2006 Survey Report

McGregor Preserve
Travis County

Lower Colorado River Authority

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Introduction

The McGregor Preserve is a 363-acre tract owned by the Lower Colorado River Authority (LCRA) and a part of the Balcones Canyonlands Preserve system set aside for Golden-cheeked warblers (*Dendroica chrysoparia*, GCWA, warbler). The preserve is located on the east side of Lake Travis, north of Hippie Hollow and Comanche Trail and south of the Cypress Creek Arm of the lake. Residential developments border the west side and now most of the east side. A wooded tract managed for the warblers and owned by the City of Austin borders the preserve on its northeastern corner.

McGregor consists of steep hillsides and canyons with some moderate slope and level areas on the hilltops and valley floors. Most of the land is heavily forested, the main three components being juniper (*Juniperus ashei*, cedar), live oak (*Quercus fusiformis*) and red oak (*Quercus buckleyi*, Texas oak). Some of the more exposed slopes are semi-open with small trees, most likely a result of the thin soil and harsh conditions.

The preserve has been surveyed several times in the past, with a wide spread in the number of warbler territories found. LCRA biologists surveyed the land in 1992, 1993 and 1994 with estimated numbers of 14, 18, and 22, respectively. In 2001 a group of surveyors, put together by Blanton & Associates Inc. and Turner Collie & Braden Inc., came up with a total of 29 territories. And in 2004, personnel from SWCA Environmental Consultants returned a figure of 10 to 14. 10-11 territories were entirely within the preserve and 4 more territories were only partially on McGregor. Surveys conducted by LCRA employees in 2005 found 17-21 territories on this property.

Methods

LCRA personnel conducted surveys on both units in 2006 to determine the GCWA population status. They followed the protocol used by the City of Austin; a 200-acre property will be visited a total of 5 times with a minimum of four hours spent surveying the property.

McGregor preserve was surveyed 18 times for a total of about 115 hours. The property was usually divided into two or three sections for surveying (Table 1). The entire property was surveyed the entire season.

Surveys were conducted mostly by walking slowly through habitat while looking and listening for the target species. The routes walked and areas covered varied from survey to survey. When a target species was encountered the surveyor, on an aerial photograph, plotted the bird's location in the field and a waypoint was recorded on a hand-held GPS unit. If the position was uncertain, a waypoint was still taken using a hand-held GPS unit. These waypoints could later be accurately plotted and analyzed using computer software.

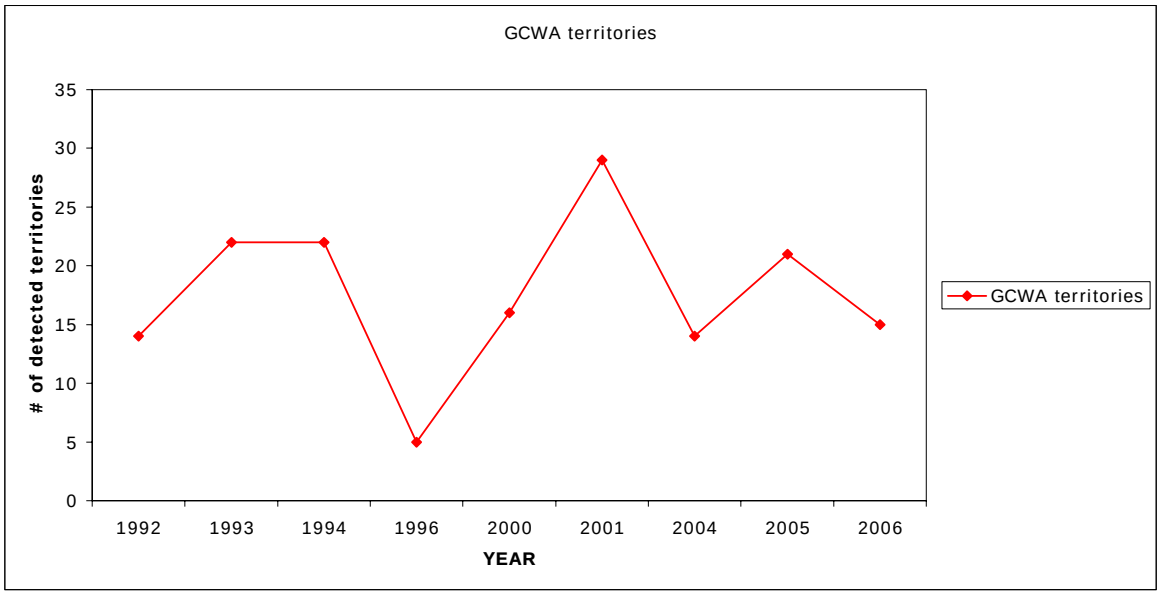
Weather conditions were recorded at the start and end of every survey day (Table 2). All bird species observed or heard were noted. A bird list combined from all surveys from 2005 and 2006 can be seen in Table 3.

