

emailed PIs 4 Apr 07

Section 6 (Texas Traditional) Report Review

MAR 29 2007

Attachment to letter dated \_\_\_\_\_

TPWD signature date on report 11/27/2006

Project Title: Lower Rio Grande Valley Candidate Plant Conservation Agreement

Final or Interim Report? Final

Grant #: E-28

Reviewer Station: Corpus Christi ESFO

Lead station was contacted and concurs with the following comments:

Yes  No  Not applicable (reviewer is from lead station)

**Interim Report (check one):**

is acceptable as is

is acceptable as is, but comments below need to be addressed in the next report

needs revision (see comments below)

**Final Report (check one):**

is acceptable as is

is acceptable, but needs minor revision (see comments below)

needs major revision (see comments below)

**Comments:**

We understand this project was a massive undertaking in terms of the numbers of species being surveyed for, and the manpower required to, accomplish all of the project goals. Service staff who attended the technical advisory workshop found it to be very useful for new information and opportunities to meet individuals working on plant projects in South Texas and Mexico. We also feel TPWD made sound choices of contractors, both of whom did an excellent job with landowner contact/outreach and plant surveys. We understand and appreciate the need for modifying some of the objectives during the life of the project. However, we do have some comments that need to be addressed prior to finalizing this report.

1. Task 4 – High priority plant communities will be mapped in GIS and an atlas of rare plant high priority areas will be produced. We understand this could not be completed in time for the final report, but this remains an important product to the Service. We look forward to receiving the locality data for each species that has been, or is being, entered into TPWD's Biotics database. Additionally, we hope that TPWD and the Service can cooperatively produce an atlas.
2. Task 6 – Landowners will be invited to sign Voluntary Conservation Agreements (VCAs). We understand The Nature Conservancy (TNC) assisted with plant surveys and working with landowners to get VCAs signed. However, three of TNC's VCAs were not included with the final report. We would appreciate receiving copies of the following VCAs:

Matz – Cielo Escondido Tract (Ranch)

Ebony Grove - (Mercedes Cemetary)

Perez Ranch – Rancho San Francisco

3. Task 6 – Each VCA refers to attachments that fulfill the “Description, Status and Distribution” section of the agreement. However, these attachments were not included with the final report. We would appreciate receiving copies of all of these attachments.

**FINAL REPORT**

**As Required by**

**THE ENDANGERED SPECIES PROGRAM**

**TEXAS**

**Grant No. E - 28**

**Endangered and Threatened Species Conservation**

**Lower Rio Grande Valley Candidate Plant Conservation Agreement**

**Prepared by:**

**Dana Price**

**Gena K. Janssen**

**Lisa Williams**



**Robert Cook**

**Executive Director**

**Matt Wagner**

**Program Director, Wildlife Diversity**

**Mike Berger**

**Division Director, Wildlife**

**15 November 2006**

FINAL REPORT

STATE: Texas GRANT NUMBER: E - 28

GRANT TITLE: Lower Rio Grande Valley Candidate Plant Conservation Agreement

REPORTING PERIOD: 1 Sept 01 – 31 Aug 06

**OBJECTIVE(S):**

To conduct a three-year project to develop an umbrella candidate conservation agreement for rare plants of the Lower Rio Grande Valley whereby sub-permittee conservation agreements with private landowners can be implemented.

**Tasks:**

1. A technical advisory workshop will be held to bring together scientists, natural resource managers and others with expertise on rare plants of the Lower Rio Grande Valley. The purpose would be to review concerns, ongoing work, future priorities, current knowledge of species distributions, and possible management options. The format would be a 2-day workshop with presentations and general discussion during the first day and break-out sessions during the second day, culminating in a document addressing the rare plant species and potential candidate species and their management options for the Lower Rio Grande Valley. The technical advisory workshop will be held during Year 1.
2. Funds would also be used to employ 2, ½-time field biologists – to develop landowner outreach and conduct private-lands rare plant surveys. These surveys would focus on the highest priority species, probably no more than two or three plant species each. Recent success with this combined outreach/survey approach has led to improved knowledge about recovery and possible delisting of one federally-listed plant species, Johnston frankenia, occurring in this region (Janssen, 1999). Years 1- 3.
3. Additional survey and monitoring of multiple rare plants species and potential candidates (see Table 1) will be conducted throughout the Lower Rio Grande Valley. These survey and monitoring efforts will be coordinated by regional university and non-profit conservation organization staff. Years 1 – 3.
4. High-priority plant community localities will be identified and mapped into a GIS (ESRI ArcView) using 1:24,000 DRG and 1:12,000 DOQQ geo-referenced base coverages. Spatial data for the GIS will be used to construct an atlas of high priority areas for rare plant species conservation in the Lower Rio Grande Valley. Years 1 – 3.
5. Three one-day workshops for private landowner / land manager outreach will be coordinated by TPW and USFWS staff. The purpose of these outreach workshops would be to discuss the array of rare plant species occurring in the region, candidate conservation agreements and how they work, and management options available to

- private landowners who might be able to contribute towards conserving rare plant species at critical locations within the Lower Rio Grande Valley. Each workshop would be similar in format and held at different locations during Years 2 and 3.
6. Landowners and land managers who have participated in outreach and plant surveys will be invited to sign voluntary conservation agreements to protect imperiled plants that occur on their property. These conservation agreements will protect at least 5 rare species on 15 (20) tracts in Year 2. In Year 3, the project will obtain signed agreements from another 25 (30) landowners protecting a total of 10 or more rare species.

#### Summary of Progress:

Please see:

- Attachment A, Summary;
- Attachment B, deliverables from The Nature Conservancy of Texas;
- Attachment C, deliverables from Janssen Biological;
- Attachment D, conservation agreement templates for Janssen Biological;
- Attachment E, conservation agreement template for The Nature Conservancy;
- Copies of signed Conservation Agreements are attached as hard copies only.
- Supplementary Information folder on CD (includes presentations, workshop materials, meeting summaries, etc.).

#### Significant Deviations:

*Coryphantha nickelsiae* was dropped from the project after FY 2003 because of uncertainty as to whether the species occurs in Texas. *Opuntia engelmannii* var. *flexispina* was dropped from the project after FY2004 because of taxonomic problems. In FY 2003, *Paronychia congesta*, then a federal candidate, was added and the survey effort was extended to Jim Hogg and Willacy Counties. *Echinocereus papillosus* var. *angusticeps* was to be dropped from the project after FY2003 because it is not recognized in current taxonomic treatments. However, it was retained in the project at the species level because *Echinocereus papillosus* itself is tracked by TNC.

Task #3, additional survey and monitoring of rare plant species and potential candidates, was not contracted. However, additional monitoring was accomplished independently of this project for Zapata bladderpod (*Physaria thamnophila*) and an associated rare species, *Eriogonum greggii*. Also, numerous volunteers and agency personnel collaborated in several large survey efforts as part of this project.

Task #4, a GIS map of priority conservation areas, was not contracted. Intended to be completed in-house, this objective could not be accomplished for the Final Report. However, GPS/GIS data on the rare plant locations has been received from the Contract Biologists and will be incorporated into TPWD's Biotics database and will be made available to USFWS.

**Task #5**, outreach workshops for private landowners and managers, was modified. The project coordinator and Contract Biologists felt that at this time we do not have enough information on the management of these species to make a workshop worthwhile for landowners. Instead, we held an appreciation event on July 13, 2006 at the Starr County campus of South Texas College. Each landowner has received a certificate of appreciation from TPWD for their contribution to the project.

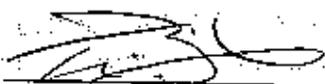
As an addition to the project, we felt that a concluding meeting for botanists was needed. On July 14, the Contract Biologists will met with staff from TNC, TPWD, TxDOT, and USFWS to review the conservation status of the target species. Notes from this meeting are attached.

**Costs:** Financial reports were not available at time of report.

**Location:** Cameron, Hidalgo, Starr, Zapata, Willacy, Jim Hogg Counties, Texas

**Prepared by:** Dana Price

**Date:** November 15, 2006

**Approved by:** 

**Date:** November 22, 2006

Timothy W. Birdsong  
Federal Aid Coordinator

## ATTACHMENT A

### **Project Title: LOWER RIO GRANDE VALLEY CANDIDATE PLANT CONSERVATION AGREEMENT.**

**Project Objective:** To conduct a three-year project to develop an umbrella candidate conservation agreement for rare plants of the Lower Rio Grande Valley whereby sub-permittee conservation agreements with private landowners can be implemented.

### **Summary of FINAL REPORT, August 31, 2006**

**Dana M. Price**

#### **A. Description of progress**

- 1. The Nature Conservancy of Texas (Attachment B)** conducted surveys and outreach to private landowners in Cameron, Hidalgo, Starr and Willacy Counties. TNC surveyed a total of 47 tracts and assisted Janssen with three other surveys. Thirty of the surveyed properties contained target rare plants (potential candidate and listed species). New sites were discovered for seven target candidate plant species and for two listed endangered species. Conservation agreements were presented to 26 landowners. Seven conservation agreements have been signed by private landowners and a local jurisdiction, and conservation agreements have also been signed for two TNC preserves. These agreements protect five rare and three listed endangered species.
- 2. Janssen Biological (Attachment C)** conducted landowner outreach and surveys for target plant species in northern Starr, Zapata, Webb and Jim Hogg counties. New sites were discovered for seven target rare and endangered species. Conservation agreements were presented to twenty-four ranch owners, though many more ranches were surveyed. Ten landowners signed conservation agreements or letters of commitment to protect four rare species and three listed endangered species.
- 3. Significant deviations:** *Coryphantha nickelsiae* was dropped from the project after FY 2003 because of uncertainty as to whether the species occurs in Texas. *Opuntia engelmannii* var. *flexispina* was dropped from the project after FY2004 because of taxonomic problems. In FY 2003, *Paronychia congesta*, then a federal candidate, was added and the survey effort was extended to Jim Hogg and Willacy Counties. *Echinocereus papillosus* var. *angusticeps* was to be dropped from the project after FY2003 because it is not recognized in current taxonomic

treatments. However, it was retained in the project at the species level because *Echinocereus papillosus* itself is tracked by TNC.

Objective #3, additional survey and monitoring of rare plant species and potential candidates, was not contracted. However, additional monitoring was accomplished independently of this project for Zapata bladderpod (*Physaria thamnophila*) and an associated rare species, *Eriogonum greggii*. Also, numerous volunteers and agency personnel collaborated in several large survey efforts as part of this project.

Objective #4, a GIS map of priority conservation areas, was not contracted. Intended to be completed in-house, this objective could not be accomplished for the Final Report. However, GPS/GIS data on the rare plant locations has been received from the Contract Biologists and will be incorporated into TPWD's Biotics database and will be made available to USFWS.

Objective #5, outreach workshops for private landowners and managers, was modified. The project coordinator and Contract Biologists felt that at this time we do not have enough information on the management of these species to make a workshop worthwhile for landowners. Instead, we held an appreciation event on July 13, 2006 at the Starr County campus of South Texas College. Each landowner has received a certificate of appreciation from TPWD for their contribution to the project.

As an addition to the project, we felt that a concluding meeting for botanists was needed. On July 14, the Contract Biologists will meet with staff from TNC, TPWD, TxDOT, and USFWS to review the conservation status of the target species. Notes from this meeting are included in the Supplementary Information folder under the folder "Final Botany Meeting."

## **B. Summary of work completed**

1. A technical advisory workshop was held to bring together scientists, natural resource managers and others with expertise on rare plants of the Lower Rio Grande Valley. The purpose was to review concerns, ongoing work, future priorities, current knowledge of species distributions, and possible management options. The format was a 2-day workshop with presentations and general discussion, culminating in a document addressing the rare plant species and potential candidate species and their management options for the Lower Rio Grande Valley. The technical advisory workshop was held in January 2002 (Year 1). Botanists from Mexico (Tamaulipas, Nuevo Leon, and Coahuila, and Pronatura Noreste) also attended and gave presentations

on their work. During the two-day workshop, we discussed concerns, ongoing work, future priorities, current knowledge of species distributions, and possible management options. The agenda, copies of presentations, notes from the species discussions, and a copy of the press release are included in the Supplementary Information folder under the folder "Jan02 expert workshop".

2. Funds were used to employ two half-time field biologists to develop landowner outreach and conduct private-lands rare plant surveys. These surveys were proposed to focus on the two or three highest priority species in each biologist's area. However, we felt that more information was needed on all target species, and the Contract Biologists conducted surveys for all feasible targets. This combined outreach/survey approach was modeled after work that has led to improved knowledge about recovery and proposed delisting of the federally-listed plant species *Frankenia johnstonii*. Surveys were conducted in Years 1-4.

a. **The Nature Conservancy surveys in Cameron, Hidalgo, Starr and Willacy Counties:** See detailed final report from Lisa Williams (Attachment B) and corresponding site reports in the Supplementary Information folder under the folder "TNC Site Reports."

b. **Janssen Biological surveys in Starr, Zapata, Webb and Jim Hogg Counties:** See detailed final report from Janssen Biological (Attachment C).

3. Additional survey and monitoring of multiple rare plant species and potential candidates was to have been conducted throughout the Lower Rio Grande Valley. This objective was never contracted. However, all target species were addressed by the Contract Biologists. Further, TPWD and USFWS (Lower Rio Grande Valley National Wildlife Refuge) personnel conducted monitoring of Zapata bladderpod (*Physaria thamnophila*) and surveys of the associated species, Gregg's wild buckwheat (*Eriogonum greggii*), Chihuahua balloon-vine (*Cardiospermum dissectum*), and prostrate milkweed (*Asclepias prostrata*) with assistance from botanists from Texas A&M University at Kingsville and College Station, South Texas College, and volunteers. This work was conducted on one private ranch (Santa Margarita) and on three tracts of the Lower Rio Grande National Wildlife Refuge (LRGVNWR) in Years 1-4.

4. High-priority plant community localities were to be identified and mapped into a GIS using 1:24,000 DRG and 1:12,000 DOQQ geo-referenced base coverages. We proposed to use spatial data to construct an atlas of high priority areas for rare plant species conservation in the

Lower Rio Grande Valley. This work was not contracted and could not be completed in-house in time for the Final Report. However, GPS/GIS data on the rare plant locations has been received from the Contract Biologists. These data will be incorporated into TPWD's Biotics database and will be made available to USFWS. Project Coordinator will contact FWS- Corpus Christi Ecological Services Office about progress in mapping and entering project data.

5.

**Landowner appreciation event and final Botany meeting:**

Originally, three one-day workshops for private landowner / land manager outreach had been proposed to be coordinated by TPW and USFWS staff. However, Contract Biologists advised the Project Coordinator that workshops to discuss rare plant species, candidate conservation agreements, and management options were unlikely to attract landowners at this time. Further, we still do not have sufficient information about the rare plants' management needs to make a workshop worthwhile for landowners. Therefore, the Project Coordinator and Contract Biologists held an appreciation event for landowners on July 13, 2006 at the Starr County campus of South Texas College. All participating landowners were invited. About 40 landowners and family members attended a dinner sponsored by the Rio Grande Wilderness Society (RiGWIS). Agency botanists enjoyed informal conversations with landowners and RiGWIS members. An inspiring short talk by rancher José Dodier highlighted the importance and success of agreements (in this case, for *Frankenia johnstonii*) to protect rare plants on private lands. Each landowner received a certificate of appreciation from TPWD for their contribution to the project. On July 14, 2006, 27 botanists, biologists, and others concerned with rare plants met for a review of the projects, the status of target plant species, and general discussion of plant conservation in the LRGV. A copy of the slideshow developed for this meeting, examples of landowner certificates of appreciation, and notes from the Botany meeting are attached in the Supplementary Information folder under the folders "Landowner Appreciation" and "Final Botany Meeting."

6.

**Landowners and land managers who participated in outreach and plant surveys were invited to sign voluntary conservation agreements** to protect imperiled plants that occur on their property. We expected these conservation agreements to be signed by 30 landowners to protect at least 10 rare species. Getting landowners to sign conservation agreements requires establishing a relationship with them over several years and was the primary reason that we requested time extensions on this project. Conservation agreements were presented to the owners of 50 tracts. Currently, we have conservation agreements or letters of commitment signed for nineteen properties (owned by fifteen

private landowners, TNC, and one local jurisdiction). Seven rare and five listed endangered species are protected by these agreements.

**Copies of the signed agreements are attached (as hard copy only).**

7. **Presentations:** Williams, Janssen, and Price gave a presentation for the September 2004 Texas Plant Conservation Conference held at the Lady Bird Johnson Wildflower Center in Austin. Price gave a presentation about this project for a meeting of the FWS' Binational Committee in August 2003. Copies of these presentations are attached in the Supplementary Information folder under the folder "Presentations."

**C. Location of work:** The Lower Rio Grande Valley, including Cameron, Hidalgo, Jim Hogg, Starr, Zapata Webb and Willacy counties in Texas.

**D. Comments from Coordinator (Dana Price):**

We were very fortunate to have the assistance of TNC's Lisa Williams (Memorandum of Agreement#105883) and Janssen Biological's Gena Janssen (Interagency Contract#105916) as contract biologists. Their established presence in the region facilitated initial contacts with landowners. Both Ms. Janssen and Ms. Williams have excellent rapport with landowners and understand how to approach people in a positive and non-threatening way.

The two Contract Biologists had different reactions to the workload of the project. For Janssen, it was difficult to work on so many species. Her approach is focused and targeted to identifying likely habitat for each species. For TNC, on the other hand, their approach of surveying for their Tamaulipan Thornscrub Ecoregional Plan was intentionally broad. TNC sent a botanist (Bill Carr) and sometimes an ecologist to participate in surveys. The team approach was productive for them. However, both Janssen's and TNC's approaches yielded good results.

The project took much longer to complete than anticipated. After three years, most of the surveys had been completed or at least initiated. However, it takes longer to establish a relationship of trust with landowners. The apparent legality of the conservation agreement we were asking people to sign made landowners wary. Janssen's report comments extensively on this, as do the notes from the July 2006 closing botany meeting.

Continuing the relationships with these landowners is essential. We can't expect to drop them and show up in ten years to renew the conservation agreements. Annual (at least) contact with the landowners is important and will serve as a reminder of the special plants they are protecting as well as to maintain trust.

This project facilitated collaboration among South Texas botanists and with botanists from adjacent states in Mexico. The summer following the 2002 binational expert

workshop, D. Price and Thomas Patterson visited several of the Mexican botanists who had attended. This trip was followed by others in conjunction with a separate Section 6 project by Pronatura Noreste. The final trip under that project, to Rancho Loreto in April 2005, yielded information of use to both projects. Mexican botanists also returned visits to us. Guadalupe Martinez Avalos gave a presentation at the Sept. 2002 Texas Plant Conservation Conference. He also visited TNC's Las Estrellas Preserve and attempted to relocate a star cactus site near Zapata. This exchange is important as we need to exchange ecological and population information about our rare plants.

This project as written had too many objectives, and one of them (#3) was so vague that it was useless. When it was funded at less than our original budget request, we assumed that objective #3 would be dropped and objective #4 would be accomplished in-house. However, these assumptions were not written into the project. The departure of co-coordinator Rowell in the second year of the project should have been accompanied by a re-evaluation of in-house commitment to project tasks. Confusion about project budget remaining outside the two biologists' contracts also hindered progress in the final year of the project. Future projects should ensure that objectives are written with specific tasks in mind and adequate commitment for in-house tasks to be accomplished.

