### FINAL REPORT

As Required by

# THE ENDANGERED SPECIES PROGRAM TEXAS

Grant No. TX E-112-R-1

Endangered and Threatened Species Conservation

# **Seedbanking the Rare Plants of Texas**

Prepared by:

Dr. Kathryn Kennedy



Carter Smith Executive Director

Clayton Wolf Director, Wildlife

19 November 2012

### FINAL REPORT

STATE: _	Texas	GRANT NUMBER:TX E-112-R-1
GRANT T	ITLE: Seedban	aking the Rare Plants of Texas
REPORTI	NG PERIOD:	1 Sep 09 to 28 Aug 12
while conc	currently increase gardens and vol	ect and secure material of priority Texas species for recovery efforts sing interaction among partners (private landowners, agency land unteers) to improve stewardship and awareness of plant biodiversity
Segment O	bjectives (see F	Project Statement for full details):
Selection b	based upon cor	2, and G3 ranked species in the Texas Natural Heritage Database is inservation priority rank and vulnerability, status of prior existing bility to properties, and species with no taxonomic uncertainty.
be collected state permit for species	d and accession t requirements v	rom with the highest priority (emphasizing federally listed plants) will ed in coordination with USFWS and TPWD botanists. Federal and will be met and permit applications are being prepared for submission rmitted for collection. Private landowner permission forms needed for quired.
	ecord informati	on about the condition of the habitat and the populations to assist ir ion work.
	•	will be deposited at the NCGRP and, where quantities permit, backeder appropriate conditions particular to each species.
Significant	<b>Deviations:</b>	
None.		
Summary (	Of Progress:	
Please see A	Attachment A (a	lso, a set of photos CD to be delivered separately).
Location: 7	Γexas.	
		vailable at time of this report, they will be available upon completion clusion of the project.

Prepared by:	Craig Farquhar	Date:	19 November 2012
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Approved by:	Craisdorgules	_ Date:	19 November 2012
	C. Craig Farquhar		

### ATTACHMENT A

# Final Report Seedbanking the Rare Plants of Texas Phase I

**Project #E-112-1 Contract #212327** 

**Submitted by:** Center for Plant Conservation

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And
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San Antonio Botanical Garden Debbie Benesh

And their support staff and many volunteers!

# **Seedbanking the Rare Plants of Texas**

### **Abstract**

The Center for Plant Conservation (CPC), working with its five participating institutions (PIs) who are partners for Texas conservation work, undertook a pilot collaborative project to collect and secure seeds of twenty species of Texas' vulnerable plants. The project tested a broad public private partnership operating quickly, in close coordination with the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service to meet priority needs. In addition there was emphasis on using consistent protocols, and best defined best conservation practices for collection from populations and for storage and data management to meet both Heritage Program and Center for Plant Conservation protocols. Despite record drought that severely constrained collection opportunities, the collaborators successfully completed 17 collections of 14 different species, and made unsuccessful attempts to collect an additional three species. The project demonstrated that such an approach is feasible, and its is hoped that this will establish an ongoing effort to secure resource seed collections needed for future management and restoration work to help steward Texas' plant diversity through the coming challenges of climate change. The implementation of the project underscored the urgency to establish a steady and ongoing collection program, given the weather extremes experienced, and the additional fluctuations expected in coming years. Underestimated project constraints to be addressed in future work include planning for the time lag in executing funding agreements for the Section 6 program, the challenge of coordinating the raising of private partner funds for match during the constraints of the section 6 funding defined periods of work, and the need for an approved process for establishing alternate species for collection in event the highest priority species cannot be obtained in a given field season due to adverse field conditions.

### Introduction

The state of Texas is ranked as one of CPC's highest priority hotspots for plant biodiversity needing conservation attention. The state of Texas has identified over 200 species of plants that are currently at risk (Poole et al. 2010). In Texas, of the 27 species with federal recovery plans, 82% (22/27) list reintroduction or augmentation as an action needed to achieve species' recovery in the wild. Rare species that have not been federally listed have similar needs to prevent them from becoming listed. Conservation seed collections provide necessary material for research tasks identified in recovery plans (reproductive biology, genetic analysis, etc.) and for restoration in the wild. Establishing Ex-situ (off-site) collections for Texas plant diversity will secure the genetic integrity of declining populations, provide a seed bank resource for immediate restoration needs, and create a safety net against unforeseen future threats of extirpation.

### **Objective**

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

### Location

The project ranges statewide, according to the locations of priority species. See accompanying data forms for more precise locality information by species.

### Methods/Approach

**Task 1:** This project will support long-term collaborative work with CPC institutions, USFWS, Texas Parks and Wildlife Department (TPWD), and other knowledgeable botanists to produce a prioritized list in order to secure ex-situ conservation collections of the Texas plant species. The complete species list will attempt to include all G1, G2, and G3 ranked species in the Texas Natural Heritage Database. The initial list of plants lays the foundation for the eventual completed list to be defined after pilot work with the CPC national office, participating institution conservation officers, and knowledgeable Texas botanists. Selection was based upon conservation priority rank and vulnerability, status of prior existing collections, ease of accessibility to properties, and species with no taxonomic uncertainty.

Task 2: While the project is envisioned as the initiation of a multi-year effort, preliminary funding requested will not allow completion of collection of all taxa in Table 1. Twenty species from Table 1 with the highest priority (emphasizing federally listed plants) will be collected and accessioned in coordination with USFWS and TPWD botanists. Most species have populations located on public lands. CPC protocols promote collection from known populations across land use and landowner profiles. Federal and state permit requirements will be met and permit applications are being prepared for submission for species not currently permitted for collection. Private landowner permission forms needed for project approval are being gathered and collection on private lands will not proceed without necessary documentation. To identify the specific sites for collection during the first year of the effort, PIs will confirm distribution, species seasonal biology, current weather conditions, and landowner information and permission. Species or population substitutions for initial collection will be made as necessary as approved by USFWS and TPWD.

Collections will be done using CPC protocols, cited in the USFWS Policy Regarding Controlled Propagation of Species Listed Under the Endangered Species Act. Guerrant, Fiedler, Havens, and Maunder (2004) recommend collecting genetically representative propagules that can be used during plant reintroductions. Although land managers must balance the needs of the species with the limits of available resources, the following are general collection guidelines:

- Collect no more than 10% of any individual plant's reproductive output in any vear.
- For species with  $\leq 50$  populations, collect from as many populations as possible.
- For populations with < 50 plants, collect from all known individuals.
- For populations with > 50 plants, collect from 10% of the plants or at least 50 individuals if 10% is not possible.
- Collect randomly from a diverse selection of plants regardless if characteristics are rare or common (do not select for only the plants with the largest blooms, unique colors, etc).
- If the genetics are unknown, collect as broadly (in an area) as possible to collect the most diverse selection of material.

In each case, however, knowledge of imminent threat, breeding systems, population density and structure, and genetic diversity governs species-specific decisions about collection quantities. These will be coordinated with USFWS and TPWD biologists in the permitting process.

Task 3: Collectors visiting the sites will record information about the condition of the habitat and the populations to assist in planning for future restoration work. Population information that will be collected will include the number of plants, area surveyed, average number of plants per square meter, maximum number of plants per square meter, number or percentage of seedlings, reproductive and non-reproductive plants, and threats to the population. Other habitat information of interest that will be recorded as equipment capacity allows will include canopy and vegetation cover, slope, exposure, litter, soil map type and characteristics (pH, trace minerals and organic matter), parent material, plant community, and associated plant species. This information will be shared with the Texas Natural Heritage Database and will be included in the central database of the Center for Plant Conservation. The CPC database is maintained by CPC and tracks the quantity, age, and withdrawal of ex-situ material for research and restoration work and will serve as a resource to review the progress and priorities for ex-situ collections in Texas.

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

### **Results and Discussion**

The Center for Plant Conservation (CPC) worked with five of its 38 Participating Institutions (PIs) nationwide to implement this project. The PIs working in Texas habitats include Lady Bird Johnson Wildflower Center (Austin), Mercer Arboretum and Botanic Garden (Houston), San Antonio Botanical Garden (San Antonio), The Arboretum at Flagstaff (Flagstaff), and Desert Botanical Garden (Phoenix).

Task 1. Establishing Species Priorities. The initial list (Table 1) of 52 highest priority plants was compiled after pilot work with the CPC national office, participating institution conservation officers, and knowledgeable Texas botanists. Selection was based upon conservation priority rank and vulnerability, status of prior existing collections, ease of accessibility to properties, and species with no taxonomic uncertainty. This initial list includes species that are federally listed, candidates for listing, critically imperiled (G1), imperiled (G2), or vulnerable to extirpation or extinction (G3).

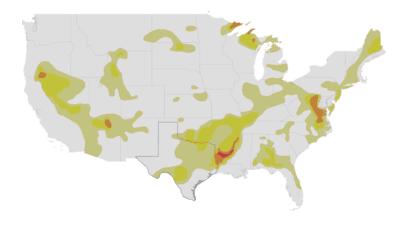
Due to the ongoing drought situation throughout the state of Texas, facilitating substitutions that would allow collectors to find species with the greatest possibility of seed set. In June of 2011 CPC received approval from the USFWS office to expand the initial list of 52 plants to incorporate the vast majority of the species on The List of the Rare Plants of Texas (Poole et al. 2010).

**Task 2.** Collection of ex-situ materials. During the 2010, 2011 and early 2012 Texas suffered extensive drought, including the driest 7 month period on record (Table 2 and Figure 1). While under more average weather conditions it would be anticipated that species collections would exceed minimum goals, the work period was severely constrained in meeting collection targets due to field conditions, even though a project extension was sought and granted.

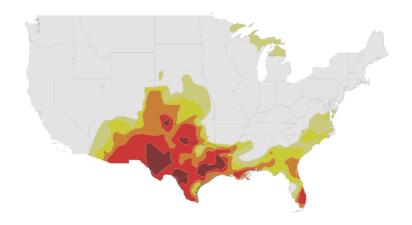
**Table 1.** Texas plant species with corresponding Texas Natural Heritage Database rank, land ownership, and PI.

Species	Rank	Landowner	PI
Abronia macrocarpa	G2	private	Mercer
Agalinis calycina	G1	private	LBJWC
Agalinis navasotensis	G1	private	Mercer
Ambrosia cheiranthifolia	G2	private	SABG
Amsonia tharpii	G1	public	Desert
Arenaria livermorensis	G1	public	Flagstaff
Arida blepharophylla	G1	private	LBJWC
Arida matturneri	G1	private	LBJWC
Asclepias prostrata	G1G2	public	SABG
Ayenia limitaris	G2	private	SABG
Bartonia texana	G1	public/private	Mercer
Callirhoe scabriuscula	G2	public/private	LBJWC
Cryptantha crassipes	G1	private	Desert
Cypripedium kentuckiense	G3	public	Mercer
Echeandia texensis	G1	private	SABG
Festuca ligulata	G1	public	Desert
Frankenia johnstonii	G3	private	SABG
Genistidium dumosum	G1	private	Desert
Geocarpon minimum	G2	public/private	Mercer
Helianthus paradoxus	G2	private-TNC	LBJWC
Hibiscus dasycalyx	G1	public	Mercer
Houstonia correllii	G1	private	SABG
Hymenoxys texana	G2	public	Mercer
Kallstroemia perennans	G1	public	Desert
Leavenworthia texana	G2T1	private	Mercer
Leitneria floridana	G3	public	Mercer
Lepidospartum burgessii	G2	public	Desert
Liatris tenuis	G3	public	Mercer
Malaxis wendtii	G2	public	Flagstaff
Manfreda longiflora	G2	public	SABG
Matelea texensis	G1	private	Desert
Opuntia arenaria	G2	public	Desert
Opuntia aureispina	G1	public	Desert
Osmorhiza bipatriata	G5T1	private-TNC	Flagstaff
Ostrya chisosensis	G5T2	public	Flagstaff
Paronychia congesta	G1	private	SABG
Pediomelum humile	G1	public/private	LBJWC
Phlox nivalis ssp. texensis	G4T2	public	Mercer
Physaria pallida	G1	public/private	Mercer
Physaria thamnophila	G1	private	SABG
Physostegia correllii	G2	public	Mercer
Pseudoclappia watsonii	G1	private	LBJWC
Quercus tardifolia	G1	public	Flagstaff
Rudbeckia scabrifolia	G3G4	public	Mercer
Salvia pentstemonoides	G1	public	LBJWC
Scutellaria laevis	G1	public/private	LBJWC
Silene subciliata	G3	public	Mercer
Sophora gypsophila var. guadalupensis	G1	public	Desert
Stenaria mullerae var. pooleana	G1	private	Desert
Streptanthus bracteatus	G1G2	public	LBJWC
Symphyotrichum puniceum var. scabricaule	G5T2	public/private	Mercer
Viola guadalupensis	G1	public	Flagstaff

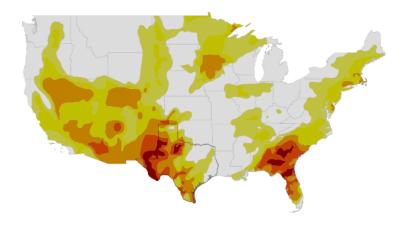
Figure 1. U.S. Drought During Project Period



8-31-2010



5-03-2011



5-01-2012

Source: National Public Radio http://stateimpact.npr.org/texas/drought/

# Table 2 Surface Area of Texas in Drought by Severity Selected Dates During Project Period

June 22, 2010
Abnormally Dry: 35%
Moderate Drought: 13%
Severe Drought: 0%
Extreme Drought: 0%
Exceptional Drought: 0%

### August 31, 2010

Abnormally Dry: 37%
Moderate Drought: 11%
Severe Drought: 1%
Extreme Drought: 0%
Exceptional Drought: 0%

### May 17, 2011

Abnormally Dry: 3% Moderate Drought: 5% Severe Drought: 12% Extreme Drought: 32% Exceptional Drought: 48%

### June 28, 2011

Abnormally Dry: 2% Moderate Drought: 1% Severe Drought: 4% Extreme Drought: 18% Exceptional Drought: 72%

### September 27, 2011

Abnormally Dry: 0%
Moderate Drought: 1%
Severe Drought: 3%
Extreme Drought: 11%
Exceptional Drought: 86%

### February 28, 2012

Abnormally Dry: 9% Moderate Drought: 18% Severe Drought: 29% Extreme Drought: 24% Exceptional Drought: 15%

 $Source: \ \ National \ Public \ Radio \ http://stateimpact.npr.org/texas/drought/$ 

Collaborators successfully completed 17 collections of 14 different species, and made unsuccessful attempts to collect an additional three species (Table 3). Species with successful collections included *Arenaria livermorensis*, *Callirhoe scabriuscula*, *Croton alabamensis*, *Cryptantha crassipes*, *Hibiscus dasycalyx*, *Hymenoxys texana*, *Lesquerella thamnophilla*, *Liatris tenuis*, *Malaxis wendtii*, *Ostrya chisoensis*, *Rudbeckia scabrifolia*, *Salvia penstemonoides*, *Streptanthus bracteatus*, and *Viola guadalupensis*.

Three efforts to secure collection were unsuccessful due to weather conditions (*Cypripedium kentuckiense*), problems relocating recorded populations (only dead *Quercus tardifolia* individuals were located), or poor condition from disease (powdery mildew on one population of *Streptanthus bracteatus*).

Collections were conducted using CPC protocols, cited in the USFWS Policy Regarding Controlled Propagation of Species Listed Under the Endangered Species Act [FR65:183, p 56916], generally following the guidance of Guerrant, Fiedler, Havens and Maunder (2004). In each case, however, species biology and population condition, as well as threat assessment guided collection decisions to collect in a manner that did not weaken natural populations. Consequently, seed quantities harvested varies with species and population. During this project period one population of *Callirhoe scabriuscula*, slated for imminent destruction in the wild was sampled for ex-situ seed conservation, and also individual plants were rescued and transported to the Lady Bird Johnson Wildflower Center. Permission was obtained for collection on private lands and forms were submitted annually to TXNDD.

Ten collections are of fewer than 500 seeds, reflecting poor seed availability, and it is recommended that collection efforts for these populations continue gradually over time if necessary to reach a minimum of 1000 seed. Larger seed quantities also facilitate establishing duplicate or divided collections held in two locations for security, and to permit ongoing research from locally held accessions to advance recovery plan tasks.

Going forward, maximizing productivity for each field season will require careful planning and coordination. During the first phase of work, the timing of arrival of executed funding agreements did initially delay implementation of work, and undoubtedly was a factor in reduced numbers of species available for collection in the 2010 field season. Closer communication and coordination between notification and the executed funding instruments would expedite funding availability needed for seasonal hiring decisions and before incurring extensive staff and field expense.

Task 3 Data Collection and Management. Collectors also followed TPWD Texas Natural Diversity Database (TXNDD) protocols in data recording. To ensure the most efficient and accurate data collection for the TXNDD, a training was coordinated with TXNDD and the CPC national office. TXNDD designed the training and held it at the Lady Bird Johnson Wildflower Center in November of 2010 and at Mercer Arboretum and Botanic Gardens in January of 2011. Travel logistics with the two Arizona PIs (Desert and Flagstaff) working far to the west, have delayed training for these PIs. Training is anticipated when they are in Texas for field work. The half-day training consisted of a presentation/discussion and a lab practical. The presentation covered the role of the TXNDD, NatureServe's (and TXNDD's) spatial methodology, collecting GPS data, downloading GPS data with a DNR Garmin, and checking and using data in Arc Explorer (or ArcMap). The lab practical/exercise involved collecting GPS data using

NatureServe's methodology, downloading and reviewing data, overlaying data over other spatial data, and discussing how the spatial data could be used to assist future seed collecting efforts.

Task 3. Collectors recorded information about the condition of the habitat and the populations using the standard TPWD Rare Plant Survey Form. Population information collected included the number of plants, area surveyed, number or percentage of seedlings, reproductive and non-reproductive plants, and threats to the population. Other habitat information was recorded included slope, exposure, litter, and associated plant species as equipment and opportunity permitted. Forms were submitted to the Texas Natural Diversity Database (TXNDD). It is added to the Center for Plant Conservation Database, and data forms were submitted annually (Appendix 1). Photographs were taken and submitted as well (Appendix 2) and will be archived and indexed at the Center for Plant Conservation.

**Task 4. Secure Storage**. CPC has a formal and active cooperative agreement with the National Center for Genetic Resources Preservation (NCGRP) to house CPC's seed collections of the vulnerable plants of the United States at no charge. As soon as all collections were cleaned and accessioned they are evaluated for quantity, conditioned and shipped for delivery to the NCGRP and, if numbers permit, a second portion also backed up at their respective CPC institutions. The only exception to this is a *Viola guadalupensis* collection made by The Arboretum at Flagstaff which the National Park Service requested be retained at The Arboretum for immediate use in recovery activities.

### Acknowledgements

The Center for Plant Conservation gratefully acknowledges the funding of the U.S. Fish and Wildlife Service, the Texas Parks and Wildlife Department, the Meadows Foundation, and private donors for making this project possible. The CPC network Participating Institutions who assumed responsibility for species in their area, conducted the field work, and contributed significant in-kind match are to be commended for their achievement under poor field conditions. In addition all of the collaborators and agency partners who assisted with TNDD training, landowner research, permit contacts, species knowledge, assistance monitoring wild conditions and site visits have contributed to project success. We look forward to continuing to work to secure and restore the vulnerable species of such a significant botanical center of diversity.

Table 3 Texas plant species collected (or collection attempt) in initial work period.

Successful collections

											10	
Genus	Species	Variety/ Subspecies	Federal Status	G- Rank	PI Accession No.	Collection Date	Total No. seeds collected	Ownership	No. of Moms	1º Storage Location	Location seed count	2º Stora Loca
Arenaria	livermorensis			G1	2010-0088	2010-Aug-14	243	Private	14	NCGRP	243	
Callirhoe	scabriuscula		LE	G2	1358	2010-Jun-(7-22)	4,998	Private	54	NCGRP	3,998	LBJW
						2011	3,150	Private		LBJWC	3,150	
Croton	alabamensis	texensis		G3T2	20110001	2011-Jun-8	309	Private	97	NCGRP	267	LBJW
Cryptantha	crassipes		LE	G1	20110044- 20110049	2010-Mar-28, May-9&13, & Jun-13	2901	Private	458	NCGRP	2901	
Hymenoxys	texana		LE	G2	20120091-01 to 20120091-18	2012-Apr-25	150,000	Public No EO # yet assigned	1005	Mercer	130,000	NCGF
Hibiscus	Dasycalyx (1)		С	G1	20110004	2011-Oct-6	174	Public	10	NCGRP	174	
Hibiscus	Dasycalyx (2)		С	G1	20120160- 20120199	2012-august 16	1188	Public	20	NCGRP		Merce
Lesquerella	thamnophila		LE	G1	20110002	2011-Apr-22	105	Public	9	NCGRP	105	
Liatris	tenuis			G3	20110003	2011-Nov-4	1,389	Public	63	NCGRP	1,389	
Malaxis	wendtii			G2	2010-0087	2010-Sep-15	50	Public	2	NCGRP	50	
Ostrya	chisosensis			G5T2	2010-0086	2010-Sep-14	1451	Public	5	NCGRP	1451	
Rudbeckia	scabrifolia			G3G4	20110005	2011-Nov- (21&29)	2,005	Public	34	NCGRP	2,005	
Salvia	pentstemonoides			G1	1357	2010-Jul-7 & Aug-5	377	Private	30	NCGRP	377	
				G1	CPC201202	2012-July 26	51			LBJWC	51	
Streptanthus	bracteatus		С	G1G2	1356	2010-Jun-21	355	Private	6	NCGRP	355	
					CPC201201	2012-Jul-8	154	Public		LBJWC	154	
Viola	quadalupensis			G1	2010-0126	2010-May-1	300	Public	unk	FLAG	300	

Table 3. Continued.

### Unsuccessful Collections

Genus	Species	Variety/ Subspecies	Federal Status	Rank	PI Accession	Collection Date	Total No. seeds collected	Ownership	No. of Moms	1º Storage Location	1º Location seed count	2º Storage Location
Cypripedium	kentuckiense			G3	N/A	2010-Oct-XX	0	Public	0	N/A		
Quercus	tardifolia			G1	N/A	2010-Sep-14	0	Public	0	N/A		
Streptanthus	bracteatus		С	G1G2	N/A	2010-May-7	0	Private	0	N/A		

N/A= unsuccessful attempt

FLAG-The Arboretum at Flagstaff; LBJWC-Lady Bird Johnson Wildflower Center; DES-Desert Botanical Garden; MERC-Mercer Arboretum and Botanic Gardens NCGRP-National Center for Genetic Resources Preservation

### Citations

- Guerrant, E.O., Fiedler, P.L., Havens, K.H. and M. Maunder. Revised Genetic Sampling Guidelines for Conservation Collections of Rare and Endangered Plants. pp419-441 IN: Ex-Situ Plant Conservation, Supporting Species Survival in the Wild. E.O Guerrant Jr., K. Havens, and M. Maunder, eds. Island Press, Washington D.C.
- National Public Radio. Dried Out. Confronting the Texas Drought. Online web site: <a href="http://stateimpact.npr.org/texas/drought/">http://stateimpact.npr.org/texas/drought/</a>
- "Policy Regarding Controlled Propagation of Species Listed Under the Endangered Species Act, Notice." Federal Register 65:183 (20 September 2000) p.56916.
- Poole, J.M., J.R. Singhurst, and W.R. Carr. 2010. The Rare Plant List of Texas. Wildlife Diversity Program of Texas Parks and Wildlife Department and Texas Conservation Data Center of The Nature Conservancy of Texas.

### Significant Deviations

# Field work was implemented for only 16 separate species instead of the expected minimum of 20 species.

This was due to two factors. The primary factor was the record drought over much of Texas during the majority of the work period. An additional factor is the award contracting workflow. As executed funding agreements or extension documentations do not arrive until spring or early summer, many species in Texas are already well developed, and the initiation of work necessarily lags behind prime collection season for some species.

# Species collections varied from the emphasis on the identified highest priority species, as the project had intended to focus on.

We were successful in collecting a significant number of federally listed and candidate species (7), and G1 ranked species (3). We had intended to make more progress on the highest priority species identified in Table 1. However, the drought reduced the availability of many of the priority species, and as poor conditions continued, in consultation with TPWD, it was decided to allow more latitude in substituting collections of other species on The Rare Plant List of Texas that could be located in good condition and would support progress in seed collection for future restoration and management needs.