Results

Golden-cheeked warblers were found on all site visits. Anywhere from 1 to 6 males were seen on each visit, by each observer with at least 10 males observed on the entire property each visit. No female GCWAs were observed this year. Two sets of fledglings were also observed on May 18th, with a male GCWA being observed feeding one set of young. Another fledgling was observed being fed by a male GCWA on May 19th. Approximately 12-15 territories were observed at McGregor during the 2006 survey season.

Although male and female Brown-headed cowbirds (*Molothrus ater*) were seen/heard throughout the preserve, no predation was observed.

Additionally, the following information was produced in order to begin tracking population trends at McGregor:



Mean = 17.6
Standard Deviation = 6.84

Discussion

The number of territories observed this season was comparable to those recorded in 2004, which are considerably lower than other survey years. It is strongly advised to conduct a presence/absence survey on the property in 2007. Several years of data is a better indicator for population trends, therefore, before determining numbers are stable at McGregor, at least one or two more years of surveys should be conducted before skipping a season. It is possible that skipping a season can overlook declining populations, and by the time the property is again surveyed, the population could be in peril.

At this time, viable statistics (i.e. diversity indices/evenness) cannot be run unless additional data about the warblers at McGregor is collected (example: individuals). The graph above is a species richness graph by season with the mean and standard deviation calculated. The graph shows the trend in number of territories over a set period of years but from it emigration or immigration cannot be identified from the surveys that have been conducted in the past. It is recommended that multiple plots (with a specified number of acres on a random basis) be set up across McGregor next season. From that, the areas of the property with higher use can be designated. Once the high use areas are designated, a determination regarding what makes that area more appealing to the warblers than similar areas on the property can be made. After that baseline is established, it will be possible to determine habitat manipulation needs on targeted areas in order to increase the overall population of warblers at McGregor. The important thing though, is to establish the set plots so that the progress or digress of the habitat can be monitored (measured in bird use) on the Preserve.

The McGregor Good Neighbor Program does not seem to have an adverse affect on warblers at this property (at least none that surveys can definitively show). The opportunity to educate the public and the preserve neighbors is a valuable tool in land management. Having their observations is also a valuable tool for trespass awareness.

In 1976, Pulich identified most of the land around Lake Travis as Golden-cheek warbler habitat. These populations of GCWAs have fluctuated over time and throughout the development of this area. The 2006 survey year located fewer birds, but there were other factors that could have affected these surveys. Construction noise from many new houses/buildings being built was present the entire survey season. Also, boat noise and numerous helicopters flying lower than the airplanes was also a factor for every survey date. A study conducted by Engels and Sexton (1994), showed a negative correlation between the presence of blue jays in GCWA habitat as a result of urban development and habitat fragmentation. Another study done in Canada (Friesen et al. 1995) also showed a decline in neotropical migrants in general in “urban forests.” Heavy development along the borders of the preserve and trespass and encroachment by adjacent landowners should be addressed, as this may be at least partially responsible for the declining populations.

References

Engels, T.M. and C.W. Sexton. 1994. Negative Correlation of Blue Jays and Golden-cheeked warblers near an urbanizing area. Conservation Biology 8(1): 286-290.

Friesen, L.E., P.F.J. Engels, and R.J. Mackay. 1995. Effects of residential development on forest-dwelling neotropical migrant songbirds. Conservation Biology 9(6): 1408-1414.

Pulich, W.M. 1976. The Golden-cheeked warbler. Texas Parks and Wildlife Department, Austin, Texas.

