2006 Survey Report

Wheless Preserve
Travis County

Lower Colorado River Authority

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Introduction

The Wheless Preserve is part of the Balcones Canyonlands Preserve system. It is protected habitat for the endangered Golden-cheeked Warbler (*Dendroica chrysoparia*, GCW, warbler) and other species of concern of western Travis County. The 2,316 acre tract is located on the east side of Lake Travis off Lime Creek Road, six miles south of RM 1431 and west of Volente. Travis County Audubon and The Nature Conservancy own preserves that partially border Wheless on its north and east sides respectively. To the west is Lake Travis and mostly undeveloped property. Housing, developed and semi-developed areas are located on the remaining borders.

The Wheless tract consists mainly of steep canyons and hillsides. Thick wooded areas cover about half of the preserve, with scrubbier vegetation on the less fertile and open hillsides. One hilltop has been cleared to encourage scrub re-growth for possible Black-capped Vireo (*Vireo atricapilla*, BCV) influx. A few springs form water holes in some of the canyons and a seasonal stream flows south on its eastern side, providing habitat for the rare Jollyville Plateau salamander (*Eurycea tonkawae*). A cleared right-of-way runs east-west for a water pipeline with a water tower. A few rough roads provide vehicle access.

Climax vegetation consists mostly of ashe juniper or cedar (*Juniperus ashei*), live oak (*Quercus fusiformis*), Texas oak (*Quercus texana*), limestone durand oak (*Quercus sinuate* var. *breviloba*), cedar elm (*Ulmus crassifolia*), and Texas ash (*Fraxinus texensis*). Other less numerous trees include escarpment cherry (*Prunus serotina* var. *eximia*), walnuts (*Uglans* sp.), coma (*Bumelia lanuginosa*), hackberry (*Celtis* sp.), and sycamore (*Platanus occidentalis*).

Mid-story plants are mountain laurel (*Sophora secundiflora*), silk-tassel (*Garrya ovata*), Texas persimmon (*Diospyros texana*), Texas redbud (*Cercis Canadensis* var. *texensis*), Carolina buckthorn (*Rhamnus caroliniana*), blackhaw (*Viburnum rufidulum*), Texas madrone (*Arbutus texana*), Mexican buckeye (*Ungnadia speciosa*), and holly (*Ilex vomitoria* and *I. deciduas*). A variety of plants (cacti, grasses and forbs) grow at ground level but these are seldom, if ever, used by the Golden-cheeked Warbler.

Wheless Preserve has been surveyed in the past to determine the warblers' population trends. Both study plot surveys and entire preserve surveys have been made. In 2002 Loomis Austin Inc. found 70 entire and 22 partial territories with almost 980 hours of survey time during 41 days on the entire preserve. This was an increase from the 60 territories found in 1993 and 1994 by LCRA, TxDOT and DLS.

Methods

LCRA personnel surveyed the Wheless Preserve in 2006. All of the preserve was searched. Surveys started on 15 March and continued until 12 May, for a total of 39 survey days. The total survey time was 196.67 hours (Table 1). This broke down to 8.49 hours per 100 acres of preserve. Because some parts of the preserve are at best only marginally suitable warbler habitat, they received less survey time. This means that the places with good and prime habitat actually had a higher hourly survey total.

Surveys were carried out by slowly walking an area while looking and listening for warblers. The routes of the surveys varied and none were repeated with the same path. Recordings of warbler songs and calls were not used to make any contacts. No official survey protocol was followed to conduct this survey.

Warbler locations were marked while in the field using aerial photographs. If the surveyor was unsure about a location, a hand-held G.P.S. (Global Positioning System) was employed to record a waypoint of the encounter. The bird's exact position was then plotted on the aerial using a computer software mapping system at a later time.

This survey was conducted in order to estimate the number of warbler territories located at Wheless. Behavior observation, vegetation use, nest searches and offspring production were not the objectives, but in the course of finding individual birds and their territories, some of these were observed.

Weather conditions were noted at the start and end of each survey (Table 2). Other bird species, mammals and herps were also recorded (Tables 3, 4 and 5).

Results

A range of 93 to 105 Golden-cheeked Warbler territories were found on the Wheless Preserve. The difference in the number depends both upon whether a solitary unrepeated registration of a singing male is enough to classify as a territory, and upon how clusters of registrations are grouped together. 15 of the territories appeared to lap on to adjacent properties to varying degrees.

Many of the males located would sing briefly and then be quiet for long periods of time. Males where territories were condensed tended to sing more than males where territories were more spread out or isolated. On fifteen occasions, males were encountered that never vocalized or that vocalized after being observed by sight. Nine males were found by their chipping call only, but some of these vocalized after the initial observation. Some males observed were singing very softly. Four of the silent males and one of the chipping males were with fledglings. This may be a strategy for avoiding both predators and other males still defending territory.

Because some males sang so infrequently or even stayed silent, a single registration may be all that could possibly be expected from several survey passes through their territory. This gives the higher number of estimated territories.

Females were observed nineteen times. The following table shows their activities.