Appendix One. Field Forms

Appendix Two. Photographs

Delivered as Digital Files by FTP

### **Cryptantha crassipes**

Collection Date	Location	lat/long	Elevation	USGS Topo Map	DBG ACC#	Seed count	# Mother plants
13-May-10	Lower Hill Valley, O2 Ranch, Brewster Co, TX	N3284848 E629412 UTMS	955-1045m	Longhills	201100491000	496	100
13-May-10	Sotol Valley #2, O2 Ranch, Brewster Co, TX	N3283236 E627723.79		Longhills	201100451000	692	135
28-Mar-10	John Wells "The Field Lab" Brewster Co, TX	N3289193 E627689			201100481000	151	
9-May-10	Terlingua Ranch, Brewster Co, TX				201100471000	247	
May 9, 2010 & June 13, 2010	John Wells "The Field Lab" Brewster Co, TX, Agua Fria Mt.	N3269347.66m E636850.03m	1000m	29103-E6	201100461000	38	
13-May-10	O2 Ranch, Population NW of Hill Valley population	N29.41'12.8" W103.40'03.8"	1049m		201100441000	31	23
13-May-10	Brewster Co, TX				201100441000	103	
13-May-10	Sotol Valley pop, O2 Ranch, Brewster Co, TX	N29.40'16.2" W103.40'51.5"	1056m		201100441000	561	100
13-May-10	Section 6, O2 Ranch, Brewster Co, TX	N29.40'07.8" W103.40'33.8"	1056m		201100441000	582	100
-						2901	458



Use this form in

with the Accession Form to file information on wildcollected germ plasm

General Information
1. Completed by: Maria T. Williams Date: June 13, 2010
2. Taxon name (scientific) Cryptantha crassijes
3. Institution Sul Ross State University
4. Your institution's accession number
5. Herbarium specimen number Way 9,2010
6. Collected by Manal. Williams Date of Collection June 13, 2010
Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)
7. State ex as County Brewser  8. Latitude N32631 Longitude E636850.03H  9. Township Range Section  10. Elevation 1000 m Aguatria Mt.  11. USGS Topo Map 29103-E6 John Wells
13. Descriptive location (MPOI MPOZ)
Flaggy limestone à arroyo, Terlingua Crenk Ranch Subdivision
Habitat Information
14. Light (circle one) Open       1/4 shade       1/2 shade       3/4 shade       full         15. Slope (circle one) 0-5       6-10       11-40       41-60       >60         16. Exposure       North       South       East       West         17. Litter       0cm       <1 cm



# CPC FIELD COLLECTION FORM (cont'd)

Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Charac	teristic	S							
18.	Soil Tes	t results	3							
Р	K	Ca	Mg	CEC		Organic Matter	Soil Ph	Soil Type		
20. 21.	Parent R Plant con Associat	mmunit ted spec	y ies ispid.		A E,	1 0	# im hav	ardii		
	Number				11-30	31_1	100 1	01-500	>500	
	Area cov	-	length width	` '	40 ac		1	01-300		
	Avg. no. Max. no.	-					,	n serting		
27.	No. or % No. or % No. or % % reprod	nonrep	roducti		In Flowe	- .r	In Fruit			
30.	Threats t	to this p	opulatio	n De	ورواه	ment;	habite	4 loss,	All ter	frain
					Į	,		at loss,	Vehico-tra	le Aic



Use this form in

with the Accession Form to file information on wildcollected germ plasm

### **General Information**

1.	Completed by: B	RANDI EID	E	Date: 12-3	3-10	
2.	Taxon name (scien	ntific) <u>CRYP</u>	TANTHA (	CRASSIPES		
3.	Institution _Suc	ROSS UNI	VERSITY	1-490		
4.	Your institution's	accession numb	oer			
5.	Herbarium specim	en number				
6.	Collected by			Date of Collec	ction <u>5/9/</u>	10
7. 8. 9. 10. 11.	llection Location have information  State	County BRI Longitude Range and address	out item 12 at	a minimum)		you do
14. 15. 16.	bitat Information Light (circle one) Slope (circle one) Exposure Litter	Open 0-5	1/4 shade 6-10 South <1 cm	½ shade 11-40 East 1-3 cm	3/4 shade 41-60 West 3-8 cm	full >60 >8cm



CPC FIELD COLLECTION FORM (cont'd)
Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Chara	cteristic	S							
18.	Soil Te	est results	3							
P	K	Ca	Mg	CEC		Organic Matter	Soi	l Ph	Soil Type	
20.		Rock ommunit ated spec	•							
Pop	oulation	Inform	ation							
21.	Numbe	er of plan	ts 1-10		11-30	3	1-100	101-	-500	>500
22.	Area co	overed	lengtl width	` '						
	-	o. of plar o. of plar				_				
27.	No. or	% repro- % nonrep % seedling	producti	ves						
		oductives		d	In Flo	wer	In ]	Fruit		
30.	Threats	s to this p	opulatio	on						



Use this form in

with the Accession Form to file information on wildcollected germ plasm

### **General Information**

1.	Completed by:	RANDIED	E	Date: 12-3-	-10							
2.	2. Taxon name (scientific)											
3.	3. Institution SUL ROSS UNIVERSITY											
4.	Your institution's	accession numb	oer									
5.	Herbarium specim	en number										
6.	Collected by			Date of Collec	etion <u>5/13/</u>	10						
	Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)											
9. 10. 11.	State TX Latitude N 21° 10' 2 Township Elevation 3465 USGS Topo Map Land owner name	Range	103°40′51.6 Section	n								
13.	Descriptive locati	ion 02 R	ANCH, SOT	TOL VALLEY	POPULAT	NON						
Ha	Habitat Information											
15. 16.	Light (circle one) Slope (circle one) Exposure Litter	0-5 North	6-10	½ shade 11-40 East 1-3 cm	41-60	full >60 >8cm						



CPC FIELD COLLECTION FORM (cont'd)
Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

			-								
Soi	l Charac	eteristic	s								
18.	Soil Tes	st results	5								
P	K	Ca	Mg	CEC		Organi Matter	С	Soil Pl	1	Soil Type	
20.	Parent I Plant co Associa	mmunit	-								
Pop	oulation	Inform	ation								
21.	Number	of plan	ts 1-10		11-30		31-100	)	101-50	00	>500
22.	Area co	vered	lengtl width	` '							
	Avg. no Max. no					<del></del>					
27.	No. or % No. or %	6 nonre	producti	ves		<u> </u>					
	% repro			d	In Flov	wer		In Frui	t		
30	Threats	to this n	onulati	าท							



Use this form in

with the Accession Form to file information on wildcollected germ plasm

### **General Information**

1.	1. Completed by: BRANDI EDE Date: 12-3-10										
2.	Taxon name (scien	ntific)									
3.	InstitutionS	UL ROSS 1	MILLERS ITY								
4.	4. Your institution's accession number										
5.	5. Herbarium specimen number										
6.	Date of Collection 5/13/10										
7. 8. 9. 10. 11. 12.	Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)  7. State TX										
На	bitat Information										
15. 16.	Light (circle one) Slope (circle one) Exposure Litter	0-5 North	6-10 South	½ shade 11-40 East 1-3 cm	41-60	full >60 >8cm					

30. Threats to this population



# CPC FIELD COLLECTION FORM (cont'd)

Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Charact	teristics	}						
18.	Soil Test	results							
P	K	Ca	Mg	CEC	Orgar Matte		Soil Ph	Soil Type	
20.	Parent R Plant cor Associate	nmunit	*						
Pop	oulation I	nforma	ition						
21.	Number	of plant	s 1-10	11	-30 3 plants s	31-100	1	101-500	>500
22.	Area cov	rered	length width (	(m)	<i>,</i> , , , , , , , , , , , , , , , , , ,	surpice			
	Avg. no. Max. no.	-							
27.	No. or % No. or % No. or %	nonrep	roductiv	es					
	% reprod		_	In	Flower		In Fruit		



Use this form in

with the Accession Form to file information on wildcollected germ plasm

Genera	ì	Inf	'nr	mя	tic	m

1.	. Completed by: BRANDI EIDE Date: 5 12-3-10										
2.	Taxon name (scien	ntific)				2					
3.	Institution SU	L ROSS U	NIVERSITY								
4.	Your institution's	accession num	ber								
5.	5. Herbarium specimen number										
6.	Collected by			Date of Collec	tion <u>5/13/1</u>	0					
7. 8. 9. 10. 11.	Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)  7. State County BREWSTER  8. Latitude 29'40'078" Longitude w 103' 40' 33. 8"  9. Township Range Section  10. Elevation 3465'  11. USGS Topo Map  12. Land owner name and address										
	Descriptive location ones: A few S-		,		t faither	w vidanas					
10	oles. Micov s	THE IN - 1000C	1,5011C 11C1	bloom, bes	· Willing C	on riages					
Ha	bitat Information										
15. 16.	Light (circle one) Slope (circle one) Exposure Litter	0-5 North	South	11-40 East	41-60	full >60 >8cm					



# CPC FIELD COLLECTION FORM (cont'd)

Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soil	l Charact	eristics								
18.	Soil Test	results								
P	K	Ca	Mg	CEC		Organ Matte		Soil Ph		il pe
20.	Parent Ro Plant con Associate	nmunity								
Pop	ulation I	nforma	tion							
21.	Number o	of plants	s 1-10		11-30		31-100	/	101-500	>500
22.	2. Area covered length (m) width (m)					h 100	SAMPU	ED .		
	3. Avg. no. of plants/sq m4. Max. no. of plants/sq m					<b>–</b>				
27.	6. No. or % reproductive					_				
	% reprod		_	1	In Flov	wer		In Fruit		

30. Threats to this population \_\_\_\_\_

some herbivony



Use this form in

with the Accession Form to file information on wildcollected germ plasm

### **General Information**

1.	Completed by:	BRANDI ED	E	Date: 12-	3-10						
2.	2. Taxon name (scientific)										
3.	. Institution SUL ROSS UNIVERSITY										
4.	4. Your institution's accession number										
5.	5. Herbarium specimen number										
6.	6. Collected by Date of Collection 5/13/10										
					*						
Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)  7. State County BREWSTER											
8.	Latitude	Longitude									
10.	Latitude  Fownship  Elevation  USGS Topo Map		Section	n							
12.	Land owner name	and address_									
13.	Descriptive locati	on									
	May be gre	eenhouse se	eed - DES s	seeking cla	rification	n and					
	more infor	rmation									
Hal	bitat Information										
15. 16.	Light (circle one) Slope (circle one) Exposure Litter	0-5		11-40 East	3/4 shade 41-60 West 3-8 cm	full >60 >8cm					



CPC FIELD COLLECTION FORM (cont'd)
Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Charact	teristics	S								
18.	Soil Test	t results									
P	K	Ca	Mg	CEC		Organi Matter		Soil Pl	ı	Soil Type	
20.	Parent R Plant cor Associat	nmunit	-								
Pop	oulation I	nforma	ation								
21.	Number	of plan	ts 1-10		11-30		31-100	)	101-50	0	>500
22.	2. Area covered length (m) width (m)		,								
	Avg. no. Max. no.	_				- -					
27.	No. or % No. or % No. or %	nonrep	roducti	ves	-	<u> </u>					
	% reprod			i	In Flov	ver		In Frui	t		
30.	Threats to	o this p	opulatio	n							(6)



Use this form in

with the Accession Form to file information on wildcollected germ plasm

General Information									
1. Completed by: Maria T. Williams Date: July 31, 2010									
2. Taxon name (scientific) Cryptantha crassipes									
2. Taxon name (scientific) Cryptantha crassipes  3. Institution Sul Ross State University									
4. Your institution's accession number SRSC									
5. Herbarium specimen number Population Al Voucher #94 MWilliams Seed collection by Manning Date of Collection 13 MAY 2010									
Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do not have information for item 8, fill out item 12 at a minimum)  7. State Texas County Brewster 8. Latitude N 328448 Longitude E629412 UTMS 9. Township Range Section 10. Elevation 955-1045 m 11. USGS Topo Map Longhills 12. Land owner name and address  13. Descriptive location  Flaggy limestone, Soft yellow hills 4 10% vegetation									
Habitat Information									
14. Light (circle one) Open       1/4 shade       1/2 shade       3/4 shade       full         15. Slope (circle one) 0-5       6-10       11-40       41-60       >60         16. Exposure       North       South       East       West         17. Litter       0cm       <1 cm									





# CPC FIELD COLLECTION FORM (cont'd)

Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soil Characteristics											
18.	18. Soil Test results										
P	K	Ca	Mg	CEC	Organic Matter	Soil Ph	Soil Type				
19. Parent Rock 20. Plant community Hot desert scrub 21. Associated species  Tiquilia hissipidisma, Anulocaulis leisolerus, Machaerantha wrightii  Population Information											
Population Information											
21.	Number o	of plants	1-10	11-30	31-100	101-50	>500				
22.	Area cove	ered	length width	` '							
	23. Avg. no. of plants/sq m 24. Max. no. of plants/sq m										
27. 28.	No. or % No. or % No. or %	nonrepr seedling	oductiv			In Emile					
	% reprodu			$\overline{\mathcal{L}}$	nite mini	In Fruit	poment, offroad 4 wheelin				



Use this form in

with the Accession Form to file information on wildcollected germ plasm

General Information	
1. Completed by: Maria 1. Williams Date: March 23, 2010	
1. Completed by: Maria T. Williams Date: March 23, 2010  2. Taxon name (scientific) Cryptantha crassipes  3. Institution Sul Ross State University	
3. Institution Swl Ross Stafe University	
4. Your institution's accession number $SRSC$	
5. Herbarium specimen number #62 MWilliams populational voucher	
* 6. Collected by M. Williams Date of Collection 3 23 2010	
Does this hear the date that the Specimen (voucker) was collected of Collection Location (fill out as many as possible; items 7 and 8 are essential. If you do the seeds not have information for item 8, fill out item 12 at a minimum)	c+
7. State Texas County Brewster 8. Latitude 13283236 Longitude E 627723.79 9. Township Range Section 10. Elevation 11. USGS Topo Map Longhills 12. Land owner name and address	
13. Descriptive location	
Soft hills, rocky slopes	
Habitat Information	
14. Light (circle one) Open  15. Slope (circle one) 0-5  16. Exposure  North  N	
17. Litter (0cm) <1 cm 1-3 cm 3-8 cm >8cm	



CPC FIELD COLLECTION FORM (cont'd)
Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Charactei	ristics								
18.	Soil Test re	esults								
P	K	Ca ]	Mg	CEC	Orga: Matte		Soil Ph		oil ype	
20. 21.	Parent Roc Plant comr Associated Tequil Polyar pulation Int	nunity 1 species	Hot	desert		a tride	entat havi	ta arti		
Pop	oulation Ini	formati	on		J					
21.	Number of	plants	1-10	11	-30	31-100	)	101-500	(>)	500
22.	Area cover		ength width (	, ,						
	Avg. no. of	-	-							
27. 28.	No. or % r No. or % n No. or % so % reproduce	onrepro eedlings	ductiv		Flower	(	In Fruit	t		
30.	Threats to 1	this pop	ulatior	Benta	nite	minin	g, d.	evelopi	nent,	offroad 4 wheelin



# CPC FIELD COLLECTION FORM

Use this form in

with the Accession Form to file information on wildcollected germ plasm

General Information		
1. Completed by: Maria Williams	•	
2. Taxon name (scientific) <u>Cryptantha</u> 3. Institution <u>Sul Ross State Un</u>	crassines	
3. Institution Sul Ross State Un	iversity	
4. Your institution's accession number SRS		L.
5. Herbarium specimen number #67 Μω	illitms	-
6. Collected by MWilliams	Date of Collection 28	March 2010
<b>Collection Location</b> (fill out as many as possible not have information for item 8, fill out item 12 at		tial. If you do
7. State 12AS County Brewster 8. Latitude N328913 Longitude E 627689 9. Township Range Secti 10. Elevation 11. USGS Topo Map 12. Land owner name and address John Well		b"-google FieldLab
13. Descriptive location Approximately 62 miles South of A Sign down dirt mad for z.3 mi Firsty limstone, yellow hills	-lpine TX 1185 (R) les see sign fo	OTErlingua Rand "The Field Lab"
Habitat Information		
14. Light (circle one) Open 15. Slope (circle one) 0-5 16. Exposure North 17. Litter 0cm 1/4 shade 6-10 8-0uth 8-10 8-10 8-10 8-10 8-10 8-10 8-10 8-10	½ shade ¾ shade 11-40 41-60 East West 1-3 cm 3-8 cm	e full >60 >8cm



# CPC FIELD COLLECTION FORM (cont'd)

Use this form in conjunction with the Accession Form to file information on wildcollected germ plasm

Soi	l Characteristics			
18.	Soil Test results			
P	K Ca Mg CE	C Org Ma	anic Soil eter	Ph Soil Type
20. 21.	Parent Rock Limestone Plant community Hot dese Associated species Thompson Yucca A Leucophylm minus pulation Information		urpurea	
21.	Number of plants 1-10	11-30	31-100	101-500 >500
22.	Area covered length (m) width (m)			
	Avg. no. of plants/sq m Max. no. of plants/sq m			
27. 28.	No. or % reproductiveNo. or % nonreproductivesNo. or % seedlings			
29.	% reproductives In Bud	In Flower	In Fi	ruit

30. Threats to this population Mining, offroad travel, development

### RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program 3000 IH-35 South, Ste 100

INSTRUCTIONS: Complete 1 form per element per visit.

Austin, TX 78704 (512) 912-7011

ELEMENT INFORMATION					
Scientific Name: Arenaria	iver me	orensis		Update of Occ.# (if k	record: yes no (nown):
SURVEY SITE INFORMATION			_		
Survey Site: Davis Mountains,	near th	esummit of Mt. Li	resmore		
Quad Name(s) (if known):					
SURVEY INFORMATION,				Database Use O	
Survey Date: 08/14/2010	Tìr	me: from <u>12</u> to <u>3</u>			TXUS
Surveyors (principal surveyor first, include	first & last	t name): Sheila /	Hurray, Mar	k Janecki	
Weather conditions: Suny, 90°					
Revisit to this EO needed? yes X_ n	o Why?_				
IDENTIFICATION				11, 8 2010 A-1	E
Photograph/slide taken? X yes no Specimen collected? X yes no Specimen collected? X yes no Identification problems? yes X no Identification problems? yes X no Identification problems?	Is a copy Collection : NCAR f necessar	y attached? X yes n # and repository (specify if P for seed banking y, describe the important)	o Digital photo #: 1 from a subpopulation purposes # plant characteristics y	Archive n): 2010 - 0088 rou used for identification:	d location: Atherstyn at Tlags faff
			_		
CONDITION: Condition is an integrated degree to which they affect the continued cal processes, 3) species composition and cessful reproduction, habitat degradation, SIZE AND PHENOLOGY: Size is a quant cupancy, 2) population abundance, 3) population abundance, 3) population abundance, what was counted (individuals, stems, excellent (E)    Vigor of plants: excellent (E)    Age structure: % seedlings (sdl)  Population distribution (widely scattered)	existence of biological disturbance dist	of the occurrence. Composite structure, and 4) abiotic paragraphs, presence of exotic special assure of the area and/or a tribution and 4) population to the area and/or a tribution and 4) population for a tribution and 5 population for a tribution and 6 population for a tribution and 7 population for a tribution and 8 population for a tribution fo	nents of condition for only sical/chemical fact its, the degree to who bundance of an occululation.  The period of measurement:  The period of the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical function in the sical function in the sical function in the sical function is the sical function in the sical function in the sical function is the sical function in the sical f	r species are: 1) reproduct tors. Factors to consider: 6 hich ecological processes arrence. Components of the X precise (P) count	ion and health, 2) ecologi- evidence of regular suc- are sustaining the habitat. is factor are 1) area of oc-
Area of occupancy (fill one): mete Phenology: Indicate the number observer in leaf (lf) in bu	rs <sup>2</sup> <b>437</b> I in each c ud (bd)	<b>5</b> feet <sup>2</sup> acres ategory (or check if number in flower (fl) dormant (dor)	Type of measuremen ers are unknown):	t: precise (P) X es	, ,
Subpop # of (P or E)			Area		GPS data
# and age structure	Vigor	Distribution	(units, P or E)	Phenology	(lat, long, accuracy)
BIOLOGY Evidence of disease and/or predation:  Flora visitors:  Do other members of this genus or look-al		occur at this survey site?	X ves no liture	Col	ected: yes _X_ no lected: yes _X_ no

CONDITION	(continued)	
-----------	-------------	--

GENERAL DESCRIPTION: Describe the specific habitat or micro habitat of the plant at this location. Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.  Plant's growing on igneous rock outcrop near a smaller summit of Mont Livermore. Plant's were not found growing in Soil, they were all directly on the large outcrop, or on pieces of the outcrop near the base, and tended to prefer the shade, moister habitat, Plant's
found growing among mosses & lichens.  TOPOGRAPHY: Elevation: 8100 ft If elevation is range: Minimum: ft Maximum: ft
Aspect:         Slope (%):         Light:         Position:         Moisture:          N         NE        flat        open        crest        inundated          E         NW        o-10        partial        wupper slope        saturated (wet-mesic)          S         SE        lo-35        wid-slope        wmoist (mesic)          X         W        starting (wet-mesic)        wmoist (mesic)          wid-slope        wid-slope        wid-slope          wid-slope        wid-slope        wid-slope     <
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population.  Plants on our citter directs on the rock returned, or on pieces of the outcop.  CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.  Tock falls
POTENTIAL THREATS to this occurrence: Global climate change.  EXOTICS PRESENT? X yes no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
EO RANK: BC EO Rank Date: 08/14/2010 comments: Used the Natureserve Key for Ranking  Species Element Occurrences using the Generic Approach
LANDOWNER AND MANAGEMENT INFORMATION
Managed Area Name: Davis Mountains  Landowner Name: The Nature (onservance)  Permission Form Signed: X yes (attach copy) Date signed O7/16/2010 no  Can Landowner contact information be added to the database? X yes no  Comments:
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More management needed: yes _X no questionable Comments:
More land needed: yes X no questionable Comments:
For Public Land: More protection needed: yes X no questionable Comments:

\_\_\_ 60-160

MAPP	ING	AND	DIRE	СП	ONS

\_\_\_ 800-1500

\_\_\_ 1500-4000

tions (North South ata)		urrence. Refer to nearby landmarks, roads, and towns. Include distances, compass direc-	
Davis Mount	tains, Texas, on The Na	ature Gaservancy of Texas property, mear the summit of s SW of the summit of Mt. Livermore, on an igneous	
Mount Livermore	, about .25 airmiles	s SW of the summit of Mt. Livermore, on an igneous	
rock outcrop.			
•			
	andatory): Attach a photocopy of n the map and do NOT reduce or	f the USGS 7.5' quad with the location and extent of the rare plant population clearly marked. • enlarge the photocopy.	
Please write the scale of		enlarge the photocopy.	
Please write the scale of	n the map and do NOT reduce or	enlarge the photocopy.	
Please write the scale of MAPPING CERTAINTY:	n the map and do NOT reduce or Marks on the 1:24,000 scale map a	enlarge the photocopy.  are estimated to within:	
Please write the scale of MAPPING CERTAINTY:  mm on 1:24k map =	n the map and do NOT reduce or Marks on the 1:24,000 scale map a meters on the ground	enlarge the photocopy.  are estimated to within:	
Please write the scale of MAPPING CERTAINTY: <u>mm on 1:24k map</u> = 0-1 1-2	n the map and do NOT reduce or Marks on the 1:24,000 scale map a meters on the ground 12.5-25	enlarge the photocopy.  are estimated to within:	
Please write the scale of MAPPING CERTAINTY:  mm on 1:24k map =  0-1	n the map and do NOT reduce or  Marks on the 1:24,000 scale map a  meters on the ground  12.5-25  25-50	enlarge the photocopy.  are estimated to within:	
Please write the scale of MAPPING CERTAINTY:  mm on 1:24k map =  0-1  1-2  2-4	n the map and do NOT reduce or  Marks on the 1:24,000 scale map a  meters on the ground  12.5-25  25-50  50-100	cenlarge the photocopy.  are estimated to within:  Comments about mapping precision and location:	
Please write the scale of MAPPING CERTAINTY:  mm on 1:24k map =  0-1  1-2  2-4  4-8	n the map and do NOT reduce or  Marks on the 1:24,000 scale map a  meters on the ground  12.5-25  25-50  50-100  100-200	enlarge the photocopy.  are estimated to within:	

other, specify:		If subpopulations present,	note lat/long and accuracy in subpopulation table.
Submitting GPS coor Type of unit (e.g. Tri	dinates: mble, Garmin):	GPS datum: NAD 83	_
	uncorrected GPS (12 – 20m accuracy opulation mapped? X yes		
RECORD MAINTENANCE			

Accuracy: +/- 15m

Date: \_\_\_\_\_ Mapped & Entered by: \_\_\_\_ Transcriber: \_\_ Date:

Subpop #	# of (P or E) and age structure	Vigor	Distribution	(see above for abbrev Area (units, P or E)	Phenology	GPS data (lat, long, accuracy)
						_

# **OPTIONAL PLANT LIST**

CHECK ONE:  Plant list for the entire survey site OR  Plant list for a community or area within this si  Name of area within this survey site, if known  Name of ecological community, if known:	urvey site; if checked, please complete the following: n:
SPECIES LIST	d at this survey site. For unfamiliar species indicate genus, if known, or plant

Species Name: List the scientific name for <u>all</u> species observed at <u>this</u> survey site. For unfatype, e.g. "Carex sp." or "grass sp."