Table 1. Survey Hours

Date	Surveyor	Section	Start Time	End Time	Total (hours)
March 16, 2006	WZ	N	640	1300	6.50
March 17, 2006	WZ	S	630	1310	5.30
March 29, 2006	WZ	S	630	1200	5.50
March 30, 2006	WZ	N	645	1200	5.25
April 4, 2006	WZ	N	700	1415	7.25
April 10, 2006	WZ	S	700	1445	6.75
April 18, 2006	WZ	S	645	945	3.00
April 22, 2006	WZ	N	645	1345	7.00
April 25, 2006	WZ	S	645	1145	5.00
May 1, 2006	WZ	N	615	1330	7.25
May 2, 2006	WZ	S	615	1330	7.25
May 8, 2006	WZ	N	615	1330	7.25
May 9, 2006	WZ	S	615	1330	7.25
May 13, 2006	WZ	S	615	1330	7.25
May 15, 2006	WZ	N	615	1300	7.00
May 17, 2006	BA	S	645	1320	7.20
May 18,2006	BA	S	658	1310	7.15
May 19, 2006	BA	N	655	1245	5.90
				TOTAL	115.05

Table 2. Weather

Date	Time (start-end)	Temp. F (start-end)	Wind (start-end)	Sky (start-end) % cloud cover
03/16/06	640-1300	62-*	0-0	95-0
03/17/06	630-1310	61-*	10-15 - int rain	95-95
03/29/06	630-1200	53-67	0- inter. Rain	100-90
03/30/06	645-1200	64-75	0-5 - 5-10	55-40
04/04/06	700-1415	66-83	0-5	50-35
04/10/06	700-1445	60-79	0 - 0-5	0
04/18/06	645-945	70-75	5 - 10 - 5-10	60
04/22/06	645-1345	69-84	0	50
04/25/06	645-1145	72-68	10 - 15 - 15-20	50-95
05/01/06	615-1330	62-86	0-5 - 10-20	55-10
05/02/06	615-1330	71-85	0 - 0-5	95-45
05/08/06	615-1330	60-80	0	55-90
05/09/06	615-1330	77-90	0-5	95-30
05/13/06	615-1330	67-88	0-5 - 5-10 vary	10
05/15/06	615-1300	66-74	0 - 10-15	85-10
05/17/06	645-1320	52-85	0	0
05/18/06	658-1310	61-*	0	0
05/19/06	655-1245	*-91	*-0-10	0

Table 3. Bird List

(p) denotes previous year sighting
(c) denotes current year sighting

Family	Genus/species	Common name
		Duck sp. (c)
Anatidae	*Anas platyrhynchos*	Mallard (p)
	Anas discors	Blue-winged Teal (c)
Phasianidae	*Meleagris gallopavo*	Wild Turkey (c)
Odontophoridae	*Colinus virginianus*	Northern Bobwhite (p/c)
Ardeidae	*Ardea herodias*	Great Blue Heron (p/c)
Cathartidae	*Coragyps atratus*	Black Vulture (p/c)
	Cathartes aura	Turkey Vulture (p/c)
Accipitridae	*Buteo lineatus*	Red-shouldered Hawk (c)
	Buteo jamaicensis	Red-tailed Hawk (p/c)
	Accipiter cooperii	Cooper's Hawk (p)
	Accipiter striatus	Sharp-shinned Hawk (p)
Gruidae	*Grus canadensis*	Sandhill Crane (p)
Charadriidae	*Charadrius vociferus*	Killdeer (c)
Laridae	*Larus pipixcan*	Franklin's Gull (p)
Columbidae	*Zenaida asiatica*	White-winged Dove (p/c)
	Zenaida macroura	Mourning Dove (p/c)
	Columbina passerina	Common Ground Dove (p)
Cuculidae	*Coccyzus americanus*	Yellow-billed Cuckoo (p/c)
	Geococcyx californianus	Greater Roadrunner (p/c)
Apodidae	*Chaetura pelagica*	Chimney Swift (p/c)
Trochilidae	*Archilochus alexandri*	Black-chinned Hummingbird (p/c)
Alcedinidae	*Ceryle alcyon*	Belted Kingfisher (p/c)
Picidae	*Melanerpes aurifrons*	Golden-fronted Woodpecker (c)
	Picoides scalaris	Ladder-backed Woodpecker (p/c)
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe (p/c)
	Myiarchus cinerascens	Ash-throated Flycatcher (p/c)
	Tyrannus forficatus	Scissor-tailed Flycatcher (p)
	Myiarchus crinitus	Great-crested Flycatcher (p)