Date	Female Warbler Observed Activity	With male
17 March	Gathering nest material	Yes
20 March	Gathering nest material	Yes
20 March	Nest construction	Yes
21 March	Gathering nest material	Yes *
30 March	Feeding	Yes *
31 March	Feeding and preening	Yes
5 April	Perched, chipping	Yes
5 April	Perched, flying	No
6 April	Perched, flying	Yes
11 April	Perched, flying	Yes
12 April	Perched, chipping	Yes
20 April	Collecting food, being chased	Yes *
26 April	Chipping, flying	Yes
26 April	Collecting food, feeding nestlings	Yes
3 May	Collecting food	No
4 May	Chipping, Incubating	No
4 May	Foraging	No
8 May	Foraging	Yes
8 May	Leaf bathing	Yes

* Two males having aggressive encounter nearby

Male warblers with fledglings were seen seven times. The first was on May 1st. No females were observed with fledglings.

Brown-headed Cowbirds (*Molothrus ater*) were observed only a few times during the entire season. One pair was observed being harassed by a pair of Blue-grey Gnatcatchers (*Polioptila caerulea*). No predation was observed of any species.

Discussion

The 93 to 105 warbler territories estimated for the 2006 season shows a slight increase from the 92 territories found in 2002 by Loomis Austin. There are a few areas with good to prime habitat where no warblers were detected. This gives

room for the warbler population to grow, and as the trees in the marginal habitat areas on the preserve mature, this number could increase even further.

As Brown-headed Cowbird numbers were so low this year, it would not be advantageous to import and monitor traps to control their impact. Indeed, baited traps could actually encourage the influx of undesirable species into the environment.

A large area of Roosevelt weed (*Baccharis neglecta*) is becoming established along the pipeline easement on the top of the hill from the water treatment station on the west side of Wheless. These need to be eradicated before their seeds are washed into nearby canyons where it would be harder to find and remove them. Nandina plants (*Nandina domestica*) were found in one or two of the canyons. These were probably deposited by birds. The plants were uprooted on discovery to avoid the trouble of relocating them at a later time.

Only one instance of recent trespass was found along the north fence line. It was corrected upon discovery, but future monitoring is essential as housing encroaches more and more along the borders of Wheless.

Deer numbers were low and any practices to keep it low should be employed, such as harvesting and birth control. This will help with tree sapling survival and soil and grass erosion.

Current management practices on the Wheless Preserve should be continued.

- In areas where infrastructure corridors are maintained, the canopy cover should be allowed to grow as much as possible. This will allow fragmented and cleared areas to attain a more natural state while still maintaining infrastructure needs. The BCCP Management Plan advises corridors should be a maximum of 16 feet wide. Additionally, it has been shown that warblers tend to not cross between fragmented habitats, therefore this pipeline right-of-way could be posing a detriment to the resident warblers.
- Control of exotic vegetation and oak wilt should be undertaken as identified in the Tier III Management Plan.
- Conduct future surveys on both the study plots and on the entire preserve to monitor habitat quality and use.

Table 1- Survey Time

Date	Start Time	End Time	Daily Time
15 March	0710	1316	6.10 hrs.
16 March	0710	1325	6.25 hrs.
17 March	0720	1139	4.32 hrs.
20 March	0730	1320	5.83 hrs.
21 March	0712	1245	5.50 hrs.
22 March	0647	1317	6.50 hrs.
23 March	0710	1150	4.67 hrs.
24 March	0718	1209	4.85 hrs.
27 March	0750	1232	4.70 hrs.
29 March	0652	1151	4.98 hrs.
30 March	0740	1225	4.75 hrs.
31 March	0650	1132	4.70 hrs.
3 April	0737	1234	4.95 hrs.
4 April	0710	1150	3.67 hrs.
5 April	0700	1156	4.94 hrs.
6 April	0730	1152	4.37 hrs.
7 April	0740	1158	4.30 hrs.
10 April	0745	1230	4.75 hrs.
11 April	0740	1214	4.57 hrs.
12 April	0738	1219	4.68 hrs.
14 April	0730	1228	4.97 hrs.
17 April	0730	1230	5.00 hrs.
18 April	0740	1154	4.23 hrs.
19 April	0730	1130	4.00 hrs.
20 April	0720	1200	4.67 hrs.
21 April	0720	1209	4.82 hrs.
24 April	0720	1220	5.00 hrs.
25 April	0715	1130	4.25 hrs.
26 April	0730	1310	5.67 hrs.
27 April	0800	1326	5.43 hrs.
28 April	0745	1234	4.83 hrs.
1 May	0720	1250	5.50 hrs.
2 May	0719	1205	4.77 hrs.
3 May	0730	1215	4.75 hrs.
4 May	0730	1215	4.75 hrs.
8 May	0730	1310	5.67 hrs.
9 May	0740	1254	5.23 hrs.
10 May	0720	1156	4.60 hrs.
11 May	0735	1302	5.45 hrs.
12 May	0724	1106	3.70 hrs.
15 May	0729	1218	4.82 hrs.
16 May	0717	1325	6.13 hrs.
17 May	0645	1320	6.58 hrs.
18 May	0658	1310	6.20 hrs.
19 May	0655	1245	5.83 hrs.

