

2009 ANNUAL REPORT

for the period 1 January 2009 – 31 December 2010
from the Committee for Wild Basin Wilderness, Inc. and St. Edwards University
presented to

TRAVIS COUNTY COMMISSIONERS COURT AND TRANSPORTATION and NATURAL RESOURCES

This annual report on the management and environmental education activities conducted for Wild Basin Wilderness Preserve is submitted in compliance with the contract between The Committee for Wild Basin Wilderness, Inc. and Travis County.

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PRESERVE MANAGEMENT

The Wild Basin staff implements the policies and priorities as set forth by both the previous Committee for Wild Basin Wilderness, Inc., and St. Edwards University, the current holder, while existing in accordance with Balcones Canyonlands Preserve (BCP) and Travis County rules and regulations. The Wild Basin Wilderness, having served the role as an interdisciplinary laboratory for St. Edwards University (SEU), was incorporated into the School of Natural Sciences of the said University in 2009. Through this fortunate and welcomed merger, the Basin continues to espouse the necessities of environmental education, research, conservation and preservation. This merger and growing collaboration has enabled the enhancement to and creation of novel and past programs for the preserve and the University.

Throughout 2009, staff devoted their time to daily management and enhancement of the preserve, including scheduling and supervising educational programs, land management activities, coordinating and training volunteers and trail guides, as well as promoting the Basin through various events in Austin's environmental community.

Wild Basin's education and land management programs are designed to promote preservation and environmental awareness, while encouraging and demonstrating land stewardship practices. Being situated at the periphery of the Texas Hill Country and in the growing conglomerate of commercial and residential development in west Austin, the Basin exists as a singular and significant property for Travis County, the BCP and the Hill Country Conservancy. Consequently, its urban proximity promotes invasive, non-native plants and serves as a conduit for pollution to the watershed and its biological framework. Less recognized pollution such as surrounding air, sound and light additionally impact the preserve's more sensitive components. Yet through the promising merger with St. Edwards and by continuing past efforts and promotion of conservation, research, and environmental awareness, Wild Basin aspires to become an exemplary model for urban preserves.

Building Infrastructure

1) Environmental Education Center (EEC)
   a) General – Under the direction of the staff, volunteers and Travis County community service restitution (CSR) clients regularly cleaned and maintained the EEC's interior, as well as performing exterior maintenance work on an as-needed basis. Several of the rooms in the EEC were rearranged during the spring: the previous office for the Land Manager became the new gift shop, tentatively transforming the old gift shop into a teaching space; a new wall and door were added by the most-recent director in the office area(s) on the building's east.
   b) Wild Basin Garden – Under the advice and financial assistance of the Native Plant Society of Texas (NPSOT), the native-plants garden on the EEC's western and south sides was refined, with several new plant installations and updated labeling, serving as interpretive knowledge for visitors. The ultimate aim is not a manicured display but a mélange of natives that appear as if naturally occurring, *i.e.*, without human intervention. Several invasive plants in the garden area, including non-native lantana and pyracantha have been removed. Several previously unknown plants in this area, notably white winter honeysuckles, were discovered this past year. The

project was and will continue to be coordinated by Yates Barreda, president of the local NPSOT chapter.

c) Building Accessibility – Several improvements were made to the accessibility of the EEC.
   i) Handicap Entrance – New barriers were aligned along the sides of the delivery/handicap driveway to the building. In addition to added reflectors, these will prevent further accidents as people enter and exit the drive. The brick pad leading from the handicap driveway to the building was removed, as its bricks had become damaged and dangerous due to buckling from underlying tree roots. The pad was replaced by a poured concrete slab in October.
   ii) Approach paths – New erosion bars and steps were added long the approach paths to the EEC's porch stairs, creating an easier gradient for accessing the building.

2) Information Technology (IT)
   a) Staff enlisted the volunteer services of Garry Child to stabilize and upgrade the EEC's IT and telephone infrastructure. Mr. Child donated over 60 hours of his time toward this effort. In agreement with the SEU merger, IT and telephone issues will further be handled by the SEU computer services.
   b) Record Keeping – Staff enlisted the volunteer services of Jim Letchworth to update and maintain our membership, visitor and volunteer databases. Mr. Letchworth donated over 105 hours of his time toward this effort.

Security

1) Emergency Procedures – The Basin staff continued to follow the emergency policies and procedures manual throughout all emergencies during 2009.
2) Preserve Perimeter – Staff performed annual perimeter walks to check the integrity of fencing and boundary markers. Brush was cleared to provide easier patrolling on line-of-sight pathways along all boundaries. Survey pins were updated with new identification tags where needed, particularly on the unfenced, northern perimeter. Pin locations will be recorded again by GIS in 2010. Proposals have been made to use monies reserved by Travis County for Basin land management improvements by enhancing and adding needed fencing.
3) General – The prior preserve caretaker, Mike Powers, continued to provide overnight security by patrolling the grounds and discouraging overnight illegal entry to the preserve by locking the gate each night. Sonitrol, now known as Stanley Security, was contracted to provide alarm services and staff notification in the event of an attempted burglary. Following the SEU merger, nightly caretaker duties, including gate closure and security walks, were contracted through Securitas. No serious emergencies were reported in 2009, though two automobiles were burglarized in the parking lot during the year. St. Edwards Police plan to install cameras and a new gate to the Basin in 2010 and handle all further security issues.
4) Visitors – Signage and interpretive media were maintained to warn visitors of
   a) Fire danger
   b) Personal safety in extreme heat
   c) Potential threats to automobile security in the parking lot
   d) Potential encounters with wildlife and related precautions.

EDUCATIONAL & OUTREACH PROGRAMS

Volunteers donated approximately 850 hours of their time to the preserve's Education and Outreach Programs. The following summarizes these programs:

1) *Environmental Education & Interpretation*
   a) School Tours – Approximately 1,250 students from public, private, & parochial schools, including local home-school groups, attended education programs at the preserve. Group size limits are restricted and capped at a maximum of 50 students per visit. Over 600 volunteer hours were donated in assisting with these education programs.
   b) Family & Public Programs – Local children and families attended public programs provided at the preserve; programs offered in 2009 included Moonlighting, Stargazing, Flintnapping, Indian Lore and Weekend Hikes. The Moonlighting and Stargazing tours were made possible through the volunteer efforts from members of the Austin Astronomical Society. Jewel Pollard, local Austin natural historian, led the Flintknapping and Indian Lore each month.
   c) McCallum High School – This AISD high school brought out 90 senior and junior students from its statistics and environmental science courses to perform a research study at the Basin. The students took standard 'diameter-at-base-height' (dbh) measurements of trees in the upland and riparian habitat, hoping to get statistical data that would represent the natural trends scene in the landscape. The McCallum professors reported the endeavor a success and promise further involvement with the Basin in the future.
   d) Wild Afternoons – The Wild Afternoons program enabled over 330 children to visit the preserve, participate in guided hikes and achieve youth-group-specific goals. Groups participating in the program included Girls Scouts, Boy Scouts, Communities in Schools, YMCA and Big Brothers Big Sisters.
   e) Tiny Footprints – In 2009, this program enabled more 90 young children, ages 3-5, to experience age-specific, small-group hikes designed specifically for early learning. Part-time staff member Sally Scott led these programs and oversaw several volunteers who donated dozens of hours in assistance.

2) *Family & Public Programs and Group Tours*
   a) Moonlighting and Stargazing – In its 21st year, the Moonlighting and Stargazing program again provided two public tours each month, guided by volunteers from the Austin Astronomical Society. Over 40 hours were donated by volunteers to assist with these programs in 2009.
   b) Nocturnal Vision - This year for Halloween Wild Basin hosted its first Nocturnal Vision, as an educational alternative for a Halloween event. Several speakers came and gave brief lectures on bats, owls, and insects, which were oriented toward children and families. A night-time spider hunt and hike followed at the close of the evening. Thirty-seven individuals, including 12 families, attended the event.
   c) BCP Hike & Lecture Series – On December 12th, Wild Basin hosted two public hikes as part of the BCP Hike and Lecture Series. Though the weather was inclement, one family and 18 individuals attended the family and adult hikes, respectively. A lecture session was hosted at the Basin in the spring as well.

3) *Training Programs*
   a) Guide Training – In 2009, Wild Basin once again offered two sessions of Trail Guide Training for 12 new volunteer trail guides. Fifty-five hours were donated in total by volunteers to assist with these training sessions.
   b) Tiny Footprints Training – In 2009, two sessions of Tiny Footprints Training were offered for 4 new volunteer Tiny Footprints guides. 18 hours were donated for training.
   c) Other – CSR volunteers continued to receive educational training as part of their orientation to the preserve before proceeding with work assignments.

4) *Public Outreach*
   a) 'Green-Community' Events – Staff members attended both the Wimberly Eco-fest and Williamson County Realtor's Green Expo in 2009 to promote the Basin and education the public on environmental education and preservation.
   b) Waterloo Kid's Night – Staff members Sally Scott and Mitch Robinson held 'Bug-Night' at a different Waterloo Ice House location every Tuesday night this fall and winter. With several insect display trays and interactive games, the staff introduced children to some of the basics of insect identification. This program is planned to continue in 2010.
   c) Austin Museum Day – Wild Basin participated in the city-wide free museum day with a Wild About Insects themed exhibit and hike.
   d) SEU Freshman Seminar – Staff member Mitch Robinson gave a brief lecture to a freshman education seminar at St. Edwards University during the fall, discussing his path to education and experiences teaching at Wild Basin.
5) *Affiliations & Publication*

Association of Nature Centers of America (ANCA)
Austin Astronomical Society
Austin Independent School District
Austin Museum Partnership
Bastrop Independent School District
Big Brothers Big Sisters
Camp Fire USA Balcones Council
Capital Area Council, Boy Scouts of America
Communities in Schools
Eanes Independent School District
Lake Travis Independent School District
Girl Scouts of Central Texas
Moody Foundation
St. Edward's University
Tuktawa Foundation

The preserve staff continued writing Wild Basin's column in our weekly local newspaper, the *Westlake Picayune*'s "Distinct" section. A special feature was written about staff member Mitch Robinson on the cover page of the "People" section this fall. Each quarter, Wild Basin and St. Edwards Marketing staff produced the *Wild Ways* newsletter.

LAND MANAGEMENT ACTIVITIES & PROGRAMS

Land Management vision and Charges (a restatement for overview purposes)

Our vision is to preserve a piece of the Texas Hill country in its native condition and to educate students and the general public in Wild Basin's natural laboratory by:

- Managing and, where necessary, restoring a mosaic of habitats indigenous to Wild Basin, including, though not limited to: oak-juniper woodlands, riparian areas, semi-open grasslands and cedar breaks (please note that "juniper" and "cedar" both refer to the species: *Juniperus ashei*).
- Protecting native biodiversity
- Protecting habitat for the federally endangered Golden-cheeked warbler (GCWA)
- Protecting habitats to support threatened and rare plant and animal species
- Controlling non-native and invasive species
- Protecting soil profiles and unique geologic features
- Monitoring water quality relative to watershed inputs, runoff and erosion
- Protecting prehistoric and historic cultural sites
- Managing a trail system that presents a wild menagerie of flora and fauna, while impacting the preserve's biotic community and inherent beauty.

Charges to the Land Management Committee:

- Provide expert advice to the land management program. Review plans and recommend actions regarding proposed changes or projects that would result in alteration or possible adverse impacts to the preserve.
- Ensure that in all planning, decisions and implementation, the health and future of Wild Basin are held in the utmost consideration – ensure that we do no damage.

Among the highlights of our 2009 Land Management activities and programs:

Land Management volunteers donated over 500 hours of their time to the preserve's land management efforts in 2009, a great decrease from 2007 but likely marginal given the internal transitions with staff throughout the year. The following summarizes these efforts as performed both by staff and volunteers:

Habitat – Mosaic Assessment
Since January 2007, the Land Management committee has assessed various habitat components to develop and overall preserve management plan for the future. So far, we have analyzed the following components: riparian zones/features, GCWA, Texas Madrone, vegetative communities, invasive/non-native plants, and several plant species of concern:

Biological and other Surveys

1. Golden-cheeked warbler (Dendroica chrysoparia)
   Contract wildlife biologist Chris Masey performed presence/absence surveys for this federally endangered song bird in the preserve. Between March 19th and April 26th 2009, he recorded sightings of eighty-nine (89) male GCWAs and 10 female GCWAs over thirty (30) hours, with

90% of the sightings within the preserve's bounds. Though territory level observations were not performed, based on observations and GPS points the potential exists for four territories within or near the preserve's bounds. Two of the four territories were located within the preserve, with the remaining two located within the City of Austin's adjacent Vireo Research Area.
For the full GCWA report, see Appendix.