	Tyrannus verticalis	Western Kingbird (c)
Vireonidae	*Vireo griseus*	White-eyed Vireo (c)
Corvidae	*Aphelocoma californica*	Western Scrub-Jay (p/c)
	Cyanocitta cristata	Blue jay (p/c)
	Corvus brachyrhynchos	American Crow (c)
	Corvus corax	Common Raven (p/c)
Hirundinidae	*Progne subis*	Purple Martin (p)
	Petrochelidon pyrrhonota	Cliff Swallow (c)
	Hirundo rustica	Barn Swallow (p/c)
	Stelgidopteryx serripennis	Northern Rough-winged swallow (c)
Paridae	*Poecile carolinensis*	Carolina Chickadee (p/c)
	Baeolophus atricristatus	Black-crested Titmouse (p/c)
Remizidae	*Auriparus flaviceps*	Verdin (p)
Troglodytidae	*Catherpes mexicanus*	Canyon Wren (p/c)
	Thryothorus ludovicianus	Carolina Wren (p/c)
	Thryomanes bewickii	Bewick's Wren (p/c)
Regulidae	*Regulus calendula*	Ruby-crowned Kinglet (p/c)
Sylviidae	*Polioptila caerulea*	Blue-grey Gnatcatcher (p/c)
Turdidae	*Catharus guttatus*	Hermit Thrush (p/c)
	Turdus migratorius	American Robin (p/c)
		Thrush sp. (c)
Mimidae	*Mimus polyglottos*	Northern Mockingbird (p/c)
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing (p/c)
Parulidae	*Mniotilta varia*	Black-and-white warbler (p/c)
	Vermivora celata	Orange-crowned Warbler (p)
	Vermivora ruficapilla	Nashville Warbler (p/c)
	Dendroica coronata	Yellow-rumped Warbler (p/c)
	Dendroica chrysoparia	Golden-cheeked Warbler (p/c)
	Setophaga ruticilla	American Redstart (p)
	Dendroica fusca	Blackburnian Warbler (c) ??
Muscicapidae	*Catharus fuscenscens*	Veery (p)
Thraupidae	*Piranga rubra*	Summer Tanager (p/c)
Emberizidae	*Aimophila ruficeps*	Rufous-crowned Sparrow (p/c)
	Spizella passerina	Chipping Sparrow (p)
	Spizella pusilla	Dark-eyed Junco (p)

Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal (p/c)
	Passerina ciris	Painted Bunting (p/c)
	Spiza americana	Dickcissel (p)
	Icterus bullockii	Bullock's Oriole (c)
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird (p/c)
	Quiscalus quiscula	Common Grackle (p/c)
	Molothrus ater	Brown-headed Cowbird (p/c)
Fringillidae	*Carduelis psaltria*	American Goldfinch (p)
	Carpodacus mexicanus	House finch (p)
	Carduelis psaltria	Lesser Goldfinch (p/c)
Passeridae	*Passer doemesticus*	House Sparrow (p/c)

Table 4. Plant List
Survey Dates - August 2, 8, 2004 by Paul Turner

<u>Trees</u>	
Celtis reticulate	netleaf hackberry
Fraxinus texensis	Texas ash
Juniperus ashei	Ashe juniper
Platanus occidentalis	American sycamoore
Prunus serotina	escarpment balck cherry
Quercus virginiana	live oak
Quercus sinuata var. Breviloba	shin oak
Quercus texana	Texas oak
Salix nigra	black willow
Ulmus crassifolia	cedar elm
<u>Small Trees and Shrubs</u>	
+Amorpha romerana	Texas amorpha
Baccharis neglecta	Roosevelt weed
Berberis trifoliata	agarito
Callicarpa americana	American beautyberry
Cephalanthus occidentalis	buttonbush
Cercis canadensis	red bud
Colubrina texensis	hogplum
Condalia hookeri	
Diospyros texana	Texas persimmon
Eysenhardtia texana	Texas kidneywood
Foresteria pubescens	elbow bush
Garrya ovata.	Lindheimer's silk-tassel
Ilex decidua	deciduous holly
Ilex vomitoria	yaupon
Mimosa borealis	catclaw mimosa
-Nandina domestica	heavenly bamboo
Nolina texana	sacahuista
Opuntia lindheimeri	Lindheimer prckly pear
Prosopsis glandulosa	

Ptelea trifoliata	
Rhamnus caroliniana	Carolina buckthorn
Rhus lanceolata	lance-leaf sumac
Rhus trilobata	skunkbush sumac
Rhus virens	evergreen sumac
Sophora affinis	Eve's necklace
Yucca rupicola	twistleaf yucca
Zanthoxylum hirsutum	Tickle-tongue
Zizyphus obtusifolia	