Observer: Ben Archer Total Survey Time 226.65 hours

Table 2- Weather Conditions

Date	Time (start-end)	Temp. F (start-end)	Wind (start-end)	% cloud cover (start-end)
15 March	0710-1316	54 – 70	0-10 NW 0-15 NE	75% 100%
16 March	0710-1325	72 - 82	0 0-5 N	100% 100%
17 March	0720-1139	65 - 61	0-15 var 0-10 NE	100% 100%
20 March	0730-1320	68 - 77	0-5 var 5-15 N	80% 0%
21March	0712-1245	39 - 63	0 0-10 N	0% 0%
22 March	0647-1317	42 - 56	0-5 N 0-5 N	0% 100%
23 March	0710-1150	42 - *	0-5 W *	80% *
24 March	0718-1209	32 - *	0 0-5 NW	0% 5%
27 March	0750-1232	* - 67	0-5 S 0	100% 100%
29 March	0652-1151	58 - *	0 fog *	100% *
30 March	0740-1225	68 - *	0-10 S 5-10 S	100% 70%
31 March	0650-1132	72 - *	0 0-5 S	100% 100%
3 April	0737-1234	65 - *	0 *	10% *
4 April	0710-1150	64 - *	0-5 NW 0-8 SE	60% 5%
5 April	0700-1156	68 - 78	0 0-15 SE	90% 30%
6 April	0730-1152	69 - 82	0-10 SE 5-15 SE	90% 70%
7 April	0740-1158	73 - *	0 0	60% 0%
10 April	0745-1230	56 - 81	0 0-5 var	0% 10%
11 April	0740-1214	60 - 80	0 0-5 SW	70% 100%
12 April	0738-1219	70 - 75	0-5 SW 0-5 S	90% 100%
14 April	0730-1228	65 - 79	5-10 S 5-10 S	40% 20%
17 April	0730-1230	74 - 92	0 0-5 S	30% 0%
18 April	0740-1154	70 - 85	0-5 S fog 0-5 S	70% 0%
19 April	0730-1130	68 - 82	0 0-5 var	0% 30%
20 April	0720-1200	68 - 72	0-5 S 0-10 var	100% 90%
21 April	0720-1209	64 - 78	0 0-5 NW	100% 30%
24 April	0720-1220	72 - 79	0-5 S 0-10 S	100% 100%
25 April	0715-1130	73 - 67	0 5-15 N	100% 100%
26 April	0730-1310	58 - 72	5-15 N 0-10 NW	90% 10%
27 April	0800-1326	54 - 67	0 0	100% 100%
28 April	0745 -1234	71 - 80	0-5 NE 5-15 SE	100% 80%
1 May	0720-1250	65 - 83	5-10 SE 5-15 SE	90% 0%
2 May	0719-1205	71 - *	0 *	100% *
3 May	0730-1215	72 - 85	0-5 SE 0-10 SE	90% 40%
4 May	0730-1215	69 - 79	0 0-10 S	100% 40%
8 May	0730-1310	69 - 81	0-5 S 0-5 var.	50% 100%
9 May	0740-1254	71 - 88	0-5 S 5-10 SW	100% 5%
10 May	0720-1156	76 - 84	0 hazy 5-20 NW	70% 0%
11 May	0735-1302	58 - 82	0 5-10 N	0% 0%
12 May	0724-1106	55 - 77	0 0-5 SE	10% 20%
15 May	0729-1218	68 - 81	0 5-15 NE	5% 0%
16 May	0717-1325	53 - 80	0 0-10 NE	0% 5%
17 May	0645-1320	52 - 85	0 0	0% 0%
18 May	0658-1310	61 - *	0 *	0% 0%
19 May	0655-1245	* - 91	0 0-10 SW	* 0%

Table 3- Bird Species List

Wild Turkey, *Meleagris gallopavo*
Northern Bobwhite, *Colinus virginianus*
American White Pelican, *Pelecanus erythrorhynchos*
Double-crested Cormorant, *Phalacrocorax auritus*
Anhinga, *Anhinga anhinga*
Great Blue Heron, *Ardea herodis*
Green Heron, *Butorides virescens*
Black Vulture, *Coragyps atratus*
Turkey Vulture, *Cathartes aura*
Osprey, *Pandion haliaetus*
Mississippi Kite, *Ictinia mississippiensis*
Sharp-shinned Hawk, *Acccipiter striatus*
Cooper,s Hawk, *Accipiter cooperii*
Red-shouldered Hawk, *Buteo lineatus*
Broad-winged Hawk, *Buteo platypterus*
Swainson's Hawk, *Buteo swainsoni*
Red-tailed Hawk, *Buteo jamaicensis*
Crested Caracara, *Caracara cheriway*
Sandhill Crane, *Grus Canadensis*
Killdeer, *Charadrius montanus*
Upland Sandpiper, *Bartramia longacauda*
Common Snipe, *Gallinago gallinago*
Franklin's Gull, *Larus pipixcan*
Eurasian Collared-Dove, *Streptopelia decaocto*
White-winged Dove, *Zenaida asiatica*
Mourning Dove, *Zenaida macroura*
Common Ground Dove, *Columbina passerina*
Yellow-billed Cuckoo, *Coccyzus americanus*
Greater Roadrunner, *Geococcyx californianus*
Eastern Screech-Owl, *Megascops asio*
Chuck-will's-widow, *Caprimulgus carolinensis*
Chimney Swift, *Chaetura pelagica*
Black-chinned Hummingbird, *Archilochus alexandri*
Ladder-backed Woodpecker, *Picoides scalaris*
Olive-sided Flycatcher, *Contopus cooperi*
Acadian Flycatcher, *Empidonax virescens*
Empidonax species
Eastern Phoebe, *Sayornis phoebe*
Ash-throated Flycatcher, *Myiarchus cinerascens*
Great-crested Flycatcher, *Myiarchus crinitus*
Western Kingbird, *Tyrannus verticalis*
Scissor-tailed Flycatcher, *Tyrannus forficatus*
White-eyed Vireo, *Vireo griseus*
Plumbeous Vireo, *Vireo plumbeus*