2. Bee Creek Watershed
    a. The Land Management Committee continued its subcommittee headed by retired aquatic biologist Sue Anderson, for watershed management.
    b. Volunteer personnel assisted with water-quality testing at various sites on Bee Creek and its tributaries.
3. White-tailed deer (*Odocoileus virginianus*)
   Along with many missed efforts attributed to the disintegration of the preserve's staff during the merger, we were unable to perform a census during the year. Reports from 2008 by Kris Thorne and Janet Reed revealed there was approximately 2.54 – 4 acres/deer, which indicated the reserve does not have a healthy deer population
4. Texas Madrone (*Arbutus xalapensis*)
   With the assistance of volunteers, we have continued GIS documentation on the population of eighteen (18) individual trees within the preserve. As the only Madrone species in Texas, it represents the easternmost population of the species within the U.S.
5. Shooting Star (*Dodecatheon meadia*)
   In April 2007, Brad Oberle, a graduate student from Washington University in St. Louis, MO performed research on our Shooting Star population. He collected data and tissue samples under a BCP permit and preserve staff supervision. In January 2008, he reported to Rose Farmer at Travis County Natural Resources that his research had so far strongly indicated that our population may represent a new taxon/subspecies. A final determination will be forthcoming as the staff looks for future researchers.

Public Outreach

1. Balcones Canyonlands Preserve (BCP) – Again in 2009, Wild Basin preserve staff attended and participated in quarterly meetings of the BCP Land Managers informal group.
2. Central Texas Trail Tamers (CTTT) – CTTT again hosted bi-monthly meetings open to the public at the preserve. Similar to the Basin, CTTT had many changes to their organizational structure and its positions. Mitch Robinson gave a brief recap of the preserve during 2009 at CTTT's Christmas Party, where great support was evoked for 2010.
3. Bright Leaf Preserve – Wild Basin staff member Sally Scott currently serves as board president of the Friends of Bright Leaf Preserve.
4. Capital Area Master Naturalists (CAMN) – Wild Basin staff members Sally Scott currently serves as program committee chair for CAMN. Previous land manager Mike Powers is also a CAMN member, in addition to Mitch Robinson, current land manager and education coordinator, who is currently pursuing his CAMN status.
5. Native Plant Society of Texas , Austin chapter – Again in 2008, Wild Basin hosted the regular monthly meetings of the Austin chapter of this statewide organization.

6. Boy Scouts of America, Austin council – Again in 2009, Scout leaders from the local Austin chapter held their monthly meetings at Wild Basin.
7. Banff Mountain Film Festival – In 2009, Wild Basin was one of two beneficiaries for the 4th Banff Mountain Film Festival to be hosted by Whole Earth Provision Co. at the Paramount Theatre in downtown Austin.

Preserve staff and St. Edwards marketing wrote several articles for the local weekly newspaper, the *Westlake Picayune*. Land management staff members also wrote articles for the *Wild Ways* newsletter.

Visitation

In 2009, the preserve staff attempted to track the number of self-guided visitors, using two trailhead sign-in boxes located near the EEC and trailheads. While this is by no means a perfect record of every visitor that enters the preserve, it provides a baseline data for 2,498 recorded this year (1,869 adults and 630 children).

Habitat Maintenance and Restoration

Please note that land management activities use only native *Ashe juniper* for trail/erosion bars and native limestone for boulders, steps and gravel where needed on or off the preserve's trails. In necessary situations, crushed limestone is purchased and brought in from a rock yard. No old-growth junipers or other native hardwoods are cut down in the preserve for such uses. All trail maintenance and other land management activities avoid impact or disturbance of the preserve's cultural/archaeological resources.

1. Trail Maintenance
    a. General – Nearly all 3.2 miles of trails in the preserve received maintenance. (No trail maintenance was performed during the GCWA breeding season along trail sections where the warblers were sighted). Pruning was completed on all of the trails for accessibility, as well as around the building for fire prevention.
    b. Signage – All trail signs and interpretive markers were improved or replaced as needed. There is a proposal to change the name of "Madrone Trail" to "Yaupon Trail", as to dissuade the public from going off trail in search of the madrone population.
    c. Given the lack of rain continuing over from 2008 into 2009, the land manager decided to abandon the decision to re-route Creek, thus re-establishing former path, while securing several boulders at the creek crossings.
    d. Arroyo Vista Trail – The Arroyo Vista trail was continually improved throughout the summer and fall as staff and volunteers made efforts to remove steep step-downs, reestablishing several gradients and allowing greater handicap accessibility. Large boulders were removed where feasible and mulch was added where needed.
    e. Pond Trail remained closed for the fourth year due to silting problems at the retention pond.
    f. Volunteers from the following groups donated over 50 hours of their time during trail maintenance work days: McCallum High School "Knights in Service", University of Texas Engineers Club, and St. Edwards Eco-club.
2. Habitat Restoration
    a. General – Preserve staff and volunteers continued to aggressively remove invasive, non-native species such as Japanese honeysuckle, Chinese tallow, chinaberry, pyrocantha,

ligustrum, nandina, King Ranch bluestem, Johnson grass, vitex, and Georgia cane, among others. With herbicidal-treatment assistance from Travis County field biologists, preserve staff and volunteers continued to suppress the few persistent invasive species. The Austin area NPSOT chapter also assisted in these efforts.

b. Deer exclosures – In consultation with Texas Parks & Wildlife and Travis County biologists, preserve staff continued installing "deer exclosures" of hog wire/wire cages around stands of native trees and shrubs (such as shin oaks and Texas red oaks, excarpment black cherries, Texas persimmon, coralroot orchids and twisted-leaf yucca, among others) to prohibit excessive browse by deer and other animals.
c. Red Imported Fire Ants (*Solenopsis invicta*) – No nests of these invasive, non-native insects were found within the preserve's bounds this year.
d. Wildfire Defense – In consultation with Texas Forest Service Urban-Wild Lands
e. Plant Replacement – Small *Opuntias* cloned from specimens on the preserve were planted at several sites where previous ones had died. Several inland sea oats were also transplanted to the periphery of Bee Creek to help reduce erosion. Three rough-leafed dogwoods were installed at a previously corresponding interpretive marker to replace one that had died.

Affiliations and Publications

Wild Basin Wilderness Preserve in 2009 continued to develop relationships and partnerships with like-minded groups and driven individuals. These relationships and partnerships were pursued to strengthen the preserve's land management and educational programs into perpetuity. They included, but are not limited to, the following:

Austin Astronomical Society
Austin Butterfly Forum
Austin Gem & Mineral Society
Austin Geological Society
Balcones Canyonlands Conservation Project
Balcones Canyonlands Preserve Land Managers
Balcones Canyonlands National Wildlife Refuge
Capital Area Council, Boy Scouts of America
Capital Area Master Naturalists
City of Austin Water Utility Wildland Conservation Division
Girl Scouts of America, Lone Star Council
Native Plant Society of Texas, Austin Chapter
REI
Rob Roy Homeowners Association
Rob Roy on the Canyon Homeowners Association
Texas Commission for Environmental Quality
Texas Forest Service
Texas Ornithological Society
Texas Parks & Wildlife
Travis Audubon Society
Travis County Transportation & Natural Resources

Tuktawa Foundation
University of Texas Archaeological Research Laboratory
University of Texas Bureau of Economic Geology
University of Texas Nonvertebrate Paleontology Laboratory
Westlake Chamber of Commerce
Westlake Hills City Inspector
Westlake Hills Fire Department
Westlake Picayune *newspaper*
Whole Earth Provision Company

THE COMMITTEE FOR WILD BASIN WILDERNESS, INC.

Until the merger with St. Edwards University in October 2009, the Committee for Wild Basin Wilderness, Inc., was a registered, non-profit organization dedicated to promoting responsible environmental stewardship through education. The mission of The Committee for Wild Basin Wilderness, Inc., and continuing with St. Edwards, is to protect and maintain the Basin's urban wilderness, while promoting the importance of environmental education, research, conservation and preservation. The merger with St. Edwards has only further enabled and developed the opportunity for creating such programs and initiatives that will continue serving the fulfillment of this mission.

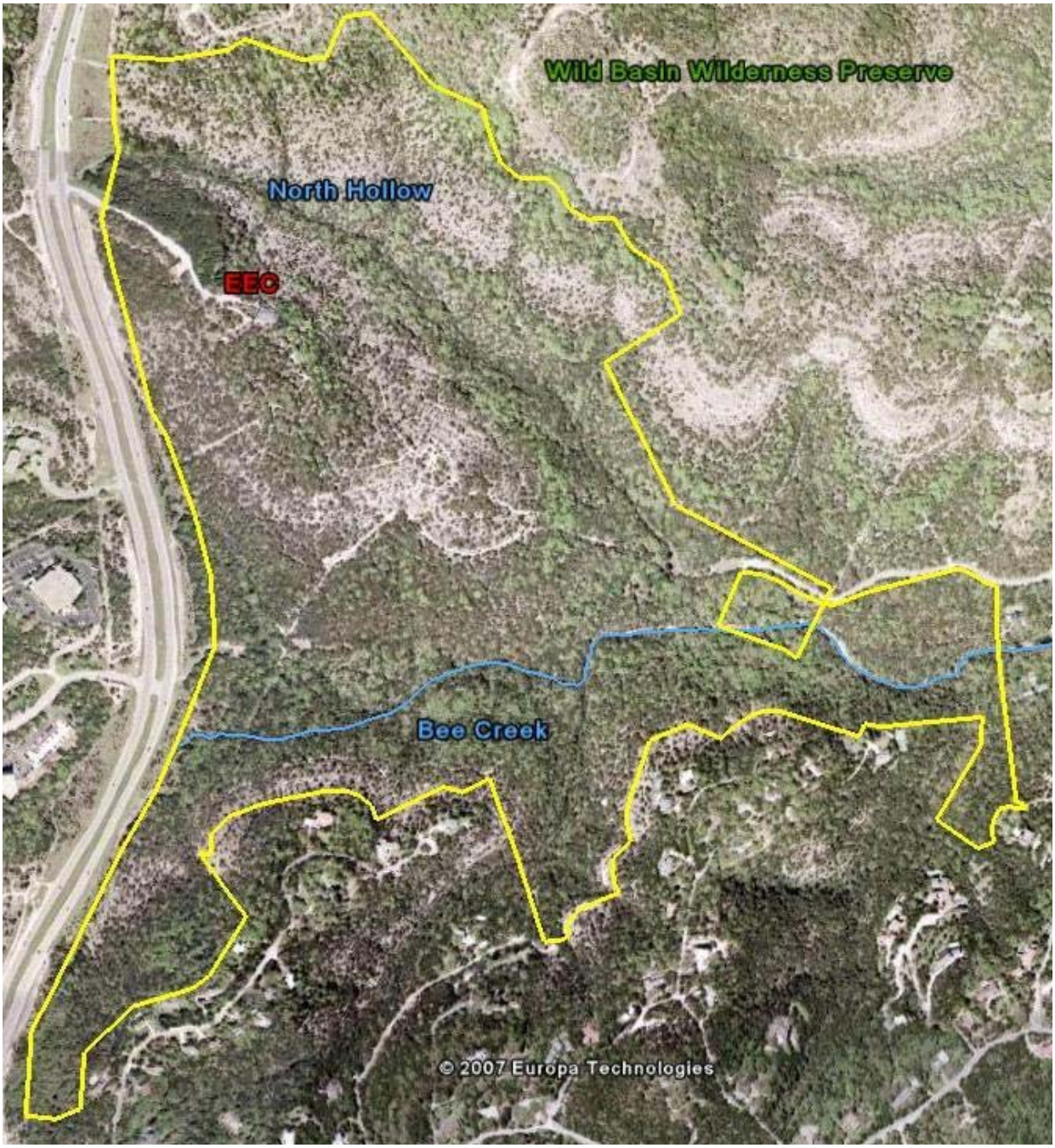
Structure
The Board of Directors of the Committee for Wild Basin Wilderness, Inc., until October 2009 was comprised of thirteen members. Under the direction of Board members are three standing committees: Executive, Education and Land Management.

Board Members
President – Charlie Bicak, Ph.D.
Vice President – Linda Edwards .
Treasurer – Rhonda Cartwright
Secretary – Robert Manzer
John Abbott, Ph.D.
Sally Davenport
Joe DeMedeiros
Mischelle Diaz
Allan Hook, Ph.D.
Flo Macklin, Founder
Brenda Vallance

Advisors to Board Members
Martha Hudson, Founder
Flora McCormick, Founder

Staff (Jan – June 2009)
Ebby Green – Executive Director
Linda Leal – Ranger (part-time)
Genevieve Lung – Volunteer Coordinator, Office Manager
Wes Lawrence – Ranger (part-time)
Echo Machuca – Ranger (part-time)
Mike Powers – Land Manager, Facilities Manager, Caretaker
Mitch Robinson – Education Coordinator (part-time)**
Sally Scott – Ranger (part-time)
Kerri Welch – Ranger (part-time)

** In June 2009, the board eliminated all positions and hired Mitch Robinson on fulltime to fulfill the remaining positions while the merger with St. Edwards is finalized. His current title is Land Manager and Education Coordinator, though he is also Volunteer Coordinator, Office Manager, Facilities Manager and Caretaker. A new Director and Office Manager are currently being hired.