Type: A = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb

Frequency: common, locally common, infrequent, rare, etc.

D = Dominant: check if applicable

N-n = Non-native: check if applicable

Collection #: if collected, your collection number

Photo: check if photo taken

Species Name	Туре	Frequency	D ( <b>√</b> )	N-n (✓)	Collection #	Photo (✓)	Comments:
euchera sp.	PH						
euchera sp.	PH						
radescantia so.	PH						
heropedimsp.	H						
erouspus sp.	ρ5		_				
INUS 30.	PT						
Silene sp. Dxalis sp.	PH						_
) xalıs sp.	H		-		_		
eranium so.	PH	-					
rickella sp.	PH						
Sickellia sp. Sedun sp. gastachesp.	P H						
gastachesp.	PH						
, , ,		. ,	LIJ.	,			
arious ferns, lichens	, a mosse	s graving or	17he 1	red<\$			
	<u> </u>			1			



# LANDOWNER PERMISSION FOR WILDLIFE RESEARCH

(Pursuant to Section 12.103 of the Texas Parks and Wildlife Code)

1.	<u>Use of Information</u> : I hereby grant approval for Texas Parks and Wildlife Department employees to enter property I own or manage to conduct scientific investigations and research on wildlife and to record and use (such as in analyses) site-specific information from the property. This may include placing that information onto a topographic map and entering the information into a Department database. Thus, the information could be viewed by the public.					
	Christopher C. Pipes (Landowner or authorized agent)		July 16, 2010			
2.	Reporting of Informati Department employees above approved informa the specific parcel of pro Christopher C. Pipes	to report (such as tion in a manner th	approval for Texas Parks and Wildlife in publications or technical reports) the at permits identification of the location or			
	(Landowner or authorized agent)		s that apply to this approval.			
4	Name and Address					
4.	Name and Address:					
	Christopher C. Pipes, Davis Mountains Project Director, The Nature Conservancy (Name of Landowner or Authorized Agent)					
	P.O. Box 2092					
	(Address)					
	Ft. Davis, TX 79734 (City, State, Zip)					
5.	Optional:					
	Jeff Davis		Approx. 32,000			
	(County)	422 420 2222	(Acreage)			
	432-413-1554 (Home Phone)	432-436-2390 (Office Phone)	(FAX)			

Texas Parks and Wildlife Department maintains the information collected through this form. With few exceptions, you are entitled to be informed about the information we collect. Under Sections 552.021 and 553.023 of the Texas Government Code, you are also entitled to receive and review the information. Under Section 559.004, you are also entitled to have this information corrected. For assistance call 512-389-4978.

rev. 05/24/2006

#### RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department
Wildlife Diversity Program
3000 IH-35 South, Ste 100
Austin TX 78704 (512) 912-70

Collected:

Collected: yes X no

INSTRUCTIONS: Complete 1 form per element per visit. (512) 912-7011 Austin, TX 78704 **ELEMENT INFORMATION** Update of record: yes no Scientific Name: Occ.# (if known): Big Bend National Park, Chises Montains, Colima trail SURVEY INFORMATION Database Use Only Survey Date: <u>09 /14 /2010</u> Time: from \_\_\_\_\_\_ to \_\_\_\_\_ am or pm (circle) Sourcecode: F Surveyors (principal surveyor first, include first & last name): Sheila Murray, Mark Jarecki, Whitney Roney, Gayle Revisit to this EO needed? X yes \_ no Why? To better count individual Photograph/slide taken? X yes no is a copy attached? yes no Digital photo #: Malwc^ Archived locati

Specimen collected? X yes no Collection # and repository (specify if from a subpopulation):

Seed Collected ACCRP F-----Archived location: Arbertum Seed's collected, stored at NCGRP for seed banking purposes BIBE-01625 # 48482, # 486 Identification problems? yes X no If necessary, describe the important plant characteristics you used for identification: CONDITION: Condition is an integrated measure of the quality of biotic and abiotic factors, structures and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components of condition for species are: 1) reproduction and health. 2) ecological processes, 3) species composition and biological structure, and 4) abiotic physical/chemical factors. Factors to consider: evidence of regular successful reproduction, habitat degradation, disturbance, presence of exotic species, the degree to which ecological processes are sustaining the habitat. SIZE AND PHENOLOGY: Size is a quantitative measure of the area and/or abundance of an occurrence. Components of this factor are 1) area of occupancy, 2) population abundance, 3) population distribution and 4) population fluctuation. Abundance (total size of the occurrence): Total #: Type of measurement: precise (P) count X estimate (E) What was counted (individuals, stems, etc.): Vigor of plants: X excellent (E) good (G) fair (F) poor (P) Age structure: 01 % seedlings (sdl) 09 % juveniles (j) 90 % mature (m) 0 % senescent (sn) Population distribution (widely scattered, clumped, evenly distributed throughout): \_\_\_\_\_ Area of occupancy (fill one): \_\_\_\_\_ meters<sup>2</sup> 500 feet<sup>2</sup> \_\_ acres Type of measurement: \_\_\_ precise (P) 🗶 estimate (E) Phenology: Indicate the number observed in each category (or check if numbers are unknown): 3\_ immature fruit (ifr) amature fruit (mfr) in flower (fl) \_\_**Q**\_ in bud (bd) seed dispersing (disp) SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations); additional table on page 3 GPS data Subpop Vigor Distribution Phenology and age structure (units, P or E) (lat, long, accuracy) BIOLOGY
Evidence of disease and/or predation: Rodent transl had distribed the soil grand one

Do other members of this genus or look-alike plants occur at this survey site? \_\_\_\_yes X no \_ If yes, list species:

Rare Plant Survey From	Page 2
CONDITION (continued)	
GENERAL DESCRIPTION: Describe the specific habitat or micro habitat of the plant at this location. Convey a me tures including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated optional Plant List form is available for associated plant species; please attach.  Mesic slope, underneath asks, most plants observed upslope from in deep leaf litter, other times the slope was steep enough so accountate, mostly in greas that were not very dense with	ed plant species. The TPWD
mesic slope , vive real marks, most paints assort opsopes.	4 + 14 11 +
in deep leat litter, other times the slope was steep enough so	that litter did not
anymulate, mostly in areas that were not very dense with	largss cover.
described (a) the first of the	
. <del>"</del>	
TOPOGRAPHY: Elevation: 7000 ft If elevation is range: Minimum: ft Maximum: ft	
Aspect: Slope (%): Light: Position: Moisture	
<del></del> <del></del> <del></del>	indated urated (wet-mesic)
S SE 10-35 filtered mid-slope mo	pist (mesic)
	r-mesic r (xeric)
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population hat	pitat and how this may affect the viabil-
ity of the population. Plants in areas of dense oak, not in open areas	
CHERENT THREATS to this accurrance (i.e. browsing mining off road vahicles dumning etc.). Evolics are noted	holow
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted	below.
Collection, Trampling from hikers	
POTENTIAL THREATS to this occurrence:	
FOTENTIAL THREATS to this occurrence.	
EXOTICS PRESENT? yes X no If yes, describe their impacts to this occurrence. List exotic species in Habi	tat Description or on the Optional
Plant List form.	at Bescription of the Optional
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)	
0.0 00/4/0210 1111	
EO RANK: 13C EO Rank Date: 09/14/2010 Comments: used Natureserve	7 .
- Element Occurrences using the Generic	Approach
<del>_</del>	
LANDOWNER AND MANAGEMENT INFORMATION	
Managed Area Name: Big Bend National Park Landowner Name: Nat	inal Parkservice
Permission Form Signed: X yes (attach copy) Date signed 05/05/2010 no	THE TOTAL PROPERTY OF
Can Landowner contact information be added to the database? X yes no	
Comments:	
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, s	tudy effects of browsing):
With the Emerit, month of the or the end of	ady checks of browsing).
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):	
More management needed: yes no _X questionable Comments:over harvesting by collections	tors a serious threat
More land needed: yes X no questionable Comments:	

For Public Land: More protection needed: \_\_\_\_ yes \_X\_ no \_\_\_ questionable Comments: \_\_\_\_\_

MAPPING AND DIRECTI	ONS
---------------------	-----

MAPP <u>ING AND DIRECTI</u>	ONS			
			andmarks, roads, and towns. Inc	
tions (North, South, etc.).	101.01	11. 111.0	a rayonal with Dak	trace on the
Bia Bend Natu	nal Park, Chisos	, mouniains, siapi	e die de vin une	-Trees on the
	Cr Cris	Deal about he	If we between the	Constrant of
Colina Trail,	DE of Emory	reak jubble no	lithry between the	-) 101010130
11 < 41, 1, 10	Rin and Boot	· Campon trails	,	
the Southwest	MINT AND COST	Olypo (1997)	e covered with Dak ilfway between the	
TODOODADINO MAD (	1-4	- £ 45 - 1,1000 7 5)	the leasting and autout of the service	a plant paralletina ala sulcusada d
Please write the scale on th			the location and extent of the ran	e plant population <u>clearly marked</u> .
	•			
MAPPING CERTAINTY: Ma mm_on_1:24k map = n	rks on the 1:24,000 scale ma neters on the ground	p are estimated to within:	Comments about mapping preci	ision and location:
0-1	12.5-25		Comments about mapping production	Sion and Issaulon.
1-2	25-50			
2-4	50-100			
4-8	100-200			
8-16	200-400		- 0.4100	
16-32	400-800	Latitude:	29.24193	
32-60	800-1500		103.30114	
60-160	1500-4000		+/- 15 m	_
	(include units)	If subpop	ulations present, note lat/long an	d accuracy in subpopulation table.
XSubmitting GPS cod	ordinates:	,	10 > >	
Type of unit (e.g. T	rimble, Garmin): \( \( \forall \) (1)	<u>∧                                    </u>	2.8 WW	
Is the entire extent of the	population mapped? y	es 🗶 no If no, please ex	plain: Way point 15 Whe	retirst observed
	individual MA	occurs nearest	splain: <u>Way point is whe</u> The Colima Trail.	
RECORD MAINTENANCE			<u> </u>	
Transcriber:		ate:	Mapped & Entered by:	Date:
	<del></del>		.,	

RECORD MAINTENANCE			
Transcriber:	Date:	Mapped & Entered by:	_ Date:

ADDITIONAL SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations)

Subpop # of \_\_\_\_\_ (P or E) Vigor Distribution Area (units, P or E) GPS data Phenology (lat, long, accuracy) Rare Plant Survey From

Page 4

### **OPTIONAL PLANT LIST**

CHECK ONE: Plant list for the entire survey site OR  Plant list for a community or area within this survey site; if checked, please complete the following:  Name of area within this survey site, if known:
Name of ecological community, if known:
SPECIES LIST  Species Name: List the scientific name for all species observed at this survey site. For unfamiliar species indicate genus, if known, or plant type, e.g. "Carex sp." or "grass sp."

Type: A = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb

Frequency: common, locally common, infrequent, rare, etc.

D = Dominant: check if applicable

Collection #: if collected, your collection number

Photo: check if photo taken

Species Name	Туре	Frequency	D ( <b>√</b> )	N-n (✔)	Collection #	Photo (✓)	Comments:
Quercus sp. Pinus sp. Festuca sp. Nolina sp. Galium sp. Achillea sp. Juniperus sp. Salvia regla Brickellia sp.	PT						
Pinus sp.	PT						
Festuca sp.	PH						
Nolina sp.	ρS						
aglion sp.	PH						
Achilleasp.	PH						
Juniperus sp.	PT						
Salvia regla	P 5						
Brickellia sp.	PH						
-					<del>-</del>		
							_
-							
							_

rev. 05/24/2006

#### RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program 3000 IH-35 South, Ste 100

**INSTRUCTIONS:** Complete 1 form per element per visit. (512) 912-7011 Austin, TX 78704 **ELEMENT INFORMATION** Update of record: \_\_\_ yes \_\_\_ no Scientific Name: Ostrya chisosensis
SURVEY SITE INFORMATION Occ.# (if known): Big Bend National Park, Chisos Muntains, Pinnicles Trail Quad Name(s) (if known): SURVEY INFORMATION Database Use Only Survey Date: 09/14/2010 Time: from 4 am or pm (circle) Sourcecode: F \_\_\_\_\_ Surveyors (principal surveyor first, include first & last name): Sheila Murray, Mark Jarecki, Whitney Romey, Gayle Nance Weather conditions: 5000 , 85° Revisit to this EO needed? yes X no Why? 0stuli 9-2010 A > D IDENTIFICATION Archived location: Achoretva CONDITION: Condition is an integrated measure of the quality of biotic and abiotic factors, structures and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components of condition for species are: 1) reproduction and health, 2) ecological processes, 3) species composition and biological structure, and 4) abiotic physical/chemical factors. Factors to consider: evidence of regular successful reproduction, habitat degradation, disturbance, presence of exotic species, the degree to which ecological processes are sustaining the habitat. SIZE AND PHENOLOGY: Size is a quantitative measure of the area and/or abundance of an occurrence. Components of this factor are 1) area of occupancy, 2) population abundance, 3) population distribution and 4) population fluctuation. Abundance (total size of the occurrence): Total #: \_\_\_\_\_\_ Type of measurement: \_\_\_\_\_\_ precise (P) count \_\_\_\_ estimate (E) What was counted (individuals, stems, etc.): \_\_\_\_\_\_ individual adult trees Vigor of plants: X excellent (E) \_\_\_ good (G) \_\_\_ fair (F) \_\_\_ poor (P) Age structure: \_\_\_ % seedlings (sdl) \_\_\_ % juveniles (j) \_\_\_ % mature (m) \_\_\_ % senescent (sn) Area of occupancy (fill one): meters<sup>2</sup> 500 feet<sup>2</sup> acres Type of measurement: X precise (P) \_\_\_ estimate (E) Phenology: Indicate the number observed in each category (or check if numbers are unknown): 19\_ mature fruit (mfr) O in flower (fl)
O dormant (dor) O in bud (bd) immature fruit (ifr) in leaf (If) seed dispersing (disp) SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations); additional table on page 3 # of \_\_\_\_\_ (P or E) and age structure GPS data Vigor Distribution Phenology (units, P or E) (lat. long, accuracy)

-			
BIOLOGY Evidence of disease and/or predation:	herbivery on foliage - a	ssumed to be cate	Collected:yes _X no Collected:yes _X no
	7		Collected: yes _X no
Flora visitors:			Collected: yes 💢 no
Do other members of this genus or look-a	alike plants occur at this survey site?	yes X no If yes, list spec	ies:

CONDITION (continued) GENERAL DESCRIPTION: Describe the specific habitat or micro habitat of the plant at this location. Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach. Plants growing on steep slopes, and in drainage very near the base of atall cliff face, loose soil and rocks, 735° slope, among other tall trees, TOPOGRAPHY: Elevation: 6410 ft If elevation is range: Minimum: Position: open X partial \_\_\_ inundated 🗶 upper slope \_saturated (wet-mesic) \_\_\_ filtered \_\_\_ mid-slope moist (mesic) lower slope X dry-mesic bottom dry (xeric) LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population. The production seemed restricted to the NW aspect, and also restricted to the mesic canyon near the base of the pinnicles CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below. POTENTIAL THREATS to this occurrence: EXOTICS PRESENT? \_\_\_ yes 🔀 no. If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form. PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.) EO Rank Date: 09/14/2010 Comments: Used Nature serve Key for Ranking Elevent Occurrences Using The Generic LANDOWNER AND MANAGEMENT INFORMATION LANDOWNER Landowner Name: National Park Service Managed Area Name: Permission Form Signed:  $\frac{\sqrt{\chi}}{\chi}$  yes (attach copy) Date signed  $\frac{\sqrt{5}/20}{20}$ Can Landowner contact information be added to the database? X yes no Comments: MANAGEMENT AND PROTECTION MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing): AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon): More management needed: \_\_\_\_ yes X no \_\_\_\_ questionable Comments: More land needed: \_\_yes \_\_ no X questionable Comments: \_ do not know if the plant occurs outside of park boundary For Public Land: More protection needed: yes  $\frac{\lambda}{2}$  no \_\_\_ questionable Comments:

МΔ	PPI	NG	AND	DIR	FCT	ONS

MAPPING AND DIRECTIO	NS				
DIRECTIONS: Provide detailed direction to this element occurrence. Refer to nearby landmarks, roads, and towns. Include distances, compass directions (North, South, etc.).  Big Beach National Park, Chisos Moratains, steep drainage near the base of the Principles, near a small slot cavern in the Principles, just off the Principles.					
the Princiles, 1	lear a small slot	cavern in the Pinnicles, just at the inflictes			
Trail .35 km	n due NW of the	- Emany Peak Trail intersection.			
· ··· )		•			
	atory): Attach a photocopy of the map and do NOT reduce or en	e USGS 7.5' quad with the location and extent of the rare plant population <u>clearly marked</u> . <b>clarge the photocopy.</b>			
MAPPING CERTAINTY: Mark mm on 1:24k map = me	ks on the 1:24,000 scale map are	estimated to within:  Comments about mapping precision and location:			
0-1	12.5-25	Comments about mapping precision and recution.			
1-2	25-50	<del></del>			
2-4	50-100	<del>_</del>			
<b>4</b> -8	100-200				
8-16	200-400	22 22110			
16-32	400-800	Latitude: 29.25342			
32-60	800-1500	Longitude: 103 . 29822			
	1500-4000	Accuracy: +/			
other, specify:	(include units)	If subpopulations present, note lat/long and accuracy in subpopulation table.			
		GPS datum: NAD 83			
GPS accuracy: X	uncorrected GPS (12 – 20m acc	curacy) corrected to <5m accuracy			
Is the entire extent of the p	oopulation mapped? yes _	X no If no, please explain: <u>waypoint</u> is in earlier of population			
RECORD MAINTENANCE					
Transcriber:	Date:	Mapped & Entered by: Date:			
ADDITIONAL SUBPOPUL	ATION INFORMATION (if ap	oplicable) (see above for abbreviations)			

Subpop #	# of (P or E) and age structure	Vigor	Distribution	Area (units, P or E)	Phenology	GPS data (lat, long, accuracy)
				-		
					,	

#### **OPTIONAL PLANT LIST**

CHECK ONE:	Plant list for the entire survey site <b>OR</b> X Plant list for a community or area within this survey site; if checked, please complete the following:
	Name of area within this survey site, if known:
	Name of ecological community, if known:
SPECIES I IS	27

Species Name: List the scientific name for <u>all</u> species observed at <u>this</u> survey site. For unfamiliar species indicate genus, if known, or plant type, e.g. "Carex sp." or "grass sp."

Type: A = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb

Frequency: common, locally common, infrequent, rare, etc.

D = Dominant: check if applicable

Collection #: if collected, your collection number

N-n = Non-native: check if applicable

Photo: check if photo taken

Species Name	Type	Frequency	D (√)	N-n (✓)	Collection #	Photo (√)	Comments:
Pinus Juniparus Albutus Cupressus Quercus Lonicara Vitus Nolina Salvia reaja	PT	_					
Juniparus	PT						
Albutus	PT						
Cupressus	PT						
Quercus	PT						
Loniura	PS						
Vitus	۴S						
Nolina	PS PS						
Salvia reala	PS						

rev. 05/24/2006

#### RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program 3000 IH-35 South, Ste 100

INSTRUCTIONS: Complete 1 form per element per visit. (512) 912-7011 Austin, TX 78704 **ELEMENT INFORMATION** Update of record: \_\_\_ yes \_\_\_ no Quercus tardifolia Scientific Name: Occ.# (if known): SURVEY SITE INFORMATION Survey Site: B. Bend National Park, Chisos Mountains, Boot Spring Quad Name(s) (if Innown): SURVEY INFORMATION Database Use Only Survey Date: 09/14/2010 Time: from \_\_\_\_\_2\_\_ to \_\_\_3\_\_ am or of (circle) Sourcecode: F Surveyors (principal surveyor first, include first & last name): Sheila Murray, Mark Jarecki', Whitney Rooney, Gayle Name Weather conditions: 5000, 85° Revisit to this EO needed? X yes no Why? To confirm extiruation Photograph/slide taken? X yes no Is a copy attached? X yes no Digital photo #: Quetar 9-20 10 Archived local Specimen collected? yes no Collection # and repository (specify if from a subpopulation): Archived location: Afboritym 4 CONDITION: Condition is an integrated measure of the quality of biotic and abiotic factors, structures and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components of condition for species are: 1) reproduction and health, 2) ecological processes, 3) species composition and biological structure, and 4) abiotic physical/chemical factors. Factors to consider: evidence of regular successful reproduction, habitat degradation, disturbance, presence of exotic species, the degree to which ecological processes are sustaining the habitat SIZE AND PHENOLOGY: Size is a quantitative measure of the area and/or abundance of an occurrence. Components of this factor are 1) area of occupancy, 2) population abundance, 3) population distribution and 4) population fluctuation. Abundance (total size of the occurrence): Total #: \_\_\_\_\_ Type of measurement: X precise (P) count \_\_\_\_ estimate (E) What was counted (individuals, stems, etc.): Vigor of plants: \_\_\_ excellent (E) \_\_\_ good (G) \_\_\_ fair (F) X poor (P) Age structure: \_\_\_ % seedlings (sdl) \_\_\_ % juveniles (j) \_\_\_ % mature (m) \_\_\_ % senescent (sn) acres Type of measurement: X precise (P) \_\_\_ estimate (E) Area of occupancy (fill one): \_\_\_\_\_ meters<sup>2</sup> | **D** feet<sup>2</sup> Phenology: Indicate the number observed in each category (or check if numbers are unknown): 

SUBPUPUL	-ATION INFORMATION (IT app	nicable) (:	see above for apprevia	tions); additional_table	e on page 3	
Subpop	# of (P or E)	Vigor	Distribution	Area	Phenology	GPS data
#	and age structure	J -		(units, P or E)		(lat, long, accuracy)
-						(at, 15-3) accessory)
BIOLOGY Evidence of	disease and/or predation:					Collected: yes _X no
lora visitors	3.		<u> </u>			Collected: ves V no
Do other me	embers of this genus or look-alik	e plants o	occur at this survey site?	X yesno If ye	es, list species:	ercus emeryi regasa,
					,	4 13 / 1

	ITIMAI	laantin:	
CUND	I LIWIN	(contini	ueui

GENERAL DESCRIPTION: Describe the specific habitat or micro habitat of the plant at this location. Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.

Moist canyon near Boot springs , below the corral, riparian overstong of pines , oaks, many large boulders, junipers,

TOPOGRAPHY: Elevation: 6700 ft If elevation is range: Minimum:ft Maximum:ft
ity of the population.
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.
POTENTIAL THREATS to this occurrence:
EXOTICS PRESENT? yes no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
Ner that the last known individual at this site was formed and a weeks prior.
LANDOWNER AND MANAGEMENT INFORMATION
Landowner Name: Big Bend Notional Park  Managed Area Name: Big Bend Notional Park  Permission Form Signed: X yes (attach copy) Date signed 05/05/2010 no  Can Landowner contact information be added to the database? X yes no  Comments:
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More man agement needed: yes _X _ no questionable Comments:
More land needed: yes no _V _ questionable Comments:
For Public Land: More protection needed: yes _K_ no questionable Comments:

MAPPING AND DIRECTION	MAPPIN	AND	DIRECT	IONS
-----------------------	--------	-----	--------	------

<b>DIRECTIONS:</b> Provide detailed direction to this element occurrence.	Refer to nearby landmarks, roads, and towns.	Include distances, compass direc-
tions (North, South, etc.).		
Bis Read National Park Chicas Mountain	in slope of Best Carren	15 m downstream

and uphill of Boot Spring.