Red-eyed Vireo, *Vireo olivaceus*
Blue Jay, *Cyanocitta cristata*
Western Scrub Jay, *Aphelocoma californica*
American Crow, *Corvus brachyrhynchos*
Common Raven, *Corvus corax*
Purple Martin, *Progne subis*
Cliff Swallow, *Petrochelidon pyrrhonota*
Cave Swallow, *Petrochelidon fulva*
Barn Swallow, *Hirundo rustica*
Carolina Chickadee, *Poecile carolinensis*
Black-crested Titmouse, *Baeolophus altricristatus*
Bushtit, *Psaltriparus minimus*
Canyon Wren, *Catherpes mexicanus*
Carolina Wren, *Thryothorus ludovicianus*
Bewick's Wren, *Thryomanes bewickii*
Golden-crowned Kinglet, *Regulus satrapa*
Ruby-crowned Kinglet, *Regulus calendula*
Blue-grey Gnatcatcher, *Polioptila caerulea*
Townsend's Solitaire, *Myadestes townsendi*
Grey-cheeked Thrush, *Catharus minimus*
Hermit Thrush, *Catharus guttatus*
American Robin, *Turdus migratorius*
Northern Mockingbird, *Mimus polyglottos*
Cedar Waxwing, *Bombycilla cedrorum*
Orange-crowned Warbler, *Vermivora celata*
Nashville Warbler, *Vermivora ruficapilla*
Yellow Warbler, *Dendroica petechia*
Chestnut-sided Warbler, *Dendroica pensylvanica*
Magnolia Warbler, *Dendroica magnolia*
Yellow-rumped Warbler, *Dendroica coronata*
Golden-cheeked Warbler, *Dendroica chrysoparia*
Black-throated Green Warbler, *Dendroica virens*
Black and White Warbler, *Mniotilta varia*
Summer Tanager, *Piranga rubra*
Canyon Towhee, *Pipilo fuscus*
Rufous-crowned Sparrow, *Aimophila ruficeps*
Chipping Sparrow, *Spizella passerina*
Clay-colored Sparrow, *Spizella pallida*
Field Sparrow, *Spizella pusilla*
Vesper Sparrow, *Pooecetes gramineus*
Lark Sparrow, *Chondestes grammacus*
Grasshopper Sparrow, *Ammodramus savannarum*
Lincoln's Sparrow, *Melospiza lincolnii*
Dark-eyed Junco, *Junco hyemalis*
Northern Cardinal, *Cardinalis cardinalis*
Painted Bunting, *Passerina ciris*

Dickcissel, *Spiza Americana*
Red-winged Blackbird, *Agelaius phoeniceus*
Common Grackle, *Quiscalus quiscula*
Brown-headed Cowbird, *Molothrus ater*
Orchard Oriole, *Icterus spurius*
House Finch, *Carpodacus mexicanus*
Pine Siskin, *Carduelis pinus*
Lesser Goldfinch, *Carduelis psaltria*
American Goldfinch, *Carduelis tristis*

Table 4- Mammal Species List

Virginia Opossum, *Didelphis virginiana*
Swamp Rabbit, *Sylvilagus aquaticus*
Eastern Cottontail, *Sylvilagus floridanus*
Black-tailed Jackrabbit, *Lepus californicus*
Eastern Grey Squirrel, *Sciurus niger*
Coyote, *Canis latrans*
Common Grey Fox, *Urocyon cinereoargenteus*
Ringtail, *Bassariscus astutus*
Common Raccoon, *Procyon lotor*
Striped Skunk, *Mephitis mephitis*
White-tailed Deer, *Odocoileus virginianus*

Table 5- Reptiles and Amphibians

Green Anole, *Anolis carolinensis carolinensis*
Texas Earless Lizard, *Holbrookia texana texana*
Texas Spiny Lizard, *Sceloporus olivaceus*
Fence Lizard, *Sceloporus undulates*
Spotted Whiptail, *Cnemidophorus gularis gularis*
Blotched Water Snake, *Natrix erythrogaster transversa*
Eastern Coral Snake, *Micrurus fulvius fulvius*
Gulf Coast Toad, *Bufo valliceps*
Strecker's Chorus Frog, *Pseudacris strecheri*
Grey treefrog, *Hyla versicolor, H. chrysoscelis*

Table 6- Plants
Survey conducted April 9, 20 and 26, May 8 and July 29, 2004 by Paul Turner.

Pteridaceae Various Fern Families
Adiantum capillus-veneris
Cheilanthes alabamensis
Cheilanthes horridula
Pellaea atropurpurea
Thelypteris kunthii

Cupressaceae Cypress Family
Juniperus ashei

Najadaceae Water-Nymph Family
Najas guadalupensis - in deep hole of ephemeral creek up from stock pond with Chara sp.