Despite obstacles and extensions, the work accomplished by Contract Biologists Williams and Janssen was very successful and will stand as model of private lands conservation to be followed and hopefully expanded to other areas of the state. Time will tell how successful the Conservation Agreements are in protecting populations of rare plants. This success will largely depend on continuing contact with the landowners.

**SECTION 6 PROJECT E-28  
LOWER RIO GRANDE VALLEY  
CANDIDATE PLANT CONSERVATION AGREEMENT**

**FINAL REPORT  
May 1, 2002 - August 31, 2006**

**Lisa Williams  
The Nature Conservancy  
P.O. Box 6281  
McAllen, Texas 78502-6281  
956/580-4241  
lwilliams@tnc.org**



**Runyon's Cory-cactus**  
*Coryphantha macromeris* var. *runyonii*

## SUMMARY OF ACCOMPLISHMENTS

The Nature Conservancy's obligations under Texas Parks and Wildlife Department (TPWD) Contract #105883 were as follows:

- 1) Develop landowner outreach and conduct private-lands rare plant surveys in Willacy, Cameron, Hidalgo and Starr Counties. The following species were targeted:

Vasey's adelia	<i>Adelia vaseyi</i>
South Texas ambrosia	<i>Ambrosia cheiranthifolia</i>
Prostrate milkweed	<i>Asclepias prostrata</i>
Star cactus	<i>Astrophytum asterias</i>
Kleberg saltbush	<i>Atriplex klebergorum</i>
Texas ayenia	<i>Ayenia limitaris</i>
Chihuahua balloonvine	<i>Cardiospermum dissectum</i>
Runyon's cory-cactus	<i>Coryphantha macromeris var. runyonii</i>
Small papillosus cactus	<i>Echinocereus papillosus var. angusticeps</i>
Gregg's wild-buckwheat	<i>Eriogonum greggii</i>
Johnston's frankenia	<i>Frankenia johnstonii</i>
Plains Gumweed	<i>Grindelia oolepis</i>
Mexican mud-plantain	<i>Heteranthera mexicana</i>
Runyon's water-willow	<i>Justicia runyonii</i>
Zapata bladderpod	<i>Lesquerella thamnophila</i>
Runyon's huaco	<i>Manfreda longiflora</i>
Walker's manioc	<i>Manihot walkerae</i>
Falfurrias milk vine	<i>Matelea radiata</i>
Few-spined Engelmann's prickly pear	<i>Opuntia engelmannii var. flexospina</i>
Ashy dogweed	<i>Thymophylla tephroleuca</i>
Bailey's ballmoss	<i>Tillandsia baileyi</i>

- 2) Invite landowners and land managers who have participated in outreach and plant surveys in 1) above to sign voluntary conservation agreements (using agreement template to be provided by TPWD) to protect imperiled plants that occur on their property. These conservation agreements are intended to protect at least 3 rare species on 8 tracts in Year 2. In Year 3, the Project will attempt to obtain signed agreements from another 12 landowners for the protection of a total of 5 or more rare species. Reasons for any significant deviation from these goals will be documented in progress reports.
- 3) Submit progress reports to TPWD on a quarterly basis.

Accomplishments:

- 1) The Nature Conservancy (TNC) conducted rare plant surveys on 47 tracts within the project area. In addition, we assisted contractor Gena Janssen on three surveys. Thirty of the TNC-led surveys revealed target species. (See descriptions of tracts surveyed, in section titled "Plant Survey Summaries" below.) A total of ten target species were found:

Vasey's adelia	<i>Adelia vaseyi</i>
Star cactus	<i>Astrophytum asterias</i>
Texas ayenia	<i>Ayenia limitaris</i>
Chihuahua balloonvine	<i>Cardiospermum dissectum</i>
Runyon's cory-cactus	<i>Coryphantha macromeris var. runyonii</i>
Small papillosus cactus	<i>Echinocereus papillosus var. angusticeps</i>
Plains Gumweed	<i>Grindelia oolepis</i>
Runyon's huaco	<i>Manfreda longiflora</i>
Walker's manioc	<i>Manihot walkerae</i>
Bailey's ballmoss	<i>Tillandsia baileyi</i>

- 2) The conservation agreement was presented to 26 landowners; nine of these have signed the document, protecting populations of eight target species. Additional landowners may sign the agreement as we continue to maintain relationships with them and re-visit the sites.
- 3) Progress reports were submitted quarterly.

## **SIGNIFICANT DEVIATIONS**

None; The Nature Conservancy's obligations under TPWD Contract #105883 were met.

## PLANT SURVEY SUMMARIES

Properties marked with \* were found to support project target species; those marked ☼ signed the agreement. Contractor Gena Janssen took the lead on properties marked with †; TNC performed or assisted with surveys on these.

### Willacy County

**\*Corbett Ranch** - Approximately 4,000 acres located on the north shore of La Sal Vieja. Survey revealed possibly the largest known U.S. population of Texas ayenia (*Ayenia limitaris*). The Nature Conservancy is pursuing a conservation easement on the property. Agreement document was presented to landowner but landowner refused to sign. However, the eventual conservation easement will be designed to protect this listed Endangered plant.

**El Canelo Ranch** - Approximately 1,420 acres located 10 miles north of Raymondville. No project target species were found, but the following species tracked by TNC were observed: velvet spurge (*Euphorbia innocua*, G3); Jones' nailwort (*Paronychia jonesii*, G3); sand Brazos-mint (*Brazoria arenaria*, G3/G4); and smallflower milkvine (*Matelea parviflora*, G3/G4).

**Chapa Property** - 241 acres on north side of Arroyo Colorado opposite Arroyo City. Property has dense brush and is of interest to Laguna Atascosa National Wildlife Refuge biologists as potential ocelot habitat, but no project target species were observed during a very brief site visit.

### Cameron County

**\*Cameron County Drainage District No. 5** - Approximately 12 - 13 acres including and along the south side of a drainage ditch that empties into the Arroyo Colorado south of Dixieland Road west of Harlingen. Alan Moore, manager of the drainage district, stated that there is no plan to destroy a fringe of thick brush that runs along the District's land on the south side of the ditch. Vasey's adelia (*Adelia vaseyi*) is abundant within this brush strip. Property is contiguous to other properties along the Arroyo which support important populations of Vasey's adelia. Agreement document was presented to the District but has not yet been signed.

**\*☼City of Harlingen/C. B. Wood Park** - Acreage unknown; probably <5. City park located on the north side of the Arroyo Colorado off Taft Avenue. Part of the park has been developed in the traditional manner, but the southeastern portion supports a brush stand that includes large populations of Vasey's adelia (*Adelia vaseyi*) and Bailey's ballmoss (*Tillandsia baileyi*). In addition, a population of the listed Endangered Texas ayenia (*Ayenia limitaris*) consisting of probably more than 100 plants was observed. Agreement document has been signed.

**\*City of Harlingen/Harlingen Thicket** - Acreage about 40. Site of a proposed World Birding Center facility for the City of Harlingen located on the north side of the Arroyo Colorado downstream from C. B. Wood Park off Taft Avenue. Property supports Bailey's ballmoss (*Tillandsia baileyi*) and a large population of Vasey's adelia (*Adelia vaseyi*). Texas stonecrop (*Lenophyllum texanum*, G3), a plant tracked by The Nature Conservancy, was also observed. Agreement document was presented but has not yet been signed.

**Houghtaling Property** - Approximately 18 acres located on Loma Alta northeast of Brownsville off F.M. 511. No project target species were found, but the following species tracked by The Nature Conservancy were

observed: Lila de los llanos (*Echeandia chandleri*, G3) and little-flower spider-wort (*Tradescantia micrantha*, G3).

\*☼ **Inn at Chachalaca Bend** - Approximately 40 acres near Los Fresnos. Property is operated as a bed and breakfast, but contains dense brush that the landowners intend to preserve. Landowners have aggressively pursued control of nonnative invasive species such as guineagrass (*Panicum maximum*) and Brazilian pepper (*Schinus terebinthifolius*). Brush stand supports a population of Bailey's ballmoss (*Tillandsia baileyi*). Conservation agreement has been signed.

\***Koppel Property** - Acreage unknown, probably <100. Property located on the north side of the Arroyo Colorado west of Harlingen, at the south end of Dixieland Road and contiguous to the Cameron County Drainage District No. 5 property described above. Part of the tract--perhaps 10 acres or so--is extremely dense and highly diverse original thornscrub. The population of Vasey's adelia (*Adelia vaseyi*) here is likely one of the largest known in the Rio Grande Valley. A small (about 15 individuals) population of Bailey's ballmoss (*Tillandsia baileyi*) was also observed. Agreement document was presented to the landowner but was not signed.

\***Madaffari Property** - Acreage unknown, probably <40. Property located on the south side of the Arroyo Colorado west of Harlingen, across from the Koppel tract. Vasey's adelia (*Adelia vaseyi*) was observed from across the Arroyo, and in a telephone conversation the landowner confirmed the presence of Bailey's ballmoss (*Tillandsia baileyi*). Although the landowner was reluctant to allow a survey of the property, the conservation agreement was mailed along with a letter explaining the project. No response has yet been received.

\***Martin Refuge Chachalaca Tract** - 44 acres. Property located west of the intersection of Highway 100 and F.M. 1421 at Russelltown. Most of the tract is regrowth mesquite, but wide fencerows along the boundary support a few individuals of Vasey's adelia (*Adelia vaseyi*). Agreement document was presented but landowner refused to sign.

\*☼ **Matz Property (Cielo Escondido)** - 20 acres total, half in brush and half in a revegetated farm field. Property located north of Rio Hondo on the east side of the Arroyo Colorado. Vasey's adelia (*Adelia vaseyi*) and Bailey's ballmoss (*Tillandsia baileyi*) are present in the brush along the Arroyo. Texas ayenia (*Ayenia limitaris*) has been reported for the property but was not observed at the time of our survey. Conservation agreement was signed.

\***Mont Meta Cemetery** - Acreage unknown; probably <20. At least one large (about 4 m tall) specimen of Vasey's Adelia (*Adelia vaseyi*) is located among the graves. In years past, dozens of large (30 cm or larger) Bailey's ballmoss (*Tillandsia baileyi*) plants could be seen high in the Texas ebony (*Pithecellobium ebano*) trees along the drive that passes in front of the mausoleum; however, no plants were seen there during a recent visit. Small (20 cm or less) specimens of Bailey's ballmoss were observed in Texas ebony and oak (*Quercus* sp.) trees along the westernmost drive. The conservation agreement was not presented, but may be in future.

\***Rio Hondo Cemetery** - Acreage unknown; probably <5. Located on east side of Arroyo Colorado south of the town of Rio Hondo. Vasey's adelia (*Adelia vaseyi*) and Bailey's ballmoss (*Tillandsia baileyi*) are present within the cemetery, and Vasey's Adelia is present in the brush on the bank of the Arroyo. Conservation agreement was not presented because ownership has not yet been determined.

\***Rio Hondo TPWD Boat Ramp and Environs** - Acreage unknown. Located on west side of Arroyo Colorado at Rio Hondo. Properties adjacent to TPWD boat ramp contain Vasey's adelia (*Adelia vaseyi*) and Bailey's ballmoss (*Tillandsia baileyi*); ownership needs to be determined.

**\*Tex-Mex Cold Storage Prairie** - Acreage unknown, probably <5, located in an industrial area at 6661 Padre Island Highway in Brownsville. Remnant prairie containing one of the largest (possibly >1,000 individuals) populations of plains gumweed (*Grindelia oolepis*) known. Agreement document has been presented but was not signed.

## Hidalgo County

**Bernal Ranch** - Approximately 400 acres located about 8 miles west of McCook off Highway 490. Although the property lies on a gradational zone between the Goliad uplands and South Texas Sand Sheet and contains areas of dense thornscrub, no target species were found. Falfurrias milkvine (*Matelea radiata*) is a possibility for the area.

\*☼ **Chihuahua Woods Preserve** - This 349-acre Nature Conservancy preserve, located between the communities of Perezville and Chihuahua west of the intersection of Business Highway 83 and F.M. 1427, supports a population of more than 200 individual plants of Runyon's huaco (*Manfreda longiflora*). The agreement document has been signed.

\*☼ **Ebony Grove (Mercedes) Cemetery** - This small cemetery (<5 acres) is located on the north side of the Arroyo Colorado between Florida Avenue and FM 491 in Mercedes. Dozens of Bailey's ballmoss (*Tillandsia baileyi*) plants can be seen in the large Texas ebony (*Pithecellobium ebano*) and sugar hackberry (*Celtis laevigata*) trees, mostly in the southeast end of the cemetery. The president of the Mercedes Cemetery Association signed the conservation agreement.

**El Tecolote Ranch** - Approximately 4,000 acres located in Hidalgo and Kenedy counties north of La Sal Vieja. Property lies within the South Texas Sand Sheet and has been extensively invaded by guineagrass (*Panicum maximum*). No project target species were found, but under the right conditions, numerous potholes on the ranch could support Mexican mud-plantain (*Heteranthera mexicana*), making the site worth a few brief follow-up visits. The following species tracked by The Nature Conservancy were observed (all carry a NatureServe rank of G3): velvet spurge (*Euphorbia innocua*), low spurge (*Euphorbia peplidion*), Jones' nailwort (*Paronychia jonesii*), and Texas peachbush (*Prunus texana*).

**Ginsbach Easement** - Approximately 100-acre conservation easement held by Natural Areas Preservation Association at a commercial palm nursery located south of Alamo off Highway 907. Fencerows and pond edges support some native brush, including Berlandier's alicocha (*Echinocereus berlandieri*), called *E. blanckii* and considered of conservation interest by Rio Grande Valley plant enthusiasts. No project targets were observed.

\***Llano Grande Country Club** - Golf course located on the Arroyo Colorado (Llano Grande Lake) at the southwest edge of Mercedes; acreage unknown. Bailey's ballmoss (*Tillandsia baileyi*) is present in the large, old Texas ebony (*Pithecellobium ebano*) trees in front of the clubhouse. The conservation agreement was presented but was not signed.

\***Martin Refuge Javelina Tract** - 280 acres located about 8 miles north of La Joya. Dense mixed thornscrub with seasonal potholes of karstic origin. Survey revealed project target Chihuahua balloon-vine (*Cardiospermum dissectum*) and the following species tracked by The Nature Conservancy: arrowleaf milkvine (*Matelea sagittifolia*, G3), little-flower spider-wort (*Tradescantia micrantha*, G3), and Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q). Agreement document was presented but landowner refused to sign.

**\*Methodist Camp Thicket** - Property located just off Highway 1015 between Weslaco and Mercedes north of Llano Grande Lake; operated by the Methodist church as a retreat and meeting center. Several buildings are set within an original brush tract widely known to Valley naturalists for harboring a number of rare species, among them Vasey's adelia (*Adelia vaseyi*) and Texas ayenia (*Ayenia limitaris*). Conservationists have tried for years to obtain some form of protection for this property with no luck.; this effort fared no better. The agreement was presented but was not signed.

**\*Penitas Cemetery** - Acreage unknown; probably <2. Located within the city of Penitas. Walker's manioc (*Manihot walkerae*) is found along the southern fenceline. Agreement document was presented to the president of the Penitas Cemetery Association, but no response has been yet received.

**\*Perez Ranch (Rancho San Francisco)** - Approximately 2,400 acres located about 11 miles north of La Joya on Jaras Chinas Road. Despite a long history of ranching, farming, and mineral extraction on the property, three target species have been found here: Vasey's adelia (*Adelia vaseyi*), Chihuahua balloon-vine (*Cardiospermum dissectum*), and Runyon's huaco (*Manfreda longiflora*). In addition, the survey noted Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q), a species tracked by The Nature Conservancy. The agreement document has been signed.

**Rancho El Charco** - Approximately 150 acres located in the city of La Joya at Walker Lake. Some native brush exists around the lake shores and Walker's manioc (*Manihot walkerae*) could be a possibility here. However, no project target species were observed at the time of the site visit.

**San Pedro Ranch** - Approximately 900 acres total (776 in thornscrub) located about 8 miles west of McCook off Highway 490. Although the property lies on a gradational zone between the Goliad uplands and South Texas Sand Sheet and contains areas of dense thornscrub, no project target species were found. However, two species tracked by The Nature Conservancy, Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q) and smallflower milkvine (*Matelea parviflora*, G3), were observed. Falfurrias milkvine (*Matelea radiata*) is a possibility for the area; we observed a *Matelea* sp. vine that was vegetative at the time of our visit, thus not identified to species. However, chances are good that it was not Falfurrias milkvine but arrowleaf milkvine (*Matelea sagittifolia*), a G3 species that The Nature Conservancy tracks .

**Vela Linn Tracts** - Two tracts of unknown acreage located off Hinojosa Road near Linn. Regrowth farm fields and pastures with vegetated fencerows. No project target species were observed. Landowner's brother leases a tract in this area which may be surveyed in the next 6 months. This landowner also owns a tract in Starr County ("Vela La Gloria Tract"), q.v.

### **Starr County**

**\*Benedictine Monastery** - Approximately 100 acres located off F.M. 3167 about 5 miles north of Rio Grande City. Dense thornscrub with recent road cuts, buildings, and other improvements. Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*) was observed during the survey; Runyon's huaco (*Manfreda longiflora*), while not seen at the time of our survey, has been identified on the property by Dana Price as well as the landowner. In addition, a *Matelea* sp. (probably *M. sagittifolia*, G3) was observed, but its vegetative state precluded identification to species. The agreement document was signed.

**Bentsen Ranch** - 336 acres 20 miles north-northeast of Rio Grande City off F.M. 755. Dense thornscrub on soils underlain by the Goliad Formation. No project target species were found, but Walker's manioc (*Manihot*

*walkerae*) is a possibility here. Two species tracked by The Nature Conservancy were found: Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q) and arrowleaf milkvine (*Matelea sagittifolia*, G3).

\*☼ **Carrera Property** - Exact acreage unknown, about 9,000 acres in two tracts north of Rio Grande City. Mixed thornscrub and rangeland in variable condition ranging from improved pasture to minimally disturbed. Project target species observed were Chihuahua balloon-vine (*Cardiospermum dissectum*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Walker's manioc (*Manihot walkerae*). The agreement document was signed.

†\* **Escobar (Eddie) Ranch** - Small (<5 acres) goat pasture below an earthen dam about 3 miles north of Escobares. Dense populations of star cactus (*Astrophytum asterias*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*) are present in this tiny area. Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3), a species tracked by The Nature Conservancy, is present. TNC made the initial landowner contact and conducted the initial survey, but transferred lead to contractor Gena Janssen as she is currently conducting star cactus research at this site. Janssen was to present the conservation agreement document.

**Escobar (Noelia) River Property** - Approximately 9 acres located on the Rio Grande in Escobares. Riparian forest at river's edge and regrowth thornscrub on uplands. A fringe of dense, diverse thornscrub remains at the lip of the upper terrace. No project target species were observed.

\* **Hiles Property** - Acreage unknown. Approximately 1 mile east of Rio Grande City and ½ mile north of U.S. Highway 83. Thornscrub dominated by blackbrush (*Acacia rigidula*) and buffelgrass (*Pennisetum ciliare*) in an area slated for residential development. Chihuahua balloon-vine (*Cardiospermum dissectum*) was found, as well as Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q), a species tracked by TNC. The agreement document was presented but landowner has not yet signed.