Aerial View of Wild Basin Wilderness Preserve

APPENDIX

Wild Basin Golden-cheeked Warbler (GCWA) Survey Results 2009
Wild Basin Species and Items of Interest 2006
Wild Basin Plant List "The Vegetation of Wild Basin"
Wild Basin Plant List 1996
Wild Basin Animal List "The Vertebrates of Wild Basin"
Wild Basin Amphibian Watch 2008
Wild Basin Bird Checklist 2006
Wild Basin Deer Census 2008
Wild Basin Emergency Plan 2009

ENDANGERED SPECIES SURVEY SUMMARY

FOR WILD BASIN WILDERNESS PRESERVE,

IN TRAVIS COUNTY, TEXAS

MAY 15, 2009



ENDANGERED SPECIES SURVEY SUMMARY

FOR WILD BASIN WILDERNESS PRESERVE,

IN TRAVIS COUNTY, TEXAS

MAY 15, 2009

1.0 GENERAL INFORMATION

CLIENT:	Wild Basin Wilderness Preserve 805 N. Capital of Texas Highway Austin, TX 78746
COUNTY:	Travis County, Texas
USGS 7.5-QUAD:	Austin West, TX
PROPERTY SIZE:	227 acres
SUBJECT SPECIES:	Golden-Cheeked Warbler
HABITAT AREA:	Ashe Juniper/ Oak Woodlands
SURVEY PERSONNEL:	Chris Masey
SURVEY DATES:	March 19 – April 26, 2009
TOTAL SURVEY TIME:	30 hours
NUMBER OF VISITS:	6
COMMENTS:	Field observations were recorded with a Garmin GPSmap 76CSx hand-held GPS receiver capable of 3-meter accuracy. No audio tapes were used during this survey. Survey visits and hours met USFWS GCWA survey protocol.

2.0 RESULTS

The results of the 2009 golden-cheeked warbler (GCWA) survey for Wild Basin Wilderness Preserve (227-acres) are shown in Figures 1 and 2.

99 GCWA detections were made during the surveys, including 89 observations of male GCWAs, and 10 observations of female GCWAs. 81 of the GCWA observations (approximately 90 percent) were recorded within the boundary of Wild Basin Wilderness Preserve.

Although a territory-level survey was not preformed, based on the observations mapped in Figure 2, the potential exists for approximately four individual GCWA territories

within or near the boundary of Wild Basin. Two of four identified territories were located entirely within Wild Basin. In addition, two territories were located completely or mostly outside of the boundary on the adjacent Vireo Research Area owned by the City of Austin.

Geographic Information Systems (GIS) data for this survey, including observation points, movement lines, observation types, and precision circles are available upon request.

The compiled track-logs from the GPS receivers are shown in Figure 3, and represent the routes walked during the 2009 survey visits. Survey efforts and weather conditions for each survey can be found in Table 1, and other bird species observed during the 2009 GCWA survey are listed in Table 2.

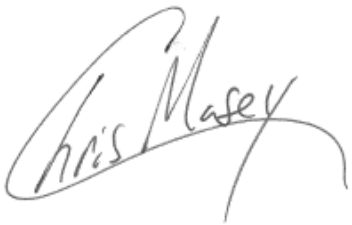
On two of the six survey days (first and last surveys), Wild Basin volunteers accompanied the surveyor. Both volunteers were extremely well informed and provided local knowledge of the survey area.

3.0 ATTACHMENTS

TABLE 1.	Summary of survey efforts and weather conditions for GCWA Survey at Wild Basin Wilderness Preserve (2009).
TABLE 2.	Other birds observed during Wild Basin GCWA Survey (2009).
FIGURE 1.	Location of the survey area and results of the 2009 GCWA survey
FIGURE 2.	Detailed results of the 2009 GCWA survey.
FIGURE 3.	Routes walked during the 2009 GCWA survey.

4.0 STATEMENT

This 2009 golden-cheeked warbler survey report was prepared by Chris Masey at the request of Wild Basin Wilderness Preserve in conformance with the methods and limitations described herein. The findings of this submittal are completely and accurately documented in this report.



CHRIS MASEY

MAY 15, 2009

Table 1. Summary of survey efforts and weather conditions for GCWA Survey at Wild Basin Wilderness Preserve (2009).

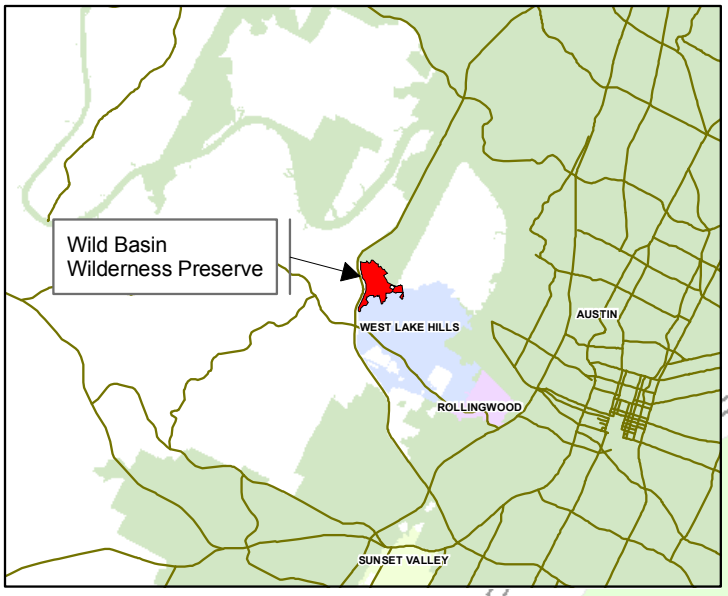
Date		Time			Temperature (degrees F.)		Wind Direction		Wind Speed (mph)		Cloud Cover (percent)		Personnel	Comments
	Visit	Start	End	Total	Start	End	Start	End	Start	End	Start	End		
3/19/2009 CDT	1	7:10	12:10	5:00	60	69	N/A	Variable	0	0-3	100	Party cloudy	ccm	Overcast morning that cleared by noon.
3/29/2009 CDT	2	7:10	12:10	5:00	37	63	N/A	Variable	0	0-3	0	0	ccm	Cold and clear morning.
4/05/2009 CDT	3	7:10	12:10	5:00	65	62	North	North	0-10	0-15	0	0	ccm	Windy on the ridges, but calm in the Basin.
4/13/2009 CDT	4	7:15	12:15	5:00	54	67	North West	North West	0-3	0-7	0	3	ccm	Clear and cool, with slightly breezy afternoon.
4/19/2009 CDT	5	7:00	12:00	5:00	61	70	North West	North West	0-7	0-15	0	0	ccm	Clear and breezy.
4/26/2009 CDT	6	7:00	12:00	5:00	71	77	South	South	0-6	0-10	100	100	ccm	Overcast with drizzle in the morning, clearing into the afternoon.
Total Survey Time:				30:00:00										

Table 2. Other birds observed during Wild Basin GCWA Survey (2009).

Common Name	Scientific Name	Common Name	Scientific Name
Great blue heron	*Ardea herodias*	Cliff swallow	*Petrochelidon pyrrhonota*
Green heron	*Butorides virescens*	Barn swallow	*Hirundo rustica*
Black vulture	*Coragyps atratus*	Carolina chickadee	*Poecile carolinensis*
Turkey vulture	*Cathartes aura*	Black-crested titmouse	*Baeolophus atricristatus*
Cooper's hawk	*Accipiter cooperii*	Carolina wren	*Thryothorus ludovicianus*
Red-tailed hawk	*Buteo jamaicensis*	Bewick's wren	*Thryomanes bewickii*
Sandhill crane	*Grus canadensis*	Ruby-crowned kinglet	*Regulus calendula*
Killdeer	*Charadrius vociferus*	Blue-gray gnatcatcher	*Polioptila caerulea*
Franklin's Gull	*Larus pipixcan*	Hermit thrush	*Catharus guttatus*
Rock pigeon	*Columba livia*	Northern mockingbird	*Mimus polyglottos*
White-winged dove	*Zenaida asiatica*	European starling	*Sturnus vulgaris*
Mourning dove	*Zenaida macroura*	Cedar waxwing	*Bombycilla cedrorum*
Greater roadrunner	*Geococcyx californianus*	Nashville warbler	*Vermivora ruficapilla*
Chuck-will's-widow	*Caprimulgus carolinensis*	Yellow-rumped warbler	*Dendroica coronata*
Chimney swift	*Chaetura pelagia*	Golden-cheeked warbler	*Dendroica chrysoparia*
Ruby-throated hummingbird	*Archilochus colubris*	Black-and-white warbler	*Mniotilta varia*
Hummingbird sp.		Summer tanager	*Piranga rubra*
Red-bellied woodpecker	*Melanerpes carolinus*	Rufous-crowned sparrow	*Aimophila ruficeps*
Ladder-backed woodpecker	*Picoides scalaris*	Chipping sparrow	*Spizella passerina*
Eastern phoebe	*Sayornis phoebe*	Field sparrow	*Spizella pusilla*
Ash-throated flycatcher	*Myiarchus cinerascens*	Savannah sparrow	*Passerculus sandwichensis*
Great crested flycatcher	*Myiarchus crinitus*	Northern cardinal	*Cardinalis cardinalis*
Western kingbird	*Tyrannus verticalis*	Painted bunting	*Passerina ciris*
White-eyed vireo	*Vireo griseus*	Common grackle	*Quiscalus quisicula*
Blue jay	*Cyanocitta cristata*	Great-tailed grackle	*Quiscalus mexicanus*
Western scrub-jay	*Aphelocoma californica*	House finch	*Carpodacus mexicanus*
American crow	*Corvus brachyrhynchos*	Lesser goldfinch	*Carduelis psaltria*
Purple martin	*Progne subis*		

Wild Basin, GCWA Survey, 2009

Figure 1. Location of the survey area and results of the 2009 GCWA survey



Vireo Research Area, City of Austin

N CAPITAL OF TEXAS HWY SB

S CAPITAL OF TEXAS HWY NB

North Hollow

WILD BASIN LEDGE

Bee Creek

OLD WAGON RD

REDBUD TRL

Legend

- GCWA Detections
- Local Roads

Wild Basin Hydrology

- Unnamed Streams
- Bee Creek
- Pond
- Wild Basin Boundary

N
W
E
S

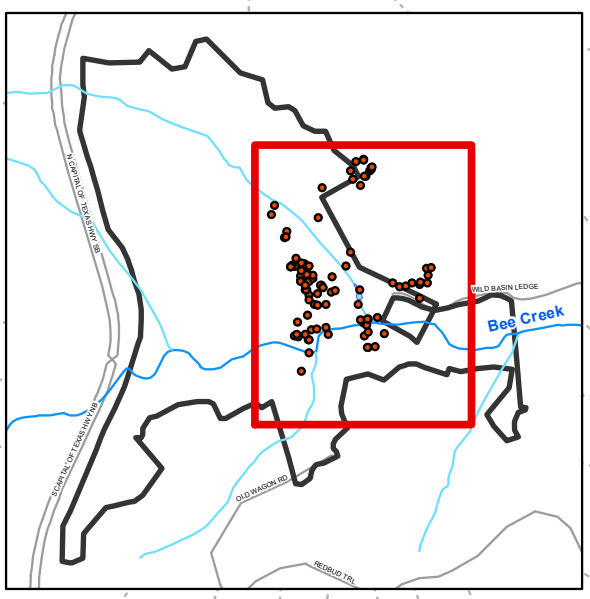
0 600 1,200 2,400

Feet

C. Masey - May 15, 2009

Wild Basin, GCWA Survey, 2009

Figure 2. Detailed results of the 2009 GCWA survey.



North Hollow

WILD BASIN LEDGE

Bee Creek

Legend

Golden-cheeked Warbler Observations

- Precise Observation
- Imprecise Observation
- G Male GCWA Observation
- ♀ Female GCWA Observation
- Contemporary Observation
- Movement
- Potential Territory Boundaries

Observation Dates

- March 19, 2009
- March 29, 2009
- April 05, 2009
- April 13, 2009
- April 19, 2009
- April 26, 2009