Poaceae Grass Family
Andropogon glomeratus
Arisitida purpurea
Avena fatua
Bothriochloa ischaemum
Bouteloua curtipendula
Bouteloua hirsuta
Bouteloua pectinata
Bouteloua rigidiseta
Bromus japonicus
Bromus uniloides
Buchloe dactyloides - Edwards cap on road shoulders and around stock pond
Cenchrus incertus
Chasmanthium latifolium
Cynodon dactylon Edwards cap on road medians and shoulders, also around stock pond
Dichanthelium acuminatum
Dichanthelium oligosanthes
Dichanthelium pedicellatum
Digitatia cognata (Leptoloma cognatum) fall witchgrass
Elymus virginicus
Eragrostis intermedia
Eragrostis secundiflora
Eragrostis sessilispica
Erioneuron pilosum very common in shallow soils on Edwards cap
Hordeum pusillum - road shoulders and pipeline ROW
Limnodea arkansana - shallow soils on Edwards cap
Muhlenbergia involuta occasional on shady slopes on creek terraces
Muhlenbergia lindheimeri occasional in wet ripaian areas
Muhlenbergia reverchonii dominant grass on Glen Rose slopes
Muhlenbergia utilis? Long Hollow Creek
Paspalum dilitatum – in marsh at spring and on creek bank of Long Hollow
Schizachyrium scoparium – fairly common in woodland openings and on open Glen Rose slopes
Setaria scheelei
Sorghastrum nutans – uncommon on north running tributary of Long Hollow Creek
Sorghum halapense common in vicinity of Long Hollow Creek spring

Sporobolous asper occcasional in clearings on open woodland terraces and slopes
Tridens albescens
Tridens flavus
Tridens muticus

Cyperaceae Sedge Family
Carex blanda - creek terraces
Carex bulbostylis – creek terraces
Carex edwardsiana
Carex microdonta
Carex planostachys

Cyperaceae
Cyperus odoratus
Eleocharis acutisquamata
Eleocharis caribaea
Eleocharis montividensis
Eleocharis obtusa - specimen collected from Long Hollow Creek on July 29, 2004
Eleocharis palustris
Fuirena simplex – Long Hollow Creek near spring

Bromeliaceae Pineapple Family
Tillandsia recurvata

Commelinaceae Spiderwort Family
Tinantia anomala

Juncaceae Rush Family
Juncus dudleyi
Juncus interior

Liliaceae Lily Family
Allium drummondii
Nolina lindheimeriana
Nolina texana
Schoenocaulon texanum
Smilax bona-nox
Yucca rupicola

Amaryllidaceae Amaryllis Family
Cooperia pedunculata

Iridaceae Iris Family
Nemastylis geniniflora

Sisyrinchium scabrum = S. ensigerum

Orchidaceae Orchid Family
Hexalectris nitida
Hexalectris spicata
Helxalectris warnockii 1st Travis Co. record found on July 29, 2004

Salicaceae Willow Family
Salix nigra

Juglandaceae Walnut Family
Juglans major

Fagaceae Beech Family
Quercus texana = Q. Buckley
Quercus fusiformis = Q virginana
Quercus sinuata var. breviloba

Ulmaceae Elm Family
Celtis laevigata
Celtis reticulata
Ulmus crassifolia

Moraceae Mulberry Family
Morus microphylla uncommon on ephemeral creek terraces in near closed canopy woodland
Morus rubra

Urticaceae Nettle Family
Parietaria pensylvanica

Aristolochiaceae Birthwort Family
Aristolochia serpentaria

Amaranthaceae Amaranth Family
Mirabilis albida - this may be the common Mirabilis of solution pitted outcrops of Edwards limestone. I am very unhappy with this identification though.

Caryophyllaceae Pink Family
Arenaria benthamii
Paronychia lindheimeri

Ranunculaceae Crowfoot Family
Anemone berlandiera = A. heterophylla
Anemone edwarsiana
Clematis texensis

Berberidaceae Barberry Family
Berberis (Mahonia) trifoliata
-Nandina domestica
Cocculus carolina

Brassicaceae Mustard Family
Lepidium austrinum
Lesquerella recurvata

Crassulaceae Stonecrop Family
Sedum nuttallianum

Platanaceae Plane-Tree Family
Platanus occidentalis

Rosaceae Rose Family
Prunus serotina
Rubus trivialis

Fabaceae Bean Family
Desmanthus velutinus
Mimosa borealis
Cercis canadensis var. texensis
Chamaecrista fasciculata
Senna roemeriana
Desmodium paniculatum
Desmodium psilophyllum
Eysenhardtia texana
Indigofera miniata
Lespedeza texana
Lupinus texensis
Medicago lupulina waterline and other ruderal areas
Medicago minima waterline and other ruderal areas
Pediomelum latestipulatum
Rhynchosia senna var. texana
X Sesbania drummondii
Sophora affinis
Vicia leavenworthii

Krameriaceae Ratany Family
Krameria lanceolata

Oxalidaceae Wood-Sorrel Family
Oxalis dillennii

Linaceae
Linum rigidum
Linum rupestre

Rutaceae Citrus Family
Ptelea trifoliata
Thamnosma texana
Zanthoxylum hirsutum

Simaroubaceae Quassia Family
-Ailanthus altissima – 4” dbh found on Cedar Park waterline