\* **Las Comitas Ranch** - Acreage unknown, probably about 300 - 400 in two tracts, located about 5 - 6 miles northwest of La Gloria on F.M. 1017. Open mesquite woodland at the southern edge of the Sand Sheet. *Echinocereus papillosus*, possibly var. *angusticeps*, was observed. In addition, the following TNC-tracked species were found: smallflower milkvine (*Matelea parviflora*, G4) and stinking rushpea (*Pomaria austrotexana*, G3), as well as an unidentified and possibly undescribed wild-mercury (*Argythamnia* sp.). Agreement document was presented but has not yet been signed.

\*☼ **Las Estrellas Preserve** - 415-acre TNC preserve located about 7 miles north of Rio Grande City on F.M. 3167. Project targets star cactus (*Astrophytum asterias*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*) are present in large numbers (hundreds of individuals of each species). Several TNC-tracked species are also found here: Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q), Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3), Major Siler's huaco (*Manfreda sileri*, G3), arrowleaf milkvine (*Matelea sagittifolia*, G3), Texas shrimp-plant (*Tetramerium platystegium*, G2G4), and little-flower spider-wort (*Tradescantia micrantha*, G3). Agreement document has been signed.

†\* **Las Islas Ranch** – Over 15,000 acres off FM 2686 about 7 miles west of La Gloria. At the invitation of a hunting lessee, a limited survey by Conservancy staff in 2002 revealed one of the largest and densest populations of Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*) that we have ever observed. We also found the TNC-tracked species Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q). Lead for this property was turned over to Gena Janssen because she had contact with the actual landowner; she was to present the conservation agreement.

†\***Las Liebres Ranch** - Approximately 800 acres located about 5 miles north of Rio Grande City on F.M. 3167. Prostrate milkweed (*Asclepias prostrata*), star cactus (*Astrophytum asterias*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*) are present, as well as the TNC-tracked species Mission fiddlewood (*Citharexylum spathulatum*, G2G3Q) and Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3). TNC assisted contractor Gena Janssen with this survey; she took the lead and was to present the agreement document.

\***Lezotte Property** - Acreage unknown, probably <20, located about 8 miles north of Rio Grande City on F.M. 3167. Former pasture, now homesite and church property. Sparse brush with small numbers of Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*) are present. Agreement document was presented but has not been signed.

**Lopez Property** - Approximately 60 acres located 1 mile north of Garciasville. 30 acres of dense thornscrub were surveyed but no project target species were found.

\***Martinez Ranch** - 600 acres on U.S. Highway 83 near Loma Blanca Road north of Roma. 500 undisturbed acres contain a variety of habitats, from gravelly uplands with medium-stature thornscrub to heavily wooded drainages and stock ponds. Chihuahua balloon-vine (*Cardiospermum dissectum*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*) are present, as well as the TNC-tracked Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3). Agreement document has been presented but has not yet been signed.

†\***Pena Ranch (Starr Cactus Ranch)** - Approximately 400 acres located 8.5 miles north of Garceno off F.M. 649. Mixed thornscrub and saline pasture with star cactus (*Astrophytum asterias*), Johnston's frankenia (*Frankenia johnstonii*), Runyon's cory-cactus (*Coryphantha macromeris* var. *runyonii*), and Runyon's huaco (*Manfreda longiflora*). TNC assisted contractor Gena Janssen with this survey; she is taking the lead and was to present the agreement document.

\***San Rodolfo Ranch** - Approximately 1,500 acres located about 4 miles northwest of La Gloria on F.M. 1017. Property lies in the narrow transitional area between the South Texas Sand Sheet and more typical "brush country" to the south. *Echinocereus papillosus*, possibly var. *angusticeps*, was observed. In addition, two TNC-tracked species, smallflower milkvine (*Matelea parviflora*, G4) and stinking rushpea (*Pomaria austrotexana*, G3), were found, as well as an unidentified and possibly undescribed wild-mercury (*Argythamnia* sp.). Agreement document was presented but has not yet been signed.

\***Starr County Community Property** - Approximately 10 acres located about 6 miles north of Rio Grande City off Charco Blanco Road. Gravelly slopes with medium stature thornscrub include Chihuahua balloon-vine (*Cardiospermum dissectum*) and the TNC-tracked Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3). Property reportedly belongs to the County of Starr as community property, but actual ownership is undetermined. The agreement document was not presented.

\***Vela La Gloria Tract** - 28 acres located at La Gloria northwest of the intersection of F.M. 755 and F.M. 1017. Red sandy loam supports a mesquite savanna which includes *Echinocereus papillosus*, possibly var. *angusticeps*. TNC-tracked species found here include smallflower milkvine (*Matelea parviflora*, G4), stinking rushpea (*Pomaria austrotexana*, G3), and Texas peachbush (*Prunus texana*, G3), as well as an unidentified and possibly undescribed wild-mercury (*Argythamnia* sp.). Agreement document has been presented but has not yet been signed.

## Webb County

† **St. Jude Ranch** - 1,700 acres located about 8 miles south of Mirando City. This site matched the location of the only collection record for McCart's nailwort (*Paronychia maccartii*), but neither that species nor any other project target species were found during the survey. However, 6 TNC-tracked species were observed: yellow alicocha (*Echinocereus papillosus*, G3); South Texas gilia (*Gilia ludens*, G3); Croft's bluet (*Hedyotis croftiae*, G3); short-crown milkvine (*Matelea brevicoronata*, G3); arrowleaf milkvine (*Matelea sagittifolia*, G3); and Texas almond (*Prunus minutiflora*, G3). TNC assisted contractor Gena Janssen with this survey, who took the lead in the landowner relationship.

† **Trevino Ranch** - Approximately 5,000 acres located about 35 miles north of Laredo on F.M. 1472. Variety of vegetation types including medium stature thorn shrubland, shortgrass grassland, low halophytic shrubland, and some riparian woodland. About 1/5 of the ranch is buffelgrass-dominated grasslands that cover restored strip mines. A substantial population of Johnston's frankenia (*Frankenia johnstonii*) was found. TNC-tracked species observed include: Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3); Major Siler's huaco (*Manfreda sileri*, G3); and arrowleaf milkvine (*Matelea sagittifolia*, G3). TNC made the initial landowner contact and conducted the survey, but transferred lead for the landowner relationship to contractor Gena Janssen.

## Zapata County

† **Galberry Ranch** – 1138 acres, formerly part of the Hancock Ranch (described below), but this area was not included in the part of Hancock Ranch that was surveyed. A survey of this tract at the request of the new landowner revealed Johnston's frankenia (*Frankenia johnstonii*) and the TNC-tracked species Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3). Lead for the landowner relationship was transferred to contractor Gena Janssen.

† **Hancock Ranch** - Approximately 35,000 acres total in 2 parcels, but survey was conducted on the 19,000-acre parcel only. Located on U.S. Highway 83 about 3 miles north of San Ygnacio. Property contains a wide variety of thornscrub and Sand Sheet vegetation types. Project targets found were: Johnston's frankenia (*Frankenia johnstonii*); Correll's bluet (*Houstonia correllii*); Runyon's huaco (*Manfreda longiflora*); and ashy dogweed (*Thymophylla tephroleuca*). TNC-tracked species found were: Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*, G5T3); smallflower milkvine (*Matelea parviflora*, G4); arrowleaf milkvine (*Matelea sagittifolia*, G3); and little-flower spider-wort (*Tradescantia micrantha*, G3). This property was subsequently subdivided and sold. TNC made the initial contact with the owner of the intact property and coordinated the survey, but transferred the landowner relationship lead to contractor Gena Janssen who was to present the conservation agreement document to the new owner of the tract containing the project targets.

Table 1. Sites with Target Species and Agreement Status

County/Site	Listed Species			Candidate Species							Agreement Presented X Signed ☼
	Astrophytum asterias	Ayenia limitaris	Manihot walkerae	Adelia vaseyi	Cardiospermum dissectum	Coryphantha macromeris var. runyonii	Echinocereus papillosus	Grindelia oolepis	Manfreda longiflora	Tillandsia baileyi	
<b>Willacy</b>											
Corbett Ranch		X									X
<b>Cameron</b>											
Cam. Cty. Drainage District #5				X							X
City of Harlingen/CB Wood Park		X		X						X	X☼
City of Harlingen/Hgn Thicket				X						X	X
Inn at Chachalaca Bend										X	X☼
Koppel				X						X	X
Madaffari				X						X	X
Martin Refuge/Chachalaca Tract				X							X
Matz Property				X						X	X☼
Mont Meta Cemetery				X						X	
Rio Hondo TPWD Boat Ramp				X						X	
Rio Hondo Cemetery				X						X	
Tex-Mex Cold Storage Prairie								X			X
<b>Hidalgo</b>											
Chihuahua Woods Preserve									X		X☼
Ebony Grove Cemetery										X	X☼
Llano Grande Country Club										X	X
Methodist Camp Thicket		X		X							X
Martin Refuge/Javelina Tract					X						X
Penitas Cemetery			X								X
Perez Ranch				X	X				X		X☼
<b>Starr</b>											
Benedictine Monastery						X			X		X☼
Carrera Ranch			X		X	X					X☼
Hiles Property					X						X
Las Comitas Ranch							X				X
Las Estrellas Preserve	X					X			X		X☼
Lezotte Property						X			X		X
Martinez Ranch					X	X			X		X
San Rodolfo Ranch							X				X
Starr County Community Property					X						
Vela La Gloria Tract							X				X

## ATTACHMENT C

### Lower Rio Grande Valley Candidate Conservation Agreement Project

Final Report—August 2006

Gena K. Janssen

#### I. Segment Objectives:

Develop landowner outreach and conduct private-lands rare plant surveys in Webb, Zapata, Jim Hogg and Starr Counties for 12 rare candidate plant species listed in Table 1. Private or other lands surveyed may also contain populations of four Listed Endangered plant species listed in Table 2.

Table 1. The 12 rare candidate plant species (listed in alphabetical order by genus) that occur or have the potential to occur in Webb, Zapata, Starr or Jim Hogg Counties.

<i>Species</i>	<b>Known County Distribution</b> (Webb, Zapata, Jim Hogg & Starr)
<i>Asclepias prostrata</i>	Starr & Zapata
<i>Atriplex klebergorum</i>	Starr & Webb
<i>Cardiospermum dissectum</i>	Starr & Zapata
<i>Coryphantha macromeris</i> var. <i>runyonii</i>	Starr
<i>Coryphantha sulcata</i> var. <i>nickelsiae</i>	Webb
<i>Eriogonum greggii</i>	Starr
<i>Houstonia correllii</i>	Zapata
<i>Manfreda longiflora</i>	Starr
<i>Opuntia engelmannii</i> var. <i>flexospina</i>	Starr, Zapata & Webb (H)
<i>Paronychia congesta</i>	Jim Hogg
<i>Paronychia maccartii</i>	Webb
<i>Physostegia correllii</i>	Zapata

Table 2. The four Listed Endangered plant species that may also be encountered during private land surveys in Webb, Zapata, Starr, and Jim Hogg Counties.

<i>Species</i>	<b>Known County Distribution</b> (Webb, Zapata, Jim Hogg & Starr)
<i>Astrophytum asterias</i>	Starr
<i>Frankenia johnstonii</i>	Webb, Zapata & Starr
<i>Manihot walkerae</i>	Starr
<i>Thymophylla tephroleuca</i>	Webb & Zapata

#### II. Summary of Progress:

A total of 158 new south Texas rare plant localities were recorded during this study and are provided in this report. Of these 158 localities, 90 are now protected by Voluntary Conservation Agreements. The following seven (7) rare plant species now have new landowner protected sites as a result of this project: *Astrophytum asterias* (total localities not included in the above total since they were collected during a separate research project; however, a total of 17 localities are now protected with signed agreements), *Atriplex klebergorum* (8 localities), *Coryphantha*

*macromeris* var. *runyonii* (27 localities), *Frankenia johnstonii* (9 localities), *Houstonia correllii* (8 localities), *Manfreda longiflora* (23 localities), and *Thymophylla tephroleuca* (15 localities). Of the seven (7) rare plant species now protected with Voluntary Conservation Agreements, three (3) species are Listed Endangered: *Astrophytum asterias*, *Frankenia johnstonii*, and *Thymophylla tephroleuca*; and four (4) are candidate plant species: *Atriplex klebergorum*, *Coryphantha macromeris* var. *runyonii*, *Houstonia correllii*, and *Manfreda longiflora*.

Although more than 24 ranches (see Table 3) were surveyed during this study, only 24 landowners were asked or "invited" to sign Voluntary Conservation Agreements to protect the rare plants located on the ranch. (Some ranch surveys had to be dropped because of landowner refusal to sign the Texas Parks and Wildlife Landowner Permission Slip. On other ranches, there were no rare species found.) Of the 24 landowners asked or "invited" to participate in voluntary conservation, 11 have signed agreements. These 11 ranches have a combined area of over 45,000 protected acres.

Each landowner that signed a Voluntary Conservation Agreement (and even many that didn't), received a personalized ranch map with rare plant species localities highlighted on aerial photographs. These ranch maps were created as a personal reference for the landowners and as an attachment for the Voluntary Conservation Agreements, but will not be included in this public report. They will, however, be housed at Texas Parks and Wildlife along with the Voluntary Conservation Agreements and should be considered confidential and data sensitive.

Table 3. Summary of 24 landowners invited to sign Voluntary Conservation Agreements, ranch name and acreage, rare plant species verified on each ranch, county of occurrence, whether or not a Voluntary Conservation Agreement was signed (also shaded gray), and whether or not a personalized ranch map was created for the landowner.

Landowner	Ranch Name Acres	County	Species	VCA	Ranch Map
(1) Rosa Viduarri & Maria Luisa Stott	The Viduarri Estate  2008.24 Acres	Zapata	<i>Thymophylla tephroleuca</i> <i>Asclepias prostrata</i>	No	No, but have promis ed one soon
(2) Todd & Tracy Williams	Santo Niño Ranch  8,000 Acres	Zapata	<i>Thymophylla tephroleuca</i> <i>Houstonia correllii</i> <i>Manfreda longiflora</i> <i>Frankenia johnstonii</i>	Signed	Yes
(3) Flumencio Munoz	The Coyotes Pasture  1,050 Acres	Zapata	<i>Houstonia correllii</i> (Type Locality)	No	Yes
(4) Renato Ramirez	The Airport Ranch  1,985 Acres	Zapata	<i>Thymophylla tephroleuca</i> <i>Houstonia correllii</i>	Signed	Yes
(5)			<i>Thymophylla tephroleuca</i>	Signed	Yes

Romeo Ramirez	Cañada Honda Ranch 1985 Acres	Zapata	<i>Houstonia correllii</i>		
(6) Jose O. Dodier	Don Jose Land & Cattle Company 7100 Acres	Zapata	<i>Frankenia johnstonii</i> <i>Atriplex klebergorum</i> <i>Manfreda longiflora</i>	Signed	Yes
(7) Rafael Flores	Flores Ranch 4406.23 Acres	Zapata	<i>Frankenia johnstonii</i> <i>Atriplex klebergorum</i>	Signed	Yes
(8) Volpe Brothers	The Palomas 1120 Acres	Zapata	<i>Frankenia johnstonii</i>	No	Yes
(9) Socorro & Buddy Earles	Cabeza de Vaca Ranch 8000 Acres	Zapata	<i>Frankenia johnstonii</i> <i>Manfreda longiflora</i>	Signed	Yes
(10) Sam Rodriguez	Rancho Santa Anita 2020 Acres	Zapata	<i>Frankenia johnstonii</i>	No	Yes
(11) Noel Benavides	Loma Blanca Ranch 125 Acres	Starr	<i>Frankenia johnstonii</i> <i>Manfreda longiflora</i>	No	No Soon
(12) Edmundo Escobar	Escobar Ranch 20 Acres	Starr	<i>Astrophytum asterias</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	Signed	Yes
(13) Pablo & Mary Peña	Starr Cactus Ranch 400 Acres	Starr	<i>Astrophytum asterias</i> <i>Frankenia johnstonii</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	Signed	Yes
(14) Vanny Cook Trust	The Kelsey Ranch 15,200 Acres	Starr	<i>Astrophytum asterias</i> <i>Frankenia johnstonii</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	Signed Letter of Commitment	Yes
(15) Lupe Castañeda	J & B Ranch	Starr	<i>Astrophytum asterias</i>	Signed	Yes

	750 Acres		<i>Frankenia johnstonii</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>		
(16) Rebecca & Susano Sepulveda	La Mulada Ranch 30 Acres	Starr	<i>Astrophytum asterias</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	Signed	Yes
(17) The Block Estate c/o Minnie Alvarez	The Block Estate 240 Acres	Starr	<i>Astrophytum asterias</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	No	Yes
(18) Leonides Alvarez	Alvarez Ranch 80 Acres	Starr	<i>Astrophytum asterias</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	No	Yes
(19) Anselmo Alaniz	Alaniz Ranch ~20 Acres	Starr	<i>Astrophytum asterias</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	No	Yes
(20) Amy Marino	Las Liebres Ranch 741 Acres	Starr	<i>Astrophytum asterias</i> <i>Asclepias prostrata</i> <i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	No	Yes
(21) Orlando Garza	La Sabunal Ranch 300 Acres	Starr	<i>Manfreda longiflora</i> <i>Cory macro var. runyonii</i>	No	No
(22) Gilberto Resendez	Resendez Brothers Ranches 1,000 Acres	Starr	<i>Frankenia johnstonii</i> <i>Manfreda longiflora</i> <i>Atriplex klebergorum</i>	Needs Update	Remap Soon
(23) Holbein	Casa Blanca Ranch ? Acres	Jim Hogg	<i>Paronychia congesta</i>	No	Yes
(24) Holbein	Maguey Ranch ? Acres	Jim Hogg	<i>Paronychia congesta</i>	No	Yes

### III. Significant Deviations:

The following two (2) candidate species of cacti were dropped from the survey list because of taxonomic questions: *Coryphantha sulcata* var. *nickelsiae* and *Opuntia engelmannii* var. *flexospina*.

The following four (4) candidate plant species were not encountered (but not necessarily "not searched for") during this study: *Cardiospermum dissectum*, *Eriogonum greggii*, *Paronychia maccartii*, and *Physostegia correllii*.

One very large ranch, The Kelsey, overseen by the Vanny Cook Trust, did not want to sign the TPW Voluntary Conservation Agreement; however, in a letter to me signed by the Trustee, they stated the following:

*"Thank you for your interest in the Kelsey Ranch and working with Steve Scott and Mike Brisnahan. We want to always be cooperative in working with you and the Texas Parks and Wildlife. We want to be helpful with conservation... We realize we are stewards of the ranchland.*

*We are in general agreement with almost all provisions of your proposed agreement; however, we prefer to cooperate with actions versus a written and binding agreement. We will make every effort to comply with your requests; however, if there is a mistake by one of our employees or guests, I do not want to be penalized. I am scared of Code Chapter 2260 mentioned in your proposal.*

*Some things that we would cooperate and help do are:*

- 1. Allow you and Texas Parks and Wildlife access on our land to the property and your areas of interest.*
- 2. If economical, we will try to fence off certain areas that you deem important to guard against grazing, mechanical practices, etc.*
- 3. We would contact you concerning road work, gas well pads, seismic lines, etc.*

*\* Please realize that we will cooperate, but need to avoid a written agreement with penalties."*

In my opinion, this letter is just as good if not BETTER than the Texas Parks and Wildlife drafted Voluntary Conservation Agreement. Therefore, I have chosen to call this The Vanny Cook Trust's "Letter of Commitment" and will be considering The Kelsey and the four (4) rare plant species that occur on that ranch, *protected*. This letter along with the ranch map will be included with all the other Voluntary Conservation Agreements.