Base Layers

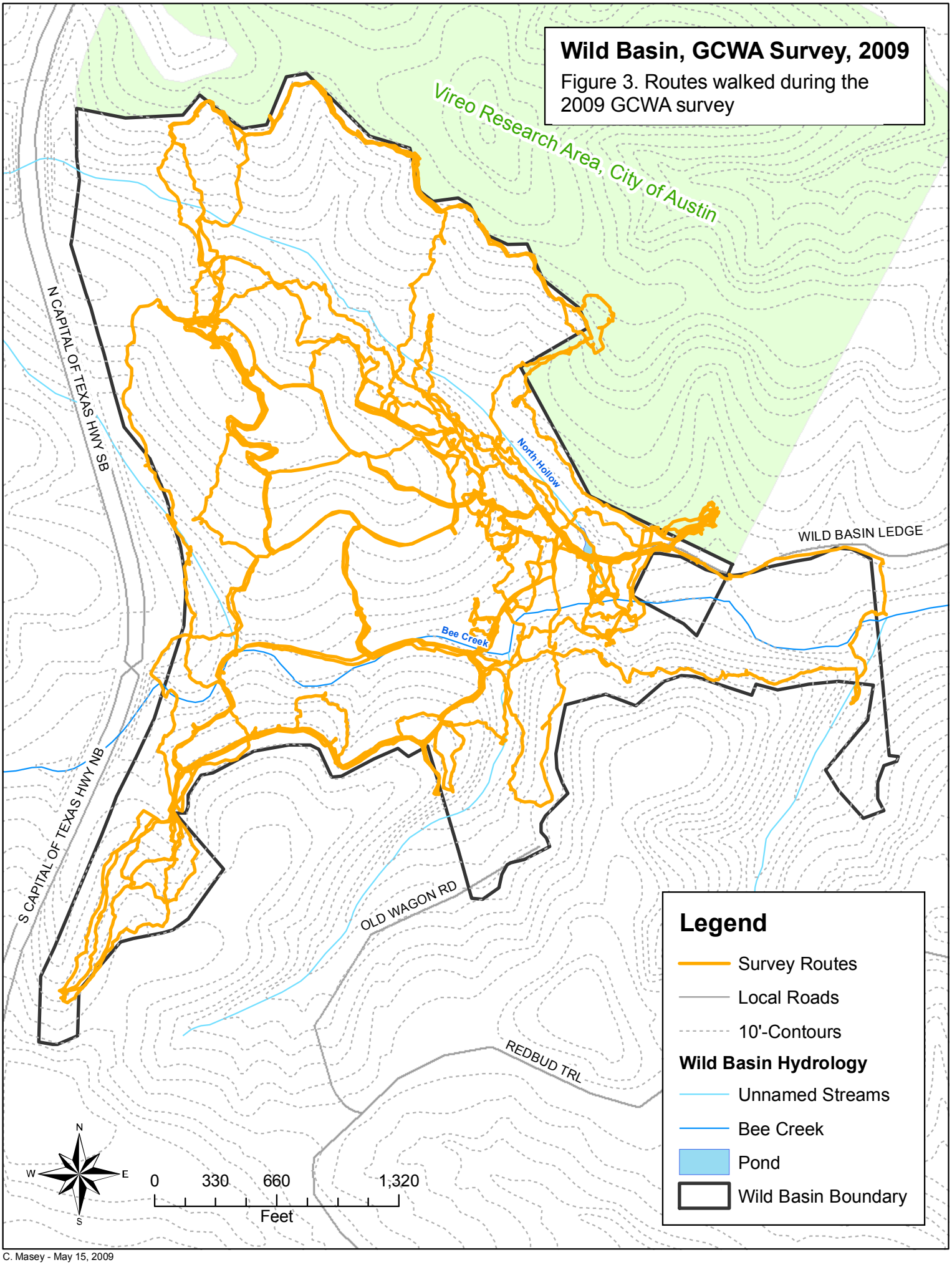
- 10'-Contours
- Unnamed Streams
- Bee Creek
- Pond
- Wild Basin Boundary

N W E S

0 130 260 520

Feet

C. Masey - May 15, 2009



C. Masey - May 15, 2009

2006 List of Wild Basin Species & Items of Interest

We should all note when and where we see any of these species/items of interest and take measures to preserve them (*e.g.*, exclosures, labeling them or the closest "common" plant/tree to them, rerouting trails, etc.). This list includes species currently found in or historically found in Wild Basin. This list is a dynamic document and is updated as necessary/required by reliable observations by staff and/or experts and/or Travis County Natural Resources.

- * = Hypothetical listing (no current or historical records of this species being found in Wild Basin)
- [h] = Historical listing of (no current or recent records of this species being found in Wild Basin)

Bird Species (from Joe Beach and Rose Farmer; and from *Annotated County List of Rare Species for travis.doc* from Texas Parks & Wildlife, 2005 edition. Hereinafter referred to as TPWD 2005 document)

- *Primary Species of Interest* (these 3 species are currently on Endangered Species List)
  1. [h] Black-capped Vireo (*Vireo atricapilla*)
  2. Golden-cheeked Warbler (*Dendroica chrysoparia*)
  3. *Bald Eagle (*Haliaeetus leucocephalus*)
- *Secondary Species of Interest* (none of these is on Endangered Species List)
  1. Golden-fronted Woodpecker (*Centurus aurifrons)*
  2. Common Raven (*Corvus corax;* first recorded in 2006 at Wild Basin as this bird expands its range east and south)
  3. *Henslow's Sparrow (*Ammodramus henslowii*)
  4. Belted Kingfisher (*Megaceryle alcyon;* an indicator of stream health)
  5. *Green Kingfisher (*Chloroceryle americana;* no sightings yet in Wild Basin but recorded elsewhere in Travis County as this bird expands its range)

Insect and Arachnid Species

All BCP endangered insect species are cave-dwellers, and though we all know the dangers of never saying "never," those species are not listed here since we are not aware of nor are we trying to find or preserve caves on Wild Basin property. The following **Insect** species are listed as indicators of stream health, and are taken from TCEQ's *Water Education Field Guide* (TCEQ: Austin, TX, 6/2003 edition; publication number GI-026) and the national Save Our Streams group of the Izaak Walton League of America (http://www.ikes.org/)

Group One Taxa (most sensitive to any pollution or increase in sedimentation &/or turbidity in water quality. Only found in good quality water)

1. Mayfly (Order: *Ephemeroptera*)
2. Stonefly (Order: *Plecoptera*)
3. Caddisfly (Order: *Trichoptera*)
4. Water Penny (Order: *Coleoptera*)
5. Riffle Beetle (Order: *Coleoptera*)
6. Whirligig Beetle (Order: *Coleoptera*)
7. Dobsonfly (*Hellgrammite*; Family: *Corydalidae*)

Group Two Taxa (somewhat pollution tolerant organisms; can be found in good or fair quality water)

1. Sowbug (Order: *Isopoda*)
2. *Alderfly (Family: *Sialidae*)
3. Fishfly (Family: *Corydalidae*)
4. Damselfly (Suborder: *Zygoptera*)
5. *Watersnipe Fly (Family: *Athericidae [Atherix]*)
6. Crane Fly (Suborder: *Nematocera*)
7. Dragonfly (Suborder: *Anisoptera*)
8. Beetle Larva (Order: *Coleoptera*)
9. Diving Beetle (Order: *Coleoptera*)
10. Water Boatman

Mammal Species

1. ***Plains Spotted Skunk (*Spilogale putorius interrupta*)
2. Bobcat (*Lynx rufus*)

Mollusks, Crustaceans, Worms, Leeches and Fishes – After consulting with Elisabeth Welsh of Austin Youth RiverWatch and TCEQ about how best to monitor, identify, preserve and learn from species of interest here, the following species are listed in order of their sensitivity to pollution. For example, Group One taxa are the most sensitive to any pollution and/or sudden increase in sediment load in streams; Group Two taxa are somewhat sensitive and Group Three taxa are considered "pollution tolerant" according to TCEQ's *Water Education Field Guide* and the national Save Our Streams group of the Izaak Walton League of America (http://www.ikes.org/)

Group One Taxa (most sensitive to any pollution or increase in sedimentation &/or turbidity in water quality. Only found in good quality water)

1. *Grass Shrimp
2. Gilled Snail (Class: *Gastropoda*)

Group Two Taxa(somewhat pollution tolerant organisms; can be found in good or fair quality water)

1. Scud (Order: *Amphipoda*)
2. Crayfish (Order: *Decapoda*)
3. Coiled Snail (Class: *Gastropoda*)

Group Three Taxa (pollution tolerant organisms that can be found in any quality of water)

1. Freshwater Clam (Class: *Bivalvia*)
2. Grilled Snail, Pouch Snail and Pond Snail (Class: *Gastropoda*)
3. *Aquatic Worm (Class: *Oligochaeta*)
4. Leeches (Order: *Hirudinea*)

Plant Species of Interest for Wild Basin:

- *Primary Species of Interest*
  1. Sycamore-leafed Snowbell (*Styrax platanifolius*)
  2. Bracted Twistflower (*Streptanthus bracteatus*)
  3. Naked broom-rape (*Orobanche uniflora*)
  4. Shooting-star (*Dodecatheon meadia*)
  5. Texas Madrone (*Arbutus xalapensis*)

- *Secondary Species of Interest*
    1. Two-flower Anemone (*Anemone edwardsiana*)
    2. Texabama croton (*Croton alabamensis* var. *texensis*)
    3. Canyon mock-orange (*Philadelphus ernestii*)
    4. Texas amorpha (*Amorpha roemerana*)
- *Tertiary Species of Interest*
    1. Glass Mountains coral-root (*Hexalectris nitida*)
    2. Crested coral-root (*Hexalectris spicata*)
    3. Heller's marbleseed (*Onosmodium helleri*)
    4. Buckley tridens (*Tridens buckleyanus*)
    5. *Correll's false dragon-head (*Physostegia correllii)*
    6. Louisiana broom-rape (*Orobanche ludoviciana*)

Reptile and Amphibian Species

- *Primary Species of Interest* (these two species are listed as "threatened" in TPWD 2005 document)
    1. [h] Texas Horned Lizard (*Phrynosoma cornutum;* introduced into the Preserve ~1990 but unable to establish permanent residency. No recent confirmed reports or sightings)
    2. *Timber/Canebrake Rattlesnake (*Crotalus horridus*)
- *Secondary Species of Interest* (again, this is taken from TPWD 2005 document)
    1. *Spot-tailed Earless Lizard (*Holbrookia lacerate*)
    2. *Texas Garter Snake (*Thamnophis sirtalis annectens*)

Rocks/Mineral Resources of Interest

- This includes archeological, anthropological and geological resources of interest. As Wild Basin contains two sites are of archeological value, we do not make their locations known to the general public. Please contact preserve staff for more information on these resources.

THE VEGETATION OF WILD BASIN

By John E. Williams

The vegetation along the eastern escarpment of the Edwards Plateau has been likened unto a coastline whereat a “sea” of vegetation from the Gulf coastal plain to the east, dominated by tall grasses and primarily eastern species of trees, crashes up against the higher plateau which is dominated by shorter grasses and scrub (Tharp, 1926). While the analogy may not be entirely accurate, the Balcones Fault zone does represent a broad belt of transition between two distinct floristic regions.

A large proportion of the species that grow on the coastal plain do disappear from the scene as one moves from east to west across the faulted belt, but then again, some “eastern” species are able to grow well onto the plateau or even all the way across it, especially along river valleys and streams. Conversely, a large proportion of the “desert” and “great plains” species occur all the way up to the escarpment but no further east, while some of these species range considerably further eastward.

There are many pairs of closely related species, one member of which occurs on the coastal plain while the other member occurs on the Edwards Plateau. And, as with any transition or tension zone between major regions or vegetation types, there are species adapted to existence in the transition zone and no where else.

The Wild Basin of Bee Creek is located on the eastern edge of the Edwards Plateau along this zone of transition. The dominant arborescent vegetation consists mostly of Edwards Plateau species related to, and probably derived from, nearby species of the coastal plain, while the frutescent and herbaceous strata reflect a considerable intermixing of

“eastern,” “western,” “broadly distributed,” as well as endemic species.

On the upper slopes of the hills at Wild Basin there exists a cedar (= juniper) grassland in which the tree canopy is not continuous, the shrub layer is sparse, and grasses dominate the open spaces. On the lower, less dolomitic slopes, there is a denser cedar-oak woodland with an almost continuous overstory, a dense understory, and a sparse ground cover. The latter plant association is represented by a more mesic variation along the stream bottoms while the former association is represented by a wide-open successional grassland along slopes recently subjected to fire. (NOTE: Throughout this report the common name “cedar” will be used in preference to the common name “juniper.” Both names are locally used to refer to the same plant, Juniperus ashei.)

METHODS

Collections of plants were made only when field identifications were uncertain. The complete list of species observed and collected was then combined with the list compiled by Dr. Marshall C. Johnston and others in 1974 and 1975. The combined list is Table VI of this report.

The arborescent, overstory vegetation was analyzed statistically using the plotless sampling technique developed and modified by Cottam and Curtis (1949, 1955: see also Rice and Penfound, 1955). This technique was judged superior considering the time available for the study.

Information was collected at 100 sampling points along seven transects (see map). These transects were (1) roughly parallel to the low road, (2) roughly parallel to a portion of Wild Basin Ledge Road, (3) roughly parallel to the south fenceline of the old Robinson Ranch, (4) roughly parallel to the

west fenceline of the old Robinson Ranch, (5) along the northwest trail (not shown on map), (6) along the Noack Hill trail, and (7) along Bee Creek.

At each sampling point, two poles were laid down roughly parallel and perpendicular to the line of travel. The distance (d) to the closest tree in each of the four quadrants marked by the poles was recorded, along with their species and crown radius (r). In addition, the number of individuals of each species of shrub, woody vine, and seedling tree occurring in a four-by-four meter area centered on the sampling point was recorded.

For the purposes of this investigation, any woody plant greater than 3 meters in height (9 feet 10 inches, or about twice shoulder-height of the investigator) and emergent (i.e., not overshaded by any adjacent tree) was eligible for inclusion in the overstory data. Only woody plants less than 3 meters in height were included in the shrub counts.

The raw information collected in the field was then combined to show the information presented in Tables I through V. The combined data from the 19 sampling points along the Bee Creek transect are presented in Table II. The criterion for classifying the remaining 81 sampling points into communities with closed (Table I), semi-open (Table III), or wide-open (Table IV) canopies was the mean distance($\bar{D}$)measured at each point. Since the mean distance for all the 100 points measured could be subject to bias (i.e., by the number of points taken in areas with a closed canopy versus the number in areas with an open canopy, etc.), it was decided to base cutoff values for $\bar{D}$ on some factor of the mean tree size of all trees measured($\bar{R}$) (i.e., at all 100 points).