Woody Vines

Parthenocissus quinquefolia	Virginia creeper
Rubus trivialis	southern dewberry
Smilax bono-nox	saw greenbrier
Toxicodendron radicans	poison ivy
Vitis berlandieri	winter grape
Vitis monticola	

Ferns

Adiantum capillus-veneris	maidenhair fern
Cheilanthes horridula	

Sedges and Rushes

Carex planostachys	cedar sedge
Eleocharis (caribae) reticulatata	
Eleocharis montividensis	
Fuirena simplex	
Juncus texanus	Texas rush

Grasses

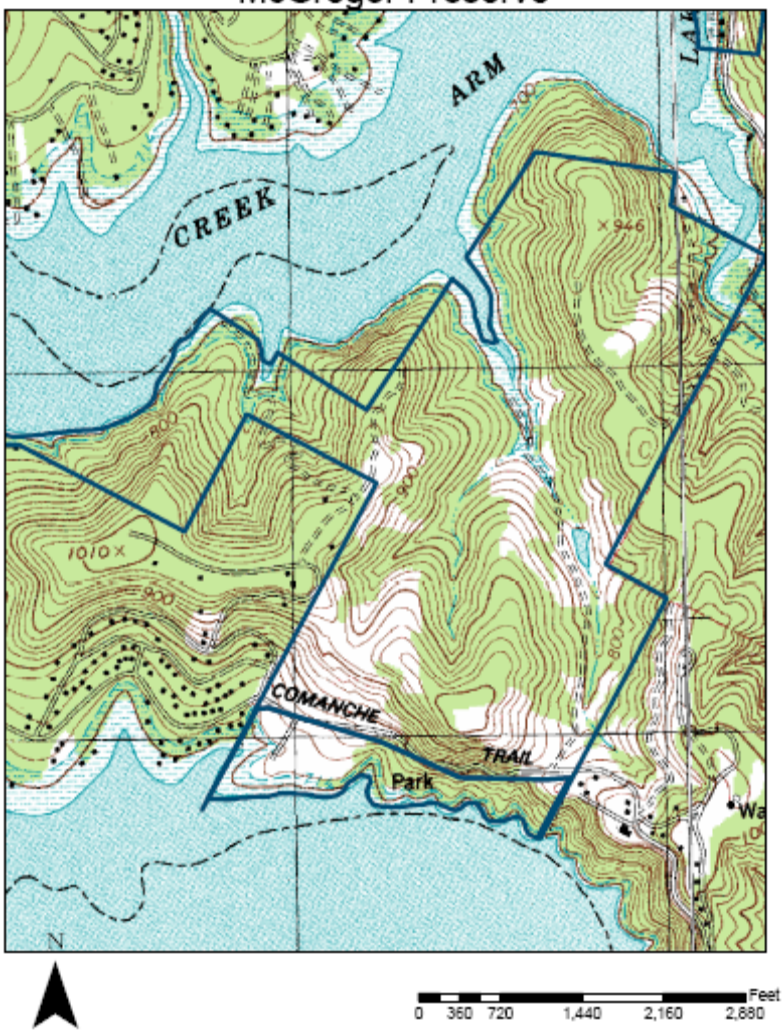
Andropogon glomeratus	bushy bluestem
Aristida purpurea	purple three awn
Bouteloua curtipendula	side oats grama
Bouteoua hirsuta	hairy grama
Bouteloua pectinata	tall grama
-Bothriochloa ischaemum	King Ranch bluestem
Bothriochloa laguroides	silver bluestem
Chasmanthium latifolium	Indian creek oats
-Cynodon dactylon	bermudagrass
Dichanthelium acuminatum var. Lindheimeri	
Dichanthelium pedicillatum	
Muhlenbergia lindheimeri	Lindheimer muhly
Mulenbergia revechonii	seep muhly
-Paspalum dilitatum	dallisgrass
Schizachyrium scoparium	little bluestem
Setaria geniculata	knotroot bristlegrass
Setaria scheelii	Scheel's bristlegrass
Sorghastrum nutans	Indiangrass
Tridens albescens	white tridens
Tridens flavus	purpletop