TOPOGRAPHIC MAP (mandatory): Attach a photocopy of the USGS 7.5' quad with the location and extent of the rare plant population <u>clearly marked</u>. Please write the scale on the map and do NOT reduce or enlarge the photocopy.

	o on the map and do no not read or one	ge p
MAPPING CERTAINT mm on 1:24k map	FY: Marks on the 1:24,000 scale map are e = meters on the ground	estimated to within:  Comments about mapping precision and location:
Q-1	12.5-25	
1-2	25-50	
2-4	50-100	
4-8	100-200	
8-16	200-400	20 24141
16-32	400-800	Latitude: 49.44171
32-60	800-1500	Longitude: 103 · 29693
60-160	1500-4000	Accuracy: +/- 15 m
other, speci	fy: (include units)	If subpopulations present, note lat/long and accuracy in subpopulation table.
Type of unit	GPS coordinates: t (e.g. Trimble, Garmin):  acy: X uncorrected GPS (12 – 20m accult of the population mapped?yes)	I no If no, please explain: only one tree known in the are
		did not survey for juveniles or seedlings.

RECORD MAINTENANCE			<i>-</i>
Transcriber	Date:	Mapped & Entered by:	Date:

ADDITIONAL SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations) Subpop # of (P or E) Vigor Distribution Area Phenology

#	and age structure	Vigor	Distribution	(units, P or E)	Phenology	(lat, long, accuracy)
			_			
_	_					

	OPTIONAL PLANT LIST
CHECK O	NE: Plant list for the entire survey site OR Plant list for a community or area within this survey site; if checked, please complete the following:  Name of area within this survey site, if known:
	Name of ecological community, if known:
type, e. Type: A Frequen D = Dom	LIST  Name: List the scientific name for all species observed at this survey site. For unfamiliar species indicate genus, if known, or plant g. "Carex sp." or "grass sp."  = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb  cy: common, locally common, infrequent, rare, etc.  inant: check if applicable  N-n = Non-native: check if applicable  photo: check if photo taken

Species Name	Туре	Frequency	D ( <b>v</b> ′)	N-n (✓)	Collection #	Photo (✓)	Comments:
		_					
		_					
<del>-</del>							
<del> </del>			-				
		_					

### RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program

INSTRUCTIONS: Complete 1 form per element per visit.

3000 IH-35 South, Ste 100 Austin, TX 78704 (51

ELEMENT INFORMATION			Austin, 1A 70	704 (512) 912-7011
Scientific Name: Viola guadalupensis				record: X yes no nown):
SURVEY SITE INFORMATION				
Survey Site: VIGU Site # 4	AAAAA	***************************************		
Quad Name(s) (if known):				
SURVEY INFORMATION			Database Use Onl	v
Survey Date: 6/1/2010	Time: from 11 AM to 1 8	° ∕∕√ am or pm (circle	Sourcecode: F	TXUS
Surveyors (principal surveyor first, include first & l	ast name):_Jeremy Ma	rkuson		
Weather conditions: 75°F				
Revisit to this EO needed? X yes no Why?	To collect data loc	igers_		
IDENTIFICATION	7.6			
Photograph/slide taken?yes X_ no Is a conspecimen collected?yes x_ no Collection  Collected from the	py attached? yes n n # and repository (specify if	o Digital photo #: _ from a subpopulation	Archived	location:
Identification problems? yes X no If necess	ary, describe the important p	olant characteristics y	ou used for identification: _	
CONDITION: Condition is an integrated measur degree to which they affect the continued existencial processes, 3) species composition and biologicessful reproduction, habitat degradation, disturbations.	e of the occurrence. Compo cal structure, and 4) abiotic p	onents of condition for hysical/chemical fac	r species are: 1) reproduction tors. Factors to consider: ev	on and health, 2) ecologi- vidence of regular suc-
SIZE AND PHENOLOGY: Size is a quantitative recupancy, 2) population abundance, 3) population abundance (total size of the occurrence): Total & What was counted (individuals, stems, etc.): _A	distribution and 4) population:	fluctuation. pe of measurement:	precise (P) countX	_estimate (E)
Vigor of plants: excellent (E) good (G)  Age structure: % seedlings (sdl) % ju  Population distribution (widely scattered, clump	veniles (j) 🔀 % mature (n	n)% senescent	(sn) along limestone re	ock walls
Area of occupancy (fill one): 3 100 meters <sup>2</sup>				
Phenology: Indicate the number observed in each	category (or check if numb	ers are unknown):		
in leaf (If) in bud (bd) seed dispersing (disp)	dormant (dor)		(ifr) mature frui	t (mfr)
Subpop # of(P or E) Vigo		Area	e on page 3 Phenology	GPS data
# and age structure	Distribution	(units, P or E)	Friedology	(lat, long, accuracy)
BIOLOGY Evidence of disease and/or predation: No			Coile	cted:yes _X_ no

Do other members of this genus or look-alike plants occur at this survey site? \_\_\_\_ yes \_X\_ no \_ If yes, list species: \_\_\_\_

CONDITION (	continued)
-------------	------------

**GENERAL DESCRIPTION:** Describe the specific habitat or micro habitat of the plant <u>at this location</u>. Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.

Violets are growing out of pockets of limestone rock at approximately 6,500 ft in elevation. Associated plant species at the site include Valeriana texana, Chaetopappa hersheyi, Pseudotsuga menziesii, Petrophytum caespitosum, Aquilegia chrysantha, Ostrya knowltonii, Acer grandidentatum, Pinus strobiformis, and Ptelea trifoliata.

TOPOGRAPHY: Elevation: 6,500 ft   If elevation is range: Minimum:
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population. The plants are located along a steep section of canyon. They receive a lot of shade from the canyon and from overstory trees.
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.  Unknown
POTENTIAL THREATS to this occurrence: Catastrophic fire, disease, or herbivare  attack  EXOTICS PRESENT? yes _x no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
EO RANK: EO Rank Date: Comments:
LANDOWNER AND MANAGEMENT INFORMATION
LANDOWNER  Managed Area Name: Guadalupe Mountains National Park  Landowner Name: National Park Service  Permission Form Signed:yes (attach copy) Date signedno  Can Landowner contact information be added to the database? Xyesno  Comments: For infromation please contact the Resource Management Office at GUMO.  MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):  Monitoring and research
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More management needed: X yes noquestionable Comments:
More land needed: yes _X_ no questionable Comments:
For Public Land: More protection needed: yes _X_ no questionable Comments:

Page 3 Rare Plant Survey From

M	чын	NG	ΔNI)	DIRE	(:11	ONS

MAPPING	S AND DIRECTIC	פא <u>י</u>							
	<b>NS</b> : Provide detaile n, South, etc.).	d direction t	o <u>this eler</u>	nent occurrence.	Refer to r	earby landmarks,	roads, and towns.	. Include dis	stances, compass direc-
	APHIC MAP (mandate the scale on the						n and extent of the	e rare plant p	oopulation <u>clearly marked</u> .
		•		•	•				
	CERTAINTY: Marl 1:24k map = me	eters on the		ale map are esun	nated to wi		s about mapping p	orecision and	d location:
C		12.5-2							
1	-2	25-50							
2	2-4	50-100	)						
4	I-8	100-20	00						
8	3-16	200-40	00						
1	6-32	400-80	00		La	titude:			
3	32-60	800-15	500		Lo	ngitude:			
6	60-160	1500-4	1000		Ac	curacy: +/			
c	other, specify:		(include u	nits)	lf :	subpopulations pro	esent, note lat/long	g and accura	acy in subpopulation table.
\$	Submitting GPS coo	rdinates:							
	Type of unit (e.g. Tr								
(	GPS accuracy:	uncorrecte	d GPS (12	2 – 20m accuracy	y) corr	ected to <5m acci	uracy		
Is the	entire extent of the p	oopulation n	napped?	yes r	no If no, p	ease explain:			
RECORD	MAINTENANCE								
Transcribe	r:			Date:		_ Mapped 8	& Entered by:	D	ate:
ADDITIO	NAI SUBBOBUI	ATION IN	EODM 47	CION (if applied	abla) (sad	abovo for abb	roviations)		
Subpop	NAL SUBPOPUL # of					Area			GPS data
#	and age stru	- \	Vigor	Distributio	n	(units, P or E)	Phenole	ogy	(lat, long, accuracy)

Subpop #	# of (P or E) and age structure	Vigor	Distribution	Area (units, P or E)	Phenology	GPS data (lat, long, accuracy)

Rare Plant Survey From Page 4

### **OPTIONAL PLANT LIST**

Species Name	Туре	Frequency	D ( <b>√</b> )	N-n (✓)	Collection #	Photo (✓)	Comments:

ViGu

Summary of Viola guadalupensis search, June 24th 2010

On June 24<sup>th</sup>, 2010, Kristin Haskins, Leanne Starbuck and Sheila Murray attempted to relocate one of four known populations of *Viola guadalupensis*. Leanne (of the National Park Service) had been to this site once before, but it had been over a year ago. To access the site required hiking over 3 miles in steep drainages and boulder-filled draws. With maps of the area and a UTM datapoint, we started our trek at 7:15 am. After 6 hours of searching the backcountry, we could not relocate the population. Based on advice from Fred Armstrong, we thought we were hiking up the correct drainage, but it turns out we were searching near to, but on the wrong side of the ridge. We were unsure of our GPS accuracy, the elevation readings were not correct, we weren't exactly sure which drainage we were in on the map, there were storm clouds building, and we needed to save some energy for the hike back, so we returned to the car by 4:00 pm.

We did take some GPS readings of areas where the violet did not occur. Some of these drainages near the violet site seemed to have habitat that would support its growth. These were mesic canyons with many of the associated species.

VIGU site #3 from Fred Armstrong: 13R 0512193 3530754

Data Point #1: 13R 0512863 3530932

(we surveyed the drainage due south of this point as well)

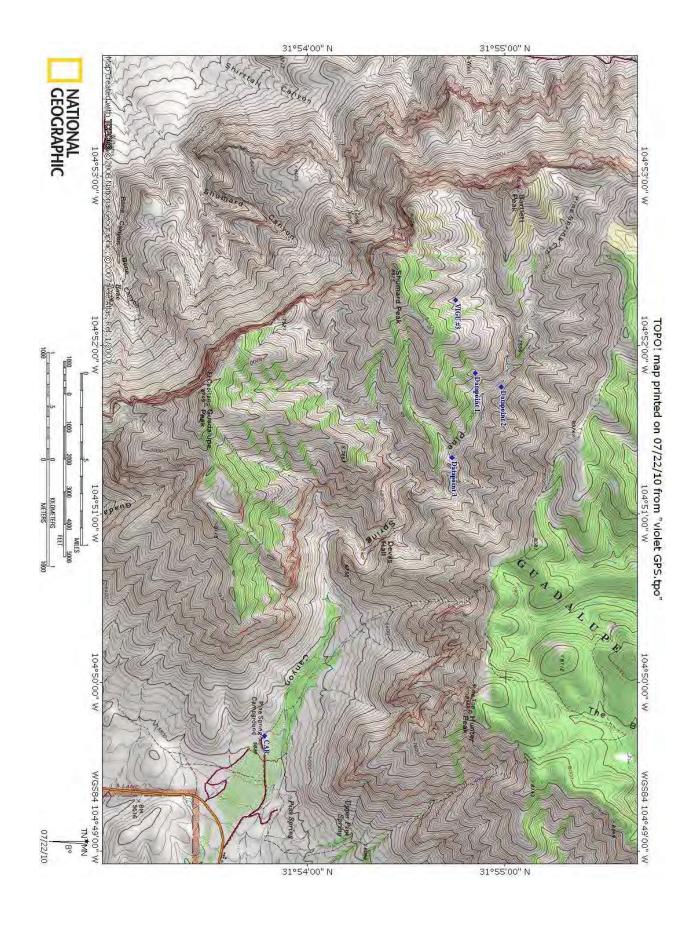
Data Point #2: 13R 0512993 3531173

(this is the farthest up the main drainage we walked)

Data Point #3: 13R 0513665 3530714

(this drainage that leads up to the west looked promising, but we did not survey it)

Thanks to Jeremy Markuson of the National Park Service, we did manage to secure some seeds from *Viola guadalupensis*. In May of 2010, Jeremy collected seeds from VIGU site #4. The seed pods were collected green, and after drying and cleaning, there are approximately 300 good seeds.



rev. 05/24/2006

# RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program 3000 IH-35 South, Ste 100 Austin, TX 78704 (51

**INSTRUCTIONS:** Complete 1 form per element per visit.

(512) 912-7011

ELEMENT	INFORMATION					
Scientific Na	VIDIA GUADA	lupens	315			record: yes no nown):
	ITE INFORMATION	•				
Survey Site:	Guadaluse Ma	atalac	National Park			
Quad Name	(s) (if known):	m-mg-,	1- Harris ( 1-11-1-			
SHDVEV I	NFORMATION ,				Database Use Or	
Survey Date	06/24/2010	Time	e: from 12 to 2	am or 6m circle)		TXUS
Surveyors (p	rincipal surveyor first, include the	irst & last n	name): Sheila A	luciay . The	Albertum at	Flactal
Weather con	ditions: Sunny to po	ل بدائع	endy thredersto	rome in the dis	lance	
Revisit to this	s EO needed? yes no	Why?				
IDENTIFIC						
	slide taken? X yes no ollected? yes no ollected? yes no oldected? yes no oldected states and other states are states as a substant of the states are states are states as a substant of the states are states as a substant of t		VIG	DUNE ZUID DE	55 VIGUDVAL	d location: Achoretum at Playstalf 2010 034
degree to wh	N: Condition is an integrated mich they affect the continued es, 3) species composition and duction, habitat degradation, d	xistence of biological s	the occurrence. Compo tructure, and 4) abiotic p	nents of condition for hysical/chemical factor	species are: 1) reproduct ors. Factors to consider:	ion and health, 2) ecologi- evidence of regular suc-
	HENOLOGY: Size is a quantito population abundance, 3) population				rence. Components of th	is factor are 1) area of oc-
Abundance	(total size of the occurrence): counted (individuals, stems, etc	Total #:			X precise (P) count	estimate (E)
	nts: excellent (E) go					
Age structu	ıre: % seedlings (sdl)	% juveni	iles (j) % mature (m	) % senescent	(sn)	
Population (	distribution (widely scattered,	clumped, e	evenly distributed through	nout):		
Phenology:	ipancy (fill one): meters Indicate the number observed in leaf (If) in but seed dispersing (disp)	in each cat d (bd)	tegory (or check if number	ers are unknown):	: precise (P) es	. ,
SUBPOPUL	ATION INFORMATION (if app			ons): additional table	on page 3	
Subpop #	# of (P or E) and age structure	Vigor	Distribution	Area (units, P or E)	Phenology	GPS data (lat, long, accuracy)
BIOLOGY Fuldance of	discoso and/or prodution:					
	disease and/or predation:				Col	lected: yes no
Flora visitors					Co	llected: yes no
Do other mer	mbers of this genus or look-alik	e plants oc	ccur at this survey site? _	yes no If ye	s, list species:	

CONDITION	(continued)

CONDITION (continued)
<b>GENERAL DESCRIPTION:</b> Describe the specific habitat or micro habitat of the plant <u>at this location</u> . Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.
7350
TOPOGRAPHY: Elevation: 15 If elevation is range: Minimum:
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population.
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.
POTENTIAL THREATS to this occurrence:
EXOTICS PRESENT? yes no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form.
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
<b>EO RANK:</b> EO Rank Date: Comments:
LANDOWNER AND MANAGEMENT INFORMATION
Managed Area Name: Gradulupe Morntains National Park  Permission Form Signed: X yes (attach copy) Date signed 03/23/2010  Landowner Name:
Can Landowner contact information be added to the database? X yes no  Comments:
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More management needed: yes no questionable Comments:
More land needed: yes no questionable Comments:
For Public Land: More protection needed: yes no questionable Comments:

MAPF	PING	AND	DIRE	CTIONS

	AND DIRECTIONS					
DIRECTIO tions (North	NS: Provide detailed direction h, South, etc.).	to this elem	ent occurrence. Refer	to nearby landmarks, roa	ds, and towns. Include	distances, compass direc-
a	n, South, etc.).  Adalupe Meratains  I, up small dra  Mussay: Summa	Natur	u(Park, 1	n Pine Sprin	y Canyon pa	si Devils
Ц 1	محام المعارب	,	off of s	humand Pea	k Data P	oint # 1
1191	i, up small all a	inage		1		
10	Mussay: Summe	any ot	Viola grade	alupensis Search	L, Jme 29"	2010.
	1	/	V	•	,	
TOPOGRA Please wri	APHIC MAP (mandatory): Attite the scale on the map and	ach a photo	ocopy of the USGS 7.5	quad with the location an	nd extent of the rare pla	nt population <u>clearly marked</u> .
MAPPING	CERTAINTY: Marks on the 1: 1:24k map = meters on the	24,000 sca		o within:	oout mapping precision	and location:
	)-1 12.5-2	25				
	25-50	•				
	2-4 50-100 I-8 · 100-20					
	3-16 200-40					
	6-32 400-86			Latitude: 31.9141	9	
	32-60 800-1			Longitude: 104. 8	1295	
	60-160 1500-4			Accuracy: +/-		
	other, specify:		its)		nt, note lat/long and acc	curacy in subpopulation table.
$\mathbf{X}^{S}$	Submitting GPS coordinates:	_	1	111-07		
- '	T (					
	Type of unit (e.g. Trimble, Garr			S datum: NAD 83	_	
	GPS accuracy: V uncorrecte	od GPS (12	- 20m accuracy)	corrected to <5m accurac	······································	data 't
		od GPS (12	- 20m accuracy)	corrected to <5m accurac	s 15 a regation	ie datapoint
is the	GPS accuracy: V uncorrecte	od GPS (12	- 20m accuracy)	corrected to <5m accurac	s 13 a regati	ie datapoint
is the	GPS accuracy: _X_ uncorrecte entire extent of the population representation in the population in the p	od GPS (12	- 20m accuracy)	corrected to <5m accurac o, please explain:	s 13 a regation	
RECORD Transcribe	GPS accuracy: _X_ uncorrected entire extent of the population representation in the population in the	ed GPS (12 mapped? _	– 20m accuracy) yes _X no If n	corrected to <5m accurace o, please explain:	s 13 a Regation	
RECORD Transcribe	GPS accuracy: _X_ uncorrected entire extent of the population representation in the population in the	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er	tered by:	Date:
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RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
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RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X_ no If n  Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X no If n Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X no If n Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X no If n Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X no If n Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:
RECORD Transcribe ADDITIO Subpop	GPS accuracy: uncorrecte entire extent of the population r  MAINTENANCE  r:  NAL SUBPOPULATION IN  # of (P or E)	ed GPS (12 mapped? _	- 20m accuracy) yes _X no If n Date:	corrected to <5m accurace o, please explain:  Mapped & Er  (see above for abbrev  Area	tered by:	Date:

Rara	Plant	Survey	From
Raie	Plant	Survey	From

Page 4

OPTIONAL PLANT LIST
CHECK ONE: Plant list for the entire survey site OR Plant list for a community or area within this survey site; if checked, please complete the following:  Name of area within this survey site, if known:
Name of ecological community, if known:
SPECIES LIST  Species Name: List the scientific name for <u>all</u> species observed at <u>this</u> survey site. For unfamiliar species indicate genus, if known, or plant type, e.g. "Carex sp." or "grass sp."  Type: A = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb  Frequency: common, locally common, infrequent, rare, etc.  D = Dominant: check if applicable  N-n = Non-native: check if applicable  Collection #: if collected, your collection number

Species Name	Туре	Frequency	D ( <b>√</b> )	N-n (✓)	Collection #	Photo (✓)	Comments:
					-		
						+ +	

rev. 05/24/2006

**ELEMENT INFORMATION** 

# RARE PLANT SURVEY FORM

INSTRUCTIONS: Complete 1 form per element per visit

Texas Parks & Wildlife Department
Wildlife Diversity Program
3000 IH-35 South, Ste 100
Austin, TX 78704 (512) 912-7011

INSTRUCTIONS:	Complete	i form per	element per	VISIT

Scientific Name: Vio a guada upensis  SURVEY SITE INFORMATION  Survey Site: Guada upensis Natural Park  Quad Name(s) (if known):	Update of record: yes no Occ.# (if known):
SURVEY SITE INFORMATION	
Quad Name(s) (if known):  Mevatains National Park	
OUBUEV INCOME.	2446 60. 1900 17. 4
	atabase Use Only ourcecode: F TXUS
Surveyors (principal surveyor first, include first & last name): Sheila Murray - The Arbert Kristin Haskins, - The Arbert at Flystals, Learne Starbuck -	110<
Weather conditions: Sunny to partly cloudy, thusderstorms in the distance	
Revisit to this EO needed?yes no Why?	
IDENTIFICATION	
Photograph/slide taken? Y yes no Is a copy attached? Y yes no Digital photo #:(2)	Archived to gation: Aslant.
Specimen collected?yes no Collection # and repository (specify if from a subpopulation):	Archived location.
Specimen collected?	June 2010 04
Identification problems? yes no If necessary, describe the important plant characteristics <u>you</u> used for	r identification:
<b>CONDITION:</b> Condition is an integrated measure of the quality of biotic and abiotic factors, structures and pridegree to which they affect the continued existence of the occurrence. Components of condition for species a	
cal processes, 3) species composition and biological structure, and 4) abiotic physical/chemical factors. Factor	ors to consider: evidence of regular suc-
cessful reproduction, habitat degradation, disturbance, presence of exotic species, the degree to which ecolog SIZE AND PHENOLOGY: Size is a quantitative measure of the area and/or abundance of an occurrence. Co	
cupancy, 2) population abundance, 3) population distribution and 4) population fluctuation.	
Abundance (total size of the occurrence): Total #: Type of measurement:X preci	se (P) count estimate (E)
Vigor of plants: excellent (E) good (G) fair (F) poor (P)	
Age structure: % seedlings (sdl) % juveniles (j) % mature (m) % senescent (sn)	
Population distribution (widely scattered, clumped, evenly distributed throughout):	
Area of occupancy (fill one): meters <sup>2</sup> feet <sup>2</sup> acres Type of measurement: pre	ecise (P) estimate (E)
Phenology: Indicate the number observed in each category (or check if numbers are unknown):	
in leaf (If) in bud (bd) in flower (fl) immature fruit (ifr)	mature fruit (mfr)
seed dispersing (disp) dormant (dor)  SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations); additional table on page	3
Subpop # of(P or E) Vigor Distribution Area P	henology GPS data
# and age structure (units, P or E)	(lat, long, accuracy)
BIOLOGY	
Evidence of disease and/or predation:	
Flora visitors:	Collected: yes no no no
	Conected, yes NO

CONDIT	ION	(cont	/bauni
CONDI		wom	1111111111111111

CONDITION (CONTINUED)
<b>GENERAL DESCRIPTION:</b> Describe the specific habitat or micro habitat of the plant <u>at this location</u> . Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.
,
TOPOGRAPHY: Elevation: 6900 ft If elevation is range: Minimum: ft Maximum: ft Moisture:  Aspect: Slope (%): Light: Position: Moisture:  N N NE flat open crest inundated  E NW 30-10 partial upper slope saturated (wet-mesic)
SSE10-35
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population.
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.
POTENTIAL THREATS to this occurrence:
EXOTICS PRESENT? yes no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
EO RANK: EO Rank Date: Comments:
LANDOWNER AND MANAGEMENT INFORMATION
LANDOWNER  Managed Area Name: Gvadalupe Municipa National Park  Landowner Name: National Park  Permission Form Signed: X yes (attach copy) Date signed 03/23/2010 no
Can Landowner contact information be added to the database? X yes no  Comments:
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More management needed: yes no questionable Comments:
More land needed: yes no questionable Comments:
For Public Land: More protection needed: yes no questionable Comments:

M	A DDI	NC		DIRE	CTI	NIC
IVI	MPPI	ING	ANU	DIKE	Сп	JNS

<b>DIRECTIONS:</b> Provide detailed direction to this element occurrence.	Refer to nearby landmarks.	roads, and towns.	Include distances	compass direc-
tions (North, South, etc.).	,,		morado diotarioco,	compass and

Gradalipe Mantains National Park, in Piec Spring Canyon past Devil's Hall at base of Shumard Peak. Data Point #3 in Murray:

TOPOGRAPHIC MAP (mar Please write the scale on t	ndatory): Attach a photocopy of the Uthe map and do NOT reduce or enlar	USGS 7.5' quad with the location and extent of the rare plant population clearly marked.
MAPPING CERTAINTY: M	larks on the 1:24,000 scale map are es meters on the ground 12.5-25 25-50 50-100	
8-16 16-32 32-60 60-160	100-200 200-400 400-800 800-1500 1500-4000	Latitude: 31,9122   Longitude: 104,85547 Accuracy: +/- 15m
Submitting GPS of Type of unit (e.g. GPS accuracy:	Trimble, Garmin):	If subpopulations present, note lat/long and accuracy in subpopulation table.  GPS datum: MAD \$3  acy) corrected to <5m accuracy  no If no, please explain: this is a negative datapoint.