Meliaceae Mahogany Family
Melia azedarach*

Polygalaceae Milkwort Family
Polygala lindheimeri

Euphorbiaceae Spurge Family
Acalypha (lindheimeri) phleoides (Jeez Louise what a name disimprovement).
Agaloma (Euphorbia) bicolor
Ditaxis (Argythamnia) simulans
Chamaesyce angusta
Chamaesysce villefera
Croton monanthogynous common on shallow soils of Edwards cap and ruderal areas
Croton texensis
Phyllanthus polygonoides
Poinsetta cyathophora
-Sapium sebiferum
Styllangia texana
Tragia brevispica
Tragia ramosa

Anacardiaceae Sumac Family
Rhus lanceolata
Rhus trilobata
Rhus virens
Toxicodendron radicans

Aquifoliaceae Holly Family
Ilex decidua
Ilex vomitaria

Hippocastanaceae Horse-Chestnut Family

Sapindus saponaria
Ungnadia speciosa

Rhamnaceae Buckthorn Family
Berchemia scandens common at Long hollow spring
Rhamnus caroliniana

Vitaceae Grape Family
Amplelopsis aroborea
Parthenocissus quinquefolia
Parthenocissus heterophylla
Vitis (berlandieri) cinerea
Vitis monticola

Malvaceae Mallow Family
Callirhoe pedata

Violaceae Violet Family
Hybanthus verticillatus

Passifloraceae Passion-Flower Family
Passiflora lutea

Loasaceae Stickleaf Family
Mentzelia oligosperma

Cactaceae Cactus Family
Coryphantha sulcata - grassland terrace above Long Hollow Spring in the KR mess
Echinocereus reichenbachii shallow soils of the Edwards cap
Opuntia lindheimeri

Lythraceae Loosestrife Family
Lythrum ovalifolium July 29, 2004 submersed form collected from stock pond, also in Long Hollow Creek

Onagraceae Evening-Primrose Family
Ludwigia peploides

Apiaceae Carrot Family
Chaerophyllum tainturei
Spermolepis inermis on the waterline where it leaks
-Torilis arvensis

Cornaceae Dogwood Family
Cornus drummondii

Garrya ovata

Primulaceae Primrose Family
Samolus (parviflorus) valerandi ssp parviflorus

Sapotaceae Sapodilla Family
Bumelia lanuginosa

Ebenaceae Ebony Family
Diospyros texana

Oleaceae Olive Family
Forestiera pubescens
Fraxinus texensis

Loganiaceae Logania Family
Mitreola (Cynoctomum) petiolata

Gentianaceae Gentian Family
Centaurium berychii

Apocyanaceae Dogbane Family
Amsonia ciliata - uncommon in Long Hollow on low terraces

Ascepiadaceae Milkweed Family
Asclepias asperula
Cynanchum barbigerum
Cynanchum (unifarium) racemosum
Matelea edwardensis
Matelea reticulata

Convolvulaceae Morning-Glory Family
Evolvulus sericeus

Polemoniaceae Phlox Family
Gilia incisa
Gilia rigidula
Phlox roemeriana

Hydrophyllacea Waterleaf Family
Nama jamaicense

Boraginaceae Borage Family
Heliotropium tenellum
Lithospermum incisum
Onosmodium helleri - rare in Long Hollow

Verbenaceae Vervain Family
Callicarpa americana
Phyla (incisa) nodiflora
Verbenna bipinnatifida
Verbena canescens

Lamiaceae Mint Family
Brazoria scutellariodes shallow soils of Edwards cap
Hedeoma acinioides
Hedeoma drummondii
Monarda citriodora
Salvia roemeriana
Salvia texana
Scutellaria drummondii
Scutellaria ovata
Teucrium canadense

Solanaceae Potato Family
Bouchetia erecta
Chamaesaracha edwardsiana
Nicotiana repanda
Nicotiana trigonphylla
Physalis cinerascens
Solanum eleagnifolium

Scrophulariacea Figwort Family
Castilleja purpurea - uncommon on some of the wetter, east facing Glen Rose slopes
Maurandya antirrhiniflora
Verbascum thapsus - conspicuous on the waterlone ROW and invasive in at least one ephemeral creek draiange

Acanthaceae Acanthus Family
Ruellia drummondiana?
Ruellia humilis

Plantaginaceae Plantain Family
Plantago helleri
Plantago rhodosperma
Plantago wrightiana

Rubiaceae
Cephalanthus occidentalis
Galium aparine
Galium texense

Galium virgatum
Houstonia (Hedyotis) nigricans

Caprifoliaceae Honeysuckle Family
Lonicera albiflora
Viburnum rufidulum

Valerianaceae Valerian Family
Valerianella amarella - fairly common on shallow soils of Edwards cap and in ruderal areas

Campanulaceae Bellflower Family
Triodanis coloradoensis - steep riparian hillsides in clearings
Triodanis perfoliata – disturbed grasslands such as the waterline ROW and ruderal areas