If all trees were of exactly mean size and were perfectly evenly distributed in an area (on a hexagonal rather than a square grid) such that no additional mean-sized trees could be inserted in the open areas between the existing trees without the crowns overlapping, then the maximum mean distance measured by the Cottam and Curtis method would be less than $2.37\bar{R}$. At measured distances of greater than $3.61\bar{R}$ the existing trees are more than two tangential tree diameters apart (measuring from edge of crown to edge of crown). These two values, arrived at theoretically, were then taken as the cutoff values for $\bar{D}$, but only after all the raw data were collected were the sampling points sorted accordingly.

For each of the four areas represented by Tables I through IV, the raw data were manipulated in the following manner.

N = the number of sampling points in each of the four areas
- = 42 for Table I
- = 19 for Table II
- = 24 for Table III
- = 15 for Table IV

$\bar{d}$ = mean distance measured to all trees in each area (i.e., in each table, not to be confused with $\bar{D}$ which is the mean distance to all trees at each point)

(NOTE: $(\bar{d})^2 \neq \overline{d^2}$)

$\bar{r}$ = mean radius of crown of each species in each area (i.e., in each table, not to be confused with $\bar{R}$ which is the mean radius of all trees at all 100 points)

(NOTE: $\overline{r^2} \neq (\bar{r})^2$)

Raw frequency = number of points at which a species occurs

Raw density = number of individuals of each species encountered

$$\text{Frequency} = \frac{\text{raw frequency}}{N} \times 100\%$$

$$\text{Relative frequency} = \frac{\text{raw frequency}}{\text{sum of the raw frequencies}} \times 100\%$$

$$\text{Density of trees} = \text{total density} \times \frac{\text{relative density}}{100\%}$$

$$\text{Total density of trees} = (10{,}000\ m^2/ha)/(\bar{d})^2 \text{ for distance measured in meters}$$

$$= (43{,}560\ ft^2/A)/(\bar{d})^2 \text{ for distance measured in feet}$$

$$\text{Relative density of trees} = \frac{\text{raw density}}{4N} \times 100\%$$

$$\text{Density of shrubs} = \frac{\text{raw density}}{16N} \times 100$$

NOTE: this is not a percentage calculation

$$\text{Relative density of shrubs} = \frac{\text{raw density}}{\text{total raw density}} \times 100\%$$

$$\text{Cover} = \text{pi} \times \overline{r^2} \times \text{density}$$

$$\text{Relative cover} = \frac{\text{cover}}{\text{total cover}} \times 100\%$$

$$\text{Importance value of trees} = \frac{\text{relative frequency} + \text{relative density} + \text{relative cover}}{3}$$

$$\text{Importance value of shrubs} = \frac{\text{relative frequency} + \text{relative density}}{2}$$

NOTE: The ecological literature usually refers to what is here called cover as “dominance.” While it is generally correct to assume that species with more cover will be more important in the community, this theoretically need not be the case. Yet, because of its widespread, utilitarian, and almost habitual usage, the term “dominance” and its derivatives will, in this report, refer either to cover or to the importance value. The context of each usage will hopefully clarify the intended meaning.

RESULTS AND DISCUSSION

Cedar-Oak Woodland

The lower slopes of Wild Basin support a woodland dominated by Juniperus ashei and Quercus texana (Table I). Quercus fusiformis is a significant secondary element not only of this woodland, but of all the vegetation areas sampled in the basin. The wide difference in density between J. ashei and Q. texana is not reflected in an equally wide difference in amount of cover since the crown of the average Texas oak is over 50% larger than that of the average cedar tree. Also, cedars tend to be more clumped together as shown by the lower frequency relative to density. The overstory is virtually continuous and, with overlapping of adjacent trees, total cover is over 60% more than total land area. In such cases, relative cover is a more realistic representation of the amount of actual dominance of each species.

In the shrub layer, no equally small number of species dominated the woodland. Four species account for just over half the importance value, seven species a total of two-thirds, and ten species just over three-fourths. Nearly half of the shrub layer consists of tree seedlings, vines, or cacti and agavaceous plants (roughly 30%, 15%, and 4% respectively).

The ground level is sparsely populated compared to the grasslands and underneath the cedar brakes (pure stands of mature cedars) ground cover is almost non-existent. The shrub layer in the cedar brakes is also considerably less dense.

Cedar-Hardwood Bottomland

Along the major streamsides and in the southern hollows a major variation of the cedar-oak woodland occurs (Table II). The average Juniperus ashei is some 60% larger here than in the

normal woodland and so the species dominates a larger relative area with some 15% fewer trees per unit area. Quercus fusiformis still occupies a position of comparable importance as in the woodland, but the average individual is over twice as large. The niche occupied by Q. texana in the woodland is apparently almost completely preempted along the streamsides, and its relative importance in the community is replaced by Fraxinus texensis, Platanus occidentalis, and Juglans microcarpa. Trees are on the whole one-third larger along the streams than in the woodland and thus, though their density is only three-fourths that of the woodland, their total cover is 6% greater (but again, due to overlapping, relative cover is a better estimate of dominance).

Shrub densities are only about 10% less along the streamsides than in the woodland, but the streamsides are more diverse; six species account for just over half the importance value, nine just under two-thirds, and twelve nearly three-fourths. Over half of the shrub layer consists of tree seedlings, vines, or agavaceous plants (roughly 28%, 22%, and 3% respectively) with vines more important here than in the woodland.

The ground layer is equally as sparse as in the woodland except right at streamside or in the streambed itself at even the slightest of openings there is usually found dense stands of switchgrass, big muhly, teosinte, and Johnson grass. In the deeper, denser, moister localities along the creeks can be found maidenhair fern, Mexican-fern, and often other ferns, and nearly everywhere along the streams are the ever-present sedges and rushes.

Cedar Grassland

On the upper slopes, the dominant trees are the same and in the same relative order as in the woodland, but total cover, even ignoring the possibility of overlap between trees in a clump, is less than 50% of the land area. Overall tree densities are markedly less, less than a quarter that of the lower slopes. Trees on the whole are some 30% larger here, and this is almost entirely due to one species, Juniperus ashei, which is over 55% larger here than in the woodland. Texas oaks are roughly equal in size in the two areas. Again, cedar trees exhibit a tendency to be clumped, i.e., have a lower frequency relative to their density.

Shrub densities are just over half of what they are in the woodlands. Four species account for over half the importance value, six for two-thirds, and eight for three-fourths, but generally the most important species are the same as in the woodlands but with more persimmons. Less than half of the shrub layer is made up of tree seedlings, vines, or succulents (roughly 25%, 12%, and 8% respectively).

Grasses (the bluestems, the gramas, buffalo grass, and lovegrass) are the dominant ground cover. Where this cover has been disturbed or removed, channelization of water runoff follows. Owing to the shallowness of the soil, this could become a serious erosional problem, but under natural conditions a minor disturbance would allow for the growth of either of the muhlys or switchgrass, thus stabilizing the erosion. However, under continuous disturbance, not even these can survive and the soil is completely removed aggravating the condition even more. This latter situation has occurred along many of the trails and roadways on the upper slopes and especially in the area indicated on the map as the “Washouts.”

Subclimax Grassland

A fire burned parts of the basin some eleven years ago according to local residents. This fire is still evident by the large, charred cedar stumps, by the blackened and partly destroyed fence posts, and by the structure of the vegetation in the area involved. The burned areas should be cedar grassland as per their position on the upper slopes but tree densities are only a quarter what they should be and total cover less than one-fifth. The wide discrepancy in importance between Juniperus ashei and Quercus texana in the cedar grassland (19.6%) is not in evidence here (only 2.1%). Although the data and tables do not show it, the Texas oaks nearly all grow in tight clusters of five or more main trunks approximately in a circle. This latter observation bears out reports by local residents that Texas oaks grow back quickly after a fire from the root crowns of former trees.

The shrub layer is also markedly sparse (less than 40% that of the unburned slopes) and less diverse. Only three species account for half the importance value, four species almost two-thirds, and five species almost three-fourths. Tree seedlings, vines, and succulents comprise over half of what is there (roughly 25%, 9%, and 18% respectively). Texas oak seedlings are noticeably lacking and succulents are most numerous here.

Ground cover in the areas affected by fire is similar, if not identical, to that of the cedar grassland.

General Observations

In all, 317 species of vascular plants are reported from Wild Basin. Only 18 species, 5.7% of the total, are not native, and of these all but one are restricted either to a few individuals or to a small locality within the basin. The one

exception is Johnson grass which is common but not obnoxious along streams.

Two species at Wild Basin are on the list of rare and endangered plants native to Texas. On a scale of 1 to 7 ranging from abundance to extinction, both are rated as "5" i.e., "scarce, endangered in Texas." Onosmodium helleri, Heller's marbleseed, is known only from Bexar, Kendall, Kerr, and Travis counties in Texas. In Wild Basin this herb is found on the alluvial bottoms, near, but not immediately alongside, the streams, underneath thick growths of shrubs. Pavonia lasiopetala, the Texas or rose mallow, is known from only the eastern and southern edges of the Edwards Plateau in Texas, but is apparently considerably more broadly distributed, if not common, in Mexico. This species was observed by Dr. Johnston as occurring in Wild Basin but not during this study owing to the time of year and the severity of the drought (June and July, 1977).

One well-known species not on the rare and endangered list since it is common and widespread elsewhere in Texas but is nevertheless uncommon on the eastern plateau is Arbutus xalapensis, the Texas madrone. Three mature individuals are known from upper, but sheltered, north-facing slopes below the Noack home. They are doing about as well as can be expected for madrone trees, but there is no evidence of successful reproduction.

Since essentially the same three species of cedar and oaks dominate the basin in all areas except the streamsides, the question can be raised as to the validity of distinguishing the cedar grasslands from the cedar-oak woodlands. The two community types are not sharply or dramatically delineated in the field but gradually blend, one into the other, over a topographic gradient. Could not the extreme regimes, one drier

and the other more mesic, be classified as preclimactic and postclimactic respectively and the true, singular climax community be sought in some intermediate position?

In mapping these two major vegetational types it was observed that the distinction between the more open cedar grassland and the closed-canopy cedar-oak woodland is much more dramatically pronounced in aerial photographs than on the ground. Those areas designated as cedar grassland are light with uniformly scattered, dark, roundish blotches, relatively equal in size. Those areas of cedar-oak woodland are continuously a mottled dark gray with only small, widely scattered light patches corresponding to areas cut by cedar choppers. The boundary between the two as seen from the air (i.e., the zone of transition or ecocline), although still arbitrary (as are all ecological boundaries) is remarkably abrupt and narrow in most places.

Furthermore, the boundary so drawn between the two communities corresponds very closely with the mapped division between the second and third members of the Glen Rose Formation. Now it can be argued that since geologic maps are oftentimes constructed from distinguishing different vegetation types observed in aerial photographs, then this argument has little validity. But it should be emphasized that the initial distinction between the two communities was made in the field on the ground, the statistical differentiation between the two and the mapping of the two were all made without any prior knowledge of the geology of the area. The cedar-oak woodland occurs on north- and south-facing slopes with little variation in general composition between the two directional slopes, and it occurs on tops of lower hills to the east from which the third member of the Glen Rose has been eroded. The cedar grassland occurs on north- and south-facing slopes with little change in tree

density down to approximately the contact between the two rock members.

It is concluded, therefore, that the cedar-oak woodland and the cedar grassland are each edaphic climaxes in their own right, and that the streamside cedar-hardwood woodland represents a postclimax of the former (although it too might be considered as an edaphic climax, being partly restricted by the alluvial flood-prone areas) and the burned-over grassland represents a subclimax of the latter.

There still remains the question of the cedar brakes, of which there are two types, the few, small, widely-scattered brakes hidden among the cedar-oak woodland, and the few, larger brakes on the upper slopes among the cedar grassland. Having presented the argument that the woodland and grassland are climax communities in their own right, the possibility (but only that) will now be argued that the cedar brakes represent the true, ultimate climax situation. The evidence however is indirect and not conclusive and therefore the argument is suspect.

In both types of brakes the cedar trees are very large and hence presumably very old. In both, other woody species, whether shrubs, small trees, or other tree species are generally scarce or even totally lacking. The brakes on the lower slopes and streamsides exhibit a closed canopy with considerable overlapping of adjacent crowns, and extreme paucity of even an herbaceous ground cover, and death of the lower branches of the cedar trees probably due to intense shading. The upper-slope brakes are more open (but tree densities are markedly higher than the surrounding cedar grassland), the branches of the cedars are nearly all living even near ground level, and the small spaces between trees, where they exist, are covered with grasses.

As already noted, Texas oaks germinate from root crowns following a fire. Without the ability to do so, this species would be at a great disadvantage in the race to repopulate the burned-over areas. Cedar trees are much more effective at seedling repopulation; the seedling ratio of cedars to Texas oaks on the burned slopes is nearly 40 to 1, while on the unburned upper slopes the seedling ratio is only 2.9 to 1. In the cedar-oak woodland the seedling ratio is more nearly even, 1.15 to 1, still slightly in favor of the cedars.

While there are large/old Texas oaks that rival the largest/oldest cedar trees, there are, nonetheless, considerably more large/old cedars than Texas oaks in the basin. It is then altogether possible that cedars have a longer statistical life expectancy than do Texas oaks.