RECORD MAINTENANCE			
Transcriber:	Date:	Mapped & Entered by:	Date:

ADDITIONAL SUBPOPULATION INFORMATION (if applicable) (see above for abbreviations) # of \_\_\_\_\_ (P or E) and age structure GPS data Phenology Vigor Distribution (lat, long, accuracy) (units, P or E)

Page 4

OPTIONAL PLANT LIST
CHECK ONE: Plant list for the entire survey site OR Plant list for a community or area within this survey site; if checked, please complete the following:  Name of area within this survey site, if known:
Name of ecological community, if known:
SPECIES LIST  Species Name: List the scientific name for all species observed at this survey site. For unfamiliar species indicate genus, if known, or plant type, e.g. "Carex sp." or "grass sp."  Type: A = Annual; P = Perennial, if P indicate T = tree, S = shrub/vine, H = herb  Frequency: common, locally common, infrequent, rare, etc.  D = Dominant: check if applicable  N-n = Non-native: check if applicable  Collection #: if collected, your collection number

Species Name	Туре	Frequency	D (√)	N-n (✓)	Collection #	Photo (✓)	Comments:
				_			
			-				

# RARE PLANT SURVEY FORM

Texas Parks & Wildlife Department Wildlife Diversity Program 3000 IH-35 South, Ste 100 Austin, TX 78704 (51

INSTRUCTIONS: Complete 1 form per element per visit.

(512) 912-7011

ELEMENT INFORMATION				· · · · · · · · · · · · · · · · · · ·					
Scientific Name: Viola grada	Update of ro Occ.# (if kn	record: yes no nown):							
Scientific Name: Viola gradalypensis  SURVEY SITE INFORMATION  Survey Site: Gradalype Maratains Natural Park  Quad Name(s) (if known):									
Survey Site: Gradalupe M	eratain	s National Park							
Quad Name(s) (if known):	•								
SURVEY INFORMATION				Database Use Onl	ý				
Survey Date: 06/24/2010	Tim	ne: from <u>10</u> to <u>11:</u>	45(am)or pm (circle)	Sourcecode: F	TXUS				
Surveyors (principal surveyor first, include	first & last	name): Sheila M	usay - The A	Whentun at Fla	ustaff.				
Kristin Hasking - The Albert	Tun at	Flortes Lea	ano Stachuck	-NPS	<i>y</i> ,				
Surveyors (principal surveyor first, include first & last name): Sheila Murray - The Arbertum at Flagstaff,  Kristin Haskins - The Arbertum at Flagstaff, Learne Starbuck - NPS  Weather conditions: Sunny to partly cloudy, threaderstorms in the distance  Revisit to this FO needed? yes no Why?									
Revisit to this EO needed? yes no	veather conditions:								
Revisit to this EO needed? yes no									
IDENTIFICATION									
Photograph/slide taken? X yes no Specimen collected? yes no C	Is a copy	attached? X yes n	Digital photo #:	Archived	location: Albertun				
Specimen collected? yes no 0	Collection #	and repository (specify if	from a subpopulation	): <u>//</u>	and at Flaggetatt				
		VIGU Ju	me dolo 035	, VIGU JUAR KUIU	056				
Identification problems? yes no If	necessary	, describe the important p	olant characteristics <u>y</u> e	ou used for identification: _					
		<u>_</u>							
CONDITION: Condition is an integrated									
degree to which they affect the continued of cal processes, 3) species composition and									
cessful reproduction, habitat degradation,	disturbance	e, presence of exotic spec	cies, the degree to wh	ich ecological processes a	re sustaining the habitat.				
SIZE AND PHENOLOGY: Size is a quant				rence. Components of this	s factor are 1) area of oc-				
cupancy, 2) population abundance, 3) pop				•					
Abundance (total size of the occurrence):			pe of measurement:	x precise (P) count	_ estimate (E)				
What was counted (individuals, stems, e									
Vigor of plants: excellent (E) g									
Age structure: % seedlings (sdl) _	% ju <b>v</b> er	niles (j) % mature (n	n) % senescent	(sn)					
Population distribution (widely scattered	, clumped,	evenly distributed through	nout):						
Area of occupancy (fill one): mete		foot <sup>2</sup> goron	Funo of moasurement	nracisa (P)	timate (E)				
				precise (F) est	illiate (L)				
	Phenology: Indicate the number observed in each category (or check if numbers are unknown):  in leaf (lf) in bud (bd) in flower (fl) immature fruit (ifr) mature fruit (mfr)								
seed dispersing (disp)	ia (ba)		minutare man	(III)IIIddio IId	,				
SUBPOPULATION INFORMATION (if ap			ons); additional table	on page 3					
Subpop # of(P or E)	Vigor	Distribution	Area	Phenology	GPS data				
# and age structure	+		(units, P or E)		(lat, long, accuracy)				
			_						
					-				
			_						
BIOLOGY									
Evidence of disease and/or predation:				Colle	ected: yes no				
Flora visitors:					ected: yes no lected: yes no				
Do other members of this genus or look-ali	ke plants c	occur at this survey site?	ves no If ve	s list species:					

Rare Plant Survey From

<b>CONDITION</b>	(continued)
COMPINE	(CONTINUCA)

CONDITION (continued)
<b>GENERAL DESCRIPTION:</b> Describe the specific habitat or micro habitat of the plant <u>at this location</u> . Convey a mental image of the habitat and its features including quality/condition of the habitat, land forms, aquatic features, vegetation, geology, soils, and associated plant species. The TPWD Optional Plant List form is available for associated plant species; please attach.
TOPOGRAPHY: Elevation: 2100 ft   If elevation is range: Minimum: ft   Maximum: ft   Maximum: ft   Moisture:
N         NE         flat         open         crest         inundated           E         NW         X         0-10         upper slope         saturated (wet-mesic)           S         SE         10-35         X         filtered         mid-slope         moist (mesic)           W         X         SW         35+         shade         X         lower slope         X         dry-mesic           Vertical         bottom         dry (xeric)
LANDSCAPE CONTEXT: Describe how the surrounding landscape is different or similar to the plant population habitat and how this may affect the viability of the population.
CURRENT THREATS to this occurrence (i.e. browsing, mining, off-road vehicles, dumping, etc.) Exotics are noted below.
POTENTIAL THREATS to this occurrence:
EXOTICS PRESENT? yes no If yes, describe their impacts to this occurrence. List exotic species in Habitat Description or on the Optional Plant List form.
PAST IMPACTS, if known, to this occurrence (i.e., logging, burn, etc.)
<b>EO RANK:</b> EO Rank Date: Comments:
LANDOWNER AND MANAGEMENT INFORMATION
LANDOWNER Managed Area Name: Gradhlype Moralains National Park Landowner Name: National Park Service
Permission Form Signed: X yes (attach copy) Date signed 03/23/20/0 no
Can Landowner contact information be added to the database? X yes no
Comments:
MANAGEMENT AND PROTECTION  MANAGEMENT, MONITORING, & RESEARCH NEEDS (e.g. burn periodically, open the canopy, control exotics, study effects of browsing):  ———————————————————————————————————
AREAS IN NEED OF PROTECTION (e.g. the entire prairie, the slope and crest of slope, canyon):
More management needed:yes noquestionable Comments:
More land needed: yes no questionable Comments:
For Public Land: More protection needed: yes no questionable Comments:

MAPPING AND DIRECTION	ECTIONS	DIREC	AND	ING	MAPP	ı
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DIRECTIO	NS: Provide detailed direction	to this elem	nent occurrence. Refer	to nearby landmarks, road	ds, and towns. Include	e distances, compass direc-
tions (North	n, South, etc.).	م ا ا	101	0. 6. 6.	un sast D	11 H. 11
h	radalupe Mountains	MATUN	al Park, in 1	The spring can	you past ve	evils 11911)
at	base of Shuma	rd Pa	eak. Date	apoint #2 in	, Murray: 5	ummany
of	nadalupe Mountains base of Shuma Viola guadalupens	is Sear	ch, June 24	12010.	ŕ	,
	APHIC MAP (mandatory): Attite the scale on the map and				d extent of the rare pla	int population <u>clearly marked</u> .
	CERTAINTY: Marks on the 1 1:24k map = meters on the		ale map are estimated		out manning procision	and location
0				Comments ab	out mapping precision	and location.
1						
2				-		
4						
	3-16 200-4			Latitude: 31, 916	36	
'3	6-32400-8 32-60800-1			Longitude: 104.8	4257	
	60-160 1500-			Accuracy: +/-	<u> </u>	
		1000			<i>3. [Y</i> ]	
			nits)	1-		curacy in subpopulation table.
$\overline{\mathbf{X}}_{s}^{c}$	other, specify:	(include ur	,	If subpopulations preser		curacy in subpopulation table.
$\overline{X}$	other, specify: Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr	(include ur min): <b></b>	cmin GP	If subpopulations presers S datum: MD 83	nt, note lat/long and ac	curacy in subpopulation table.
$\overline{\mathbf{X}}$	other, specify: Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy: 😾 uncorrecte	(include ur min): <b></b> ed GPS (12	CMIN GP	If subpopulations presers  S datum:	nt, note lat/long and acc	
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Is the e	other, specify: Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy: 😾 uncorrecte	(include ur min): <b></b> ed GPS (12	CMIN GP	If subpopulations presers  S datum:	nt, note lat/long and acc	
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Is the e	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population	(include ur min): <b>Ca_</b> ed GPS (12 mapped?	GP GP yes no If r	If subpopulations presers S datum:	y	datapoint
Is the of the company	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population of  MAINTENANCE  T:  NAL SUBPOPULATION IN  # of (P or E)	(include ur min): <b>Ca_</b> ed GPS (12 mapped?	GP GP yes no If r	If subpopulations preser  S datum:	y	Date:
Is the e	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population of  MAINTENANCE  T	(include ur min): <u>Ca</u> ed GPS (12 mapped? _	GP 20m accuracy) yes _X no If r	If subpopulations preser  S datum: MAD \$3  corrected to <5m accuract  o, please explain: #his  Mapped & En	int, note lat/long and account of the lat/long account of the lat/	data point
Is the of the company	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population of  MAINTENANCE  T:  NAL SUBPOPULATION IN  # of (P or E)	(include ur min): <u>Ca</u> ed GPS (12 mapped? _	GP 20m accuracy) yes _X no If r	If subpopulations preser  S datum:	int, note lat/long and account of the lat/long and account	Date:
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Is the of the company	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population of  MAINTENANCE  T:  NAL SUBPOPULATION IN  # of (P or E)	(include ur min): <u>Ca</u> ed GPS (12 mapped? _	GP 20m accuracy) yes _X no If r	If subpopulations preser  S datum:	int, note lat/long and account of the lat/long and account	Date:
Is the of the company	Submitting GPS coordinates: Type of unit (e.g. Trimble, Garr GPS accuracy:  uncorrecte entire extent of the population of  MAINTENANCE  T:  NAL SUBPOPULATION IN  # of (P or E)	(include ur min): <u>Ca</u> ed GPS (12 mapped? _	GP 20m accuracy) yes _X no If r	If subpopulations preser  S datum:	int, note lat/long and account of the lat/long and account	Date:
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	OPTIONAL PLANT LIST
CHECK ONE: Plant list for the entire survey site of Plant list for a community or area we within this survey site.	rithin this survey site; if checked, please complete the following:
Name of ecological community, if	known:
type, e.g. "Carex sp." or "grass sp."  Type: A = Annual; P = Perennial, if P indicate T = tre  Frequency: common, locally common, infrequent, ra	ire, etc.
D = Dominant: check if applicable  Collection #: if collected, your collection number	N-n = Non-native: check if applicable  Photo: check if photo taken

Species Name	Туре	Frequency	D ( <b>√</b> )	N-n (✔)	Collection #	Photo (✓)	Comments:
					. ,		
	_						
					_		

	Office Use Only		Texas Natural	Diversity Database Reporting Form
D . D . 1			Wildlife Diver	
			4200 Smith Sc	nd Wildlife Department hool Road
	TXU	S	Austin, TX 78	
EOR transcribed/updated by:	(initials)			elp. If you have information on the location of
Scientist Reviewer:	(initials) EO id:			imal and would like to help us build the Texas  Database, please complete the form below.
<ol> <li>DO NOT COMPL documentation.</li> <li>Rare Birds: Comp.</li> <li>Attach a copy of a</li> </ol>	lete this form only for observati map (USGS 1:24,000 topograpl	of your information is a roots during the breeding shic map preferred) and man	eason or at large of	rersation or other document. Send us the concentration areas during migration or in winter. If the rare species or its boundary (if known), ase use 1:24,000 or 1:25,000 scale only.
Source of Your Inform	nation: (check one of the	following)		
☐ Firsthand field observe	ation Does the identification n	eed to be confirmed?	ves 🗌 no	
Other: Please do not o	complete this form: send us a co	py of the documentation i	nstead. If source	is a conversation with someone, send us a note.
_	ompieto una form, sena as a co	py of the documentation i	nstead. If source	is a conversation with someone, send as a note.
Form Completed By:				
Flo Oxley		March 22, 2011	512/2	232-0160
Name		Date	Phon	e
Identification: Complete only one form	per rare plant or animal per si	te. If you need a list of ra	are species we are	currently tracking, contact our office.
Name of the rare plant or an	nimal:	Croton alabamensis	var. texensis	
Method of ID: (Source of k	ey, photo, name of expert, other	): Expert		
Tradition of 12.7 (Source of 12		). Zapott		
Date First Observed: M	arch 22, 20100	Date Last Observed	June 8, 2011	
Observer:				
Name:	Address:			Phone:
Flo Oxley Jean Nance (landowner)	Lady Bird Jo 4801 La Cro	ohnson Wildflower Cente	r	512/232-0160
Christine Powell (WFC vol Dale Rye (WFC volunteer)				
Location:	l .			1
	+30.584444	Longitude:	-97.990.139	
GPS data: Latitude:		GPS Brand:	Garmen	
Accuracy:	+/- 1 meter			
		•		
Accuracy: Survey Site Name (locale o	r place name): Private resid	dence	vith an appily idam	utifiable starting point, include pearly landwards
Accuracy: Survey Site Name (locale o	r place name): Private resid	dence	vith an easily iden	tifiable starting point, include nearby landmarks,

County:	Travis	Town:	Leander
Name of	USGS 7.5' topo (if known)	Nameless	1

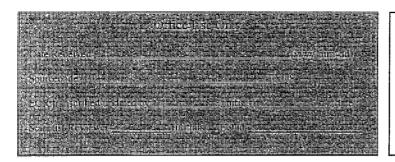
Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Population consists of more than 250 plants. At the time we bagged the plants to collect seed, approximately half of the population was in flower. All plants appeared to be in good health in spite of severe drought conditions.
At the time we went back to collect bagged seeds, 90% of the population had flowered/gone to seed. Notice a lot of empty fruit and aborted flowers.
Size:  Please indicate the estimated area occupied by the plant or animal:  1-2   Acres or   sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters):  Width (meters):
<b>Habitat Description:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species substrates, soils, aspect, slope, hydrology, etc.
Plants found in a riparian forest along a tributary of Bingham Creek. Associated species include: Celtis laevigata, Ulmus crassifolia, Fraxinus texensis, Quercus buckleyi, Ptelea trifoliata, Ilex decidua, Chasmanthium latifolium, Tinantia anomala, and Packera obovata.
Managed Area (Name of the state or federally owned area):  N/A
Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))
Rural, although being developed.
Current and Potential Threats:  Development
Management Comments:  This property is privately owned and the owner is making plans to keep the proerty from being developed after her death. It butts up against the Blacones Canyonland National Wildlife Refuge and the croton population on the private property is, I believe, a segment of the population that occurs on the Refuge.
<b>Specimen:</b> Was a specimen taken? ⊠ yes □ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  [I. D. W. C. Harbarium, Florence M. Oyley, 2010 01, 08 April 2010
LBJWC Herbarium, Florence M. Oxley, 2010-01, 08 April 2010

**Photograph:** Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.

**General Comments:** 

Is a copy included with the form?  $\square$  yes  $\boxtimes$  no

01/28	3/2008 Version Date	CrAl		



We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

#### **Instructions:**

County: Travis

Name of USGS 7.5' topo (if known)

Town:

Nameless

Leander

- Complete this form for <u>first hand field observations only.</u>
- 2. <u>DO NOT COMPLETE THIS FORM</u> if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- 3. Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter.
- 4. Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known).

  Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

Source of Yo	our Informat	ion: (check	one of the	follow	ing)						
☐ Firsthand	field observation	n Does the i	dentification n	eed to be	confirmed?  yes	no 🛣					
Other: Pl	ease do not com	olete this form	ı; send us a coj	py of the	documentation inst	tead. If s	ource i	is a conversation	with som	eone, seno	i us a note.
Form Comp	leted By:		,								
Flo Oxley				March	22, 2011		512/232-0160				
Name				Date			Phone	3			
	••		animal per si		u need a list of rare oton alabamensis va			currently trackin	g, contact	our office	).
Method of ID:	(Source of key, p	hoto, name o	f expert, other	): Exp	pert						
Date First Obs	erved: March	22, 20100		Dat	e Last Observed:	June 8	, 2011				
Observer:											
Name:			Address:					Phone:			
Flo Oxley Jean Nance (landowner) Christine Powell (WFC volunteer) Dale Rye (WFC volunteer)  Lady Bird John 4801 La Crosse Austin, Texas 7				sse Ave				512/232-0160			
Location:											
GPS data:	Latitude:	+30.584444			Longitude:	-97.99	0.139		7		
Accuracy: +/- I meter				GPS Brand:	Garmen						
Survey Site Na	me (locale or pla	ce name):	Private resid	ience					<del></del>		
Directions (desc street names, and 25601 River Fo Leander, TX 7	d mileages): ern Court	precise location	on of the specie	es or con	nmunity; begin with	n an easil	y ident	tifiable starting p	oint, inclu	ide nearby	landmarks,

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
opulation consists of more than 250 plants. At the time we bagged the plants to collect seed, approximately half of the population was in flower. All plants appeared to be in good health in spite of severe drought conditions.
At the time we went back to collect bagged seeds, 90% of the population had flowered/gone to seed. Notice a lot of empty fruit and aborted flowers.
Size:  Please indicate the estimated area occupied by the plant or animal:  1-2   Acres or   sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species substrates, soils, aspect, slope, hydrology, etc.
Plants found in a riparian forest along a tributary of Bingham Creek. Associated species include: Celtis laevigata, Ulmus crassifolia, Fraxinus texensis, Quercus buckleyi, Ptelea trifoliata, Ilex decidua, Chasmanthium latifolium, Tinantia anomala, and Packera obovata.
Managed Area (Name of the state or federally owned area):  N/A
Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))  Rural, although being developed.
Current and Potential Threats:  Development
Management Comments:  This property is privately owned and the owner is making plans to keep the proerty from being developed after her death. It butts up against the Blacones Canyonland National Wildlife Refuge and the croton population on the private property is, I believe, a segment of the population that occurs on the Refuge.
Specimen: Was a specimen taken? ⊠ yes ☐ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  LBJWC Herbarium, Florence M. Oxley, 2010-01, 08 April 2010
Photograph: Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.

**General Comments:** 

Is a copy included with the form? 🛮 yes 🔲 no

SI	how Masthead	Participatin	g Institutions Only	Entrance					Logoff
	RED field		e this form to crea d. Hover over field				get descriptio	ns.	<u></u>
	Тахо	n: Croton alabam	ensis var. texensis		CPC N	um: 1	6071		
	Institutio	n: The Lady Bird	Johnson Wildflower Cer	nter I	nstitution C	ode: Li	BJWC		
	Record Typ	e: Primary Record	d		NatureServe	ID:			
	Accessio			A	ccession To	ken:			
	Accession Da	te			Crea	ted: 1	2/15/2011		
	Deaccession Date	j:			Chang	ed: 1	2/15/2011		
	Last Updated B	y:							
-									
		Α.	ccession Number:	CBC201100	.O.1				
		A	General Acc						-
	06/08/2011	Accession				lend	Deaccession		
	unknown=12/29/		12/15/2011	Dead	cessioned?		Date:	unknown=12/	29/1899
		ୀ ୬ ଓ ଗ୍ରୀୟବର୍ଷୀୟ	Field Collected						
			Propagation Note	materi	al is propa	gated		cession nod.	
	Parent Accession	ident	material is propagate ify Parent Accession(s	reason			here.	de unknow	n ´
		Herba	rium Collection Vouche	stored	her specime in the WFC ID numbers	: herba	re collected and arium collection	i . i.  ·	
		Re	presented In Collectio	n? 🔽					
	Accession Notes:				ction made acks up to land Natior	the B			
			·			,			7
			ield Collection Dat	a: Locati	on Sectio	11			
		Yes ·		Collect Nam	or Flo Oxle e: Jean Na		andowner)	-	
		Texas	•	Collection Count					
	Location Popular Name:	Jean Nance res	idence	Location Note				-	
		Private	·	LandOwn Nam	e:	Shay N	ance	•	
		80-7792		Elevati (in Meter					
	Latitude & Longitude:	30.58444 <b>N</b>	97.990.13 <b>W</b>						

	Formats: 39 07 09 or 39.1180						
UTM Zone, North, & East:		mN	mE 6 digits for mN & mE				
Meridian	N/A						
Township & Range:		Section R. 07W Section 24	Qtr. Sec. Qtr. Sec. SENW				
USGS topo Map:	Nameless	· · · · · · · · · · · · · · · · · · ·					

Fie	ld Collection Data: Hab	oitat Section	
Light:	1/2 shade ·	Slope:	0-5%
Litter:	N/A ·	Exposure:	N/A ·
Phosphorus:		Potassium:	
Calcium:		Magnesium:	
Cation Exchange Capacity:	***************************************	Soil Moisture:	
Organic Matter:		Soil Type:	
Soil PH:			
Parent Rock :	Limestone		
Plant Community :	Riparian forest along a tributary of Bingham	* *	
Associated Species:	Associated species include Celtis laevigata, Ulmus	le: .	

	Field Co	llection Data: Population Section	
	101-500	Area covered (length in Meters)	
Area covered (Width in Meters)		Average Plants per Square Meter	
Maximum Plants per Square Meter		. Percent Reproductive	<1%
Percent Non- Reproductive		Percent Seedlings	0%
Percent in Bud		Percent in Flower	0%
Percent in Fruit	36%	Number of Genetic	97
Threats	Development		
Field Collection Notes			

Indicate the reason(s) this Accession is being updated/created? If this is a new accession please be sure to select "New Accession". CTRL-CLICK for Multiple.	DOD Special Status - General . New Accession RPL -
Submitted By: Flo Oxley	

<u> </u>	Full name, last name, or initials.	
	Create Accession Go Record	
	Site hosted by the <u>Missouri Botanical Garden</u> Created by the Center for Plant Conservation: <u>contact us</u>	

# Release of Audio-Visual Material

I give permission to the Center for Plant Conservation to use photographic or other visual material as listed below for use in that organization's publicity and education programs. I understand that the Center is a non-profit, charitable organization, that the materials produced are for educational purposes, and that no admission will be charged for viewing. Fill out the below for each photo:

Photo 1 File name: Croton alabamensis var. texensis_pistillate flowers
Photo 2 File name: Croton alabamensis var. texensis_staminate flowers
Photo 3 File name:
Photo 4 File name:
Photo 5 File name:
Those of the huma.
Photo 6 File name:
Thoto of he hame.
Photo 7 File name:
rnow / The hame.
Di eta 9 Eile gener
Photo 8 File name:
DI O T.II
Photo 9 File name:

Name Flo Oxley

Address Lady Bird Johnson Wildflower Center @ University of Texas-Austin 4801 La Crosse Avenue Austin, Texas 78739

PLEASE put only one species per tab РНОТО 1 РНОТО 2 РНОТО 3 PHOTO 4 PHOTO 5 File name Pistillate flowers Staminate flowers Croton alabamensis Croton alabamensis var. texensis var. texensis Species name Synonyms Name of people (if any) Location Jean Nance residence Jean Nance residence Date (dd/mm/yyyy) Flo Oxley Flo Oxley Photographer Image Owner (if different than photographer) РНОТО 6 РНОТО 7 PHOTO 8 РНОТО 9 РНОТО 10 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 11 РНОТО 12 РНОТО 13 PHOTO 14 PHOTO 15 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 16 PHOTO 17 PHOTO 18 PHOTO 19 PHOTO 20 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer)

# CPC20110004



Texas Natural Diversity Database Reporting Form Wildlife Diversity Program Texas Parks and Wildlife Department 4200 Smith School Road Austin, TX 78744 (512) 389-8111

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below.