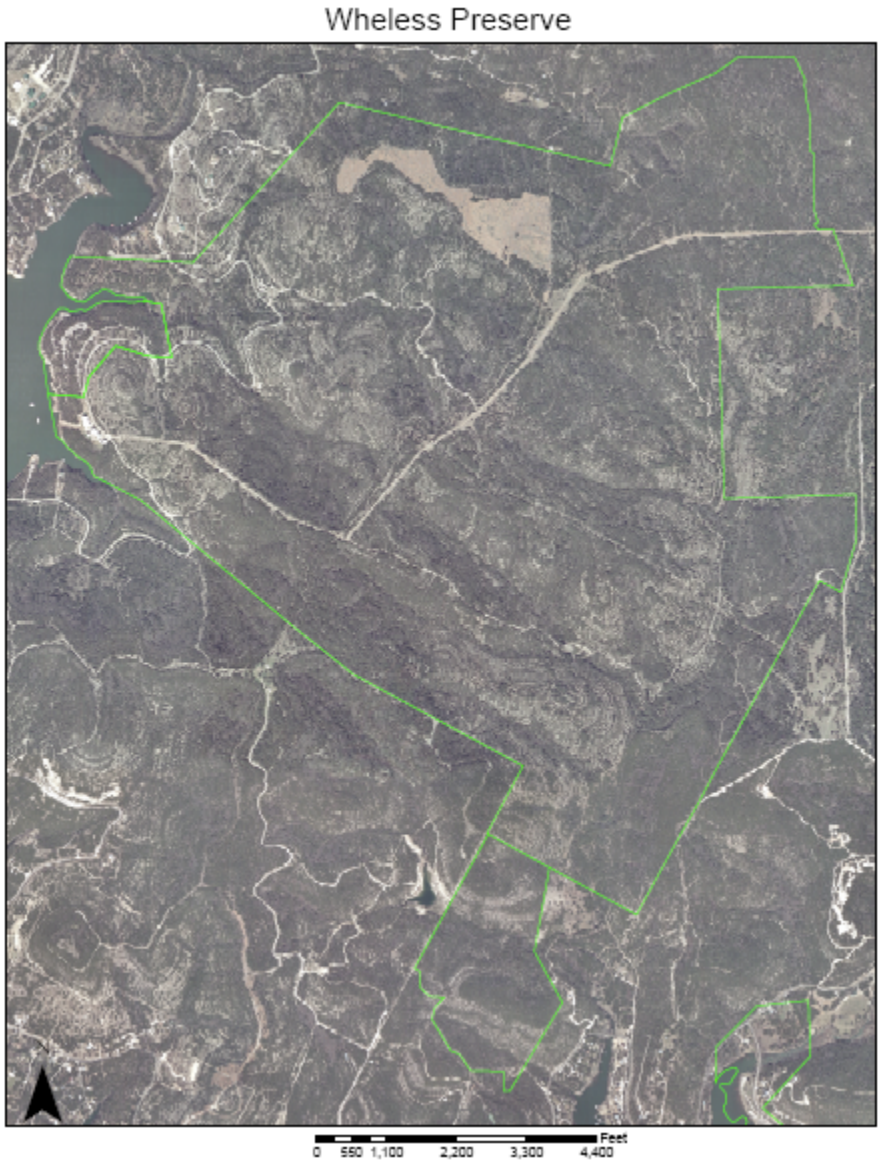
Asteraceae Composite Family
Vernonia lindheimeri
Eupatorium havanense
Liatris mucronata
Aster texanus
Baccharis neglecta
Chaetopappa bellidifolia
Erigeron modestus
Evax (verna) multicaulis
Evax prolifera
Gnaphalium obtusifolium
Ambrosia psilostachya
Iva angustifolia
Marshallia caespitosa
Melampodium leucanthum
Parthenium hysterophorus
Ratibida columnifera
Rudbeckia hirta
Tetragonotheca texana
Thelesperma simplicifolium
Verbesina lindheimeri, Edwards endemic
Verbesina virginica
Wedelia (Zexmenia) texana
Helenium amarum
Helenium elegans
Hymenopappus tenuifolius
Hymenoxys linearifolia
Hymenoxys scaposa
Palafoxia callosa