This, coupled with the seedling ratios just mentioned, plus the fact that no two trees can occupy exactly the same space, plus the probability that an older tree can out-compete a younger tree (especially seedlings) would indicate that over time and barring disturbance there should be a statistical increase in the mean density, cover, and importance value of Juniperus ashei and a corresponding decrease in those of Quercus texana until some sort of equilibrium is reached. Such a change would proceed faster on the drier slopes than on the lower slopes.

This argument is, however, purely speculative. Until further research indicates otherwise, the basin should be treated as consisting of four major plant communities, two climax, one postclimax, and one subclimax.

TABLE I

Cedar-Oak Woodland

Trees

Species	Frequency	Density[1]	Cover[2]
Juniperus ashei (mountain cedar)	78.6	419.0/ha (169.8/A)	8173
Quercus texana (Texas oak)	57.1	225.6/ha (91.4/A)	6128
Quercus fusiformis (plateau live oak)	21.4	55.2/ha (22.4/A)	905
Ulmus crassifolia (cedar elm)	7.1	23.0/ha (9.3/A)	294
Ilex vomitoria (yaupon)	7.1	13.8/ha (5.6/A)	136
Diospyros texana (Texas persimmon)	2.4	9.2/ha (3.7/A)	147
Miscellaneous 6 species	14.3	27.6/ha (11.2/A)	401
Total	(3)	773.4/ha (313.4/A)	16184[4]

Miscellaneous species:
Arbutus xalapensis, Texas madrone
Bumelia lanuginosa, gum elastic
Celtis reticulata, netleaf hackberry
Cercis canadensis, redbud
Garrya lindheimeri, Lindheimer silktassel
Rhus lanceolata, lance-leaf sumac

(1) ha = hectare, A = acre (1 ha = 2.471 A).
(2) Cover is presented as square meters per hectare (1 ha = 10,000 sq m).
(3) The sum of the frequencies is meaningless.
(4) Values in excess of 10,000 sq m/ha are due to overlapping crowns of adjacent trees.

TABLE I (continued)

Cedar-Oak Woodland

Trees

Species	Relative Frequency	Relative Density	Relative Cover	Importance Value
J. ashei	41.8	54.2	50.5	48.8
Q. texana	30.4	29.2	37.9	32.5
Q. fusiformis	11.4	7.1	5.6	8.0
U. crassifolia	3.8	3.0	1.8	2.9
I. vomitoria	3.8	1.8	.8	2.1
D. texana	1.3	1.2	.9	1.1
Misc. 6 spp.	7.6	3.6	2.5	4.6
Total	100.1(5)	100.1(5)	100.0	100.0

(5) Whenever values are rounded off, a cumulative discrepancy occurs which becomes apparent in the sum of those values.

Shrubs

Species	Type(6)	Frequency	Density(7)
Garrya lindheimeri (Lindheimer silktassel)	LS	73.8	104.5
Juniperus ashei (mountain cedar)	T	85.7	57.3
Quercus texana (Texas oak)	T	69.0	49.7
Rhus toxicondendron (poison ivy)	V	38.1	46.0
Rhus aromatica (fragrant sumac)	S	40.5	25.6
Rhus virens (evergreen sumac)	S	47.6	9.4
Ilex vomitoria (yaupon)	LS	35.7	12.9
Forestiera pubescens (elbowbush)	S	23.8	19.5
Smilax bona-nox (saw greenbriar)	V	31.0	9.5

TABLE I (continued)

Cedar-Oak Woodland

Shrubs

Species	Type[6]	Frequency	Density[7]
Yucca rupicola (Texas yucca)	A	28.6	6.2
Bumelia lanuginosa (gum elastic)	ST	23.8	9.2
Quercus fusiformis (plateau live oak)	T	23.8	8.3
Eysenhardtia texana (Texas kidneywood)	S	16.7	5.7
Ptelea trifoliata (hoptree)	ST	19.0	3.3
Vitis berlandieri (Spanish grape)	V	14.3	5.4
Ulmus crassifolia (cedar elm)	T	16.7	3.6
Eupatorium havanense (shrubby boneset)	SS	16.7	3.3
Cercis canadensis (redbud)	ST	11.9	4.2
Diospyros texana (Texas persimmon)	ST	11.9	2.1
Miscellaneous 18 species		64.3	11.8
Total		(3)	397.5

Miscellaneous species:

Berberis trifoliolata, agarito (S)
Celtis reticulata, netleaf hackberry (T)
Cocculus carolinus, Carolina snailseed (V)
Croton fruticulosus, bush croton (SS)
Fraxinus texensis, Texas ash (T)
Ilex decidua, possumhaw (S)
Mimosa borealis, fragrant mimosa (SS)
Nolina lindheimeriana, devil’s-shoestring (A)
Opuntia lindheimeri, Texas pricklypear (C)
Opuntia macrorhiza, grassland pricklypear (C)
Parthenocissus heptaphylla, sevenleaf creeper (V)
Parthenocissus quinquefolia, Virginia creeper (V)
Quercus sinuata var. breviloba, white shin oak (T)

TABLE I (continued)

Cedar-Oak Woodland

Shrubs

Rhamnus caroliniana, Carolina buckthorn (S)
Sophora secundiflora, Texas mountain laurel (S)
Ungnadia speciosa, Mexican buckeye (ST)
Vitis mustangensis, mustang grape (V)
Zanthoxylum hirsutum, tickle-tongue (LS)

(6) Types T = normally a tree species, but only seedlings or individuals under 3 meters tall were included in the shrub counts
ST = small trees with a single trunk, occasional individuals will be included in the overstory date
LS = large shrubs without a single trunk or with many trunks clustered together at ground level
S = shrubs
SS = small shrubs, or larger weakly woody plants
V = woody vines
C = cacti
A = agavaceous plants

(7) Shrub densities are expressed as number of individuals per are (1 are = 100 square meters = 0.01 hectare). To compare tree seedlings in the shrub tables with density of mature trees, multiply the seedling densities by 100.

TABLE I (continued)

Cedar-Oak Woodland

Shrubs

Species	Relative Frequency	Relative Density	Importance Value
G. lindheimeri	10.7	26.3	18.5
J. ashei	12.4	14.4	13.4
Q. texana	10.0	12.5	11.2
R. toxicodendron	5.5	11.8	8.6
R. aromatica	5.8	6.4	6.1
R. virens	6.9	2.4	4.6
I. vomitoria	5.2	3.3	4.2
F. pubescens	3.4	4.9	4.2
S. bona-nox	4.5	2.4	3.4
Y. rupicola	4.1	1.6	2.8
B. lanuginosa	3.4	2.3	2.8
Q. fusiformis	3.4	2.1	2.8
Ey. texana	2.4	1.4	1.9
P. trifoliata	2.7	.8	1.8
V. berlandieri	2.1	1.3	1.7
U. crassifolia	2.4	.9	1.6
Eu. havanense	2.4	.8	1.6
C. canadensis	1.7	1.0	1.4
D. texana	1.7	.5	1.1
Misc. 18 spp.	9.3	3.0	6.2
Total	100.0	100.1(5)	99.9(5)

TABLE II

Cedar-Hardwood Bottomland

See Table I for explanation of footnotes.

Trees

Species	Frequency	Density[1]	Cover[2]
Juniperus ashei (mountain cedar)	100.0	359.9/ha (145.9/A)	10655[4]
Fraxinus texensis (Texas ash)	42.1	76.6/ha (31.0/A)	2626
Quercus fusiformis (plateau live oak)	31.6	45.9/ha (18.6/A)	1687
Platanus occidentalis (American sycamore)	15.8	23.0/ha (9.3/A)	1117
Juglans microcarpa (little walnut)	15.8	23.0/ha (9.3/A)	493
Ulmus crassifolia (cedar elm)	15.8	23.0/ha (9.3/A)	315
Quercus texana (Texas oak)	10.5	15.3/ha (6.2/A)	115
Rhus lanceolata (lance-leaf sumac)	5.3	15.3/ha (6.2/A)	158
Total	(3)	582.0/ha (235.8/A)	17166[4]

Species	Relative Frequency	Relative Density	Relative Cover	Importance Value
Jun. ashei	42.2	61.8	62.1	55.4
F. texensis	17.8	13.2	15.3	15.4
Q. fusiformis	13.3	7.9	9.8	10.3
P. occidentalis	6.7	3.9	6.5	5.7
Jug. microcarpa	6.7	3.9	2.9	4.5
U. crassifolia	6.7	3.9	1.8	4.1
Q. texana	4.4	2.6	.7	2.6
R. lanceolata	2.2	2.6	.9	1.9
Total	100.0	99.8[5]	100.0	99.9[5]

TABLE II (continued)

Cedar-Hardwood Bottomland

Shrubs

Species	Type[6]	Frequency	Density[7]
Garrya lindheimeri (Lindheimer silktassel)	LS	73.7	59.5
Smilax bona-nox (saw greenbriar)	V	84.2	43.4
Juniperus ashei (mountain cedar)	T	78.9	29.6
Fraxinus texensis (Texas ash)	T	57.9	31.2
Forestiera pubescens (elbowbush)	S	42.1	28.0
Ulmus crassifolia (cedar elm)	T	63.2	18.4
Ilex vomitoria (yaupon)	LS	57.9	20.1
Rhus aromatica (fragrant sumac)	S	42.1	17.1
Rhamnus caroliniana (Carolina buckthorn)	S	52.6	9.5
Rhus toxicodendron (poison ivy)	V	31.6	11.8
Vitis berlandieri (Spanish grape)	V	31.6	10.9
Bumelia lanuginosa (gum elastic)	ST	31.6	7.6
Quercus texana (Texas oak)	T	36.8	4.6
Eupatorium havanense (shrubby boneset)	SS	21.1	7.2
Parthenocissus quinquefolia (Virginia creeper)	V	15.8	4.9
Ptelea trifoliata (hoptree)	ST	21.1	2.3
Quercus fusiformis (plateau live oak)	T	15.8	4.6
Rubus trivialis (southern dewberry)	V	10.5	6.6
Eysenhardtia texana (Texas kidneywood)	S	21.1	2.0

TABLE II (continued)

Cedar-Hardwood Bottomland

Shrubs

Species	Type[6]	Frequency	Density[7]
Diospyros texana (Texas persimmon)	ST	15.8	3.9
Callicarpa americana (American beautyberry)	S	5.3	6.9
Nolina lindheimeriana (devil's-shoestring)	A	5.3	6.6
Yucca rupicola (Texas yucca)	A	10.5	4.3
Ilex decidua (possumhaw)	S	10.5	3.6
Miscellaneous 9 species		84.2	9.2
Total		(3)	353.8

Miscellaneous species:

Carya illinoinensis, pecan (T)
Celtis reticulata, netleaf hackberry (T)
Cocculus carolinus, Carolina snailseed (V)
Croton fruticulosus, bush croton (SS)
Juglans microcarpa, little walnut (T)
Lonicera japonica, Japanese honeysuckle (V)
Nolina texana, sacahuista (A)
Rhus virens, evergreen sumac (S)
Vitis mustangensis, mustang grape (V)

Species	Relative Frequency	Relative Density	Importance Value
G. lindheimeri	8.0	16.8	12.4
S. bona-nox	9.1	12.3	10.7
J. ashei	8.6	8.4	8.5
Fr. texensis	6.3	8.8	7.6
Fo. pubescens	4.6	7.9	6.2
U. crassifolia	6.9	5.2	6.0

TABLE II (continued)

Cedar-Hardwood Bottomland

Shrubs

Species	Relative Frequency	Relative Density	Importance Value
I. vomitoria	6.3	5.7	6.0
Rhus aromatica	4.6	4.8	4.7
Rha. caroliniana	5.7	2.7	4.2
Rhus toxicodendron	3.4	3.3	3.4
V. berlandieri	3.4	3.1	3.2
B. lanuginosa	3.4	2.1	2.8
Q. texana	4.0	1.3	2.6
Eu. havanense	2.3	2.0	2.2
Pa. quinquefolia	1.7	1.4	1.6
Pt. trifoliata	2.3	.7	1.5
Q. fusiformis	1.7	1.3	1.5
Ru. trivialis	1.1	1.9	1.5
Ev. texana	2.3	.6	1.5
D. texana	1.7	1.1	1.4
C. americana	.6	2.0	1.3
N. lindheimeriana	.6	1.9	1.2
Y. rupicola	1.1	1.2	1.2
I. decidua	1.1	1.0	1.0
Misc. 9 spp.	9.1	2.6	5.8
Total	99.9(5)	100.1(5)	100.0

TABLE III

Cedar Grassland

See Table I for explanation of footnotes.