Instructions	;					•				
1. Com	olete this for	n for	<u>first hand fie</u>	ld observations	only.					
		ETE	THIS FORM	1 if the source o	f your i	information is a rep	ort, lette	r, conv	ersation or other docur	ment. Send us the
	mentation.									
4. Attac	h a copy of a	map	(USGS 1:24	,000 topographi	c map p	preferred) and marl	k the loc	ation of	concentration areas dured the rare species or its ase use 1:24,000 or 1:2	ring migration or in winter. boundary (if known). 25,000 scale only.
Source of Y	our Infori	matie	on: (check	one of the f	follow	ing)				
☐ Firsthand	l field observ	ation	Does the i	dentification ne	ed to be	confirmed? Dyes	s 🛛 no			
Other: P	lease <u>do not</u>	compl	lete this form	send us a cop	y of the	documentation ins	stead. If	source	is a conversation with	someone, send us a note.
Form Comp	leted By:									
Minnette Marr	•				Octobe	r 11, 2011		214-9	908-1161	
Name					Date			Phon	e	
Identification Complete on		per ra	are plant or	animal per site	e. If you	u need a list of rare	species	we are	currently tracking, cor	ntact our office.
Name of the ra	are plant or a	nimal	•		Hib	iscus dasycalyx			, , , , , , , , , , , , , , , , , , ,	
Truite of the re	no plant or a		•			noodo dabyodiy k				
Method of ID:	(Source of k	ey, pl	noto, name o	f expert, other):	Exp	pert - Thomas Phili	pps (US	DA For	est Service)	
					L					
Date First Obs	erved: O	ctobe	r 6, 2011	<del></del>	Dat	e Last Observed:	Octol	ber 6, 2	011	
L							1			
Observer:										
Name:				Address:					Phone:	
Minnette Marr	•				se Aver	nue, Austin, TX 78	739		214-908-1161	
						, ,				
		*						•		
Location:	1.		010122			T	T 00-	0/10-	<del>1</del>	
GPS data:	Latitude:		31.34297			Longitude:		04105	160	
	Accuracy:					GPS Brand:	Garm	in GPS	60	
Survey Site N	ame (locale c	r plac	e name):	Davy Crocke	tt Natio	onal Forest				
		the p	recise location	on of the specie	s or con	nmunity; begin wit	th an eas	ily iden	tifiable starting point,	include nearby landmarks,
street names, an		Servi	ce Road 503	(31.389722;-9:	5.05361	1 from ArcGISEx	olorer); t	ravel 5-	6 kilometer south to th	ne end of FS road 503;
bog is about a				•		•				
L							<del></del>			·
	uston			wn: Ratclift	f					
Name of USG	S 7.5' topo (	if kno	wn) Cer	ntralia				_]		

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate !) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
estimate: 100-200 plants approximately 50% of plants with fruit containing non-viable seeds; 10% with fruit containing viable seeds; 40% of plants with no fruit height of stems produced in 2011 approximately 75% the height of stems produced in 2010 one plant had recently flowered (image is attached to reporting form)
Size: Please indicate the estimated area occupied by the plant or animal: Acres or 3,000 sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
Habitat Description: Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.
Bog Cephalanthus occidentalis, Brunnichia ovata, Mikana scandens, and Juncus cf. effusus dominate the zone to the outside of HIDA Sesbania herbacea and Heliotropium indicum are scattered in the central area.
Managed Area (Name of the state or federally owned area):
Davy Crockett National Forest
Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))  Forest
Current and Potential Threats:  Encroachment by Brunnichia ovata; herbivory; prolonged drought
Management Comments:  Volunteers or contractors could cut back Brunnichia ovata growing on Hibiscus dasycaylx
Specimen: Was a specimen taken? ⊠ yes □ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  Lady Bird Johnson Wildflower Center, Minnette Marr #1277, collected October 6, 2011
Photograph: Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.
Is a copy included with the form? 🛛 yes 🗌 no
General Comments:
A total of 174 seeds were collected from ten plants for long-term conservation.  This area is experiencing an exceptional drought.

Show Masthead	

# Participating Institutions Only Entrance

Select Accession

Options

Taxon:	Hibiscus dasycalyx	CPC Num:	2258
Institution:	The Lady Bird Johnson Wildflower Center	Code:	LBJWC
Record Type:	Collateral Record		
Accession:	CPC20110004	Token:	17235
Accession Date:	12/15/2011	Created:	12/15/2011
Deaccession Date:	-1	Changed:	12/15/2011
Submitted By:	Minnette Marr		·

Please note that fields in which there have been no values entered have been updated to "N/A" (for text fields) or "-1" (for numeric or date fields). "N/A" and "-1" do not appear on the Accession edit form.

# Accession Number: CPC20110004

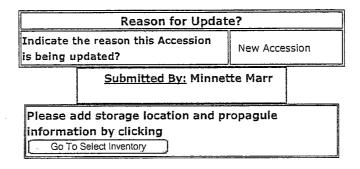
General Accession Data								
Collection Date: 10/06/2011 Accession Date: 12/15/2011 Deaccessioned? No Deaccession Date: -1								
		Pro	pagation Notes:	N/A				
			nt Accession(s): d if propagated.					
	Her	barium Coll	ection Voucher:	None				
		Represente	d In Collection?	No				
ssion Note	s: N/A	<del></del>		· · · · · · · · · · · · · · · · · · ·				

	Field Collection Data: Loc	cation Section	
Field Collection Form sent to CPC?:	True	Collector Name:	Minnette Marr, Thomas Philipps (USFS)
Collection State/Province:	Texas	Collection County:	Houston
Location Popular Name:	Davy Crockett NF	Location Notes:	NFR 503
Landowner Type:	Federal - USFS	LandOwner Name and Address:	Davy Crockett National Forest
EO-ID:	00-0000	Elevation (in Meters)	N/A
Latitude & Longitude:	<b>31.34297 N</b> 95.04105 <b>W</b> Formats: 39 07 09 or 39.1180		
UTM Zone, North, & East:	-1 -1 mN -1 mE 6 digits f	or mN & mE	
Meridian	N/A	_	
	<b>N/A T.</b> N/A <b>R1 Section f</b> Formats: T. 33N R. 07W Sec (not required)	· •	(not required)
USGS topo Map:	Centralia	,	

	Field Collection Data	: Habitat Section	
Light:	Open	Slope:	0-5%
Litter:	less than 1 cm	Exposure:	N/A
Phosphorus:	N/A	Potassium:	N/A
Calcium:	N/A	Magnesium:	N/A .
ation Exchange			(

Capacity:	N/A Soil Moisture:	N/A	
Organic Matter:	N/A Soil Type:	N/A	
Soil PH:	N/A		
Parent Rock :	Alluvium		
Plant Community :	Bog		
Associated Species:	Cephalanthus occidentalis, Brunnichia ovata, Mikania scandens, Juncus sp., Sesbania herbacea, Heliotropium indicum		

Total number of plants present at collection:	101-500	Area covered (length in Meters)	N/A
Area covered (Width in Meters)	N/A	Average Plants per Square Meter	0.05
Maximum Plants per Square Meter	N/A	Percent Reproductives	0.06
Percent Non- Reproductives	N/A	Percent Seedlings	N/A
Percent in Bud	N/A	Percent in Flower	N/A
Percent in Fruit	N/A	Number of Genets:	10
Threats	encroachment by Br	unnichia ovata, herbivory, prolonged drought	
	area = 3,000 sg met		



Site hosted by the Missouri Botanical Garden

Created by the Center for Plant Conservation: contact us

# Release of Audio-Visual Material

I give permission to the Center for Plant Conservation to use photographic or other visual material as listed below for use in that organization's publicity and education programs. I understand that the Center is a non-profit, charitable organization, that the materials produced are for educational purposes, and that no admission will be charged for viewing. Fill out the below for each photo:

Photo 1 File name: Hibiscus dasycalyx_calyx.tif			
Photo 2 File name: Hibiscus dasycalyx_fruit.tif			
Photo 3 File name: Hibiscus dasycalyx_habitat.tif			
Photo 4 File name: Liatris tenuis_Angelina habitat.tif			
Photo 5 File name: Liatris tenuis_fruit.tif			
Photo 6 File name: Liatris tenuis_seedheads.tif			
Photo 7 File name: Rudbeckia scabrifolia_habitat.tif			
Photo 8 File name: Rudbeckia scabrifolia_infructesence.tif			
Photo 9 File name:			
Signed: Man Date 12-15-2011			
Minnette Marr  Name  4801 La Crosse  Address  Austin, TX 18739			

PLEASE put only one species per tab PHOTO 1 PHOTO 5 PHOTO 2 PHOTO 3 PHOTO 4 Calyx Habitat Fruit File name Species name Hibiscus dasycalyx Hibiscus dasycalyx Hibiscus dasycalyx Synonyms Name of people (if any) Davy Crockett National Davy Crockett National Davy Crockett National Forest Forest Forest Location 10/6/2011 10/6/2011 10/6/2011 Date (dd/mm/yyyy) Minnette Marr Minnette Marr Minnette Marr Photographer Image Owner (if different than photographer) PHOTO 6 PHOTO 7 PHOTO 8 PHOTO 9 PHOTO 10 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer — Image Owner (if different than photographer) PHOTO 11 PHOTO 12 PHOTO 13 PHOTO 14 PHOTO 15 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 16 PHOTO 17 PHOTO 18 PHOTO 19 PHOTO 20 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer image Owner (if different than photographer)

Office Use	Only	
Date Received:		(yyyy-mm-dd)
Sourcecode: U		_TXUS
EOR transcribed/updated by:	_(initials)_	(date)
Scientist Reviewer:(initials)	EO id:	

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

#### **Instructions:**

- 1. Complete this form for first hand field observations only.
- 2. <u>DO NOT COMPLETE THIS FORM</u> if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- 3. Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter.
- 4. <u>Attach a copy of a map</u> (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known). Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

<b>Source of Your Information:</b> (check one of the following	ιg)	)
--	-----	---

☐ Firsthand field observation	Does the identification need to be confirmed? ☐yes ☒ no
-------------------------------	---

Other: Please do not complete this form; send us a copy of the documentation instead. If source is a conversation with someone, send us a note.

# Form Completed By:

Minnette Marr	October 11, 2011	214-908-1161
Name	Date	Phone

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

Name of the rare plant or animal:	Hibiscus dasycalyx
Method of ID: (Source of key, photo, name of expert, other):	Expert - Thomas Philipps (USDA Forest Service)
Date First Observed: October 6, 2011	Date Last Observed: October 6, 2011

# Observer:

Name:	Address:	Phone:
Minnette Marr	4801 La Crosse Avenue, Austin, TX 78739	214-908-1161

## Location:

GPS data:	Latitude:	31.34297	Longitude:	-095.04105
	Accuracy:		GPS Brand:	Garmin GPS 60

	Survey Site Name (locale or place name):	Davy Crockett National Forest
--	--	-------------------------------

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

Texas Highway 7 at Forest Service Road 503 (31.389722;-95.053611 from ArcGISExplorer); travel 5-6 kilometer south to the end of FS road 503; bog is about a ten-minute walk to the east

County: Houston	Town:	Ratcliff
Name of USGS 7.5' topo (if known)	Centralia	

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
estimate: 100-200 plants approximately 50% of plants with fruit containing non-viable seeds; 10% with fruit containing viable seeds; 40% of plants with no fruit height of stems produced in 2011 approximately 75% the height of stems produced in 2010 one plant had recently flowered (image is attached to reporting form)
Size:  Please indicate the estimated area occupied by the plant or animal:  Acres or 3,000 sq. meters  If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
<b>Habitat Description:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.
Bog Cephalanthus occidentalis, Brunnichia ovata, Mikana scandens, and Juncus cf. effusus dominate the zone to the outside of HIDA Sesbania herbacea and Heliotropium indicum are scattered in the central area.
Managed Area (Name of the state or federally owned area):  Davy Crockett National Forest  Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))  Forest
Current and Potential Threats:
Encroachment by Brunnichia ovata; herbivory; prolonged drought
Management Comments:  Volunteers or contractors could cut back Brunnichia ovata growing on Hibiscus dasycaylx
<b>Specimen:</b> Was a specimen taken? ⊠ yes □ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  Lady Bird Johnson Wildflower Center, Minnette Marr #1277, collected October 6, 2011
Photograph: Was a photo taken? ☑ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.  Is a copy included with the form? ☒ yes ☐ no
General Comments:

A total of 174 seeds were collected from ten plants for long-term conservation.

This area is experiencing an exceptional drought.

Office Use Only							
Date Received:	(yyyy-mm-dd)						
Sourcecode: U	TXUS						
EOR transcribed/updated by:	(initials)(date)						
Scientist Reviewer:(initials)	EO id:						
Scientist Reviewer:(initials)	EO id:						

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

#### **Instructions:**

- 1. Complete this form for first hand field observations only.
- DO NOT COMPLETE THIS FORM if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- 3. Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter.
- 4. Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known).

  Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

# **Source of Your Information:** (check one of the following)

☐ Firsthand field observation	Does the identification need to be confirmed?  yes  no
-------------------------------	--

Other: Please do not complete this form; send us a copy of the documentation instead. If source is a conversation with someone, send us a note.

# Form Completed By:

Anita Tiller, David Berkshire	August 19, 2012	281-443-8731
Name	Date	Phone

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

ivalie of the rate plant of animar.	Hibistus dasytaiya
Method of ID: (Source of key, photo, name of expert, other):	Expert - Jackie Poole(TPWD)
	<u> </u>

Date First Observed:	August 16, 2012	Date Last Observed:	August 16, 2012

#### Observer:

Name:	Address:	Phone:
Anita Tiller	Mercer Arboretum and Botanic Gardens	2281-443-8731
	22306 Aldine Westfield Rd., Humble, TX 77338	
Minnette Marr	4801 La Crosse Avenue, Austin, TX 78739	214-908-1161
Karen Clary	(as above)	(as above)
Amber Miller	USFWS	

# **Location:**

GPS data:	Latitude:	31.10111	Longitude:	-095.47569
	Accuracy:		GPS Brand:	Garmin GPS 60

Survey Site Name (locale or place name):	Texas Land Conservancy Hibiscus dasycalyx Preserve

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

The following information was recorded during the site visit to the 30-acre preserve owned by the Texas Land Conservancy near Lovelady. Feel free to check with Jackie Poole and Jason Singhurst for additional information.

target species: Hibiscus dasycalyx

date: 2012-08-16 county: Houston

closest city with a post office: Lovelady

coordinates: 31.10111, -095.47569

associated species: Sesbania drummondii, Polygonum sp., Croton capitatus, Eupatorium serotinum, Cephalanthus occidentalis, Iva angustifolia, Baccharis halimifolia, Poncirus trifoliata, Carya illinoinensis, Salix nigra, Brunnichia ovata

- 1) no flowers observed at this site (possible causes include dry conditions and defoliation by grasshoppers)
- 2) hydrology is not well understood (HIDA prefers wet conditions in winter)
- 3) 30 acres owned by the Texas Land Conservancy (Daniel Dietz is land steward.)
- 4) cows browsed plants to ground in 2011 (extreme drought), but not in 2012
- 5) site across FM230 that previously was home to HIDA was contoured and converted to a pine plantation

background information obtained online:

directions from intersection of TX 19 and FM 230: travel west on FM 230 approximately 2.6 miles, site is on north side of road (see attachment)

watershed: Tantabogue Creek (Tantabogue Creek rises two miles southwest of Crockett in south central Houston County (at 31°17' N, 95°30' W). The creek formerly flowed southeast for twenty-six miles to its mouth on White Rock Creek in western Trinity County (at 31°01' N, 95°21' W). Since the construction of Lake Livingston in the late 1960s the creek has been inundated in its lower reaches. It crosses flat terrain surfaced by clay and sandy loam that supports water-tolerant hardwoods, conifers, and grasses. (Handbook of Texas Online)

soil: Nahatchie loam, frequently flooded (Web Soil Survey)

County:	Houston	Town:	Lovelady
Name of USGS 7.5' topo (if known)		Centralia	

#### **Observation Data:**

For Animals:	Indicate th	he number	of adults,	juveniles.	nests, etc.
--------------	-------------	-----------	------------	------------	-------------

For Plants:	Indicate 1)	the number	of flowering	plants and/	or sterile stem	s, 2) the nu	mber of se	parate plant	groupings,	3) the heal	th of the	plants, etc.

	,	61	 1 1	C 1 C / /	
a.					
Size:					
Please indicate the	estimated area occupied	by the plant or animal:			
Acr	es or 3,000	sq. meters			

If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:

Length (meters):	Width (meters):	

**Habitat Description:** Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.

Bog
Cephalanthus occidentalis, Brunnichia ovata, Mikana scandens, and Juncus cf. effusus dominate the zone to the outside of HIDA
Sesbania herbacea and Heliotropium indicum are scattered in the central area.

Managed Area (Name of the state or federally owned area):

Davy Crockett National Forest

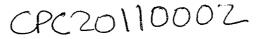
Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))

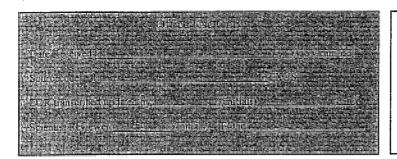
Forest

# **Current and Potential Threats:**

Encroachment by Brunnichia ovata; herbivory; future droughts

Management Comments:
Volunteers or contractors could cut back Brunnichia ovata growing on Hibiscus dasycaylx
Specimen: Was a specimen taken? ☐ yes ☐ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:
<b>Photograph:</b> Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.
Is a copy included with the form? ⊠ yes □ no
General Comments:
39 seed pods were collected and accessioned separately.  Mercer accession no. 2012-0160 to 2012-0199  Total seeds collected: ~1,188  Stored frozen at Mercer ABG and for NCGRP.





We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

## Instructions:

County: Zapata

Name of USGS 7.5' topo (if known)

- 1. Complete this form for first hand field observations only.
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- 4. Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known). Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

Course of Vo	un Inform	nation: (check	one of the fo	llowi	ina)				
Source of 10	our intoln	iation: (check	one of the to	IIOWI	ing)				
🔀 Firsthand	field observa	tion Does the ic	lentification need	to be	confirmed? □yes	🕱 no			
Other: PI	ease do not c	omplete this form	send us a copy of	of the	documentation inst	ead. If so	игсе і	is a conversation with someone, send us a no	ite.
_									
Form Comp	leted By:								
Flo Oxley			Aj	oril 22	2, 2011	4	512/2	232-0160	
Name			Da	ate		I	Phone	e	
Identification Complete onl		er rare plant or	animal per site.				e are	currently tracking, contact our office.	
Name of the ra	re plant or an	imal:		Les	querella thamnophy	/lla		H. W	
Method of ID:	(Source of ke	y, photo, name of	expert, other):	Exp	ert: Michael L. Eas	on			
With the Country of t	(500.00 01 10	,,, p.1010, name 01	onport, cure.).	S.i.p					
Date First Obse	erved: Ap	ril 22, 2011		Date	Pate Last Observed: April 22,2011				*
Observer:									
Name:			Address:					Phone:	
Michael L. Eas Edd Paradise	son		Lady Bird John Texas Departm		/ildflower Center Transportation			512/632-0332 956/765-9971	
Location:		,							
GPS data:	Latitude:	260 41 8411	1				o06 566W		
Accuracy: GPS Brand: Garmin					· .				
Survey Site Name (locale or place name): TxDOT Roadside US 83									
Directions (descriptions (descriptions)		the precise location	on of the species o	or con	nmunity; begin with	an easily	iden	tifiable starting point, include nearby landma	ırks,
		tely 12 miles on U	JS 83. East side o	f road	1.				
	<del>- w</del>								•

Town: Zapata

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Population consisted of ~10 individuals, one (removed) was within 5' of pavement, remainder along gentle slope towards fence line. No evidence of damage or disturbance. Plants all around dispersal stage and healthy.
Size:  Please indicate the estimated area occupied by the plant or animal:  Acres or   sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species substrates, soils, aspect, slope, hydrology, etc.
Roadside habitat (frequently mowed), construction area: Bouteloua repens, Bothriochloa ischaemum, Merrimea dissecta, Asclepias oenotheroides, Pennisetum ciliare, Thamnosa texana, Dalea pogonathera. Fenceline/woodland habitat along top of slope: Sideroxylon celastrinum, Prosopis glandulosa, Cylindropuntia leptocaulis, Opuntia engelmannii, Jatropha dioica, Yucca treculeana, Koeberlina spinosa
Managed Area (Name of the state or federally owned area):
Texas Department of Transportation
Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))  Roadside habitat (frequently mowed), construction area.
Current and Potential Threats:  Road construction by TxDOT
Management Comments:  We will return plants to the site once construction is completed. Until then, we will be keeping them at the Wildflower Center.
Specimen: Was a specimen taken? ☐ yes ☒ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:
Photograph: Was a photo taken? ☐ yes ☒ no ☐ If yes, ☐ slide ☐ print ☐ digital ☐ If possible, please submit a copy of the photo.
Is a copy included with the form? $\square$ yes $\boxtimes$ no
General Comments:  This collection was part of a plant rescue requested by TxDOT.

Si	now Masthead	Participating	g Institutions Only	Entrance			.,			Logoff
•										
	RED field		e this form to crea				et descri	atio	ne	
ı		: Lesquerella tha		is in the c	CPC Nun			J (10	1131	1
			Johnson Wildflower Cen	ter Inc	titution Code	_				-
		e: Project Record			tureServe II					-
	Accession				ession Toker					
	Accession Dat		W	Acc		_	15/2011			
	Deaccession Date				Changed					
ı	Last Updated By				Changea	12/1			1.0.0	-
						-				
		A	ccession Number:	CPC20110002	2					
			General Acc							
	04/22/2011	Accession	12/15/2011	Deacc	essioned?		Deacces			
	unknown=12/29/	1899 Date:	Field Collected			_	D	ate:	unknown=12/2	29/1899
	1.30.		I leid Collected					·c		
			Propagation Note	materia	l is propaga	ited, o			cession od.	
	<u></u>			SeleanPa	rent/Accession					
	Parent Accession		material is propagate						n	
		ident	ify Parent Accession(s	reason o	reason or bulked parents here.					
		Herba	rium Collection Vouche	er:						
							,			
				- 2					<u>-</u>	
		Re	presented In Collection			······				
			Accession Note		s an "emerge equest of T					
				to colle	to collect seeds from plants that had gone to seed as well as plants that					
					ought back t			·C		
	Field Collection Data: Location Section									
		Yes ·		Collector	Michael L.	Easo	n (WFC)			
					Edd Paradi				•	
		Texas		Collection						
				County	1					
	Location Popular Name:	US 83 roadside			Approxima south of 2			st		
				Landown a	State of T	exas				
		Local/Public		LandOwne Name	III				-	
				Elevation	<u> </u>		-			
		00-0000		(in Meters						
	Latitude &					·	-			
	Longitude:	26 41 84 N	99 06 566 <b>W</b>	,						

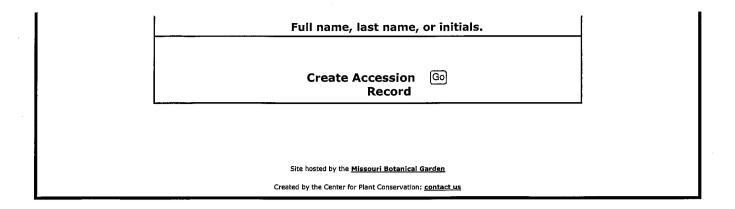
	Formats: 39 07 09	9 or 39.1180	
UTM Zone, North, & East:		mN	mE 6 digits for mN & mE
Meridian	N/A		
Township & Range:		Section R. 07W Section 24	Qtr. Sec. Qtr. Sec. SENW
USGS topo Map:			

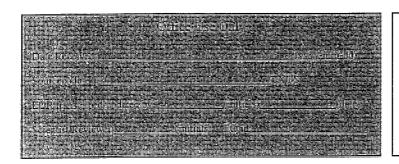
Field Collection Data: Habitat Section				
Light:		Slope:	N/A ·	
Litter:	N/A ·	Exposure:	N/A ·	
Phosphorus:	- delication of the second of	Potassium:		
Calcium:	:	Magnesium:		
Cation Exchange Capacity:		Soil Moisture:		
Organic Matter:		Soil Type:		
Soil PH:				
Parent Rock :				
Plant Community:	Roadside habitat, frequently · mowed, construction area ·			
Associated Species:	Sideroxylon celastrinum, Prosopis glandulosa,			

	Field Co	ollection Data: Population Section	
	1-10	Area covered (length in Meters)	
Area covered (Width in Meters)		Average Plants per Square Meter	
Maximum Plants per Square Meter		Percent Reproductive	0%
Percent Non- Reproductive		Percent Seedlings	0%
Percent in Bud		Percent in Flower	0% -
Percent in Fruit	100%	Number of Genetics	10
Threats	Road construction by TxDOT	•	
Field Collection Notes			

Indicate the reason(s) this Accession is being updated/created? If this is a new accession please be sure to select "New Accession". CTRL-CLICK for Multiple.	DOD Special Status - General . New Accession RPL -
Submitted By: Flo Oxley	

LeTh





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# Source of Your Information: (check one of the following)

☑ Firsthand field observation Does the identification need to be confirmed? ☐yes ☑ no						
Other: Please do not complete this form: send us a copy of the documentation instead. If source is a conversation with someone, send us a note.						
form Completed By:						
Minnette Marr and Anita Tiller	2011-12-03	MM 214-908-1161 and AT 281-443-8731				
Name	Date	Phone				

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

Name of the rare plant or animal:	Liatris tenuis
Method of ID: (Source of key, photo, name of expert, other):	Flora of North America; Rare Plants of Texas
Date First Observed: 2011-11-04	Date Last Observed: 2011-11-04

#### Observer:

Name:	Address:	Phone:
Minnette Marr	4801 La Crosse Avenue, Austin, TX 78739	214-908-1161
Anita Tiller	22306 Aldine Westfield Rd. Humble, TX 77338	281-443-8731
Pauline Singleton	903 E. Archer Rd Baytown, TX 77521	281-421-2469

#### Location:

Docation.				
GPS data:	Latitude:	31.09347	Longitude:	-94.25551
	Accuracy:	15m	GPS Brand:	Garmin GPS ETREX

Survey Site Name (locale or place name):	Angelina National Forest	 	

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

Drive east on SH 63 from Zavalla to Forest Route 364. Turn left (north) onto Forest Rt. 364. The site is in Angelina County and south of Sam Rayburn Reservoir. This stand of Liatris tenuis is on the east and west side of Forest Route 364 just a few minutes walk from the interstection of NF 364 and SH 63.