#### **IV. Final Findings:**

##### Introduction/Overview

The contract between Texas State University and Texas Parks and Wildlife states that Janssen Biological will attempt to obtain signed agreements for the protection of a total of five (5) or

more rare species by the end of Year 3. This final product has met or exceeded that goal by providing signed Voluntary Conservation Agreements protecting seven (7) rare plant species. The contract also states that Janssen Biological will attempt to obtain signed agreements from 20 tracts of land (8 tracts in Year 2 plus an additional 12 tracts in Year 3). This final product has exceeded that goal by attempting to obtain signed agreements with 24 tracts of land.

A total of 158 new south Texas rare plant localities were recorded during this study and are provided in this report. Of these 158 localities, 90 are now protected by Voluntary Conservation Agreements. In a separate research project, many new star cactus localities were verified. Since each private ranch that had star cactus also had at least two candidate plant species occurring on the ranch, each of the star cactus landowners were asked to sign Voluntary Conservation Agreements. Discovering the co-occurrence of candidate plants (and in two cases, yet another listed endangered plant) along with star cactus on private ranches is the point at which these two separate research projects started to overlap. Star cactus now has a total on 17 localities protected by Voluntary Conservation Agreements secured as a part of this research project. Although these star cactus localities were not technically verified as a part of this study, if U. S. Fish and Wildlife Service or Texas Parks and Wildlife chooses to add these protected star cactus localities to the grand total of this project, then the cumulative numbers would read as follows: **A total of 175 new south Texas rare plant localities were recorded during this study. Of these 175 new localities, 107 are now protected by Voluntary Conservation Agreements.**

Please let me clarify: Securing Voluntary Conservation Agreements for all star cactus sites is **not an objective** of the ongoing, separate Section 6 project, The Research and Recovery of Star Cactus. The original proposal does state, however, that management plans or other suitable promissory documents with participating landowners will be secured during the augmentation and reintroduction phase of the star cactus research project. The proposal states that these agreements will be secured with the landowners ***that allow the actual planting of star cactus onto their private ranches to create founding and augmented populations to ensure protection and continued access for research and monitoring.*** This should clear up any confusion for any individual or agency that was under the impression that securing Voluntary Conservation Agreements for all star cactus sites is a separate project. It is not.

The following seven (7) rare plant species (three listed endangered plants and four candidate plants) now have new landowner protected sites as a result of this project: *Astrophytum asterias* (17 localities), *Atriplex klebergorum* (8 localities), *Coryphantha macromeris* var. *runyonii* (27 localities), *Frankenia johnstonii* (9 localities), *Houstonia correllii* (8 localities), *Manfreda longiflora* (23 localities), and *Thymophylla tephroleuca* (15 localities).

Although more than 24 ranches (see Table 3) were surveyed during this study, only 24 landowners were asked or "invited" to sign Voluntary Conservation Agreements to protect the rare plants located on the ranch. (Some ranch surveys had to be dropped because of landowner refusal to sign the Texas Parks and Wildlife Landowner Permission Slip. For other ranches, there were no rare species found.) Of the 24 landowners asked or "invited" to participate in voluntary conservation, 11 have signed agreements. These 11 ranches have a combined area of 47,876.23 protected acres.

### Methods and Materials

Each of the rare plant species listed in Tables 1 and 2 were organized and sorted by the months or the seasons of peak flowering. Surveys were then planned accordingly. Surveys were then

conducted on Highway right-of-way, public land and private land in search of the greatest potential habitat for a given species. Once the greatest potential habitat was pin-pointed, private landowners were researched and contacted. The areas of high potential habitat were then hiked and inspected. This methodology proved time quite consuming.

The location of the rare plants located during this project was captured in the geographic reference system as latitude and longitude pairs. The units were decimal degrees (dd.ddddd), spheroid GRS1980, and NAD83 datum. Data was recorded by Janssen Biological using either a Garmin GPSmap 76CSx or a rented Trimble GeoXT.

The positional accuracy of points collected using the Garmin GPS ranged from 2 to 4 meters using WAAS (Wide Area Augmentation System) differential correction. The accuracy of Trimble-collected points (using differential correction from the National Geodetic Survey (NGS) continuously operating reference stations (CORS network) ranged from 0.5-1.5 meters.

Occasionally, many biologists or a small team of biologists would converge on a ranch to help survey for rare plant species. When the surveys were complete, the participants would usually all submit their findings. Submissions usually consisted of GPS points in varying formats, with no or few other details, and usually no reference as to what device each point was recorded with. If rare candidate plant localities were recorded by other biologists during these surveys, those points were converted into decimal degrees, and are included in this report (but unfortunately, without additional details). I am grateful to Sandy Birnbaum, Bill Carr, Jackie Poole, Dana Price, Anna Strong, and Lisa Williams (and possibly others!) for sharing locality data for candidate plants from large ranch surveys.

### Results

Rare plant species localities have been summarized in table form alphabetically by genus name. Localities are numbered and have been entered from north to south. Each species table includes a brief description of the property, county of occurrence, location in decimal degrees, the number of plants observed, and whether or not this new locality is now protected by a Voluntary Conservation Agreement. Further details, if available, (such as site descriptions and associated species) follow each table in paragraph form. For each species that has new localities discovered during this study, a distribution map has also been provided.

**Species 1: Prostrate milkweed (*Asclepias prostrata*).** A total of eight (8) new localities were discovered during this project. Currently, none of these sites are under the protection of a Voluntary Conservation Agreement.

<i>Asclepias prostrata</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) Dolores Subdivision roadside & in front of the Cactus Yard Offices on Hwy 83 ROW and on the other side of 83 near a mailbox April 2003	Zapata	-99.422056 27.275917	7	No roadside
(2) Dolores Subdivision sandy road/roadside and power line easement, E side April 2003	Zapata	-99.41625 27.276194	2	No roadside

(3) Dolores Subdivision sandy road/roadside and power line easement, to W of dead end gate April 2003	Zapata	-99.415694 27.271583	1	No roadside
(4) Chevron caliche road, ends at a gate that reads: Santa Margarita Ranch. Plant on S side of road, with only 1 leaf. April 2003	Zapata	-99.409389 27.274278	1 grizzly indiv.	No roadside
(5) Viduarri Estate—Eddie's Place Just inside his old rusty gate off of the caliche road, driving along his red gravel road April 2003	Zapata	-99.413354 27.270436	~10 to 20	No
(6) Viduarri Estate—Eddie's Place Continuing along the gravel road, more prostrate milkweed to west & south in cattle paths and along fence line continuing towards highway 83 April 2003	Zapata	-99.412972 27.269583	~20 or more	No
(7) Viduarri Estate—Eddie's Place Next to the old disturbance study, plants in road under power line easement and heading west along cattle path April 2003	Zapata	-99.414868 27.261537	~35 in road ~20 or more on path	No
(8) Las Liebres Ranch Just west-northwest of main road March 2004	Starr	-98.859174 26.454102	1	No

The Dolores Subdivision is on the east side of Hwy 83 in northern Zapata County and is divided up into 12 very small tracts or ranchettes with a larger private ranch just to the east of these tracts. This sandy road mentioned in the table above heads east from 83 and then turns south along the very sandy power line easement to go down the back side of these tiny tracts that make up the Dolores Subdivision. This road is blanketed with the endangered ashy dogweed (*Thymophylla tephroleuca*) on either side, with the prostrate milkweed showing up here and there. Both the dogweed and the milkweed can be seen continuing quite extensively into the subdivision tracts and the private ranch to the east.

Associated species in the Dolores Subdivision area were: ashy dogweed (*Thymophylla tephroleuca*), Texas palafoxia (*Palafoxia texana*), rabbit-tobacco (*Evax candida*), snake-cotton (*Froelichia* sp.), seaside heliotrope (*Heliotropium curassavium*), blackfoot daisy (*Melampodium cinereum*), sensitive briar (*Mimosa* sp.), lime prickly-ash (*Zanthoxylum fagara*), Guayacan (*Guaiacum angustifolium*), Texas persimmon (*Diospyros texana*), honey mesquite (*Prosopis glandulosa*), narrow-leaf yucca (*Yucca constricta*), *Croton* sp., *Allionia* sp., *Linum* sp., and *Guara* sp.

Associated species on Eddie's part of the Viduarri Estate were: ashy dogweed (*Thymophylla tephroleuca*), Texas palafoxia (*Palafoxia texana*), rabbit-tobacco (*Evax candida*), snake-cotton (*Froelichia* sp.), bladderpod (*Lesquerella argyrea*), false ragweed (*Parthenium confertum*), Oro de Vibora or blue evolvulus (*Evolvulus alsinoides*), seaside heliotrope (*Heliotropium curassavium*), bitterweed (*Hymenoxys odorata*), sandbell (*Nama hispidum*), blackfoot daisy (*Melampodium cinereum*), green-thread (*Thelesperma* sp.), sandbur (*Cenchrus incertus*), sensitive briar (*Mimosa* sp.), prickly pear (*Opuntia engelmannii*), Texas kidneywood (*Eysenhardtia texana*), cenizo (*Leucophyllum frutescens*), lime prickly-ash (*Zanthoxylum fagara*), Guayacan (*Guaiacum angustifolium*), Texas persimmon (*Diospyros texana*), honey mesquite (*Prosopis glandulosa*), narrow-leaf yucca (*Yucca constricta*), *Croton* sp., *Allionia* sp., *Linum* sp., and *Guara* sp.

Associated species at Las Liebres Ranch in the specific vicinity of the prostrate milkweed were not recorded.

**NEGATIVE RESULTS:** The Benavides Family ranch, the Ramirez Family ranches and the Hancock Ranch in Zapata County and the San Antonio Ranch in Webb County were all surveyed for *A. prostrata*, but none was found. Additionally many ranches in Starr County were surveyed, but only the one reported prostrate milkweed was found.



Figure 1. Distribution map of the eight (8) new localities of prostrate milkweed (*Asclepias prostrata*) recorded during this project.

**Species 2: Star cactus (*Astrophytum asterias*).** Star cactus has been located on 10 different private ranches in Starr County, Texas. Most of these ranches have multiple localities of star cactus. [In a separate research project, over 162 data points (points, lines and polygons) have been collected for star cactus.] All of these ranches also have multiple candidate plant species localities, and in two cases, additional listed endangered plant localities. All landowners are aware of their star cactus and candidate plant populations and localities, and currently 17 star cactus localities are being protected under Voluntary Conservation Agreements signed by the landowner.

This species is data sensitive, and will not be detailed in table form. Reporting each locality for star cactus in decimal degrees in this public report could possibly be a threat to this species which is highly prized and sought after by collectors. This data has been submitted to Texas Parks and Wildlife Department in a separate research report, and entered into the database with a data sensitive methodology.

**Species 3: Kleberg saltbush (*Atriplex klebergorum*).** A total of 15 new localities were discovered during this project. Eight (8) of these localities are being protected by Voluntary Conservation Agreements.

<i>Atriplex klebergorum</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) HROW—on 2895 heading south from 59, 0.4 mile, on West side June 2003	Webb	-99.038370 27.690656	12	No roadside
(2) HROW—on 2895 heading south from 59, 1.0 mile, on both sides (in draw to W and ranchland to E) June 2003	Webb	-99.041097 27.682200	100's	No roadside
(3) HROW—on 2895 heading south from 59, 1.2- 1.3 miles, on both sides into private land (On the east, ConocoPhillips Lundell Lease pad site just inside the fence covered with it. On the west, in a pipeline clearing) June 2003	Webb	-99.042259 27.678742 -99.041827 27.679080	1000's	No roadside
(4) HROW—on 2895 heading south from 59, 2.8 miles on both sides road and into private land. June 2003	Webb	-99.049124 27.657953	~50	No roadside
(5) HROW—on 2895 heading south from 59, 12.5 miles, within a draw on the west side, and within a scraped area June 2003	Webb	-99.059988 27.520145	1000's	No roadside
(6) HROW—on 3169 heading south from 359, 3.2 miles, both sides of road into private land in big salty draw	Webb	-99.144847 27.332966	1000's	No roadside

June 2003 (7) HROW—on Hwy 16 heading east from 83 in Zapata, 18.4 miles, on both sides of road and south into the Old Escobas Oil Field. June 2003	Zapata	-99.039513 <u>27.052169</u> -99.038811 27.049612	1000's	No roadside
(8) Flores Ranch .9 mile heading west from gate, behind yellow and white pipes and behind the gas wells to the east of the pipes June 2003	Zapata	-99.093389 <u>26.990539</u> -99.094054 26.991341	~15	Yes
(9) Flores Ranch 1.5 miles heading west from gate, in scraped area on south side of road June 2003	Zapata	-99.102940 <u>26.985869</u>	~51	Yes
(10) Flores Ranch Salty wash of Dos Arroyos area, from earthen bridge plants run north and south in the wash June 2003	Zapata	-99.100404 <u>26.973577</u> -99.099355 26.979819	1000's	Yes
(11) Flores Ranch Salty wash continued June 2003	Zapata	-99.102496 26.975324 -99.099598 26.972586	1000's (con't)	Yes
(12) Flores Ranch In a very barren open area just south of a Frankenia population called "Rafa Central", plants continue south along fence line/road. June 2003	Zapata	-99.092921 <u>26.976248</u> -99.092913 <u>26.976390</u> -99.091750 <u>26.978124</u> -99.090084 26.976176	1000's	Yes
(13) Don Jose Land & Cattle Co. Houston Exploration pad site #10, scraped area surrounding pad June 2003	Zapata	-99.123102 <u>26.971444</u> -99.122786 26.971523	~10	Yes
(14) Don Jose Land & Cattle Co. Houston Exploration pad site #8, plants run from the north fence line, south to around the pad site June 2003	Zapata	-99.131988 <u>26.966657</u> -99.129881 26.963403	~100 or more	Yes
(15) Don Jose Land & Cattle Co. Just south of a previously root-plowed Frankenia site at the NE ranch corner September 2004	Zapata	-99.129542 <u>26.969642</u> -99.129543 26.9696630	~25	Yes

During the June 2003 surveys for Kleberg saltbush, plants were located with buds just starting to develop. Many of the above sites on which Kleberg saltbush was located were either very open and barren, scraped, disturbed in some way, a salty wash zone, or even just what I would consider a "spoils area". All soils were saline. Apparently 2003 was the best year to survey for Kleberg saltbush since subsequent visits in 2004, 2005, and 2006 revealed fewer plants at each site than recorded in 2003, and the plants also seem to move around somewhat as annuals tend to do. Plants were totally absent from the landscape by the end of October. In July 2006, each of the above sites was revisited and not one Kleberg saltbush was up. So it is apparent that the prevalence of this species on the landscape in late summer to fall is heavily dependent on that year's rainfall.

Associated species recorded along the Webb County HROW Kleberg saltbush sites were: four-wing saltbush (*Atriplex canescens*), armed saltbush (*Atriplex acanthocarpa*), Matamoros saltbush (*Atriplex matamorensis*), goldenweed (*Isocoma* sp.), creosote (*Larrea tridentata*), goatbush (*Castela erecta* var. *texana*), Russian thistle (*Salsola kali*), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), whorled dropseed (*Sporobolus pyramidatus*), parralena (*Thymophylla* or *Dyssodia* sp.) and Billie-mallow (*Billieturnera helleri*). The salty draws also contained cordgrass (*Spartina* sp.?), and cattail (*Typha* sp.).

Associated species recorded at the Highway 16 ROW and the Old Escobas Oil Field (ORC Investments, Inc.) in Zapata County were: prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), Russian thistle (*Salsola kali*), goldenweed (*Isocoma* sp.), whorled dropseed (*Sporobolus pyramidatus*), buffelgrass (*Pennisetum ciliare*), and strawberry pitaya (*Echinocereus enneacanthus*).

In general the same suite of species tended to be associated with Kleberg saltbush on the Flores Ranch in Zapata County. Associated species were: Russian thistle (*Salsola kali*), goldenweed (*Isocoma* sp.), whorled dropseed (*Sporobolus pyramidatus*), buffelgrass (*Pennisetum ciliare*), curly mesquite (*Hilaria berlandieri*), parralena (*Thymophylla* or *Dyssodia* sp.), screwbean mesquite (*Prosopis reptans*), leatherstem (*Jatropha dioica*), and *Suaeda* sp. The exception being the large population of Kleberg saltbush located just south of the *Frankenia* population called "Rafa Central". Associated species at this very barren site were: Johnston's frankenia (*Frankenia johnstonii*), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis reptans*), coyotillo (*Karwinskia humboldtiana*), goatbush (*Castela erecta* var. *texana*), whitebrush (*Aloysia gratissima*), leatherstem (*Jatropha dioica*), buffelgrass (*Pennisetum ciliare*), prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), horse-crippler (*Echinocactus texensis*), shaggy portulaca (*Portulaca pilosa*), common purslane (*Portulaca oleracea*), *Suaeda* sp., and dodder (*Cuscuta cuspidata*).

Associated species recorded at the Don Jose Land and Cattle Company in Zapata County were: honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis reptans*), leatherstem (*Jatropha dioica*), jicamilla (*Jatropha cathartica*), buffelgrass (*Pennisetum ciliare*), prickly pear (*Opuntia engelmannii*), Spanish dagger (*Yucca treculeana*), shaggy portulaca (*Portulaca pilosa*), common purslane (*Portulaca oleracea*), four-wing saltbush (*Atriplex canescens*), *Suaeda* sp., and Billie-mallow (*Billieturnera helleri*).

NEGATIVE RESULTS: I spent 10 field days in July 2003 surveying the old La Perla Ranch (30,000 acres) and the Hancock Ranch in Zapata County and did not find any *A. klebergorum* although there was a tremendous amount of potential habitat.