Trees

Species	Frequency	Density[1]	Cover[2]
Juniperus ashei (mountain cedar)	79.2	94.9/ha (38.5/A)	2707
Quercus texana (Texas oak)	58.3	55.8/ha (22.6/A)	1507
Quercus fusiformis (plateau live oak)	29.2	18.6/ha (7.5/A)	376
Diospyros texana (Texas persimmon)	8.3	3.7/ha (1.5/A)	16
Miscellaneous 3 species	12.5	5.6/ha (2.3/A)	30
Total	(3)	178.6/ha (72.4/A)	4636

Miscellaneous species:
Bumelia lanuginosa, gum elastic
Ilex vomitoria, yaupon
Ulmus crassifolia, cedar elm

Species	Relative Frequency	Relative Density	Relative Cover	Importance Value
J. ashei	42.2	53.1	58.4	51.2
Q. texana	31.1	31.2	32.5	31.6
Q. fusiformis	15.6	10.4	8.1	11.4
D. texana	4.3	2.1	.3	2.2
Misc. 3 spp.	6.7	3.1	.6	3.5
Total	99.9[5]	99.9[5]	99.9[5]	99.9[5]

TABLE III (continued)

Cedar Grassland

Shrubs

Species	Type[6]	Frequency	Density[7]
Garrya lindheimeri (Lindheimer silktassel)	LS	54.2	57.3
Juniperus ashei (mountain cedar)	T	79.2	30.7
Rhus virens (evergreen sumac)	S	75.0	21.9
Rhus toxicodendron (poison ivy)	V	33.3	28.4
Quercus texana (Texas oak)	T	33.3	10.7
Yucca rupicola (Texas yucca)	A	41.7	7.3
Ilex vomitoria (yaupon)	LS	29.2	10.7
Diospyros texana (Texas persimmon)	ST	29.2	6.0
Rhus aromatica (fragrant sumac)	S	20.8	8.3
Bumelia lanuginosa (gum elastic)	ST	20.8	5.5
Quercus fusiformis (plateau live oak)	T	20.8	3.6
Forestiera pubescens (elbowbush)	S	16.7	2.3
Eysenhardtia texana (Texas kidneywood)	S	16.7	1.6
Smilax bona-nox (saw greenbriar)	V	8.3	3.1
Nolina lindheimeriana (devil’s-shoestring)	A	8.3	1.6
Ulmus crassifolia (cedar elm)	T	4.2	2.6
Miscellaneous 9 species		45.8	5.7
Total		(3)	207.3

TABLE III (continued)

Cedar Grassland

Shrubs

Miscellaneous species:
Baccharis neglecta, Roosevelt weed (S)
Berberis trifoliolata, agarito (S)
Cercis canadensis, redbud (ST)
Colubrina texensis, Texas snakewood (S)
Opuntia lindheimeri, Texas pricklypear (C)
Opuntia macrorhiza, grassland pricklypear (C)
Ungnadia speciosa, Mexican buckeye (ST)
Vitis berlandieri, Spanish grape (V)
Zanthoxylum hirsutum, tickle-tongue (LS)

Species	Relative Frequency	Relative Density	Importance Value
G. lindheimeri	10.1	27.6	18.8
J. ashei	14.7	14.8	14.8
R. virens	14.0	10.6	12.3
R. toxicodendron	6.2	13.7	10.0
Q. texana	6.2	5.2	5.7
Y. rupicola	7.8	3.5	5.6
I. vomitoria	5.4	5.2	5.3
D. texana	5.4	2.9	4.2
R. aromatica	3.9	4.0	4.0
B. lanuginosa	3.9	2.6	3.2
Q. fusiformis	3.9	1.8	2.8
F. pubescens	3.1	1.1	2.1
E. texana	3.1	.7	1.9
S. bona-nox	1.6	1.5	1.6
N. lindheimeriana	1.6	.7	1.2
U. crassifolia	.8	1.3	1.0
Misc. 9 spp.	8.5	2.8	5.6
Total	100.2[5]	100.0	100.1[5]

TABLE IV

Subclimax Grassland

See Table I for explanation of footnotes.

Trees

Species	Frequency	Density[1]	Cover[2]
Juniperus ashei (mountain cedar)	66.7	18.9/ha (7.7/A)	429
Quercus texana (Texas oak)	73.3	18.9/ha (7.7/A)	346
Quercus fusiformis (plateau live oak)	40.0	6.1/ha (2.5/A)	73
Miscellaneous 2 species	13.3	1.5/ha (0.6/A)	26
Total	(3)	45.4/ha (18.5/A)	874

Miscellaneous species:
Quercus sinuata var. breviloba, white shin oak
Rhus lanceolata, lance-leaf sumac

Species	Relative Frequency	Relative Density	Relative Cover	Importance Value
J. ashei	34.5	41.7	49.1	41.8
Q. texana	37.9	41.7	39.5	39.7
Q. fusiformis	20.7	13.3	8.4	14.1
Misc. 2 spp.	6.9	3.3	3.0	4.4
Total	100.0	100.0	100.0	100.0

Shrubs

Species	Type[6]	Frequency	Density[7]
Juniperus ashei (mountain cedar)	T	53.3	15.8
Rhus virens (evergreen sumac)	S	40.0	15.0

TABLE IV (continued)

Subclimax Grassland

Shrubs

Species	Type[6]	Frequency	Density[7]
Yucca rupicola (Texas yucca)	A	40.0	11.2
Garrya lindheimeri (Lindheimer silktassel)	LS	20.0	17.1
Rhus toxicodendron (poison ivy)	V	13.3	7.5
Eysenhardtia texana (Texas kidneywood)	S	26.7	2.1
Ilex vomitoria (yaupon)	LS	6.7	4.6
Nolina lindheimeriana (devil's-shoestring)	A	13.3	2.5
Quercus fusiformis (plateau live oak)	T	13.3	2.1
Rhamnus caroliniana (Carolina buckthorn)	S	6.7	1.2
Vitis berlandieri (Spanish grape)	V	6.7	.8
Miscellaneous 4 species		26.7	1.7
Total		(3)	81.6

Miscellaneous species:
Baccharis neglecta, Roosevelt weed (S)
Quercus texana, Texas oak (T)
Rhus aromatica, fragrant sumac (S)
Rhus lanceolata, lance-leaf sumac (LS)

Species	Relative Frequency	Relative Density	Importance Value
J. ashei	20.0	19.4	19.7
Rhus virens	15.0	18.4	16.7
Y. rupicola	15.0	13.8	14.4
G. lindheimeri	7.5	20.9	14.2

TABLE IV (continued)

Subclimax Grassland

Shrubs

Species	Relative Frequency	Relative Density	Importance Value
Rhus toxicodendron	5.0	9.2	7.1
E. texana	10.0	2.6	6.3
I. vomitoria	2.5	5.6	4.0
N. lindheimeriana	5.0	3.1	4.0
Q. fusiformis	5.0	2.6	3.8
Rha. caroliniana	2.5	1.5	2.0
V. berlandieri	2.5	1.0	1.8
Misc. 4 spp.	10.0	2.0	6.0
Total	100.0	100.1(5)	100.0

TABLE V

Mean Tree Size

Diameters

Species	Woodland	Bottomland	Cedar Grassland	Subclimax Grassland	All areas
Diospyros texana	4.32 m (14′2″)	X	2.31 m (7′7″)	X	3.31 m (10′10″)
Fraxinus texensis	X	5.00 m (16′5″)	X	X	5.00 m (16′5″)
Ilex vomitoria	3.44 m (11′3″)	X	(8)	X	3.26 m[9] (10′8″)
Juglans microcarpa	X	5.00 m (16′5″)	X	X	5.00 m (16′5″)
Juniperus ashei	4.51 m (14′9″)	5.71 m (18′9″)	5.65 m (18′6″)	5.13 m (16′10″)	5.12 m (16′9″)
Platanus occidentalis	X	7.38 m (24′3″)	X	X	7.38 m (24′3″)
Quercus fusiformis	4.01 m (13′2″)	5.91 m (19′5″)	4.79 m (15′8″)	3.75 m (12′4″)	4.48 m (14′8″)
Quercus texana	5.59 m (18′4″)	3.05 m (10′)	5.49 m (18′)	4.56 m (15′)	5.27 m (17′4″)
Rhus lanceolata	(8)	3.33 m (10′11″)	X	(8)	3.63 m[9] (11′11″)
Ulmus crassifolia	3.08 m (10′1″)	3.83 m (12′7″)	(8)	X	3.32 m[9] (10′11″)
Miscellaneous species	3.53 m (11′7″)	X	2.49 m (8′2″)	4.47 m (14′8″)	3.64 m[10] (11′11″)
All species	4.69 m (15′5″)	5.47 m (17′11″)	5.34 m (17′6″)	4.69 m (15′5″)	4.99 m (16′5″)

X = absence of that species from that area.
(8) Included under miscellaneous species for that area.
(9) Including all individuals sampled of that species.
(10) Excluding Ulmus crassifolia, Rhus lanceolata, and Ilex vomitoria.

TABLE VI

Vascular Plants of Wild Basin

Scientific nomenclature, common names of families, and sequence of families follows those found in Correll & Johnston (1970), while common names mostly follow those found in Gould (1975).

i = introduced species
r = species on the official list of rare and endangered plants native to Texas
s = species encountered in the watershed of Bee Creek by M. C. Johnston & collaborators during 1974 and/or 1975 but not encountered on the property under study during 1977

FERNS AND FERN ALLIES

SELAGINELLACEAE	SPIKEMOSS FAMILY
Selaginella wrightii Hieron.	Wright selaginella
SCHIZAEACEAE	CURLY-GRASS FAMILY
Anemia mexicana Kl.	Mexican-fern
POLYPODIACEAE	TRUE FERN FAMILY
Adiantum capillus-veneris L.	Southern maidenhair, culantrillo
Pellaea ovata (Desv.) Weath.	Cliffbrake
Thelypteris kunthii (Desv.) Morton	Southern shield-fern

GYMNOSPERMS

TAXODIACEAE	TAXODIUM FAMILY
s)*Taxodium distichum* (L.) Rich.	Bald cypress
CUPRESSACEAE	CYPRESS FAMILY
Juniperus ashei Buchh.	Mountain cedar, Ashe juniper, post cedar, rock cedar, Mexican juniper

TABLE VI (continued)

Vascular Plants of Wild Basin

FLOWERING PLANTS – MONOCOTS

GRAMINEAE (POACEAE)		GRASS FAMILY
	Andropogon glomeratus (Walt.) B.S.P.	Bushy bluestem, bushy beardgrass
	Aristida glauca (Nees) Walp.	Blue threeawn
	A. purpurea Nutt.	Purple threeawn
	A. wrightii Nash	Wright threeawn
	Bothriochloa hybrida (Gould) Gould	Hybrid bluestem
i)	B. ischaemum (L.) Keng var. songarica (Fisch. & Mey.) Celarier & Harlan	King Ranch bluestem
	B. saccharoides (Sw.) Rydb.	Silver bluestem
	Bouteloua curtipendula (Michx.) Torr.	Side-oats grama
	B. hirsuta Lag.	Hairy grama
	B. pectinata Featherly	Tall grama
	B. rigidiseta (Steud.) Hitchc.	Texas grama
	B. trifida Thurb.	Red grama
i)	Bromus japonicus L.	Japanese brome, Japanese chess
i)	B. unioloides H.B.K.	Rescue grass
	Buchloe dactyloides (Nutt.) Engelm.	Buffalo grass
s)	Cenchrus incertus M. A. Curtis	Common sandbur, grassbur
	Chasmanthium latifolium (Michx.) Yates	Inland sea oats
	Chloris cucullata Bisch.	Hooded windmill grass, hooded fingergrass
i)	Cynodon dactylon (L.) Pers.	Bermuda grass
	Digitaria adscendens (H.B.K.) Henr.	Southern crabgrass
i)	Eleusine indica (L.) Gaertn.	Goosegrass
	Elymus virginicus L.	Virginia wild-rye
	Eragrostis lugens Nees	Mourning lovegrass
	Leptoloma cognatum (Schult.) Chase	Fall witchgrass
	Melica nitens (Scribn.) Piper	Threeflower melic
	Muhlenbergia lindheimeri Hitchc.	Lindheimer muhly
	M. reverchonii Vasey & Scribn.	Seep muhly

TABLE VI (continued)

Vascular Plants of Wild Basin

	Panicum lindheimeri Nash (Dichanthelium l. (Nash) Gould)	Lindheimer panicum (Lindheimer dichanthelium)
	P. oligosanthes Schult. (D. o. (Schult.) Gould)	
	P. pedicellatum Vasey (D. p. (Vasey) Gould)	Cedar panicum (cedar dichanthelium)
	P. virgatum L.	Switchgrass
i)	Paspalum dilatatum Poir.	Dallis grass
	P. pubiflorum Fourn.	Hairy-seed paspalum
i)	P. urvillei Steud.	Vasey grass
	Schizachyrium scoparium (Michx.) Nash var. frequens (F. T. Hubb.) Gould	Little bluestem
	Setaria scheelei (Steud.) Hitchc.	Southwestern bristlegrass
	Sorghastrum avenaceum (Michx.) Nash	Yellow Indian grass
i)	Sorghum halepense (L.) Pers.	Johnson grass
	Sporobolus asper (Michx.) Kunth	Tall dropseed
	S. vaginaeflorus (Torr.) Wood	Poverty dropseed, southern poverty-grass
	Stipa leucotricha Trin. & Rupr.	Texas winter-grass, Texas speargrass
	Tridens flavus (L.) Hitchc.	Purpletop
	Tripsacum dactyloides (L.) L.	Eastern gamagrass
CYPERACEAE		SEDGE FAMILY
	Carex microdonta T. & H.	Littletooth sedge
	C. planostachys Kunze	Cedar sedge
	Cladium jamaicense Crantz.	Jamaica saw-grass
i)	Cyperus rotundus L.	Nut-grass
	Dichromena nivea (Boeck.) Britt.	Snowy whitetop
	Eleocharis montevidensis Kunth	Sand spikesedge
	E. obtusa (Willd.) Schult.	Blunt spikesedge
	Fuirena simplex Vahl.	Western umbrella-sedge
BROMELIACEAE		PINEAPPLE FAMILY
	Tillandsia recurvata L.	Small ballmoss
s)	T. usneoides (L.) L.	Spanish moss