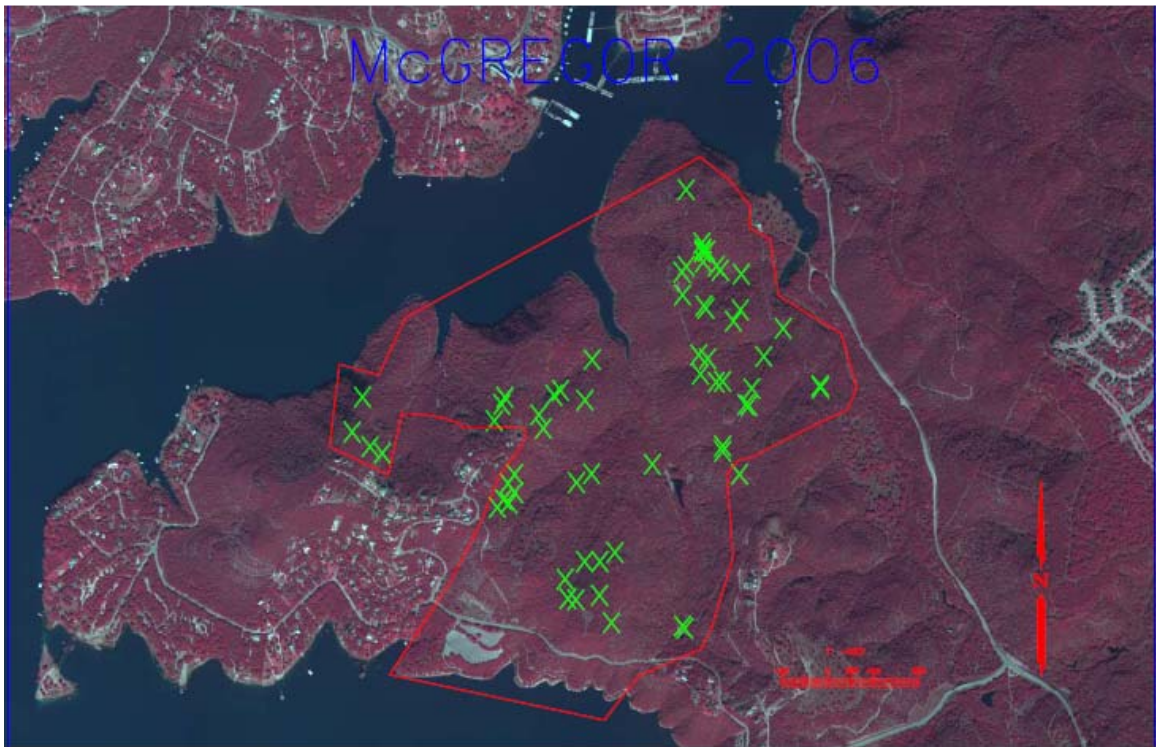
Herbs

Abutilon incanum	
Allium canadense	
Dalea aurea	golden dalea
Daucus pusillus	
Dyssodia pentachaeta	
Chamaesyce (Euphorbia) angusta	
Chamaesysce (Euphorbia) cordifolia	
Chamaesysce (Euphorbia) nutans	
Chamaesysce (Euphorbia) villifera	
Cynanchum unifarium	
Cynoctonum mitreola	hornpod
Erigeron modestus	
Eupatorium havanense	
Eupatorium serotinum	
Euphorbia cyathaphora	
Euphorbia dentata	
Evax prolifera	
Evax verna	
Evolvulus sericeus	
Gnaphalium obtusifolium	
Hedeoma acinioides	
Hedyotis nigricans	
Helenium amarum	
Helenium microcephalum	
Heliotropium tenellum	
+Hexalectris nitida	
Iva angustifolia	
Iva annua	
Lespedeza texana	
Linum rupestre	
Matelea reticulata	rock flax
Maurandya antirrhiniflora	snapdragon vine
Melampodium leucanthum	blackfoot daisy
Onosmodium helleri	Heller’s false marbleseed
Palafoxia callosa	palafoxia
Paronychia lindheimeri	Lindheimer’s nailwort
Parthenium hysterophorus	ragweed parthenium
Phyla nodiflora	frogfruit
Phyllanthus polygonoides	
Pluchea odorata (prupurascens)	
Ratibida columnifera	Mexican hat
Rhynchosia texana	Texas snoutbean
Ruellia humilis	
Sabatia berychii	
Samolus parviflora	
Salvia romeriana	cedar sage
Sedum nuttallianum	
Stillangia texana	
Teucrium canadense	

Thamnosma texanum	
Thelesperma simplicifolium	
Utricularia gibba	
Verbena binpinnatifida	Dakota vervain
Verbena canescens	
Verbesina enceloides	
Verbesina lindheimeri	Lindheimer’s crownbeard
Verbesina virginica	
Vernonia lindheimeri	
Wedelia hispida	
Xanthium strumarium	

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