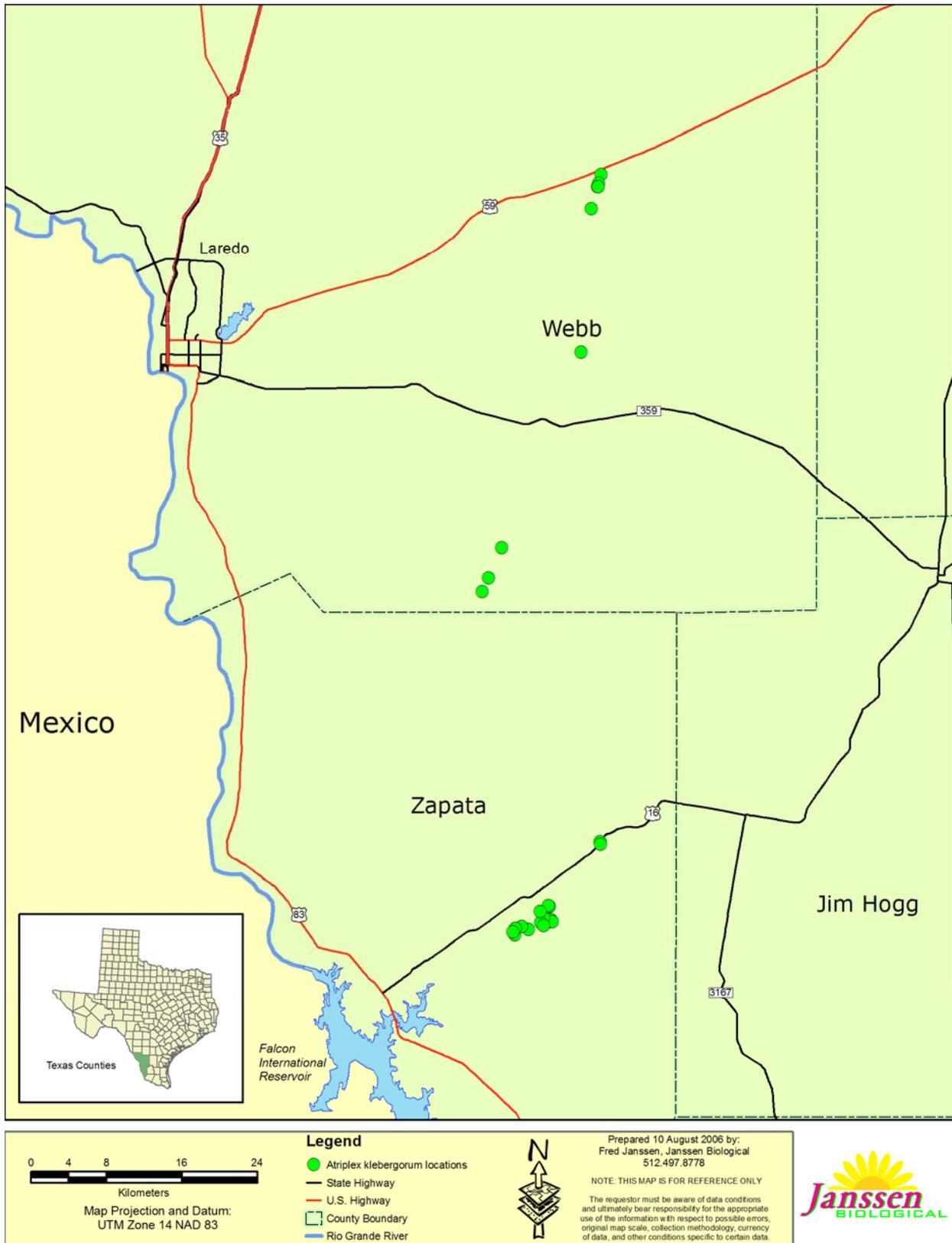


Figure 2. Distribution of the 15 new localities of Kleberg saltbush (*Atriplex klebergorum*) recorded during this study.

**Species 4: Chihuahua balloon-vine (*Cardiospermum dissectum*).** This species was not observed during this project.

**Species 5: Dumpling cactus (*Coryphantha macromeris* var. *runyonii*).** A total of thirty-seven (37) new localities were discovered during this study. Twenty-seven (27) of those are now under the protection of Voluntary Conservation Agreements.

<i>Coryphantha macromeris</i> var. <i>runyonii</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) Escobar Ranch Down the hill from chicken coops and pens, backside of dam April 2004	Starr	-98.960707 26.451177 (center point of larger polygon)	~20 or more	Yes
(2) Starr Cactus Ranch Saline opening near crossroads on east side of ranch May 2005	Starr	-98.897230 26.52259 (center point of a larger polygon)	18	Yes
(3) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899767 26.516250	1	Yes
(4) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.900094 26.516514	1	Yes
(5) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899832 26.516797	1	Yes
(6) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899682 26.516617	1	Yes
(7) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899686 26.516931	1	Yes
(8) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899967 26.517442	1	Yes
(9) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899379 26.517243	1	Yes
(10) Starr Cactus Ranch At southern-most extent of ranch	Starr	-98.899193 26.517265	1	Yes

May 2005				
(11) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899203 26.517432	1	Yes
(12) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899106 26.516687	1	Yes
(13) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.900113 26.516702	1	Yes
(14) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.899412 26.516365	1	Yes
(15) Starr Cactus Ranch At southern-most extent of ranch May 2005	Starr	-98.898934 26.516253	1	Yes
(16) The Kelsey Just east of main caliche road June 2004	Starr	-98.848524 26.461459	1	Yes Letter of Commitment
(17) The Kelsey Just east of main caliche road June 2004	Starr	-98.848812 26.461082	1	Yes Letter of Commitment
(18) The Kelsey Just west of main caliche road June 2004	Starr	-98.850597 26.460969	1	Yes Letter of Commitment
(19) The Kelsey Not far from a road (or was it a pipeline?) June 2004	Starr	-98.848701 26.451146	1	Yes Letter of Commitment
(20) The Kelsey Denser brush near east fence line June 2004	Starr	-98.840397 26.445127	51+	Yes Letter of Commitment
(21) The Kelsey In southern end of ranch near east fence line June 2004	Starr	-98.841821 26.438422	1	Yes Letter of Commitment
(22) J & B Ranch Barren rocky saladillo hillside October 2004	Starr	-98.849527 26.504450	1	Yes

(23)	J & B Ranch Blackbrush hill near deer blind October 2004	Starr	-98.852026 26.502448	1	Yes
(24)	J & B Ranch Rocky saline opening with saladillo October 2004	Starr	-98.853759 26.502450 (center point of larger polygon)	2+	Yes
(25)	J & B Ranch Rocky saline opening with saladillo October 2004	Starr	-98.852764 26.501864 (center point of larger polygon)	2+	Yes
(26)	J & B Ranch Barren saline opening with saladillo October 2004	Starr	-98.852817 26.500896	1	Yes
(27)	La Mulada Ranch Within an open, saline, tasajillo dominated area April 2006	Starr	-98.873545 26.501637	1	Yes
(28)	The Block Estate Open, saladillo dominated rocky hill June 2004	Starr	-98.864002 26.475702	1	No
(29)	The Block Estate Saladillo dominated rocky hill near gate June 2004	Starr	-98.866198 26.471465	1	No
(30)	Alvarez Ranch Saladillo dominated rocky hills in southwest corner of ranch May 2004	Starr	-98.860034 26.476155 (center point of larger polygon)	~10	No
(31)	Alvarez Ranch Saladillo dominated rocky hillside on east side of pipeline May 2004	Starr	-98.857438 26.477010 (center point of larger polygon)	~10	No
(32)	Alaniz Ranch Rocky saladillo with many cacti June 2004	Starr	-98.865670 26.469949	1	No
(33)	Las Liebres West of large stock pond March 2004	Starr	-98.862168 26.457527	1	No
(34)	Las Liebres West of large stock pond	Starr	-98.863499 26.458976	1	No

March 2004				
(35) La Sabunal Ranch In area dominated by mesquite with some peyote. October 2004	Starr	-98.762106 26.537214	1	No
(36) La Sabunal Ranch In area dominated by mesquite with some peyote October 2004	Starr	-98.761824 26.536754	1	No
(37) Los Olmos USFWS LRGV Refuge Tract May 2004	Starr	-98.794735 26.436584	1	Protected Federal property

Specific associated species lists and site details for each dumping cactus data point above is either currently not available, or was not recorded as a part of a larger survey effort of biologists or team of biologists.

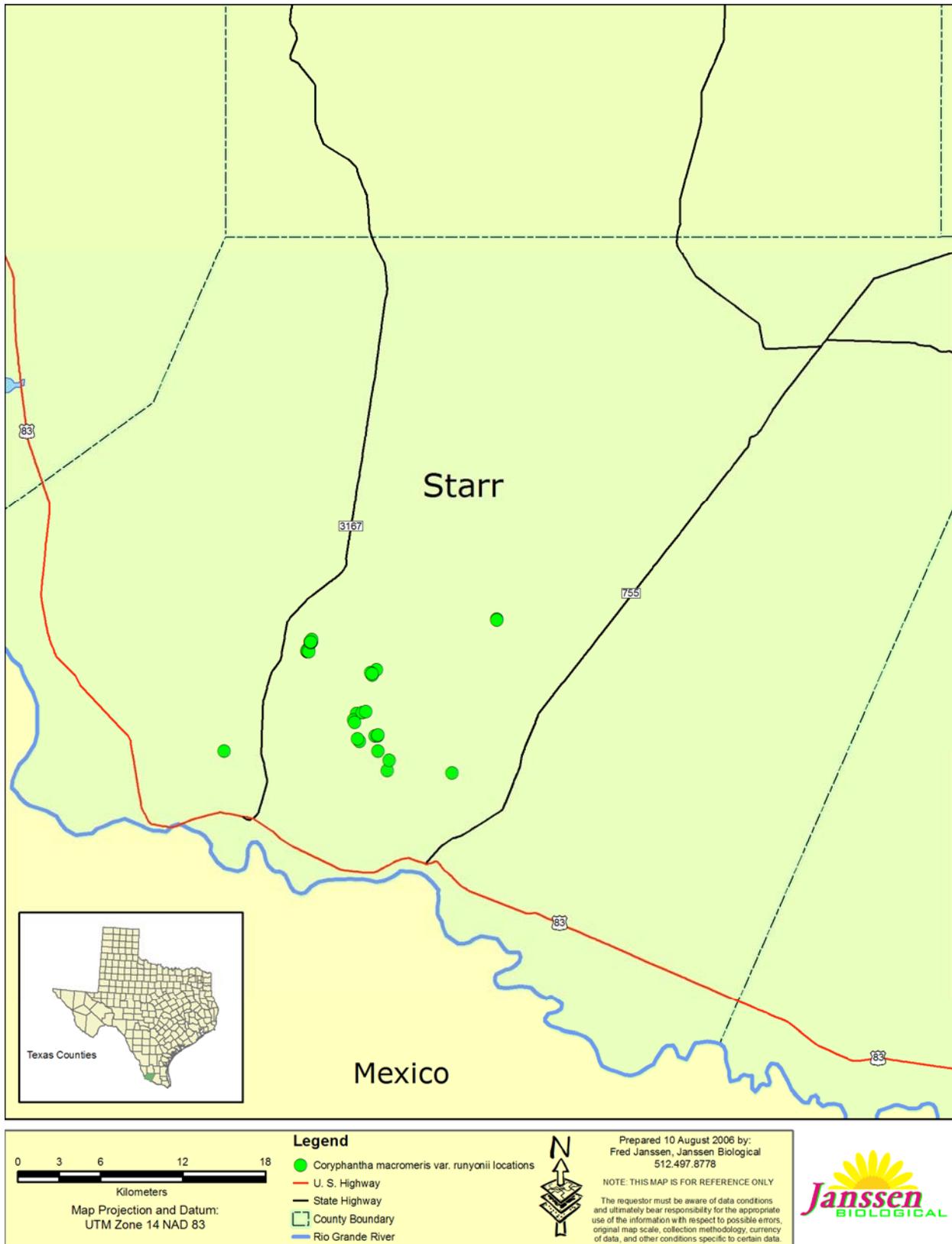


Figure 3. Distribution of the 37 new localities of dumping cactus (*Coryphantha macromeris* var. *runyonii*) recorded during this study.

**Species 6: Nickel's cory cactus (*Coryphantha sulcata* var. *nickelsiae*).** This species was dropped from this study because of questionable taxonomy.

**Species 7: Gregg's wild-buckwheat (*Eriogonum greggii*).** This species was not observed during this project.

**Species 8: Johnston's frankenia (*Frankenia johnstonii*).** A total of nineteen (19) new localities were discovered during this study. Nine (9) of those are now under the protection of Voluntary Conservation Agreements.

<i>Frankenia johnstonii</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) Hancock Ranch Canales Pasture March 2003	Zapata	-99.333933 27.179700	~50 or more	No
(2) Hancock Ranch Canales Pasture March 2003	Zapata	-99.33335 27.178783	~50 or more	No
(3) Hancock Ranch Canales Pasture March 2003	Zapata	-99.317242 27.174683	~50 or more	No
(4) Hancock Ranch Canales Pasture March 2003	Zapata	-99.318844 27.174361	~50 or more	No
(5) Santo Niño Ranch Rocky hillside along main road March 2004	Zapata	-99.326749 27.160575	100's	Yes
(6) Santo Niño Ranch Continuation of site above, down slope into saline wash zone March 2004	Zapata	-99.333650 27.156000	100's	Yes
(7) The Palomas On rocky hillside with abundant fossilized oyster shells (deer blind at the top of hill) September 2005	Zapata	-99.093011 26.915458	~1,000 or more	No
(8) HROW on 469 on south side of road, across from Jim's Pick & Pack (now closed), not far from the intersection of 83 in Zapata. August 2005	Zapata	-99.280765 26.895567 -99.280978 26.894705	500 or more	No roadside
(9) Flores Ranch Previously unrecorded, barren edge of gas pad	Zapata	-99.099380 26.980722	3	Yes

August 2005				
(10) Flores Ranch Previously unrecorded population, bisected by road, previously cleared, now regenerating August 2005	Zapata	-99.097713 26.976117 -99.098715 26.976243	~500	Yes
(11) Flores Ranch Previously unrecorded population surrounded by gas wells on all sides, in a very scraped, open area August 2005	Zapata	-99.108886 26.966750 -99.108756 26.967444	~200 scattered	Yes
(12) Rancho Santa Anita Southeast of double stock tanks May 2005	Zapata	-99.042333 26.681250	~200	No
(13) Rancho Santa Anita South of double stock tanks May 2005	Zapata	-99.043805 26.679916	1000's	No
(14) Ranch Santa Anita Central arroyo, barren salt flat May 2005	Zapata	-99.027944 26.681861	~300	No
(15) Rancho Santa Anita Next to new stock tank dam May 2005	Zapata	-99.033527 26.672722	~100	No
(16) Starr Cactus Ranch Northeastern pasture of ranch in saline soil May 2005	Starr	-98.897018 26.523980	3	Yes
(17) The Kelsey In northern half of ranch, to the west, along a pipeline road cut that runs NW/SE April 2004	Starr	-98.841159 26.511248	~500 or more	Yes Letter of Commitment
(18) J & B Ranch Near big arroyo on very open, barren area. Plants small, hard to see. October 2004	Starr	-98.852798 26.490603	100's	Yes
(19) J & B Ranch Plants in small wash leading to stock tank to the north. April 2006	Starr	-98.855767 26.489789	7	Yes

One new *Frankenia* population was located on the The Palomas Ranch in Zapata County. Plants were on a rocky-oyster shell hillside with hundreds of thorn-crested agave (The most I've ever seen in one spot). Associated species included: thorn-crested agave (*Agave lophantha*), saladillo (*Varilla texana*), blackbrush (*Acacia rigidula*), honey mesquite (*Prosopis glandulosa*), Coyotillo (*Karwinskia humboltiana*), goatbush (*Castela erecta* var. *texana*), Berlandier's wolfberry (*Lycium berlandieri*), armed saltbush (*Atriplex acanthocarpa*), Billie-mallow (*Billieturnera helleri*), leatherstem (*Jatropha dioica*), prickly pear (*Opuntia engelmannii*), Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*), strawberry pitaya (*Echinocereus enneacanthus*), fishhook cactus (*Thelocactus setispinus*), Berlandier's alicoche (*Echinocereus berlandieri*), and red grama (*Bouteloua trifida*).

The new *Frankenia* site on 469 in Zapata County was a real surprise to me. I have been down this road a thousand times. I seem to recall that back in the 90's this whole area was root-plowed and looked really bad. Now however it has regenerated, and there is a nice *Frankenia* population visible from the road on private land, and spilling over the fence line into the ROW of 469. The area is composed of Maverick-looking open rocky hills that meet up with some Zapata soils. Associates included: blackbrush (*Acacia rigidula*), lotebush (*Ziziphus obtusifolia*), four-wing saltbush (*Atriplex canescens*), prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), dog cholla (*Opuntia schottii*), goldenweed (*Isocoma* sp.), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), goatbush (*Castela erecta* var. *texana*), Scheer's fishhook cactus (*Ancistrocactus scheeri*), Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*), strawberry pitaya (*Echinocereus enneacanthus*), horse-crippler (*Echinocactus texensis*), little chilis (*Mammillaria* sp.), and fishhook cactus (*Thelocactus setispinus*).

New *Frankenia* sites located on the Flores Ranch were highly disturbed, possibly bulldozed or scraped or root-plowed areas that now seem to be regenerating. No associates were recorded at the barren edge of the gas pad site (there were not any). Associated species recorded at the site bisected by the road included: knifeleaf condalia (*Condalia spathulata*), Spanish dagger (*Yucca treculeana*), blackbrush (*Acacia rigidula*), lotebush (*Ziziphus obtusifolia*), prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), goldenweed (*Isocoma* sp.), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), goatbush (*Castela erecta* var. *texana*), guayacan (*Gualacum angustifolium*), leatherstem (*Jatropha dioica*), Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*), and strawberry pitaya (*Echinocereus enneacanthus*). Associated species recorded at the site surround by gas wells on all sides included: *Suaeda* sp., Billie-mallow (*Billieturnera helleri*), jicamilla (*Jatropha cathartica*), saladillo (*Varilla texana*), four-wing saltbush (*Atriplex canescens*), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), goatbush (*Castela erecta* var. *texana*), knifeleaf condalia (*Condalia spathulata*), and Spanish dagger (*Yucca treculeana*).

Four new *Frankenia* populations were located on the Rancho Santa Anita. Associated species recorded at sites southeast and south of the double stock ponds were: saladillo (*Varilla texana*), Billie-mallow (*Billieturnera helleri*), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), lotebush (*Ziziphus obtusifolia*), Berlandier's wolfberry (*Lycium berlandieri*), goldenweed (*Isocoma* sp.), prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), strawberry pitaya (*Echinocereus enneacanthus*), little chilis (*Mammillaria* sp.), Scheer's fishhook cactus (*Ancistrocactus scheeri*), and fishhook cactus (*Thelocactus setispinus*). Associated species recorded at the barren central arroyo site were: saladillo (*Varilla texana*), Billie-mallow (*Billieturnera helleri*), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), lotebush (*Ziziphus obtusifolia*), goldenweed (*Isocoma* sp.), prickly pear

(*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), strawberry pitaya (*Echinocereus enneacanthus*), little chilis (*Mammillaria* sp.), Scheer's fishhook cactus (*Ancistrocactus scheeri*), and fishhook cactus (*Thelocactus setispinus*). Associates recorded at the new tank dam site were: saladillo (*Varilla texana*), Billie-mallow (*Billieturnera helleri*), screwbean mesquite (*Prosopis reptans*), honey mesquite (*Prosopis glandulosa*), todebush (*Ziziphus obtusifolia*), goatbush (*Castela erecta* var. *texana*), goldenweed (*Isocoma* sp.), prickly pear (*Opuntia engelmannii*), tasajillo (*Opuntia leptocaulis*), strawberry pitaya (*Echinocereus enneacanthus*), little chilis (*Mammillaria* sp.), Scheer's fishhook cactus (*Ancistrocactus scheeri*), fishhook cactus (*Thelocactus setispinus*), and Fitch's hedgehog cactus (*Echinocereus reichenbachii* var. *fitchii*).