County: Angelina	Town:	Zavalla	
Name of USGS 7.5' topo (if known)	Boykin S	prings, Texas	

**General Comments:** 

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
We collected 1,389 seeds from 63 plants. The total number of plants in the stand was approximately 390. Plants occurred on both side of Forest Rt. 364.
Site had been burned and lacked heavy underbrush, with little poison ivy Did not observe damage from herbivores or pathogens.
Size:  Please indicate the estimated area occupied by the plant or animal:  Acres or 1230.5 sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.
Mixed pine-oak forest. Liatris tenuis occurs along both sides of the road into the forest and ditch along road.  Pine tree bark sooty from prescribed burn. Understory very open with little poison ivy.  Highest density of Liatris tenuis appears near depressions remaining from complete burning of trees trunks and roots. These depressions appear to retain more moisture and the plants are more robust.  Canopy dominated by widely-spaced Pinus taeda, possibly some P. elliotti and some oak.  Understory open with scattered Quercus saplings, Vaccinium arboreum, Callicarpa americana. Quercus leaves were bristle-tipped and had stellate pubescence on undersurfaces, thus likely Q. marilandica as shown in Flora of N. Central TX.  Herbaceous associates include:  Pityopsis graminifolia, Chasmanthium sessiliflorum, Croton capitatus, Eryngium yuccifolium, Ionactis linarifolia, Symphyotrichum spp, Baptisia spp, Hypericum spp, Smilax spp.
Managed Area (Name of the state or federally owned area):  Angelina National Forest
Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))  Open pine forest maintained by prescribed burns
Current and Potential Threats:  Fire suppression
The suppression
Management Comments:  This large stand of Liatris tenuis seems to be benefiting from prescribed burns.
Specimen: Was a specimen taken? ⋈ yes □ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  Mercer Arboretum and Botanic Gardens Anita A. Tiller MERCA 4386 November 4, 2011
Photograph: Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.
Is a copy included with the form? ⊠ yes ⊠ no

Images will be provided by Pauline Singleton, Anita Tiller and/or Minnette Marr.
The total area of 1230.5 square meters did not include the road.
Area occupied by L. tenuis east of road was 583.9 square meters.
Area occupeid by L. tenuis west of raod was 646.6 square meters.

Show Masthead

Options

Select Accession

Changed: 12/15/2011

Taxon: Liatris tenuis CPC Num: 2539

Institution: The Lady Bird Johnson Wildflower Center Code: LBJWC

Record Type: Collateral Record

Accession: CPC20110003 Token: 17236

Accession Date: 12/15/2011 Created: 12/15/2011

Participating Institutions Only Entrance

Please note that fields in which there have been no values entered have been updated to "N/A" (for text fields) or "-1" (for numeric or date fields). "N/A" and "-1" do not appear on the Accession edit form.

#### Accession Number: CPC20110003

Deaccession Date: -1

Submitted By: Minnette Marr

		-	General Acce	ssion Data			
Collection Date:	11/04/2011	Accession Date:	12/15/2011	Deaccessioned?	No	Deaccession Date:	-1
		Pro	pagation Notes:	N/A			
			nt Accession(s): d if propagated.				
	Her	barium Coli	ection Voucher:	Anita A. Tiller MER	CA 43	886	-
		Represente	d In Collection?	No			
sion Notes	s: collected 11	/04/2011		1			

	Field Collection Data: Lo	cation Section			
Field Collection Form sent to CPC?:	True	ue Collector Name: Anita A. Tiller			
Collection State/Province:	Texas	Collection County:	Angelina		
Location Popular Name:	Angelina Nationa Forest	Location Notes:	NFR/364		
Landowner Type:	Federal - USFS	LandOwner Name and Address:	Other		
EO-ID:	00-0000	Elevation (in Meters)	76		
Latitude & Longitude:	<b>31.09347 N</b> 94.25551 <b>W</b> Formats: 39 07 09 or 39.1180				
UTM Zone, North, & East:	-1 -1 mN -1 mE 6 digits f	1 -1 mN -1 mE 6 digits for mN & mE			
Meridian	Meridian N/A				
	N/A T. N/A R1 Section N/A Qtr. Sec. Formats: T. 33N R. 07W Section 24 Qtr. Sec. SENW (not required) (not required)				
USGS topo Map:	Boykin Spring				

Field Collection Data: Habitat Section			
Light:	3/4 shade	Slope:	0-5%
Litter:	N/A	Exposure:	N/A
Phosphorus:	N/A	Potassium:	N/A
Calcium:	N/A	Magnesium:	N/A
Cation Exchange Capacity:	N/A	Soil Moisture:	N/A

Organic Matter:	N/A	Soil Type: Sandy loam
Soil PH:	N/A	
Parent Rock :	Mudstone	
Plant Community :	Forest	
Associated Species:	americana, Pityopsis graminif	ercus marilandica, Vaccinium arboreum,Callicarpa olia, Chasmanthium sessiliflorum, Croton capitatus, s linarifolium, Symphyotrichum spp., Sesbania spp.,

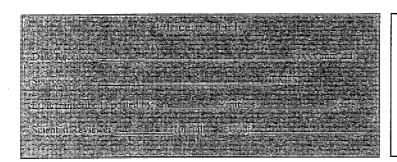
	Field Collection D	ata: Population Section	
Total number of plants present at collection:	101-500	Area covered (length in Meters)	N/A
Area covered (Width in Meters)	N/A	Average Plants per Square Meter	0.317
Maximum Plants per Square Meter	N/A	Percent Reproductives	16%
Percent Non- Reproductives	N/A	Percent Seedlings	N/A
Percent in Bud	N/A	Percent in Flower	N/A
Percent in Fruit	N/A	Number of Genets:	63
Threats	fire suppression		
Field Collection Notes	1,389 seeds collected b	y maternal lines	

Reason for Update?				
Indicate the reason this Accession New Access being updated?		ssion		
Submitted By: Minner	tte Marr			
Please add storage location and printed information by clicking  Go To Select Inventory	ropagule			

Site hosted by the <u>Missouri Botanical Garden</u>

Created by the Center for Plant Conservation:  $\underline{\text{contact us}}$ 

Monitoring



Texas Natural Diversity Database Reporting Form Wildlife Diversity Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744 (512) 389-8111

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

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# Source of Your Information: (check one of the following)

urce is a conversation with someone, send us a note.
214-908-1161
Phone

Name of the rare plant	or animal:	Liatris tenuis	
Method of ID: (Source	of key, photo, name of expert, other):	Flora of North Americ	ca; Rare Plants of Texas
Date First Observed:	2011-11-06	Date Last Observed:	2011-11-06

#### Observer:

Name:	Address:	Phone:
Minnette Marr	4801 La Crosse Avenue, Austin, TX 78739	214-908-1161

# Location:

GPS data:	Latitude:	31.17387	Longitude:	-094.34048
	Accuracy:	5m	GPS Brand:	Garmin GPS 60

	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 
Survey Site Name (locale or place name):	Angelina National Forest	

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

Drive east on SH 63 from Zavalla to County Route 2743. Turn right onto CR 2743. CR 2743 forks almost immediately. The right fork goes to Caney Creek Recreation Area. Keep to the left on National Forest Route 308 until you see NF 308A. This stand of Liatris tenuis will be a three-minute walk from the interstection of NF308 and NF308A.

County: Angelina	Town:	Zavalla
Name of USGS 7.5' topo (if known)	Cassells-l	Boykin Park, TX

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Stopped counting at 60 plants due to close proximity of deer hunters. Will try to monitor this population again this year.  Did not observe damage from herbivores or pathogens.
Size:  Please indicate the estimated area occupied by the plant or animal:  Acres or 369 sq. meters  If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
Length (meters): Width (meters): Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.
Mixed pine-oak forest. Liatris tenuis more common in forest than in borrow ditch along road. Pine tree bark covered with ash from prescribed burn. Understory very open at this location.  Highest density of Liatris tenuis appears near depressions remaining from complete burning of trees trunks and roots.  Canopy dominated by widely-spaced Pinus taeda  Understory open with scattered Quercus saplings, Vaccinium arboreum, Callicarpa americana  Herbaceous associates include Ambrosia psilostachya, Pityopsis graminifolia, Aristida purpurascens, Tridens flavus, Symphyotrichum patens,  Symphyotrichum ericoides
Managed Area (Name of the state or federally owned area):  Angelina Ntional Forest  Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))  Open pine forest maintained by prescribed burns
Current and Potential Threats:  Fire suppression
Management Comments:  This represents the largest stand of Liatris tenuis that I have observed in the forest. The other locations were limited mostly to the ROWs.
Specimen: Was a specimen taken? ☐ yes ☒ no  If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:
Photograph: Was a photo taken?  yes  no  If yes,  slide  print  digital  If possible, please submit a copy of the photo.  Is a copy included with the form?  yes  no  General Comments:  I accidentally came across this stand while monitoring invasive species along the forest service road. A more thorough search of this area, especially
earlier in the growing season, might turn up many more plants. This area has been in exceptional drought for most of the 2011 growing season.

Monutaring



Texas Natural Diversity Database Reporting Form Wildlife Diversity Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744 (512) 389-8111

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Firsthand	field observation	on Does the id	lentification need	to be confirmed? □yes	🛛 no		
Other: Pl	ease do not cor	mplete this form	send us a copy	of the documentation inst	tead. If source	e is a conversation with som	eone, send us a note.
Form Comp	leted By:						
Minnette Marr			20	011-11-10 214-9		1-908-1161	
Name			D	ate	Pho	one	
Identification Complete onl Name of the ra	y one form pe		animal per site.	If you need a list of rare	species we a	re currently tracking, contact	our office.
Name of the ra	ne plant of anni	iiai.		Lianis tendis			
Method of ID:	(Source of key	, photo, name o	f expert, other):	Flora of North Americ	a; Rare Plant	s of Texas	
Date First Obs	Date First Observed: 2011-11-05			Date Last Observed:	2011-11-0	5	
Observer:							
Name:			Address:			Phone:	
	Minnette Marr 4801 La Crosse Pauline Singleton		: Avenue, Austin, TX		214-908-1161 281-421-2469		
Location:							
GPS data:	Latitude:	31.31983		Longitude:	-094.2048		
	Accuracy:			GPS Brand:	Garmin G	PS 60	
	ame (locale or r	olace name):	Angelina Nati	onal Forest, Upland Islan	d Wilderness	: Area	

County: San Augustine County	Town:	Broaddus
Name of USGS 7.5' topo (if known)	Harvey C	reek

From Lufkin, take SH 103 to SH 147. Turn south on SH 147. Turn east on Forest Service Road 300 (Turkey Hill Road).

Observation Data:
For Animals: Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Eighty four individuals were observed. All plants observed had finished flowering and had immature achenes. No damage from insects or herbivores was observed.
Size: Please indicate the estimated area occupied by the plant or animal: Acres or sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): 207 Width (meters): 2m x 2
<b>Habitat Description:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species substrates, soils, aspect, slope, hydrology, etc.
Most plants observed on shoulder of outside (forest side) bank of borrow ditch. No plants observed more than one meter into forest.  West side of National Forest Road: 52 plants observed. with a gap of approximately 100 meters between the plants 28 and 29  East side of National Forest Road 300: 32 plants observed
Turkey Hill Road cuts through a forest dominated by Pinus taeda. Liatris tenuis was observed in the borrow ditch along the road, not in the forest. Associated species include Aristida species, Pityopsis graminifolia, Symphyotrichum patens, Symphyotrichum ericoides, Tridens flavus, Dichanthelium species, and seedlings of numerous woody species (Vitis, Pinus, Quercus and Rubus)
Managed Area (Name of the state or federally owned area):  Angelina National Forest, Bannister Wildflife Management Area
Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))
Evergreen forest with an open understory maintained by prescribed fire surrounds this stand of Liatris tenuis Unpaved road bisects this stand of Liatris tenuis
Current and Potential Threats:
Road widening, fire suppression; Lygodium japonicum invasion
Management Comments:
Liatris tenuis appears to benefit from maintenance of the borrow ditch along forest service road
Specimen: Was a specimen taken? ⊠ yes □ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:  Lady Bird Johnson Wildflower Center, Minnette Marr, one specimen, accession number 1278, collected November 5, 2011
Photograph: Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.
Is a copy included with the form? 🛮 yes 🗀 no
General Comments:
As part of a grant from the National Forest Foundation, I am working with local volunteers to monitor rare species in the National Forests and Grasslands of Texas. Pauline Singleton and I searched for a stand noted by the MacRoberts in 1995.
Liatris tenuis (Asteraceae) SAN AUGUSTINECO. Angelina National Forest. Compartment 22/23. On both sides of FS 300, just north of FS 356. Mesic pine-oak woodlands edge. 8/9/1995 B. R. & M. H. MacRoberts 2864 [TEX 00391793]

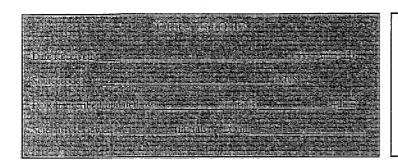
## Release of Audio-Visual Material

I give permission to the Center for Plant Conservation to use photographic or other visual material as listed below for use in that organization's publicity and education programs. I understand that the Center is a non-profit, charitable organization, that the materials produced are for educational purposes, and that no admission will be charged for viewing. Fill out the below for each photo:

*	
Photo 1 File name: Hibiscus dasycalyx_calyx.	tif
Photo 2 File name: Hibiscus dasycalyx_fruit.t	if
Photo 3 File name: Hibiscus dasycalyx_habita	at.tif
Photo 4 File name: Liatris tenuis_Angelina ha	bitat.tif
Photo 5 File name: Liatris tenuis_fruit.tif	
Photo 6 File name: Liatris tenuis_seedheads.ti	if .
Photo 7 File name: Rudbeckia scabrifolia_hab	pitat.tif
Photo 8 File name: Rudbeckia scabrifolia_infi	ructesence.tif
Photo 9 File name:	
Signed: Man	Date_{2-15-201\
Minnette Marr  Name  4801 La Crosse  Address  Austin, TX 78739	

PLEASE put only one species per tab PHOTO 2 PHOTO 3 PHOTO 4 PHOTO 5 PHOTO 1 Angelina habitat Fruit Seedheads File name Liatris tenuis Liatris tenuis Liatris tenuis Species name Synonyms Name of people (if any) Angelina National Angelina National Angelina National Forest Forest Forest Location Date (dd/mm/yyyy) 11/6/2011 11/6/2011 11/6/2011 Minnette Marr Minnette Marr Minnette Marr Photographer Image Owner (if different than photographer) PHOTO 6 PHOTO 7 РНОТО 9 PHOTO 10 PHOTO 8 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 11 PHOTO 12 PHOTO 13 PHOTO 14 PHOTO 15 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 20 PHOTO 16 PHOTO 17 PHOTO 18 PHOTO 19 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer)

### 01/28/2008 Version Date



Texas Natural Diversity Database Reporting Form Wildlife Diversity Program Texas Parks and Wildlife Department 4200 Smith School Road Austin, TX 78744 (512) 389-8111

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

713-817-9961

#### Instructions:

- Complete this form for first hand field observations only.
- DO NOT COMPLETE THIS FORM if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter. 3.
- Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known). Note, you may print copies of topo maps from the internet at http://www.topozone.com. Please use 1:24,000 or 1:25,000 scale only.

#### Source of Your Information: (check one of the following)

☑ Firsthand field ob	servation Does the	identification need	i to be confirmed?  yes	⊠ no		
Other: Please do	not complete this for	m; send us a copy	of the documentation ins	tead. If source	is a conversation with someone, send us a note.	
Form Completed I	By:					
Minnette Marr and Lor	i Horne	. 20	011-11-21 and 2011-11-2	9 MM	214-908-1161; LH 713-817-9961	
Name		D	ate	Phon	ne	ļ
Name of the rare plant	or animal:	,	Rudbeckia scabrifolia			-
Name of the rare plant	or animal:		Rudbeckia scabrifolia			-
Method of ID: (Source	of key, photo, name	of expert, other):	Thomas Philipps; Flor	a of North Ame	erica; Rare Plants of Texas	
Date First Observed:	2011-10-05		Date Last Observed:	2011-11-21		
Observer:						
Name:		Address:			Phone:	_
Minnette Marr		4801 La Crosse	e Avenue, Austin, TX 78	739	214-908-1161	

#### Location:

Lori Horne

Location.				
GPS data:	Latitude:	31.06096	Longitude:	-094.15286
	Accuracy:		GPS Brand:	Garmin GPS 60

Survey Site Name (locale or place name):	Harveytown	 

4801 La Crosse Avenue, Austin, TX 78739

30 County Route 225, Brookeland, TX 75931

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages)

Start at intersection of TX 63 and TX 255. Drive NE on TX 255. Turn left on Letney Road (County Road 335). Drive NW on Letney Road for about 0.5 mile. Turn left on County Route 059. Drive about 0.9 mile on CR 059. Park at end of road. Coordinates for this preferred parking spot are 31.06134, -094.15630. The EO is about 362 m east of these coordinates.

County: Jasper	Town:	Jasper
Name of USGS 7.5' topo (if known)	Ebenezer	

## **Observation Data:** For Animals: Indicate the number of adults, juveniles, nests, etc. For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc. 156 plants with mature fruit dispersing Size: Please indicate the estimated area occupied by the plant or animal: Acres or 208.6 sq. meters If the area occupied is long and narrow (less than 12.5 meters wide), please indicate: Length (meters): Width (meters): Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc. West Gulf Coast Plain Seepage Bog Woodland canopy dominated by Pinus palustris and Punis taeda Understory of scattered Myrica heterophylla, Persea borbonia and Magnolia virginiana Herbaceous layer dominated by Sarracenia alata. Associates include Rhynchospora spp., Dichanthelium sp., and Sphagnum sp. Managed Area (Name of the state or federally owned area): Angelina National Forest Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.)) Forest maintained by prescribed burns Current and Potential Threats: Current threat: drought. Potential threat: fire suppression **Management Comments:** Rudbeckia scabrifolia is most abundant in more open areas. Specimen: Was a specimen taken? ☐ yes ☒ no If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected: Photograph: Was a photo taken? ✓ yes ☐ no If yes, $\square$ slide $\square$ print $\boxtimes$ digital If possible, please submit a copy of the photo. Is a copy included with the form? ✓ yes ☐ no General Comments: Seeds were collected earlier this fall with Thomas Philipps (US Forest Service).

A total of 2005 seeds were collected from 34 plants on October 5, 2011.

These seeds were collected by maternal lines and will be stored at the National Center for Genetic Resources Preservation in Fort Collins, Colorado.

Options

Show Masthead

Taxon: Rudbeckia scabrifolia CPC Num: 8221

Institution: The Lady Bird Johnson Wildflower Center Code: I BJWC

Taxon:	Rudbeckia scabrifolia	CPC Num:	8221
Institution:	The Lady Bird Johnson Wildflower Center	Code:	LBJWC
Record Type:	Collateral Record		
Accession:	CPC20110005	Token:	17237
Accession Date:	12/15/2011	Created:	12/15/2011
Deaccession Date:	-1	Changed:	12/15/2011
Submitted By:	Minnette Marr		

Participating Institutions Only Entrance Select Accession

Please note that fields in which there have been no values entered have been updated to "N/A" (for text fields) or "-1" (for numeric or date fields). "N/A" and "-1" do not appear on the Accession edit form.

#### Accession Number: CPC20110005

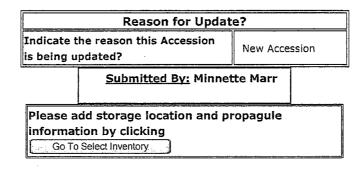
		(	General Acce	ssion Data			
Collection Date:	10/05/2011	Accession Date:	12/15/2011	Deaccessioned?	No	Deaccession Date:	-1
		Pro	pagation Notes:	N/A			
			nt Accession(s): d if propagated.				
	Her	barium Coll	ection Voucher:	None			
		Represente	d In Collection?	No			,
ssion Note:	s: N/A			I			

Field Collection Data: Location Section				
Field Collection Form sent to CPC?:	1	Collector Name:	Minnette Marr, Thomas Philipps	
Collection State/Province:	Texas	Collection County:	Jasper	
Location Popular Name:	Angelina NF		Country Road 059	
Landowner Type:	Federal - USFS	LandOwner Name and Address:	1	
EO-ID:	00-0000	Elevation (in Meters)	44	
Latitude & Longitude:	itude & Longitude: Formats: 39 07 09 or 39.1180			
UTM Zone, North, & East:	-1 -1 mN -1 mE 6 digits f	or mN & mE		
Meridian	N/A			
N/A T. N/A R1 Section N/A Qtr. Sec.  Township & Range: Formats: T. 33N R. 07W Section 24 Qtr. Sec. SENW (not required) (not required)				
USGS topo Map:	Ebenezer			

Field Collect	tion Data: Habitat Section	
Light: 1/4 shade	<b>Slope:</b> 0-5	%
Litter: N/A	Exposure: N/A	1
Phosphorus: N/A	Potassium: N/A	
Calcium: N/A	Magnesium: N/A	
Cation Exchange Capacity: N/A	Soil Moisture: N/A	

Organic Matter:	N/A	Soil Type: Sandy loam
Soil PH:	N/A	
Parent Rock :	mudstone	
Plant Community :	seepage bog	
Associated Species:	Pinus palustris,Pinus tae virginiana, Sarracenia a spp.	eda, Myrica heterophylla, Persea borbonia, Magnolia lata, Rhynchospora spp., Dichanthelium spp., Sphagnum

	Field Collection	Data: Population Section	
Total number of plants present at collection:	<b>_</b>	Area covered (length in Meters)	N/A
Area covered (Width in Meters)	N/A	Average Plants per Square Meter	0.75
Maximum Plants per Square Meter	N/A	Percent Reproductives	22
Percent Non- Reproductives	N/A	Percent Seedlings	N/A
Percent in Bud	N/A	Percent in Flower	N/A
Percent in Fruit	N/A	Number of Genets:	34-
Threats	drought; fire suppressi	on	
Field Collection Notes	area = 208.6 m, 2005 seed on 10/05. Most w	seeds collected by maternal lines; only 22% vith ripe seed during monitoring visit on 11/21,	vith ripe /2011.



