, all of 2011, and early 2012 which resulted in poor field conditions including no above ground plants, dead plants, very small populations evident, and very small seed set/availability. Nevertheless, the partners have completed 17 collections 14 different species and conducted field work unsuccessfully attempting to collect 3 additional species (See final report, project E-112-1).

The difficulties encountered in successfully collecting diverse and genetically representative samples from these vulnerable species due to extreme weather conditions is quite possibly the manifestation of expected weather fluctuations predicted by models of climate change in the area. This only underscores the urgency to complete robust collections sufficient to support future management and restoration needs as quickly as possible.

In the interim the Center has reviewed and worked with the Texas Parks and Wildlife to modify the seedbanking performance process to try to accommodate unfavorable conditions. In accordance with Task 1 of our proposal The initial list (Table 1) of 52 plants was compiled after pilot work with the CPC national office, participating institution conservation officers, and knowledgeable Texas botanists. Selection was based upon conservation priority rank and vulnerability, status of prior existing collections, ease of accessibility to properties, and species with no taxonomic uncertainty. This initial list includes species that are federally listed,

candidates for listing, critically imperiled (G1), imperiled (G2), or vulnerable to extirpation or extinction (G3).

Deviation: Going forward the protocol for approval of species for collection will be modified to incorporate a two stage approach. Initial priority will remain with those most vulnerable species mutually agreed upon in the initial project species list, Table 1, but upon notification and approval institutions will be permitted to collect other species from the full list of ~250 species from Poole et al's 2010 if they need to make a substitution to achieve the collecting goals for the performance period.

Task 2, actual field collections for the second segment of work has not yet begun. The Center was notified of approval of funding request for a second, two year phase of work collecting an additional 40 species in August of 2011. The Center's policy is not to begin work and incur liability for grant expenses until signed paperwork is received. The Center received its contract paperwork (Amendment 4) on August 18, 2012. This was too late in the field season to plan and begin plant collections during the 2012 field season.

Currently the Center is working with our institutions to finalize collection agreements for the 2013 field season, and in continuing over the next two to three months institutions will be conducting the necessary planning, permit applications needed, background research, landowner contacts, hiring, etc necessary to collect from priority and alternate species they identify for their segment of work. As noted in Task 2 and 3 Collections made will continue to follow CPC protocols, cited in the USFWS Policy Regarding Controlled Propagation of Species Listed Under the Endangered Species Act [FR65:183, p 56916], and include site information with TPWD Rare Plant Survey data forms. Data will be shared with TPWD and maintained in the CPC database as well.

In compliance with task 4, CPC has a formal and active cooperative agreement with the National Center for Genetic Resources Preservation (NCGRP) to house CPC's seed collections of the vulnerable plants of the United States at no charge. As soon as all collections are cleaned and accessioned they are slated for delivery to the NCGRP and, if numbers permit, to be backed up at their respective CPC institutions for immediate incorporation into priority recovery plan tasks needed to support recovery.

**Table 1.** Texas plant species with corresponding Texas Natural Heritage Database rank, land ownership, and PI.

| Species                         | Rank | Landowner      | PI        |
|---------------------------------|------|----------------|-----------|
| <i>Abronia macrocarpa</i>       | G2   | private        | Mercer    |
| <i>Agalinis calycina</i>        | G1   | private        | LBJWC     |
| <i>Agalinis navasotensis</i>    | G1   | private        | Mercer    |
| <i>Ambrosia cheiranthifolia</i> | G2   | private        | SABG      |
| <i>Amsonia tharpii</i>          | G1   | public         | Desert    |
| <i>Arenaria livermorensis</i>   | G1   | public         | Flagstaff |
| <i>Arida blepharophylla</i>     | G1   | private        | LBJWC     |
| <i>Arida matturneri</i>         | G1   | private        | LBJWC     |
| <i>Asclepias prostrata</i>      | G1G2 | public         | SABG      |
| <i>Ayenia limitaris</i>         | G2   | private        | SABG      |
| <i>Bartonia texana</i>          | G1   | public/private | Mercer    |
| <i>Callirhoe scabriuscula</i>   | G2   | public/private | LBJWC     |
| <i>Cryptantha crassipes</i>     | G1   | private        | Desert    |
| <i>Cypripedium kentuckiense</i> | G3   | public         | Mercer    |
| <i>Echeandia texensis</i>       | G1   | private        | SABG      |
| <i>Festuca ligulata</i>         | G1   | public         | Desert    |
| <i>Frankenia johnstonii</i>     | G3   | private        | SABG      |
| <i>Genistidium dumosum</i>      | G1   | private        | Desert    |
| <i>Geocarpon minimum</i>        | G2   | public/private | Mercer    |
| <i>Helianthus paradoxus</i>     | G2   | private-TNC    | LBJWC     |
| <i>Hibiscus dasycalyx</i>       | G1   | public         | Mercer    |
| <i>Houstonia correllii</i>      | G1   | private        | SABG      |
| <i>Hymenoxys texana</i>         | G2   | public         | Mercer    |
| <i>Kallstroemia perennans</i>   | G1   | public         | Desert    |

|  |      |                |           |
|--|------|----------------|-----------|
| <i>Leavenworthia texana</i>                  | G2T1 | private        | Mercer    |
| <i>Leitneria floridana</i>                   | G3   | public         | Mercer    |
| <i>Lepidospartum burgessii</i>               | G2   | public         | Desert    |
| <i>Liatris tenuis</i>                        | G3   | public         | Mercer    |
| <i>Malaxis wendtii</i>                       | G2   | public         | Flagstaff |
| <i>Manfreda longiflora</i>                   | G2   | public         | SABG      |
| <i>Matelea texensis</i>                      | G1   | private        | Desert    |
| <i>Opuntia arenaria</i>                      | G2   | public         | Desert    |
| <i>Opuntia aureispina</i>                    | G1   | public         | Desert    |
| <i>Osmorhiza bipatriata</i>                  | G5T1 | private-TNC    | Flagstaff |
| <i>Ostrya chisosensis</i>                    | G5T2 | public         | Flagstaff |
| <i>Paronychia congesta</i>                   | G1   | private        | SABG      |
| <i>Pediomelum humile</i>                     | G1   | public/private | LBJWC     |
| <i>Phlox nivalis ssp. texensis</i>           | G4T2 | public         | Mercer    |
| <i>Physaria pallida</i>                      | G1   | public/private | Mercer    |
| <i>Physaria thamnophila</i>                  | G1   | private        | SABG      |
| <i>Physostegia correllii</i>                 | G2   | public         | Mercer    |
| <i>Pseudoclappia watsonii</i>                | G1   | private        | LBJWC     |
| <i>Quercus tardifolia</i>                    | G1   | public         | Flagstaff |
| <i>Rudbeckia scabrifolia</i>                 | G3G4 | public         | Mercer    |
| <i>Salvia pentstemonoides</i>                | G1   | public         | LBJWC     |
| <i>Scutellaria laevis</i>                    | G1   | public/private | LBJWC     |
| <i>Silene subciliata</i>                     | G3   | public         | Mercer    |
| <i>Sophora gypsophila var. guadalupensis</i> | G1   | public         | Desert    |
| <i>Stenaria mullerae var. pooleana</i>       | G1   | private        | Desert    |
| <i>Streptanthus bracteatus</i>               | G1G2 | public         | LBJWC     |

|  |      |                |           |
|--|------|----------------|-----------|
| <i>Symphyotrichum puniceum</i> var. <i>scabricaule</i> | G5T2 | public/private | Mercer    |
| <i>Viola guadalupensis</i>                             | G1   | public         | Flagstaff |