Associates at the Hancock, Starr Cactus, Kelsey, and J & B Ranches are currently not available or were not recorded as they were part of larger team surveys.

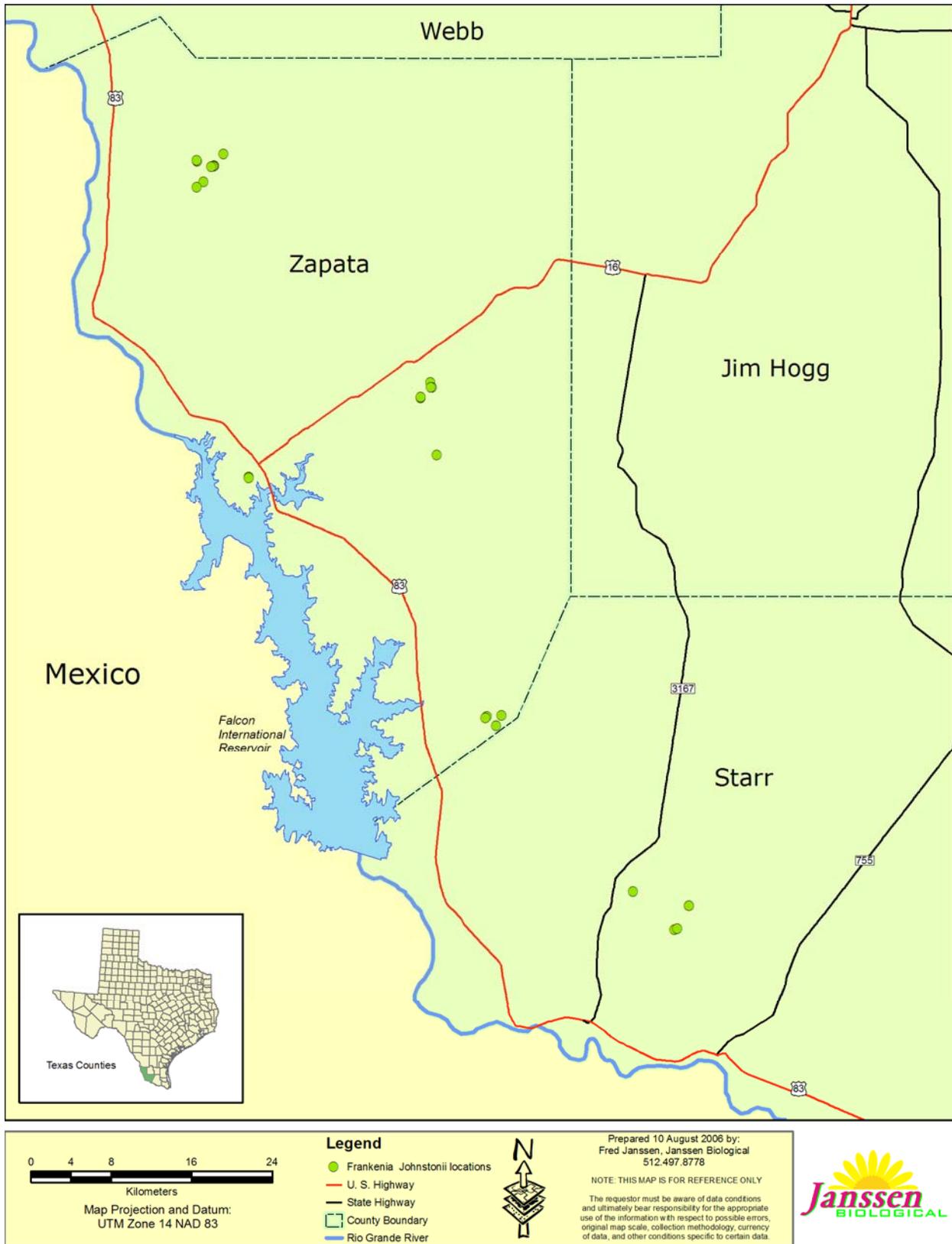


Figure 4. Distribution of the 19 new Johnston's frankenia (*Frankenia johnstonii*) localities recorded during this project.

**Species 9: Correll's bluet (*Houstonia correllii*).** A total of nine (9) new localities were discovered during this study. Eight (8) of these sites are now under the protection of Voluntary Conservation Agreements.

<i>Houstonia correllii</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) The Coyotes Pasture Type Locality ( <i>previously</i> mapped as HROW) March 2003 (GPSed 2004)	Zapata	-99.355087 27.088359 (central point of a 50 acre polygon)	1000's	No
(2) Santo Niño Ranch Southern-most (or southwestern-most) pasture of the ranch, with ashy dogweed March 2003 (GPSed 2004)	Zapata	-99.384308 27.097521 (central point of a 255.8 acre polygon)	1000's	Yes
(3) Santo Niño Ranch Small clump further E/NE March 2003 (GPSed 2004)	Zapata	-99.362533 27.108833	~200	Yes
(4) Cañada Honda Ranch Northeast corner of ranch, with ashy dogweed March 2003 (GPSed 2004)	Zapata	-99.195143 27.010649 (central point of a 22 acre polygon)	1000's	Yes
(5) Cañada Honda Ranch Northwestern area of ranch, with ashy dogweed March 2003 (GPSed 2004)	Zapata	-99.213992 27.004884 (central point of a 27.7 acre polygon)	1000's	Yes
(6) Cañada Honda Ranch Near western fence line, with ashy dogweed March 2003 (GPSed 2004)	Zapata	-99.215312 26.998069 (central point of a 22.5 acre polygon)	100's	Yes
(7) The Airport Ranch Northeast corner joins Cañada Honda site above March 2003 (GPSed 2004)	Zapata	-99.218655 26.996330 (central point of 21.7 acre polygon)	1000's	Yes
(8) The Airport Ranch Site number 2—to the west March 2003 (GPSed 2004)	Zapata	-99.224695 26.991977 (central point of a 23.7 acre polygon)	1000's	Yes
(9) The Airport Ranch Site number 3—furthest to the west March 2003 (GPSed 2004)	Zapata	-99.237200 26.983623 (central point of a 24.4 acre polygon)	1000's	Yes

I was finally able to locate this species in March of 2003 after speaking with Dr. Ed Terrell on the phone and learning that he was indeed on the private land over the fence, not in the HROW. The Type and the previously only known locality for this species is on a private ranch owned by Belia Benavides of San Ygnacio in Zapata County. After contacting the family, I found that this pasture is referred to as the Coyotes Pasture and is now run by her son, Flumencio Munoz. This locality covers approximately 50 acres laid out in a snake-like band. This band runs southwest to northeast. Although plants were observed right up to the fence line along FM 3169, no plants were found in the HROW. I actually counted 4,500 individuals while walking along this band. Then, after driving to another location, I found that the plants just kept going and estimated that there were at least 10,000 individuals in the Coyotes Pasture. Plants were in flower and fruit and Janssen specimen # 1226 was collected. The remainder of the Benavides ranch on the south side of FM 3169 was surveyed, but no additional localities were found.

In March of 2003, I located additional new populations of *Houstonia correllii* in Zapata County just east of the town of Zapata on two of the Ramirez Family Ranches: The Airport Ranch and Cañada Honda Ranch. Janssen specimen #1227 was collected. The three populations located on the Cañada Honda Ranch were within even larger ashy dogweed populations. The three populations located on the Airport Ranch did not co-occur with ashy dogweed (i.e. side by side), although there is ashy dogweed on this ranch also. *Houstonia subviscosa* is always near *Houstonia correllii*; however, it is much more widespread and can be found throughout the ranch. Associated species on the Ramirez Ranches included: tiny white bluet (*Houstonia subviscosa*), ashy dogweed (*Thymophylla tephroleuca*), bladderpod (*Lesquerella argyrea*), honey mesquite (*Prosopis glandulosa*), prickly pear (*Opuntia engelmannii*), goatbush (*Casuela erecta* var. *texana*), winecup (*Callirhoe involucrata*), prickly-poppy (*Argemone sanguinea*), narrowleaf yucca (*Yucca constricta*), skullcap (*Scutellaria* sp.), blue curls (*Phacelia* sp.), sandbell (*Nama hispida*), Leavenworth vetch (*Vicia leavenworthii*), hoary pea (*Tephrosia lindheimeri*), bullnettle (*Cnidioscolus texanus*), tansy mustard (*Descurainia pinnata*), cowpen daisy (*Verbesina encelioides*), flax (*Linum* sp.), phlox (*Phlox drummondii*?), woolly globe mallow (*Sphaeralcea lindheimeri*), palmleaf globemallow (*Sphaeralcea pedatifida*), sandbur (*Cenchrus incertus*), Oro de Vibora (*Evolvulus alsinoides*), Mexican hat (*Ratibida columnifera*), Indian blanket (*Gaillardia pulchella*), Texas palafoxia (*Palafoxia texana*), milkvine (*Matelea* sp.), cardinal feather (*Acalypha radians*), spreading sida (*Sida abutilifolia*), Texas senna (*Cassia texana*), blackfoot daisy (*Melampodium cinereum*), and heirba del soldado (*Waltheria indica*).

The mother of all *Houstonia correllii* sites was discovered in March of 2003 on the ranch formerly known as the Hancock Ranch (and before that, the Talbert Ranch). Today this ranch has a new owner and is called Santo Niño Ranch. It just so happened that 12 biologists had converged on this ranch in March of 2003 for a grand survey to assess its rare assets for a possible purchase by the Nature Conservancy of Texas. Mr. Hancock had put this 30,000+ acre ranch on the market and the sale (probably in pieces) was immanent. I contacted the Nature Conservancy of Texas and told them about the ranch being for sale, and that I knew that it had at least two listed species, Johnston's frankenia and ashy dogweed, and I believed it could be harboring so much more. So, biologists from TPW, the Nature Conservancy of Texas, the U. S. Fish and Wildlife Service, South Texas Community College, and Mexico helped survey the ranch for both plants and animals, and everyone got to see this phenomenal dogweed-bluet site.

I returned to this site in March of 2004 and spent 2 days hiking this pasture to discern the extent of the *Houstonia correllii* population. I GPSed an area of 255.8 continuous acres of Correll's bluet, and this site is within an even larger ashy dogweed population. There is an additional disjunct occurrence of Correll's bluet a little further to the northeast of this large one.

Associated species at the Santo Niño Ranch bluet site included: tiny white bluet (*Houstonia subviscosa*), ashy dogweed (*Thymophylla tephroleuca*), bladderpod (*Lesquerella argyrea*), honey mesquite (*Prosopis glandulosa*), prickly pear (*Opuntia engelmannii*), goatbush (*Castela erecta* var. *texana*), allthorn (*Koeberlinia spinosa*), spiny hackberry (*Celtis pallida*), catclaw mimosa (*Mimosa* sp.), lantana (*Lantana urticoides*), globe berry (*Iberillea lindheimeri*), hoary milkpea (*Galatia canescens*), square-bud daisy (*Tetragonatheca repanda*), beaked verbain (*Verbena quadrangulata*), shrubby horsemint (*Monarda fruticosa*), spikesedge (*Cyperus* sp.), big lazy daisy (*Aphanostophus skirrhobasis*), Runyon onion (*Allium runyonii*), herissantia (*Herissantia crispa*), undescribed argythamnia (*Argythamnia* sp.), false dandelion (*Pyrrophappus* sp.), rabbit tobacco (*Evax candida*), winecup (*Callirhoe involucrata*), narrowleaf yucca (*Yucca constricta*), Spanish dagger (*Yucca treculeana*), skullcap (*Scutellaria* sp.), blue curls (*Phacelia* sp.), snake-cotton (*Froelichia* sp.), sandbelt (*Nama hispidum*), Leavenworth vetch (*Vicia leavenworthii*), hoary pea (*Tephrosia lindheimeri*), tansy mustard (*Descurainia pinnata*), cowpen daisy (*Verbesina encelioides*), flax (*Linum* sp.), phlox (*Phlox drummondii*?), woolly globe mallow (*Sphaeralcea lindheimeri*), palmleaf globemallow (*Sphaeralcea pedatifida*), sandbur (*Cenchrus incertus*), Oro de Vibora (*Evolvulus alsinoides*), Mexican hat (*Ratibida columnifera*), Indian blanket (*Gaillardia pulchella*), Texas palafoxia (*Palafoxia texana*), milkvine (*Matelea* sp.), cardinal feather (*Acalypha radians*), spreading sida (*Sida abutifolia*), Texas senna (*Cassia texana*), blackfoot daisy (*Melampodium cinereum*), fringed signal grass (*Brachiaria ciliatissima*), red lovegrass (*Eragrostis secundiflora*), paspalum (*Paspalum* sp.), sand dropseed (*Sporobolus cryptandrus*), tumble lovegrass (*Eragrostis sessilispica*), and bristlegrass (*Setaria* sp.).

Bill Carr also recorded a much more extensive associates list for the sand sheet in general that can be found in his report on the Hancock Ranch (GMF: 2709914; SC:F03CAR014) in the Nature Conservancy of Texas files. Bill Carr collected specimens of *Houstonia correllii* at this site (#'s 21782, 21808, 21810). Many photos were taken at the site.

**NEGATIVE RESULTS:** Both the Viduarri Estate in Zapata County and the San Antonio Ranch in Webb County were surveyed for *Houstonia correllii*. These two ranches also have populations of *Thymophylla tephroleuca* and similar habitat as that that supports *Houstonia correllii*; however, no sites were located. I was also able to gain access to many sandy ranches in between the Santo Niño Ranch and the Cañada Honda and Airport Ranches, and no *Houstonia correllii* was found.

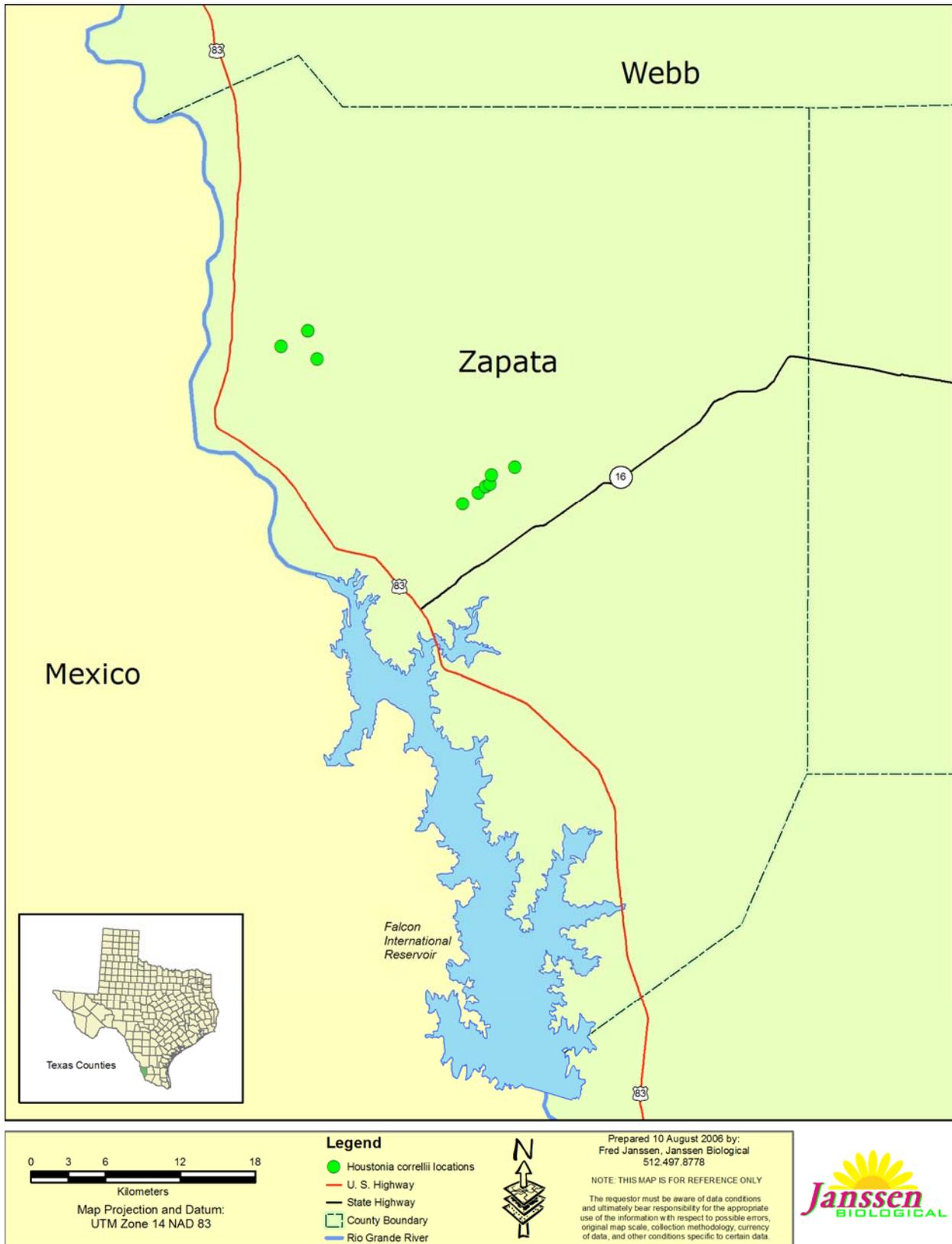


Figure 5. Distribution of the nine (9) new localities for Correll's bluet (*Houstonia correllii*) recorded during this study.

Species 10: St. Joseph's staff (*Manfreda longiflora*). A total of 48 new localities were discovered during this study. Twenty-three (23) of these sites are now under the protection of Voluntary Conservation Agreements.