Site hosted by the Missouri Botanical Garden

Created by the Center for Plant Conservation: contact us

## Release of Audio-Visual Material

I give permission to the Center for Plant Conservation to use photographic or other visual material as listed below for use in that organization's publicity and education programs. I understand that the Center is a non-profit, charitable organization, that the materials produced are for educational purposes, and that no admission will be charged for viewing. Fill out the below for each photo:

and out and out of the process	
Photo 1 File name: Hibiscus dasycalyx_calyx.tif	
Photo 2 File name: Hibiscus dasycalyx_fruit.tif	
Photo 3 File name: Hibiscus dasycalyx_habitat.tif	
Photo 4 File name: Liatris tenuis_Angelina habitat.	tif
Photo 5 File name: Liatris tenuis_fruit.tif	
Photo 6 File name: Liatris tenuis_seedheads.tif	
Photo 7 File name: Rudbeckia scabrifolia_habitat.ti	f
Photo 8 File name: Rudbeckia scabrifolia_infructes	ence.tif
Photo 9 File name:	
Signed: Man-	Date 12-15-2011
Minnette Marr	
Name 4801 La Crosse	
Address Austin, TX 18739	
- 1 MOTH) 1 V 10 10 1	

PLEASE put only one species per tab РНОТО 1 PHOTO 2 РНОТО 3 РНОТО 4 PHOTO 5 Habitat File name Infructesence Rudbeckia scabrifolia Rudbeckia scabrifolia Species name Synonyms Name of people (if any) Harveytown Location Harveytown Date (dd/mm/yyyy) 11/21/2011 11/21/2011 Photographer Minnette Marr Minnette Marr Image Owner (if different than photographer) РНОТО 6 PHOTO 7 PHOTO 8 PHOTO 9 PHOTO 10 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 11 PHOTO 12 PHOTO 13 PHOTO 14 PHOTO 15 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer) PHOTO 16 PHOTO 17 PHOTO 18 PHOTO 19 PHOTO 20 File name Species name Synonyms Name of people (if any) Location Date (dd/mm/yyyy) Photographer Image Owner (if different than photographer)

Office Use Only		Texas Natural Diversity Database Reporting Form
Date Received:	(vvvv-mm-dd)	Wildlife Diversity Program Texas Parks and Wildlife Department
		4200 Smith School Road
Sourcecode: UTXU	S	<b>Austin, TX 78744</b> (512) 389-8111
EOR transcribed/updated by:(initials)	(date)	We Need Your Help. If you have information on the location of
Scientist Reviewer:(initials) EO id:		a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!
documentation.  3. Rare Birds: Complete this form only for observati  4. Attach a copy of a map (USGS 1:24,000 topograpi	of your information ons during the breed hic map preferred) are internet at http://www.following)	s a report, letter, conversation or other document. Send us the ng season or at large concentration areas during migration or in winter. d mark the location of the rare species or its boundary (if known).  v.topozone.com. Please use 1:24,000 or 1:25,000 scale only.
		on instead. If source is a conversation with someone, send us a note.
Other: Please do not complete this form; send us a co	py of the documentar	on histead. If source is a conversation with someone, send us a note.
Form Completed By:		
Minnette Marr	26 April 2011	214-908-1161
Name	Date	Phone
Identification: Complete only one form per rare plant or animal per si	<b>te.</b> If you need a list	of rare species we are currently tracking, contact our office.
Name of the rare plant or animal:	Callirhoe scabr	uscula
	)   1   1   5   1	
Method of ID: (Source of key, photo, name of expert, other	): Jackie Poole	
Date First Observed: 07 June 2010		1 1 07 1 2010
	Date Last Obse	ved: 07 June 2010

#### Observer:

00001.01.		
Name:	Address:	Phone:
Minnette Marr	4801 La Crosse Avenue Austin, TX 78739	214-908-1161

#### **Location:**

GPS data:	Latitude:	31.704667°N	Longitude:	99.978167°W
	Accuracy:	5 meters	GPS Brand:	Garmin GPS 60

Survey Site Name (locale or place	name): Texa	s Greenhouse (	formerly known	as Burns Nursery)

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

9222 US Highway 67 S, Ballinger, TX
From the intersection of US Highway 83 S (7th Street) and US Highway 67 S, travel 9 miles southwest on US 67. The site will be on the right side (west side) of US Highway 67.

County:	Runnels	Town:	Ballinger
Name of I	USGS 7.5' topo (if known)	Ballinger	

#### **Observation Data:**

<u>For Animals:</u> Indicate the number of adults, juveniles, nests, etc.
<u>For Plants:</u> Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
55 plants; 20 with flowers; 54 with fruit; Jackie Poole described health of individual stems: 3 poor, 12 average; 35 good; 5 very good; 1 excellent (Individual stems did not equal individual plants in three cases.)
Sino.
Size: Please indicate the estimated area occupied by the plant or animal:
1 Acres or sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): Width (meters):
<b>Habitat Description:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species substrates, soils, aspect, slope, hydrology, etc.
Deep sand; Cnidoscolus texanus, Artemisia ludoviciana, Cenchrus spinifex, Opuntia macrorhiza
Managed Area (Name of the state or federally owned area):
Not applicable
Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))
Current and Potential Threats:
Current and Potential Pineaus.
Management Comments:
<b>Specimen:</b> Was a specimen taken? ☐ yes ☐ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:
<b>Photograph:</b> Was a photo taken? ⊠ yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo.
Is a copy included with the form? ⊠ yes ☐ no
., _, _
General Comments:  Landowners plan to build a driveway through this population.

Office Use Only			
Date Received:		(yyyy-mm-dd)	
Sourcecode: U		_TXUS	
EOR transcribed/updated by:	_(initials)_	(date)	
Scientist Reviewer:(initials)	EO id:		

Texas Natural Diversity Database Reporting Form Wildlife Diversity Program Texas Parks and Wildlife Department 4200 Smith School Road Austin, TX 78744 (512) 389-8111

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

#### **Instructions:**

- 1. Complete this form for first hand field observations only.
- DO NOT COMPLETE THIS FORM if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- 3. Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter.
- 4. Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known). Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

#### **Source of Your Information:** (check one of the following)

☐ Firsthand field observation	Does the identification need to be confirmed? Dyes 🛛 no
-------------------------------	---

Other: Please do not complete this form; send us a copy of the documentation instead. If source is a conversation with someone, send us a note.

#### Form Completed By:

Minnette marr	March 29, 2011	214-908-1161
Name	Date	Phone

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

n in Rare Plants of Texas (Poole, Carr, price & Singhurst 2007)
•

Date First Observed:	July 27, 2010	Date Last Observed:	August 5, 2010

#### Observer:

Name:	Address:	Phone:
Minnette Marr and Bill Ward	Lady Bird Johnson Wildflower Center	512-232-0240
	4801 La Crosse Ave Asutin, TX 78739	
	Asutili, 1A 70737	

#### **Location:**

GPS data:	Latitude:	29.77578	Longitude:	98.68788°
	Accuracy:	± 5m	GPS Brand:	Garmon GPS 60

Survey Site Name (locale or place name):	Cibolo Creek Canyon

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

From Interstate Highway 10 and Scenic Loop. North on Scenic Loop. East on Cascade Cavern, north on Ranch Drive tocul-de-sac. Follow private drive that goes to northeast. Park by barn at end of driveway. Walk north to Cibolo Creek. The collection site is isolated from the rest of the ranch by the Cibolo Creek. According to Bill Ward this sisolated tract will be donated to Cibolo Nature Center.

County: Kendall	Town:	Boerne
Name of USGS 7.5' topo (if known)	Boerne	

Observation Data:
<u>For Animals:</u> Indicate the number of adults, juveniles, nests, etc.
For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Thirty plants, many with multiple stems.
Size:
Please indicate the estimated area occupied by the plant or animal:  Acres or sq. meters
If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:  Length (meters): 15 Width (meters): 6
<b>Habitat Description:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.
North-facing slope of canyon carved by Cibolo Creek. Plants inhabiting ledges inaccessible to cattle and deer.
Dominants: Quercus buckleyi, Juniperus ashei, Prunus serotina.  Associated species: Styrax platanifolius, Toxicodendron radicans, Philadelphus ernestii
Associated species. Styrax piatainfordus, Toxicodendron radicans, Filinaderphius emesur
Managed Area (Name of the state or federally owned area):
NA NA
Landscape (Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))
Above: woodland dominated by Juniperus ashei Below: gallery of Cephalanthus occidentalis
Current and Potential Threats:
Potential threat: shading out by woody species
Management Comments:
Specimen: Was a specimen taken? ☐ yes ☒ no
If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:
<b>Photograph:</b> Was a photo taken? ☐ yes ☒ no    If yes, ☐ slide ☐ print ☐ digital    If possible, please submit a copy of the photo.
Is a copy included with the form? ☐ yes ☐ no
General Comments:
Bill Ward (authorized agent for collecting visit) died in January 2011. I hope that Patty Leslie Pazstor will be able to secure access to this population in the future.
Archer Price wrote an article about this collection for the Austin American Statesman.

_			1			
	Of	fice Use Or	ıly			atural Diversity Database Reporting Form  Diversity Program
Date Received: (yy	yyy-mm-dd)				TexasPar	ks and Wildlife Department
Sourcecode: U_			TXUS		4200 Smit Austin, T	th School Road X78744 (512) 389-8111
EOR transcribed/u	pdated by:	(ir	nitials)	(date)	We Need Y	Your Help. If you have information on the location of
Scientist Reviewer	:	_(initials) E0	O id:		a rare plant	or animal and would like to help us build the Texas versity Database, please complete the form below.
2. DO NO docume 3. Rare Bi 4. Attach : Note, ye	T COMPLET entation.  irds: Complete a copy of a ma ou may print c	E THIS FORM this form onl p (USGS 1:24 opies of topo of tion: (check	y for observations, 000 topographic maps from the inte	your information is a during the breeding map preferred) and nemet at <a href="http://www.to">http://www.to</a> Ilowing)	season or at nark the locat pozone.com	large concentration areas during migration or in winter. tion of the rare species or its boundary (if known).  Please use 1:24,000 or 1:25,000 scale only.
☐ Firsthand fi	ield observatio	n Does the i	dentification need	to be confirmed?	yes∐ no	
Other: Plea	ase do not com	plete this forn	n; send us a copy of	of the documentation	instead. If s	ource is a conversation with someone, send us a note.
Form Comple	eted By:					
Minnette Marr				012_06_09		214-908-1161
Name			Da	ate		Phone
Identification: Complete only  Name of the rare	_	_	animal per site.	If you need a list of a		we are currently tracking, contact our office.
				_		
Method of ID: (S	Source of key,	photo, name o	of expert, other):	Expert: Wendy Lec	nard	
Date First Obser	ved: 2012-	01-13 by W. I	Leonard	Date Last Observed	1: (2012-	06-08 by MM, WL, AS)
Observer:						
Name:			Address:	1 G A	70216	Phone:
Wendy Leonard Minnette Marr				Rd, San Antonio, TX Ave, Austin, TX 78		210-260-2604 214-908-1161
Anna Strong				St, Austin, TX 78759		314-517-2334
Location:						
	Latitude:	???		Longitude:	???	
	Accuracy:			GPS Brand:		
Survey Site Nam	ne (locale or pl	ace name):	Rancho Diana			
Directions (describ		precise locati	on of the species of	or community; begin	with an easil	y identifiable starting point, include nearby landmarks,
succe names, and	imicages).					
		1	ı			1
County: Bexa			wn: Helotes lotes			
LIMING OF COOR	· · · · · · · · · · · · · · · · · · ·					

#### **Observation Data:**

**General Comments:** 

For Animals: Indicate the number of adults, juveniles, nests, etc. For Plants: Indicate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc. Information provided by Wendy Leonard. More than 100 rosettes observed in January. Plants started bolting 2012-03-14. One hundred forty four (144) plants observed on 2012-05-01. Less than 30% of plants that flowered produced siliques. April was drier than average. Some plants produced additional flowers after rain in early May. A few plants werein flower on day that siliques were collected. Size: Please indicate the estimated area occupied by the plant or animal: Acres or sq. meters If the area occupied is long and narrow (less than 12.5 meters wide), please indicate: Width (meters): Length (meters): Habitat Description: Write a description of the habitat for the species at this location. Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc. Dominant species include Acacia roemeriana, Sophora secundiflora, Opuntia engelmannii, Mahonia trifoliolata, Callinadra conferta, Diospyros texana, and Quercus sinuata var. breviloba Associated species include Gymnosperma glutinosum, Phacelia congesta, Senna Lindheimeriana, Triodanis coloradoensis, Arabis pertiolaris and Muhlenbergia sp. **Managed Area**(Name of the state or federally owned area): City of San Antonio Natural Area (not open to the public at this time) Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.)) Residential lots more that one acre **Current and Potential Threats:** Wild hogs, whitetail deer, butterfly larvae **Management Comments:** Numerous small (DBH < 6 inches) Juniperus ashei were removed three years ago to improve habitat for black cap vireo. Removal of large woody species will be repeated as necessary to maintain habitat for BCV. A fence will be constructed this fall to exclude mammals from site with Streptanthus bracteatus. **Specimen:** Was a specimen taken? □yes ⋈ no If yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected: **Photograph:** Was a photo taken? ⊠yes ☐ no If yes, ☐ slide ☐ print ☒ digital If possible, please submit a copy of the photo. Is a copy included with the form?  $\square$  yes  $\square$  no

Office Use	Only
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EOR transcribed/updated by:	(initials)(date)
Scientist Reviewer:(initials)	EO id:

Texas Natural Diversity Database Reporting Form Wildlife Diversity Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744 (512) 389-8111

We Need Your Help. If you have information on the location of a rare plant or animal and would like to help us build the Texas Natural Diversity Database, please complete the form below. Thank you!

#### **Instructions:**

- 1. Complete this form for first hand field observations only.
- DO NOT COMPLETE THIS FORM if the source of your information is a report, letter, conversation or other document. Send us the documentation.
- 3. Rare Birds: Complete this form only for observations during the breeding season or at large concentration areas during migration or in winter.
- Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known).
   Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

#### **Source of Your Information:** (check one of the following)

Firsthand field observation	Does the identification need to be confirmed? □yes ☒	no
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Other: Please do not complete this form; send us a copy of the documentation instead. If source is a conversation with someone, send us a note.

#### Form Completed By:

Minnette Marr	23 June 2010	214-908-1161 (cell)
Name	Date	Phone

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

Name of the rare plant or animal:	Streptanthus bracteatus		
Method of ID: (Source of key, photo, name of expert, other):	Jackie Poole and Jason Singhurst by photo in 2009 for Chad Norris		
Date First Observed: 21 June 2010	Date Last Observed: 21 June 2010		

#### Observer:

Name:	Address:	Phone:
Minnette Marr	4801 La Crosse Avenue	512-232-0240
	Austin, TX 78739	

#### **Location:**

GPS data:	Latitude:	30.0213°N	Longitude:	-98.2074°W
	Accuracy:	±24 ft	GPS Brand:	Garmin GPS 60

Survey Site Name (locale or place name): Ro
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Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

Starting point: intersection of FM 2325/RR 2325 and Burnett Ranch Road (approximately 7 miles northwest of Wimberley). Drive south on Burnett Ranch Road two miles. Entrance to Rough Hollow Ranch will be on the left.

County: Hays	Town:	Wimberley
Name of USGS 7.5' topo (if known)	Rough Ho	ollow

Observation	Data:
For Animals: Inc	dicate the number of adults, juveniles, nests, etc.
For Plants: Indic	cate 1) the number of flowering plants and/or sterile stems, 2) the number of separate plant groupings, 3) the health of the plants, etc.
Rough Hollow Most of the plan	were observed at Rough Hollow Ranch. Approximately the same number were observed on the other side of the fence separating Ranch from the adjacent ranch. Most of the plants that were taller than the neighboring Verbesina virginica had at least seven fruit. In the under the canopy of Verbesina virginica did not have any fruit. Most of the fruit present during this visit were too green to harvest. We was observed on one plant.
	ne estimated area occupied by the plant or animal:  Acres or 20 sq. meters
If the area occupi Length (meters)	ied is long and narrow (less than 12.5 meters wide), please indicate:  i): 10 Width (meters): 2
	<b>eription:</b> Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species aspect, slope, hydrology, etc.
opening along a	e growing about mid-slope above the perennial spring-fed stream flowing through Rough Hollow. The plants were growing in a canopy a fenceline separating two ranches. The plant community is similar to the Buckley oak-Texas ash-Ashe juniper forest described by the substrate is limestone and the soils are extremely stony clays. The slope approaches 30 degrees.
Managed Ar	rea (Name of the state or federally owned area):
Not applicable	
Landscape (D Ranch	Describe the current landscape <u>surrounding</u> the plant or animal (i.e. farmland, residential, forest,etc.))
This EO appear	Potential Threats: rs to be safe as long as the current landowner is responsble for managing the Rough Hollow Ranch. The greatest threat would be a
	ershipor management that results in overgrazing or development.
	t Comments: ra was observed elsewhere in Rough Hollow.
Specimen: W	Jas a specimen taken? ☐ yes 🛛 no
If yes, indicate th	ne herbarium, collector(s) name(s) and number(s), accession #, and date collected:
Photograph:	Was a photo taken? ⊠ yes ☐ no
Is a copy include	ed with the form? ⊠ yes □ no
General Con	nments:

Streptanthus bracteatus was first observed on the adjacent ranch in 2009 by Chad Norris while monitoring springs. We need to conduct a more thorough search of Rough Hollow in the spring of 2011.

# LANDOWNER PERMISSION FOR WILDLIFE RESEARCH (Pursuant to Section 12.103 of the Texas Parks and Wildlife Code)

	<u>Use of Information</u> : I hereby grant approval for Texas Parks and Wildlife Department employees to enter property I own or manage to conduct scientific investigations and research on wildlife and to record and use (such as in analyses) site-specific information from the property. This may include placing that information onto a topographic map and entering the information into a Department database. Thus, the information could be viewed by the public.	
	(Landowner or authorized agent)  (Landowner or authorized agent)  (Date)	
	Reporting of Information: I hereby grant approval for Texas Parks and Wildlife Department employees to report (such as in publications or technical reports) the above approved information in a manner that permits identification of the location of the specific parcel of property I own or manage.	
	(Landowner or authorized agent)  (Date)	
3.	Other Conditions: List any other conditions that apply to this approval.	
	please do not publicly disclose the exact location	W)
Ā	Of the population  Name and Address:	
7.	Whole Leonard (Name of Landownen or Authorized Agent)  21395 MISA Rd (Address)  San Antonio, TX 78254 (City, State, Zip)	
5	Optional:	

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Date Received:		(yyyy-mm-dd)
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EOR transcribed/updated by:	_(initials)	(date)
Scientist Reviewer:(initials)	EO id:	

Texas Natural Diversity Database Reporting Form Wildlife Diversity Program Texas Parks and Wildlife Department 4200 Smith School Road Austin, TX 78744 (512) 389-8111

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- 4. Attach a copy of a map (USGS 1:24,000 topographic map preferred) and mark the location of the rare species or its boundary (if known). Note, you may print copies of topo maps from the internet at <a href="http://www.topozone.com">http://www.topozone.com</a>. Please use 1:24,000 or 1:25,000 scale only.

Source of	Your	Information:	check one	of the	following)

Other: Please do not complete this form; send us a copy of the documentation instead. If source is a conversation with someone, send us a note.

#### Form Completed By:

Anita Tiller, David Berkshire	August 19, 2012	281-443-8731
Name	Date	Phone

#### Identification:

Complete only one form per rare plant or animal per site. If you need a list of rare species we are currently tracking, contact our office.

Name of the rare plant or animal:	Hibiscus dasycalyx
Method of ID: (Source of key, photo, name of expert, other):	Expert - Jackie Poole(TPWD)

Date First Observed:	August 16, 2012	Date Last Observed:	August 16, 2012

#### Observer:

Name:	Address:	Phone:
Anita Tiller	Mercer Arboretum and Botanic Gardens	2281-443-8731
	22306 Aldine Westfield Rd., Humble, TX 77338	
Minnette Marr	4801 La Crosse Avenue, Austin, TX 78739	214-908-1161
Karen Clary	(as above)	(as above)
Amber Miller	USFWS	

#### **Location:**

GPS data:	Latitude:	31.10111	Longitude:	-095.47569
	Accuracy:		GPS Brand:	Garmin GPS 60

Survey Site Name (locale or place name):	Texas Land Conservancy Hibiscus dasycalyx Preserve

Directions (describe in detail the precise location of the species or community; begin with an easily identifiable starting point, include nearby landmarks, street names, and mileages):

The following information was recorded during the site visit to the 30-acre preserve owned by the Texas Land Conservancy near Lovelady. Feel free to check with Jackie Poole and Jason Singhurst for additional information.

target species: Hibiscus dasycalyx

date: 2012-08-16 county: Houston

closest city with a post office: Lovelady

coordinates: 31.10111, -095.47569

associated species: Sesbania drummondii, Polygonum sp., Croton capitatus, Eupatorium serotinum, Cephalanthus occidentalis, Iva angustifolia, Baccharis halimifolia, Poncirus trifoliata, Carya illinoinensis, Salix nigra, Brunnichia ovata

- 1) no flowers observed at this site (possible causes include dry conditions and defoliation by grasshoppers)
- 2) hydrology is not well understood (HIDA prefers wet conditions in winter)
- 3) 30 acres owned by the Texas Land Conservancy (Daniel Dietz is land steward.)
- 4) cows browsed plants to ground in 2011 (extreme drought), but not in 2012
- 5) site across FM230 that previously was home to HIDA was contoured and converted to a pine plantation

background information obtained online:

directions from intersection of TX 19 and FM 230: travel west on FM 230 approximately 2.6 miles, site is on north side of road (see attachment)

watershed: Tantabogue Creek (Tantabogue Creek rises two miles southwest of Crockett in south central Houston County (at 31°17' N, 95°30' W). The creek formerly flowed southeast for twenty-six miles to its mouth on White Rock Creek in western Trinity County (at 31°01' N, 95°21' W). Since the construction of Lake Livingston in the late 1960s the creek has been inundated in its lower reaches. It crosses flat terrain surfaced by clay and sandy loam that supports water-tolerant hardwoods, conifers, and grasses. (Handbook of Texas Online)

soil: Nahatchie loam, frequently flooded (Web Soil Survey)

County:	Houston	Town:	Lovelady
Name of USGS 7.5' topo (if known)		Centralia	

#### **Observation Data:**

For Animals: Indicate the number of adults, juveniles, nests, etc.	
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For Plants: Indicate 1	) the number of flowering plants and/or sterile stems,	2) the number of separate	plant groupings, 3	the health of the plan	ts. etc.

G.				
Size:				
Please indicate	e the estimated	d area occupie	d by the plant	or animal:
	Acres or	3,000	sq. meters	

If the area occupied is long and narrow (less than 12.5 meters wide), please indicate:

Length (meters): Width (meters):

**Habitat Description:** Write a description of the habitat <u>for the species at this location.</u> Include ecological communities, dominants, associated species, substrates, soils, aspect, slope, hydrology, etc.

Cephalanthus occidentalis, Brunnichia ovata, Mikana scandens, and Juncus cf. effusus dominate the zone to the outside of HIDA Sesbania herbacea and Heliotropium indicum are scattered in the central area.

Managed Area (Name of the state or federally owned area):

Davy Crockett National Forest

Landscape (Describe the current landscape surrounding the plant or animal (i.e. farmland, residential, forest,etc.))

Forest

#### **Current and Potential Threats:**

Encroachment by Brunnichia ovata; herbivory; future droughts

Management Comments:	
Volunteers or contractors could cut back Brunnichia ovata growing on Hibiscus dasycaylx	
Specimen: Was a specimen taken? ☐ yes ☐ no	
f yes, indicate the herbarium, collector(s) name(s) and number(s), accession #, and date collected:	
Photograph: Was a photo taken? ☑ yes ☐ no If yes, ☐ slide ☐ print ☑ digital If possible, please submit a copy of the photo.  s a copy included with the form? ☑ yes ☐ no  General Comments:	
39 seed pods were collected and accessioned separately.  Mercer accession no. 2012-0160 to 2012-0199  Total seeds collected: ~1,188	
Stored frozen at Mercer ABG and for NCGRP.	