Thymophylla (Dyssodia) pentachaeta
Senecio obovatus

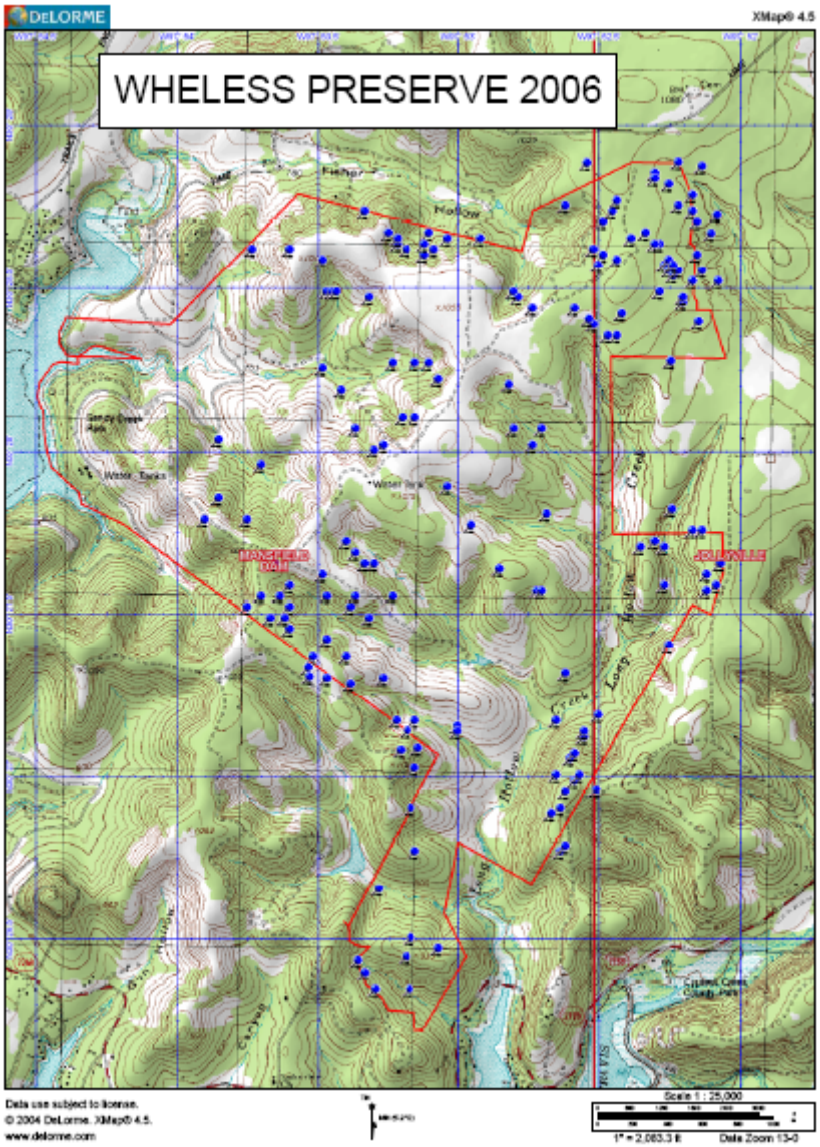
Thistles

Centaurea meletensis - waterline weed
Chaptalia (nutans) texana
Krigia caespitosa
Lactuca ludoviciana
Pinaropappus roseus

Location Map



Data Maps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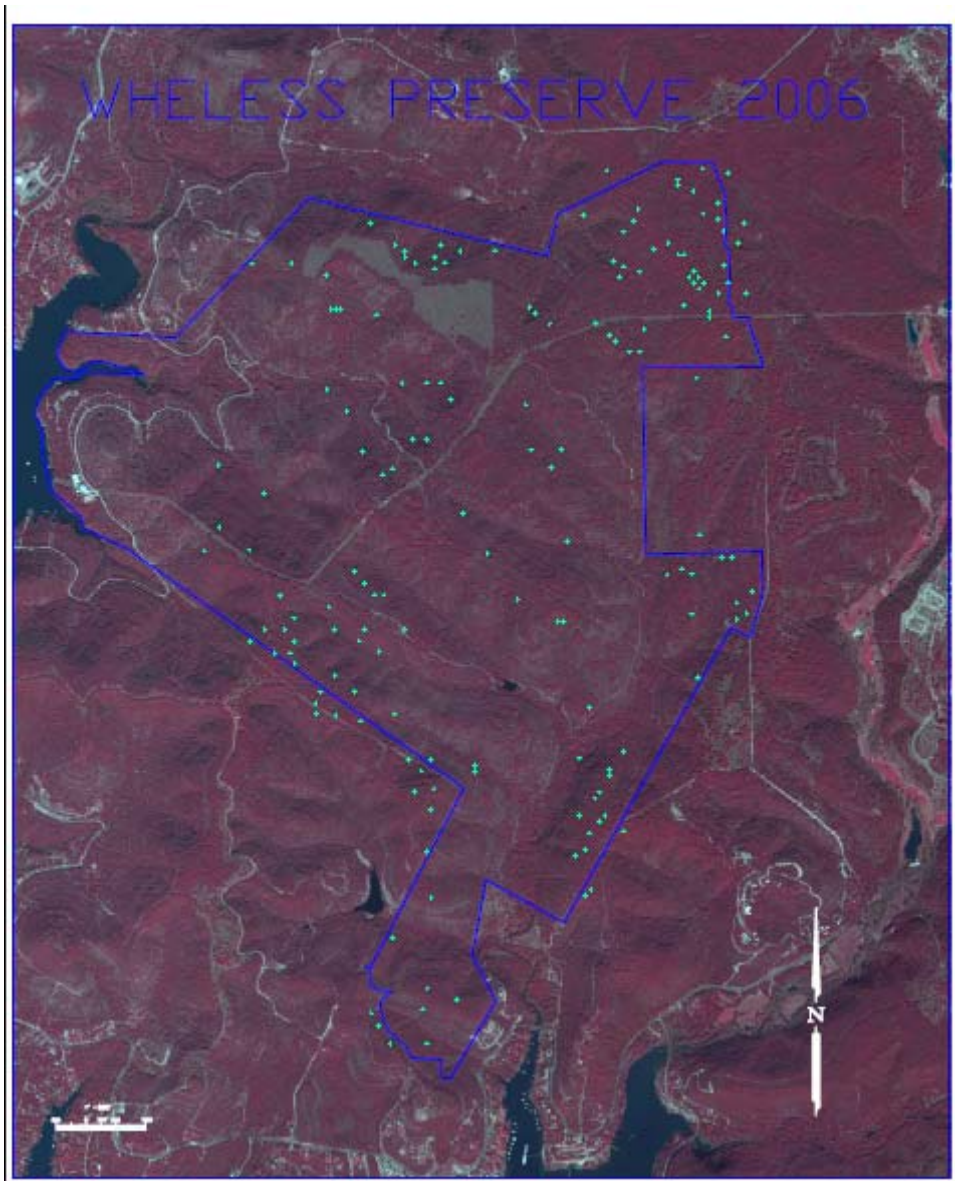
Data Zoom 13-0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