<i>Manfreda longiflora</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) Hancock Ranch Canales Pasture March 2003	Zapata	-99.332700 27.180166	1	No
(2) Hancock Ranch Canales Pasture March 2003	Zapata	-99.333866 27.179666	1	No
(3) Hancock Ranch Canales Pasture March 2003	Zapata	-99.312844 27.172277	1	No
(4) Hancock Ranch Canales Pasture March 2003	Zapata	-99.315466 27.173816	1	No
(5) Hancock Ranch Canales Pasture March 2003	Zapata	-99.314833 27.173683	1	No
(6) Hancock Ranch Canales Pasture March 2003	Zapata	-99.333933 27.179700	1	No
(7) Santo Niño Ranch Rocky hill with Frankenia, March 2003	Zapata	-99.326749 27.160575	1	Yes
(8) Santo Niño Ranch Saline wash with Frankenia March 2003	Zapata	-99.333650 27.156000	1	Yes
(9) Don Jose Land and Cattle Company El Seco Del Varal Pasture, on hillside under goatbush January 2006	Zapata	-99.159542 26.901118	7	Yes
(10) Cabeza de Vaca Ranch Out in the open, in rocky saline flat with saladillo April 2006	Zapata	-99.220390 26.862818	1	Yes
(11) HROW—on the east side of Hwy 83, .3 mile	Starr	-99.028956 26.464143	~10	No roadside

north of the Loma Blanca Road intersection, along the fence line and into the private ranch. July 2002				
(12) Escobar Ranch Down the hill from chicken coops and pens, backside of dam April 2004	Starr	-98.960706 26.451177 (center point of larger polygon)	~20 or more	Yes
(13) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897427 26.522846	1	Yes
(14) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897436 26.522865	2	Yes
(15) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897266 26.522634	2	Yes
(16) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897255 26.522638	2	Yes
(17) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897485 26.522680	1	Yes
(18) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.896506 26.524091	2	Yes
(19) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad	Starr	-98.896848 26.524288	1	Yes

May 2005				
(20) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.896891 26.524315	1	Yes
(21) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.897321 26.522585	1	Yes
(22) Starr Cactus Ranch Within large saline-saladillo opening of the eastern side of ranch, near the deer blind crossroad May 2005	Starr	-98.896490 26.524032	6 In this area	Yes
(24) The Kelsey In the northern half of ranch, eastern side April 2004	Starr	-98.826661 26.534044	1	Yes Letter of Commitment
(25) The Kelsey In the northern half of ranch, eastern side April 2004	Starr	-98.826657 26.533659	2	Yes Letter of Commitment
(26) The Kelsey In the southern half of ranch, eastern side April 2004	Starr	-98.836563 26.465571	1	Yes Letter of Commitment
(27) The Kelsey In the center of ranch, due west of site above April 2004	Starr	-98.844444 26.465679	4	Yes Letter of Commitment
(28) J & B Ranch Rocky saline area just west of deer blind, with saladillo October 2004	Starr	-98.853758 26.502449	3+	Yes
(29) J & B Ranch Rocky saline area just west and south of deer blind October 2004	Starr	-98.852764 26.501863	3+	Yes
(30) J & B Ranch Near the stock tank and just west of HQ building	Starr	-98.853758 26.502449	3+	Yes

October 2004				
(31) La Mulada Ranch Within an open, saline, tasajillo dominated area April 2006	Starr	-98.873545 26.501637	2	Yes
(32) The Block Estate Open, saladillo dominated rocky hill June 2004	Starr	-98.864002 26.475702	1	No
(33) The Block Estate Saladillo dominated rocky hill near gate June 2004	Starr	-98.866198 26.471465	1	No
(34) The Block Estate Saladillo dominated rocky hill near gate June 2004	Starr	-98.866299 26.471379	2+	No
(35) Alvarez Ranch Saladillo dominated rocky hills in southwest corner of ranch May 2004	Starr	-98.860034 26.476155 (center point of larger polygon)	~5	No
(36) Alvarez Ranch Saladillo dominated rocky hillside on east side of pipeline May 2004	Starr	-98.857438 26.477010 (center point of larger polygon)	20 or more	No
(37) Alaniz Ranch At boundary of the brush line and the rocky hill June 2004	Starr	-98.865670 26.469949	1	No
(38) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.861800 26.452100	1	No
(39) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.861500 26.452300	1	No
(40) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.861400 26.453000	1	No
(41) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.863186 26.453151	1	No
(42)	Starr	-98.862839	1	No

Las Liebres Rocky saladillo hills down-slope from house March 2004		26.453178		
(43) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.861981 26.454051	1	No
(44) Las Liebres Rocky saladillo hills down-slope from house March 2004	Starr	-98.861408 26.453084	1	No
(45) Las Liebres West of large stock pond March 2004	Starr	-98.862612 26.464463	2	No
(46) Las Liebres West of large stock pond March 2004	Starr	-98.863092 26.459294	1	No
(47) La Sabunal Ranch In area dominated by mesquite with some peyote October 2004	Starr	-98.762106 26.537214	1	No
(48) La Sabunal Ranch In area dominated by mesquite with some peyote October 2004	Starr	-98.761824 26.536754	1	No

July 30, 2002, I found a small population of St. Joseph's staff along Highway 83 in Starr County. This site is .3 miles north of Loma Blanca Road, on the East side of Highway 83. There were five plants in flower along the fence line, and about five more inside the fence that I could see. I was sure the leaves looked like *M. longiflora*, but I thought it was a little early for *M. longiflora* to be blooming; however, I was able to key the flower right to *M. longiflora*. The recent heavy rains must have triggered the blooming. I did not collect a specimen. If all goes as planned, this site will be destroyed by the proposed widening of Highway 83. Plans should be made to remove these plants prior to construction, and either take them to San Antonio Botanical Gardens, or possibly replant them further into the ranch if possible.

Specific associated species lists and site details for each *M. longiflora* data point above is either currently not available, or was not recorded as a part of a large survey effort of biologists.

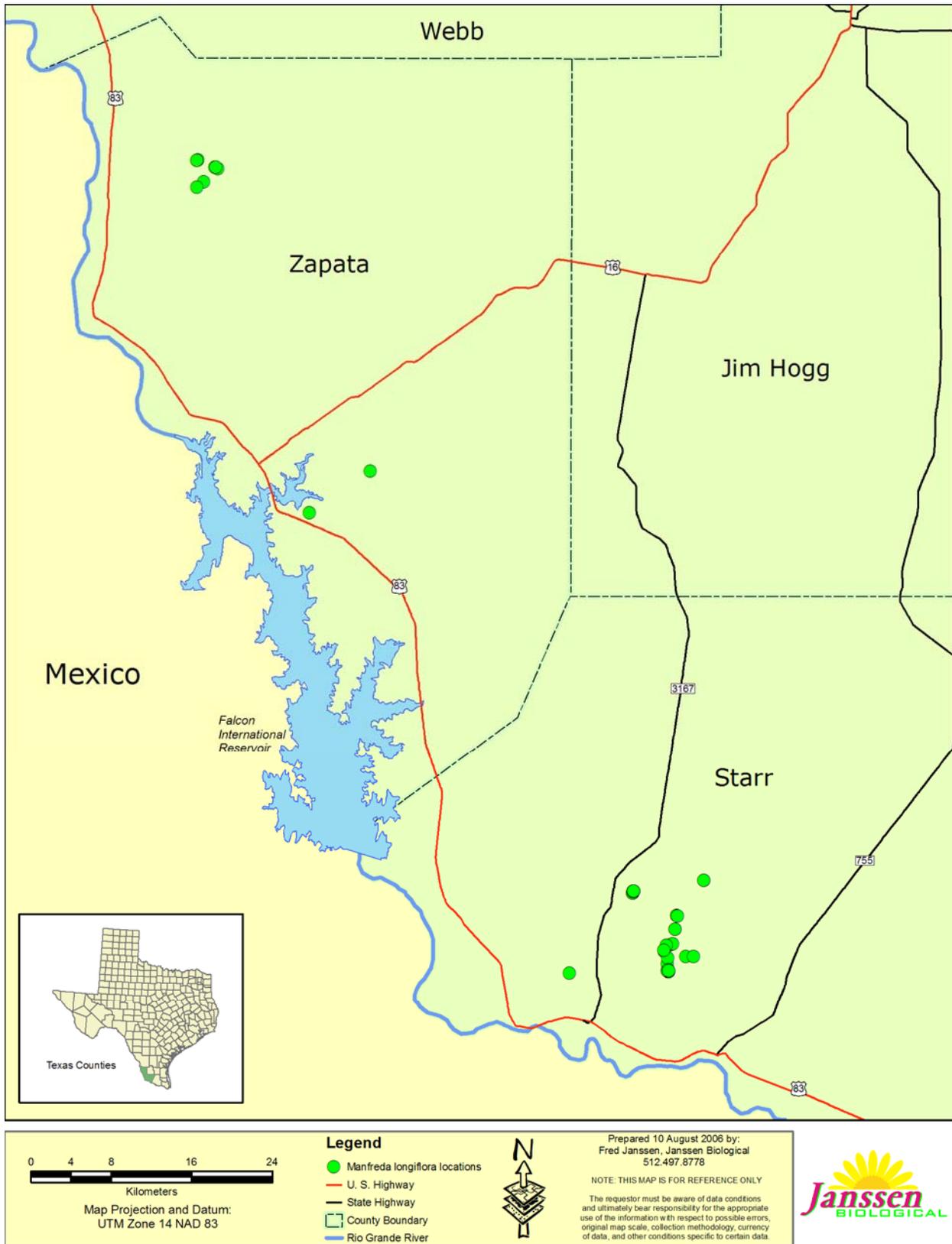


Figure 6. Distribution of the 48 new localities for St. Joseph's staff (*Manfreda longiflora*) documented during this study.

**Species 11: Walker's manioc (*Manihot walkerae*).** This species was not observed during this study.

**Species 12: Few-spined pricklypear (*Opuntia engelmannii* var. *flexospina*).** This species was dropped from this study because of questionable taxonomy.

**Species 13: Bushy whitlow-wort (*Paronychia congesta*).** No new sites were discovered; however, talks (in person, by telephone and by letter) with the two landowners of one of the (possibly two) existing sites were conducted each year of this project without success.

In the summer of 2003, I made appointments to go and speak with the Holbein Family in Hebbronville. Two brothers own the *Paronychia congesta* site (EO# 02): Dick and Alec Holbein. Their ranch is divided by FM 649, and Dick owns the west side and Alec the right. I spoke with each of them separately about the possibility of doing a conservation agreement. Although neither of them wanted anything to do with me or the idea of an agreement at first, I simply persisted and endured my share of, well, conservation ridicule; but, by the time I left they both said, "MAYBE." Now for the Holbein's, "maybe" should be considered a down-right victory! (By the way, Dick said that ever since "the letter", he has spent thousands of dollars fighting this. I asked him exactly how and he said that he hired an attorney, paid a Washington lobby group lots of money to help kill the ESA, and contributed to anti-Endangered Species Act politicians. You know, I always wondered why it was that *Lesquerella thamnophila* got onto the endangered species list, and *Paronychia congesta* somehow disappeared from the radar screen. Could this be why?)

I continued to follow up with the Holbein's in 2005 and 2006 by telephone and by letter, but to no avail.

I also spent time in the Tax Office researching the Type Locality just to the south of the Holbein Ranches, .5 mile to the west (off of 649) on a caliche road. As you may or may not recall, Ascension Martinez was sent a letter by the USFWS of the intent to list *P. congesta* in 1994. However, he may not be the actual owner of this site. It may be either Eleazar Perez or Jose Luis Perez. I could not reach either of them.

**Species 14: McCart's whitlow-wort (*Paronychia maccartii*).** Although diligently searched for, this species was not rediscovered during this project.

This species is known only from its type locality. This specimen of McCart's whitlow-wort was collected in Webb County in March of 1962, 8.3 miles south of Miranda City on 649, and has never been seen since. I searched this area for an entire day in March 2002, and found nothing that looked like the specimen. It was very, very dry the day I surveyed.

In March 2004, I was invited by Mr. Joe Mueller to survey his 1,700 acre ranch in Webb County called St. Jude's Ranch. It just so happened that this ranch was right in the same vicinity of the elusive 1962 locality for *Paronychia maccartii*. Thrilled with such an opportunity, 10 biologists from agencies including Texas Parks and Wildlife, the Nature Conservancy of Texas, South Texas Community College, and U. S. Fish and Wildlife Service came out to help survey St. Jude's Ranch. Alas it was not to be. Not only was *Paronychia maccartii* not rediscovered, but no other rare plant species (G1 or G2) were found.

**Species 15: Correll's false dragonhead (*Physostegia correllii*).** Although diligently searched for, this species was not rediscovered in South Texas during this project.

Correll's false dragonhead has a crazy distribution: Bexar, Galveston, Montgomery, Travis, Val Verde, and Zapata Counties in Texas, and also Louisiana and Mexico. This species is known from Zapata County from only one specimen collected in August of 1963 by L. E. Villarreal. Although I was unable to view the specimen, Irving's 1980 status report on this species states that this occurrence is described only as: Old Zapata.

"Old Zapata", or Zapata Viejo, is a term usually used to refer to the original settlement of Zapata which is now under Falcon Lake. This original settlement is just west of "New Zapata". However, what I find perplexing is that Falcon Reservoir filled up and inundated the town of Zapata Viejo by November 1954. Although I guess it is possible that the water had receded in 1963, the folks at the Jose Zapata Museum seemed adamant that the water didn't start receding to expose Zapata Viejo until the 1990's. I don't know if this is completely true however, because I cannot remember if I read somewhere or a landowner was telling me that the reason there is no sign of Zapata Viejo now that the water is completely gone is that the locals were so mad and so embarrassed that their town was "stolen by the government", that they went out and knocked down and destroyed all that remained years ago. Anyway...I digress.

In July of 2002 Zapata County received six to 10 inches of rain in various parts of the county. Every arroyo was flowing. Surveys were conducted for *P. correllii* in Zapata County in late July and early August 2002. I spent most of my time to the west of Highway 83 and close to the lake (trying to envision Zapata Viejo). With permission of the golf course owner, I also surveyed all the arroyos, ponds and "water hazards" of the local golf course by golf cart with negative results. One day while driving along a caliche road, I spotted a sign on a gate that read: Old Zapata Lease. "That's got to be a sign," I thought (no pun intended). I finally got permission to access, surveyed, but found nothing. I also spent a few days driving 83 and 16 stopping at every arroyo, but still saw no *P. correllii*.

**Species 16: Ashy dogweed (*Thymophylla tephroleuca*).** A total of 22 new sites were discovered or updated during this study. Fifteen (15) of these sites are being protected by Voluntary Conservation Agreements.

<i>Thymophylla tephroleuca</i> New Localities	CO.	Location (Decimal Degrees)	# of Plants	Signed CA?
(1) Dolores Subdivision Dolores Subdivision roadside & in front of the Cactus Yard Offices on Hwy 83 ROW April 2003	Zapata	-99.422056 27.275917	~20 to 30 small	No roadside
(2) Dolores Subdivision Dolores Subdivision sandy road/roadside and power line easement, plants on both sides and continuing into ranchettes and ranchland April 2003	Zapata	-99.41625 27.276194	1000's	No roadside
(3) Dolores Subdivision Dolores Subdivision sandy road/roadside and	Zapata	-99.415694 27.271583	1000's	No roadside

power line easement, both sides and continuing into ranchettes and ranchland April 2003				
(4) Chevron Road Chevron caliche road, ends at a gate that reads: Santa Margarita Ranch. A few plants around gate area and many visible to the south and east. April 2003	Zapata	-99.409389 27.274278	100's	No roadside
(5) Viduarri Estate—Eddie's Place Just inside his old rusty gate off of the caliche road, driving along his red gravel road, plants on both sides filling the pasture April 2003	Zapata	-99.413354 27.270436	1000's	No
(6) Viduarri Estate—Eddie's Place Continuing along the gravel road, plants continue on both sides of road filling the pasture April 2003	Zapata	-99.412972 27.269583	1000's	No
(7) Viduarri Estate—Eddie's Place Old disturbance study site. Study area plots now <i>filled</i> with dogweed, and adjacent pastures have many April 2003	Zapata	-99.414868 27.261537	1000's	No
(8) Santo Niño Ranch Deep sandy savannah-like pasture north of the main road March 2004	Zapata	-99.377907 27.123846	~10	Yes
(9) Santo Niño Ranch Deep sandy areas along the main road March 2004	Zapata	-99.362852 27.122826	100's	Yes
(10) Santo Niño Ranch Deep sandy areas along the main road March 2004	Zapata	-99.366398 27.122289	100's	Yes
(11) Santo Niño Ranch Deep sandy areas along the main road March 2004	Zapata	-99.369683 27.116495 -99.369896 27.116367	100's	Yes
(12) Santo Niño Ranch Deep sandy savannah-like pasture in the southwest corner of ranch. This point is	Zapata	-99.391416 27.100472	1,000's	Yes

where the dogweed starts. Continues northeast and south of this point for acres and acres March 2004				
(13) Santo Niño Ranch Deep sandy savannah-like pasture in the southwest corner of ranch. Continuation of population above, and plants continue to the north and northeast March 2004	Zapata	-99.375888 27.098861	1,000's	Yes
(14) Cañada Honda Ranch Deep sandy pasture. Plants scattered and few March 2004	Zapata	-99.215683 26.997600	~20	Yes
(15) Cañada Honda Ranch Deep sandy pasture near fence line. Plants scattered and few March 2004	Zapata	-99.215227 26.995550	~5	Yes
(16) Cañada Honda Ranch Deep sandy savannah-like pasture. Plants large and dense and everywhere March 2004	Zapata	-99.213281 27.004008 (central point of a 104 acre polygon)	1,000's	Yes
(17) Cañada Honda Ranch Deep sandy savannah-like pasture. Plants very large in diameter, dense and everywhere March 2004	Zapata	-99.192830 27.004921 (central point of a 369 acre polygon)	1,000's	Yes
(18) Cañada Honda Ranch Previously disturbed sandy opening near plowed food plots. Plants smallish, but dense March 2004	Zapata	-99.206492 26.983916 (central point of a 111 acre polygon)	1,000's	Yes
(19) The Airport Ranch Deep sandy savannah-like area. Plants scattered and few March 2004	Zapata	-99.215077 26.984267	~10	Yes
(20) The Airport Ranch Deep sandy savannah-like area. Plants scattered and few March 2004	Zapata	-99.217676 26.984919	~10	Yes
(21) The Airport Ranch Deep sandy savannah-like area. Plants abundant	Zapata	-99.230816 26.985330 (central point of a larger 64 acre	100's Possibly 1000's	Yes

March 2004		polygon)		
(22)	Zapata	-99.225613 26.978990 (central point of a larger 76 acre polygon)	100's Possibly 1000's	Yes
The Airport Ranch Deep sandy savannah-like area. Plants abundant March 2004				

The Dolores Subdivision is on the east side of Hwy 83 in northern Zapata County and is divided up into 12 very small tracts or ranchettes with a larger private ranch just to the east of these tracts. This sandy road mentioned above heads east from 83 and then turns south along the very sandy power line easement to go down the back side of these tiny tracts that make up the Dolores Subdivision. This road is blanketed with the endangered ashy dogweed (*Thymophylla tephroleuca*) on either side, with the prostrate milkweed showing up here and there. Both the dogweed and the milkweed can be seen continuing quite extensively into the subdivision tracts and the private ranch to the east.

Associated species in the Dolores Subdivision area were: prostrate milkweed (*Asclepias prostrata*), Texas palafoxia (*Palafoxia texana*), rabbit-tobacco (*Evax candida*), snake-cotton (*Froelichia* sp.), seaside heliotrope (*Heliotropium curassavium*), blackfoot daisy (*Melampodium cinereum*), sensitive briar (*Mimosa* sp.), lime prickly-ash (*Zanthoxylum fagara*), Guayacan (*Guaiacum angustifolium*), Texas persimmon (*Diospyros texana*), honey mesquite (*Prosopis glandulosa*), narrow-leaf yucca (*Yucca constricta*), *Croton* sp., *Allionia* sp., *Linum* sp., and *Guara* sp.

Associated species on Eddie's part of the Viduarri Estate were: prostrate milkweed (*Asclepias prostrata*), Texas palafoxia (*Palafoxia texana*), rabbit-tobacco (*Evax candida*), snake-cotton (*Froelichia* sp.), bladderpod (*Lesquerella argyrea*), false ragweed (*Parthenium confertum*), Oro de Vibora or blue evolvulus (*Evolvulus alsinoides*), seaside heliotrope (*Heliotropium curassavium*), bitterweed (*Hymenoxys odorata*), sandbell (*Nama hispidum*), Indian blanket (*Gaillardia pulchella*), blackfoot daisy (*Melampodium cinereum*), green-thread (*Thelesperma* sp.), sandbur (*Cenchrus incertus*), sensitive briar (*Mimosa* sp.), prickly pear (*Opuntia engelmannii*), Texas kidneywood (*Eysenhardtia texana*), cenizo (*Leucophyllum frutescens*), lime prickly-ash (*Zanthoxylum fagara*), Guayacan (*Guaiacum angustifolium*), Texas persimmon (*Diospyros texana*), honey mesquite (*Prosopis glandulosa*), narrow-leaf yucca (*Yucca constricta*), *Croton* sp., *Allionia* sp., *Linum* sp., and *Guara* sp.

Associated species at the Santo Niño Ranch dogweed sites included: tiny white bluet (*Houstonia subviscosa*), Correll's bluet (*Houstonia correllii*), bladderpod (*Lesquerella argyrea*), honey mesquite (*Prosopis glandulosa*), prickly pear (*Opuntia engelmannii*), goatbush (*Castela erecta* var. *texana*), allthorn (*Koeberlinia spinosa*), spiny hackberry (*Celtis pallida*), catclaw mimosa (*Mimosa* sp.), lantana (*Lantana urticoides*), globe berry (*Ibervillea lindheimeri*), hoary milkpea (*Galatia canescens*), square-bud daisy (*Tetragonatheca repanda*), beaked verbain (*Verbena quadrangulata*), shrubby horsemint (*Monarda fruticosa*), spikesedge (*Cyperus* sp.), big lazy daisy (*Aphanostophus skirhobasis*), Runyon onion (*Allium runyonii*), herissantia (*Herissantia crispa*), undescribed argythamnia (*Argythamnia* sp.), false dandelion (*Pyrrhopappus* sp.), rabbit tobacco (*Evax candida*), winecup (*Callirhoe involucrata*), narrowleaf yucca (*Yucca constricta*), Spanish dagger (*Yucca treculeana*), skullcap (*Scutellaria* sp.), blue curls (*Phacelia* sp.), snake-cotton (*Froelichia* sp.), sandbell (*Nama hispidum*), Leavenworth vetch (*Vicia leavenworthii*), hoary pea (*Tephrosia lindheimeri*), tansy mustard (*Descurainia pinnata*), cowpen daisy

(*Verbesina encelioides*), flax (*Linum* sp.), phlox (*Phlox drummondii*), woolly globe mallow (*Sphaeralcea lindheimeri*), palmleaf globemallow (*Sphaeralcea pedatifida*), sandbur (*Cenchrus incertus*), Oro de Vibora (*Evolvulus alsinoides*), Mexican hat (*Ratibida columnifera*), Indian blanket (*Gaillardia pulchella*), Texas palafoxia (*Palafoxia texana*), milkvine (*Matelea* sp.), cardinal feather (*Acalypha radians*), spreading sida (*Sida abutilifolia*), Texas senna (*Cassia texana*), blackfoot daisy (*Melampodium cinereum*), fringed signal grass (*Brachiaria ciliatissima*), red lovegrass (*Eragrostis secundiflora*), paspalum (*Paspalum* sp.), sand dropseed (*Sporobolus cryptandrus*), tumble lovegrass (*Eragrostis sessilis*), and bristlegrass (*Setaria* sp.).

Associated species on the Cañada Honda and Airport Ranches included: tiny white bluet (*Houstonia subviscosa*), Correll's bluet (*Houstonia correllii*), bladderpod (*Lesquerella argyrea*), honey mesquite (*Prosopis glandulosa*), prickly pear (*Opuntia engelmannii*), goatbush (*Castela erecta* var. *texana*), winecup (*Callirhoe involucrata*), prickly-poppy (*Argemone sanguinea*), narrowleaf yucca (*Yucca constricta*), skullcap (*Scutellaria* sp.), blue curls (*Phacelia* sp.), sandbell (*Nama hispidum*), Leavenworth vetch (*Vicia leavenworthii*), hoary pea (*Tephrosia lindheimeri*), bullnettle (*Cnidioscolus texanus*), tansy mustard (*Descurainia pinnata*), cowpen daisy (*Verbesina encelioides*), flax (*Linum* sp.), phlox (*Phlox drummondii*), woolly globe mallow (*Sphaeralcea lindheimeri*), palmleaf globemallow (*Sphaeralcea pedatifida*), sandbur (*Cenchrus incertus*), Oro de Vibora (*Evolvulus alsinoides*), Mexican hat (*Ratibida columnifera*), Indian blanket (*Gaillardia pulchella*), Texas palafoxia (*Palafoxia texana*), milkvine (*Matelea* sp.), cardinal feather (*Acalypha radians*), spreading sida (*Sida abutilifolia*), Texas senna (*Cassia texana*), blackfoot daisy (*Melampodium cinereum*), and heirba del soldado (*Waltheria indica*).



Figure 7. Distribution of the 22 new and updated localities for ash dogweed (*Thymophylla tephroleuca*) verified during this study.

**V. Location:**

**Webb, Zapata, Jim Hogg and Starr Counties**

## ATTACHMENT D

### CONSERVATION AGREEMENT TEMPLATE (Janssen Biological)

For

#### Rare Plants in the Lower Rio Grande Valley

##### Introduction

The Lower Rio Grande Valley of Texas is an area characterized by high biodiversity yet confronted with rapid urban growth and development. The six-county area along the lower Rio Grande between Raymondville and Laredo contains 12 unlisted, imperiled plant species and six federally-listed endangered plant species that are primarily restricted in range to the lower Valley in Texas and adjacent Mexico. This region also includes part of the ranges of an additional seven rare and historically-occurring plant species.

Cooperation on the part of private landowners could significantly benefit rare plant species in the Lower Rio Grande Valley. Statewide, more than 87% of land-holdings are privately owned. By identifying and prioritizing strategic habitat on private lands through rare plant survey and monitoring, conservation agreements with private landowners could lead to greater habitat continuity, reduced fragmentation, and increased total area of protection of rare plants and their associated communities occurring in the region. These benefits could lead to downlisting or delisting of federally-listed species and prevent the necessity of listing other rare species.

##### Purpose

Understanding that individual landowners are capable of protecting rare plants and their habitat on their land, are interested in achieving conservation, and take pride in maintaining these rare resources for our Texas heritage, Janssen Biological, in partnership with Texas Parks and Wildlife Department, has undertaken a project to develop Conservation Agreements with willing landowners. This work is supported by a grant from Texas Parks and Wildlife Department using funds provided by the U.S. Fish and Wildlife Service through Section 6 of the Endangered Species Act. We have initiated this project to conserve certain rare plants by reducing threats, stabilizing populations, and maintaining habitat by working in voluntary cooperation with landowners on whose property these plants occur. This project's primary purpose is to conserve these plants throughout their range on private land in Texas. The project's secondary purpose is to help ensure that rare plants which are currently unlisted will not need to be federally listed, and to help conserve and recover plants which are already on the Endangered Species list.

##### Agreement

I. **Species Involved:** (delete species not found on this tract)

Vasey's adelia  
South Texas ambrosia

*Adelia vaseyi*  
*Ambrosia cheiranthifolia*

Prostrate milkweed	<i>Asclepias prostrata</i>
Star cactus	<i>Astrophytum asterias</i>
Kleberg saltbush	<i>Atriplex klebergorum</i>
Texas ayenia	<i>Ayenia limitaris</i>
Chihuahua balloonvine	<i>Cardiospermum dissectum</i>
Runyon's cory-cactus	<i>Coryphantha macromeris</i> var. <i>runyonii</i>
Small papillosus cactus	<i>Echinocereus papillosus</i> var. <i>angusticeps</i>
Gregg's wild-buckwheat	<i>Eriogonum greggii</i>
Johnston's frankenia	<i>Frankenia johnstonii</i>
Plains Gumweed	<i>Grindelia oolepis</i>
Mexican mud-plantain	<i>Heteranthera mexicana</i>
Runyon's water-willow	<i>Justicia runyonii</i>
Zapata bladderpod	<i>Lesquerella thamnophila</i>
Runyon's huaco	<i>Manfreda longiflora</i>
Walker's manioc	<i>Manihot walkerae</i>
Falfurrias milkvine	<i>Matelea radiata</i>
Few-spined Engelmann's prickly pear	<i>Opuntia engelmannii</i> var. <i>flexospina</i>
Ashy dogweed	<i>Thymophylla tephroleuca</i>
Bailey's ballmoss	<i>Tillandsia baileyi</i>

## II. Parties Involved:

A. (Landowner Name)  
 (Ranch Name)  
 (Address)  
 (Address)  
 (Telephone):

B. Janssen Biological  
 8616 Barrow Glen Loop  
 Austin, TX 78749  
 Contact: Gena Janssen  
 512/282-7222

C. Texas Parks and Wildlife Department  
 Wildlife Diversity Branch  
 3000 IH 35 South - Suite 100  
 Austin, Texas 78704  
 Contact: Dana Price  
 Botanist  
 512/912-7043

## III. Authority:

Texas Parks and Wildlife Code--Chapter 12 [§12.025. (a)]

Texas Parks and Wildlife Code--Chapter 88

**IV. Description, Status and Distribution of (list species found on tract):**

*Attached*

**V. Conservation actions that will be carried out:**

The landowner agrees to leave areas containing populations of the above-referenced plants in their natural state. All mechanical and chemical alterations will be avoided in these areas by the landowner and any lessee of the property. Additionally, care will be taken when employing these methods near areas containing populations of the referenced plants. If applicable, livestock stocking rates appropriate to acreage and rainfall will be maintained to the best of the landowner's ability.

Texas Parks and Wildlife Department staff (and/or its designee) will enter the property, with permission from the landowner, at least once a year to survey and monitor each population site. The data from this annual monitoring will be compiled in a report which will be shared among the parties involved and with the U. S. Fish and Wildlife Service. Copies of the data will be retained in the files of Texas Parks and Wildlife Department and Janssen Biological. With prior permission from the landowner, Janssen Biological may also, if it so elects, enter the property on a periodic basis to monitor the population site.

Texas Parks and Wildlife Department staff will act as the landowner's liaison and will assist with communications concerning any Federal endangered species issues or concerns expressed by the U. S. Fish and Wildlife Service, or any other Federal agency if the landowner requests such.

**VI. Duration of Agreement:**

The duration of this Conservation Agreement is ten (10) years following the date of the last signature. The Conservation Agreement and its effectiveness will be reviewed annually during each monitoring visit to determine whether it should be revised. During the last sixty days in which it is valid, the Conservation Agreement must be reviewed and either modified, renewed, or terminated. Any party may choose to terminate this agreement at any time, but all parties must be notified at least 30 days beforehand.

**VII. Resolution of Disputes:**

The parties agree to work together to resolve any disputes that may arise under this Agreement. However, should a dispute remain unresolved, the parties will resolve the unresolved dispute using applicable procedures of Texas Government Code Chapter 2260. Notwithstanding any other provision in this Agreement, Texas Parks and Wildlife Department does not waive any Immunity that it may be entitled to under law.

**VIII. Relationships:**

Each party to this agreement is an independent contractor and nothing in this agreement is intended to create a partnership or other joint enterprise.

**IX. Other unforeseeable impacts:**

Even the most perfectly laid plans are subject to mishaps. If at any time there may be impacts to the populations of the referenced plant(s) that are out of the landowner's control (for example: seismic lines, gas well pad sites), the landowner agrees to notify Texas Parks and Wildlife. Texas Parks and Wildlife (as well as Janssen Biological) may be able to offer recommendations in difficult situations if the landowner requests assistance. If at any time there are impacts to the populations of the referenced plant(s) that are accidental (for example: root plow operator did not follow instructions), again the landowner agrees to notify Texas Parks and Wildlife. Often times accidents provide a perfect learning opportunity, and a study could be initiated to determine the recovery potential of the species.

**X. Signatures:**

A. (Landowner Name)  
(Ranch)

Signature \_\_\_\_\_ Date \_\_\_\_\_

B. Gena Janssen  
Janssen Biological

Signature \_\_\_\_\_ Date \_\_\_\_\_

C. Robert L. Cook  
Executive Director  
Texas Parks and Wildlife

Signature \_\_\_\_\_

Date \_\_\_\_\_

## ATTACHMENT E

### CONSERVATION AGREEMENT TEMPLATE (TNC)

For

#### Rare Plants in the Lower Rio Grande Valley

#### Introduction

The Lower Rio Grande Valley of Texas is an area characterized by high biodiversity yet confronted with rapid urban growth and development. The six-county area along the lower Rio Grande between Raymondville and Laredo contains 12 unlisted, imperiled plant species and six federally-listed endangered plant species that are primarily restricted in range to the lower Valley in Texas and adjacent Mexico. This region also includes part of the ranges of an additional seven rare and historically-occurring plant species.

Cooperation on the part of private landowners could significantly benefit rare plant species in the Lower Rio Grande Valley. Statewide, more than 87% of land-holdings are privately owned. By identifying and prioritizing strategic habitat on private lands through rare plant survey and monitoring, conservation agreements with private landowners could lead to greater habitat continuity, reduced fragmentation, and increased total area of protection of rare plants and their associated communities occurring in the region. These benefits could lead to downlisting or delisting of federally-listed species and prevent the necessity of listing other rare species.

#### Purpose

Understanding that individual landowners are capable of protecting rare plants and their habitat on their land, are interested in achieving conservation, and take pride in maintaining these rare resources for our Texas heritage, The Nature Conservancy, in partnership with Texas Parks and Wildlife Department, has undertaken a project to develop Conservation Agreements with willing landowners. This work is supported by a grant from Texas Parks and Wildlife Department using funds provided by the U.S. Fish and Wildlife Service through Section 6 of the Endangered Species Act. We have initiated this project to conserve certain rare plants by reducing threats, stabilizing populations, and maintaining habitat by working in voluntary cooperation with landowners on whose property these plants occur. This project's primary purpose is to conserve these plants throughout their range on private land in Texas. The project's secondary purpose is to help ensure that rare plants which are currently unlisted will not need to be federally listed, and to help conserve and recover plants which are already on the Endangered Species list.

#### Agreement

I. **Species Involved:** (delete species not found on this tract)

Vasey's adelia

*Adelia vaseyi*

South Texas ambrosia

*Ambrosia cheiranthifolia*

Prostrate milkweed	<i>Asclepias prostrata</i>
Star cactus	<i>Astrophytum asterias</i>
Kleberg saltbush	<i>Atriplex klebergorum</i>
Texas ayenia	<i>Ayenia limitaris</i>
Chihuahua balloonvine	<i>Cardiospermum dissectum</i>
Runyon's cory-cactus	<i>Coryphantha macromeris</i> var. <i>runyonii</i>
Small papillosus cactus	<i>Echinocereus papillosus</i> var. <i>angusticeps</i>
Gregg's wild-buckwheat	<i>Eriogonum greggii</i>
Johnston's frankenia	<i>Frankenia johnstonii</i>
Plains Gumweed	<i>Grindelia oolepis</i>
Mexican mud-plantain	<i>Heteranthera mexicana</i>
Runyon's water-willow	<i>Justicia runyonii</i>
Zapata bladderpod	<i>Lesquerella thamnophila</i>
Runyon's huaco	<i>Manfreda longiflora</i>
Walker's manioc	<i>Manihot walkerae</i>
Falfurrias milkvine	<i>Matelea radiata</i>
Few-spined Engelmann's prickly pear	<i>Opuntia engelmannii</i> var. <i>flexospina</i>
Ashy dogweed	<i>Thymophylla tephroleuca</i>
Bailey's ballmoss	<i>Tillandsia baileyi</i>

## II. Parties Involved:

A. (Landowner Name)  
 (Ranch Name)  
 (Address)  
 (Address)  
 (Telephone)

B. The Nature Conservancy  
 P.O. Box 6281  
 McAllen, Texas 78502-6281  
 Contact: Lisa Williams  
 Tamaulipan Thornscrub Project Director  
 956/580-4241

C. Texas Parks and Wildlife Department  
 Wildlife Diversity Branch  
 3000 IH 35 South - Suite 100  
 Austin, Texas 78704  
 Contact: Dana Price  
 Botanist  
 512/912-7043

## III. Authority:

Texas Parks and Wildlife Code--Chapter 12 [§12.025, (a)].  
Texas Parks and Wildlife Code--Chapter 88

**IV. Description, Status and Distribution of (list species found on tract):**

*Attached*

**V. Conservation actions that will be carried out:**

The landowner agrees to leave areas containing populations of the above-referenced plants in their natural state. All mechanical and chemical alterations will be avoided in these areas by the landowner and any lessee of the property. Additionally, care will be taken when employing these methods near areas containing populations of the referenced plants. If applicable, livestock stocking rates appropriate to acreage and rainfall will be maintained to the best of the landowner's ability.

Texas Parks and Wildlife Department staff (and/or its designee) will enter the property, with permission from the landowner, at least once a year to survey and monitor each population site. The data from this annual monitoring will be compiled in a report which will be shared among the parties involved and with the U. S. Fish and Wildlife Service. Copies of the data will be retained in the files of Texas Parks and Wildlife Department and The Nature Conservancy. With prior permission from the landowner, The Nature Conservancy may also, if it so elects, enter the property on a periodic basis to monitor the population site.

Texas Parks and Wildlife Department staff will act as the landowner's liaison and will assist with communications concerning any Federal endangered species issues or concerns expressed by the U. S. Fish and Wildlife Service, or any other Federal agency if the landowner requests such.

**VI. Duration of Agreement:**

The duration of this Conservation Agreement is ten (10) years following the date of the last signature. The Conservation Agreement and its effectiveness will be reviewed annually during each monitoring visit to determine whether it should be revised. During the last sixty days in which it is valid, the Conservation Agreement must be reviewed and either modified, renewed, or terminated. Any party may choose to terminate this agreement at any time, but all parties must be notified at least 30 days beforehand.

**VII. Resolution of Disputes:**

The parties agree to work together to resolve any disputes that may arise under this Agreement. However, should a dispute remain unresolved, the parties will resolve the unresolved dispute using applicable procedures of Texas Government Code Chapter 2260. Notwithstanding any other provision in this Agreement, Texas Parks and Wildlife Department does not waive any Immunity that it may be entitled to under law.

#### VIII. Relationships:

Each party to this agreement is an independent contractor and nothing in this agreement is intended to create a partnership or other joint enterprise.

#### IX. Other unforeseeable impacts:

Even the most perfectly laid plans are subject to mishaps. If at any time there may be impacts to the populations of the referenced plant(s) that are out of the landowner's control (for example: seismic lines, gas well pad sites), the landowner agrees to notify Texas Parks and Wildlife. Texas Parks and Wildlife (as well as The Nature Conservancy) may be able to offer recommendations in difficult situations if the landowner requests assistance. If at any time there are impacts to the populations of the referenced plant(s) that are accidental (for example: root plow operator did not follow instructions), again the landowner agrees to notify Texas Parks and Wildlife. Often times accidents provide a perfect learning opportunity, and a study could be initiated to determine the recovery potential of the species.

#### X. Signatures:

A. (Landowner Name)  
(Ranch)

Signature \_\_\_\_\_

Date \_\_\_\_\_

B. Lisa Williams  
Tamaulipan Thornscrub Project Director  
The Nature Conservancy

Signature \_\_\_\_\_

Date \_\_\_\_\_

C. Robert L. Cook  
Executive Director  
Texas Parks and Wildlife

Signature \_\_\_\_\_

Date \_\_\_\_\_