TABLE VI (continued)

Vascular Plants of Wild Basin

COMMELINACEAE	SPIDERWORT FAMILY
Commelina erecta L.	Erect dayflower, hierba del pollo
Commelinantia anomala (Torr.) Tharp	False dayflower
Tradescantia gigantean Rose	Giant spiderwort
T. ohioensis Raf.	Ohio spiderwort
JUNCACEAE	RUSH FAMILY
Juncus interior Wieg.	Inland rush
J. texanus (Engelm.) Cov.	Texas rush
J. torreyi Cov.	Torrey rush
LILIACEAE	LILY FAMILY
Allium canadense L.	Canada garlic
A. drummondii Regel	Drummond onion
Nolina lindheimeriana (Scheele) Wats.	Devil’s shoestring, Lindheimer nolina
N. texana Wats.	Sacahuista
Nothoscordum bivalve (L.) Britt.	Yellow false-garlic, crow-poison
Smilax bona-nox L.	Saw greenbriar, car-brier
Yucca rupicola Scheele	Texas yucca, twisted-leaf yucca
AMARYLLIDACEAE	AMARYLLIS FAMILY
Cooperia drummondii Herb.	Eveningstar rainlily, cebolleta
IRIDACEAE	IRIS FAMILY
Sisyrinchium ensigerum Bickn.	Swordleaf blue-eyed grass
S. pruinosum Bickn.	Dotted blue-eyed grass

FLOWERING PLANTS – DICOTS

SALICACEAE	WILLOW FAMILY
Salix nigra Marsh.	Black willow
JUGLANDACEAE	WALNUT FAMILY
Carya illinoinensis (Wang.) K. Koch	Pecan
Juglans major (Torr.) Heller	Arizona walnut

TABLE VI (continued)

Vascular Plants of Wild Basin

J. microcarpa Berl.	Little walnut
FAGACEAE	BEECH FAMILY
Quercus fusiformis Small	Plateau live oak
Q. sinuata Walt. var. *breviloba* (Torr.) C. H. Mull.	White shin oak
Q. texana Buckl.	Texas oak, Texas red oak, Spanish oak
ULMACEAE	ELM FAMILY
Celtis laevigata Willd.	Sugar hackberry, Texas sugarberry
C. reticulata Torr.	Netleaf hackberry
Ulmus americana L.	American elm
U. crassifolia Nutt.	Cedar elm
MORACEAE	MULBERRY FAMILY
i)*Ficus carica* L.	Common fig
Morus microphylla Buckl.	Texas mulberry, mountain mulberry
URTICACEAE	NETTLE FAMILY
Parietaria floridana Nutt.	Florida pellitory, cucumber pellitory
VISCACEAE	MISTLETOE FAMILY
Phoradendron tomentosum (DC.) Gray	Common mistletoe
RANUNCULACEAE	CROWFOOT FAMILY
Anemone heterophylla Nutt.	Tenpetal anemone
Clematis drummondii T. & G.	Texas virgin’s bower
Delphinium carolinianum Walt.	Carolina larkspur, blue larkspur
BERBERIDACEAE	BARBERRY FAMILY
Berberis trifoliolata Moric.	Agarito, algerita
MENISPERMACEAE	MOONSEED FAMILY
Cocculus carolinus (L.) DC.	Carolina snailseed

TABLE VI (continued)

Vascular Plants of Wild Basin

PAPAVERACEAE	POPPY FAMILY
Argemone polyanthemos (Fedde) G. Ownbey	Prickly poppy
CRUCIFERAE (BRASSICACEAE)	MUSTARD FAMILY
Descurainia pinnata (Walt.) Britt.	Pinnate tansy-mustard
Draba cuneifolia T. & G.	Wedgeleaf draba, whitlow-grass, whitlow-wort
D. platycarpa T. & G.	Broadpod draba
Lepidium austrinum Small	Southern pepperweed
L. virginicum L.	Virginia pepperweed, peppergrass
Lesquerella gracilis (Hook.) Wats.	Lax bladderpod
i)*Rorippa nasturtium-aquaticum* (L.) Hayek	Watercress
CRASSULACEAE	ORPINE FAMILY
Sedum nuttallianum Raf.	Yellow stonecrop
PLATANACEAE	PLANE-TREE FAMILY
Platanus occidentalis L.	American sycamore
ROSACEAE	ROSE FAMILY
Geum canadense Jacq.	White avens
Prunus mexicana Wats.	Mexican plum
P. serotina Ehrh.	Black cherry
Rubus trivialis Michx.	Southern dewberry
LEGUMINOSAE (FABACEAE)	LEGUME FAMILY
Amorpha fruticosa L.	Indigobush, bastard indigo
Astragalus crassicarpus Nutt.	Ground plum milkvetch
Cassia lindheimeriana Scheele	Lindheimer senna
C. roemeriana Scheele	Two-leaf senna
Cercis canadensis L. var. *texensis* (Wats.) Rose	Texas redbud
Dalea frutescens Gray	Black dalea
D. nana Torr.	Dwarf dalea
Desmanthus virgatus (L.) Willd. Var *depressus* (Willd.) B. L. Turner	Bundleflower

TABLE VI (continued)

Vascular Plants of Wild Basin

Desmodium psilophyllum Schlecht.	Simple-leaf tick-clover
Eysenhardtia texana Scheele	Texas kidney wood
Galactia volubilis (L.) Britt.	Downy milkpea
Indigofera miniata Ort. var. leptosepala (Nutt.) B. L. Turner	Western indigo, scarlet pea
Lespedeza texana Britt.	Texas lespedeza, Texas bushclover
Lupinus texensis Hook.	Texas bluebonnet
Mimosa borealis Gray	Fragrant mimosa, pink mimosa
i)Parkinsonia aculeata L.	Retama, Jerusalem thorn
Prosopis glandulosa Torr.	Honey mesquite
Psoralea cyphocalyx Gray	Turniproot scurfpea
P. latestipulata Shinners var. appressa Ockendon	
Rhynchosia texana T. & G.	Texas snoutbean
Sophora secundiflora (Ort.) DC.	Mescalbean, Texas mountain laurel
Vicia ludoviciana Nutt.	Louisiana vetch, deer pea vetch
KRAMERIACEAE	RATANY FAMILY
Krameria lanceolata Torr.	Trailing ratany
GERANIACEAE	GERANIUM FAMILY
Erodium texanum Gray	Texas filaree, stork’s-bill, heronbill
OXALIDACEAE	WOOD-SORREL FAMILY
Oxalis dillenii Jacq.	Yellow wood-sorrel
O. drummondii Gray	Drummond oxalis
O. violacea L.	Violet wood-sorrel
LINACEAE	FLAX FAMILY
Linum rigidum Pursh	Stiff-stem flax
L. rupestre (Gray) Engelm.	Rock flax
RUTACEAE	CITRUS FAMILY
Ptelea trifoliata L.	Hop-tree, wafer ash, skunk-bush, nickels-dimes-and-quarters, money tree

TABLE VI (continued)

Vascular Plants of Wild Basin

Thamnosma texana (Gray) Torr.	Texas desert-rue, Dutchman's-breeches
Zanthoxylum hirsutum Buckl.	Prickly ash, tickle-tongue, toothache tree
MELIACEAE	MAHOGANY FAMILY
i)Melia azedarach L.	Chinaberry
MALPIGHIACEAE	MALPIGHIA FAMILY
Thryallis angustifolia (Senth.) O. Ktze.	Narrow-leaf thryallis
POLYGALACEAE	MILKWORT FAMILY
Polygala alba Nutt.	White milkwort
P. lindheimeri Gray	Shrubby milkwort
EUPHORBIACEAE	SPURGE FAMILY
Acalypha lindheimeri Muell. Arg.	Lindheimer copperleaf
Argythamnia simulans J. Ingram	Plateau wild-mercury
s)Bernardia myricaefolia (Scheele) Wats.	Brush myrtle-croton, oreja de ratón, rat's-ears
s)Cnidoscolus texanus (Muell. Arg.) Small	Texas bull nettle, mala mujer
Croton fruticulosus Torr.	Bush croton, encinilla
C. monanthogynus Michx.	One-seed croton, prairie tea
C. texensis (Kl.) Muell. Arg.	Texas croton
Euphorbia cyathophora Murr. (Poinsettia c. (Murr.) Kl. & Garcke)	Painted euphorbia
E. dentata Michx. (Poinsettia d. (Michx.) Small)	Toothed spurge
E. fendleri T. & G. (Chamaesyce f. (T. & G.) Small)	Fendler euphorbia
E. longicruris Scheele (Tithymalus l. (Scheele) Small)	Wedgeleaf euphorbia
E. villifera Schelle (Chamaesyce v. (Schelle) Small)	Hairy euphorbia

TABLE VI (continued)

Vascular Plants of Wild Basin

Phyllanthus polygonoides Spreng.	Knotweed leaf-flower
i)Sapium sebiferum (L.) Roxb.	Chinese tallow tree
Stillingia texana I. M. Johnst.	Texas stillingia, Queen's delight
Tragia ramosa Torr.	Noseburn
ANACARDIACEAE	SUMAC FAMILY
Rhus aromatica Ait.	Fragrant sumac
R. lanceolata (Gray) Britt.	Lance-leaf sumac
R. toxicodendron L. (Toxicondendron radicans (L.) O. Ktze.)	Poison ivy
R. virens Gray	Evergreen sumac
AQUIFOLIACEAE	HOLLY FAMILY
Ilex decidua Walt.	Possum haw, deciduous holly
I. vomitoria Ait.	Yaupon
ACERACEAE	MAPLE FAMILY
s)Acer negundo L.	Box elder, black maple
HIPPOCASTANACEAE	BUCKEYE FAMILY
Aesculus pavia L.	Red buckeye
SAPINDACEAE	SOAPBERRY FAMILY
Sapindus saponaria L. var. drummondii (H. & A.) L. Benson	Western soapberry
Ungnadia speciosa Ednl.	Mexican buckeye
RHAMNACEAE	BUCKTHORN FAMILY
Berchemia scandens (Hill) K. Koch	Alabama supplejack, rattan-vine
Ceanothus herbaceus Raf.	Inland ceanothus
Colubrina texensis (T. & G.) Gray	Texas colubrina, Texas snakewood
s)Condalia hookeri M. C. Johnst.	Brasil
Rhamnus caroliniana Walt.	Carolina buckthorn, Indian cherry
VITACEAE	GRAPE FAMILY
Ampelopsis arborea (L.) Koehne	Peppervine

TABLE VI (continued)

Vascular Plants of Wild Basin

Cissus incisa (Nutt.) Des Moul.	Ivy treebine, possum grape
Parthenocissus heptaphylla (Buckl.) Small	Sevenleaf creeper
P. quinquefolia (L.) Planch.	Virginia creeper
Vitis berlandieri Planch.	Spanish grape, winter grape
V. mustangensis Buckl.	Mustang grape
V. rupestris Scheele	Sand grape
MALVACEAE	MALLOW FAMILY
Abutilon incanum (Link) Sweet	Indian mallow
Callirhoe involucrata (Torr.) Gray	Low poppymallow, common winecup, cowboy rose
C. leiocarpa Martin	Tall poppymallow
rs)Pavonia lasiopetala Scheele	Texas mallow
Sida filicaulis T. & G.	Spreading sida
Wissadula holosericea (Scheele) Gke.	Velvet-leaf
VIOLACEAE	VIOLET FAMILY
Viola missouriensis Greene	Missouri violet
PASSIFLORACEAE	PASSION-FLOWER FAMILY
Passiflora lutea L.	Yellow passion-flower
P. tenuiloba Engelm.	Spread-lobe passion-flower
CACTACEAE	CACTUS FAMILY
Opuntia leptocaulis DC.	Pencil cactus
O. lindheimeri Engelm.	Texas prickly pear
O. macrorhiza Engelm.	Plains prickly pear
ONAGRACEAE	EVENING PRIMROSE FAMILY
Calylophus drummondianus Spach	Drummond sundrops
Oenothera laciniata Hill	Cutleaf evening primrose
O. missouriensis Sims	Missouri primrose, flutter-mill
UMBELLIFERAE (APIACEAE)	PARSLEY FAMILY
Daucus pusillus Michx.	Southwestern carrot, rattlesnake-weed
Sanicula canadensis L.	Canada snakeroot
Spermolepis inermis (DC.) Math. & Const.	Scaleseed

TABLE VI (continued)

Vascular Plants of Wild Basin

i)	Torilis arvensis (Huds.) Link	Tickseed, hedge-parsley
CORNACEAE		DOGWOOD FAMILY
	Cornus drummondii C. A. Mey.	Roughleaf dogwood
	Garrya lindheimeri Torr.	Lindheimer silktassel
ERICACEAE		HEATH FAMILY
	Arbutus xalapensis H.B.K.	Texas madrone
PRIMULACEAE		PRIMROSE FAMILY
	Samolus cuneatus Small	Limerock brookweed
	S. parviflorus Raf.	Small-flowered water-pimpernel
SAPOTACEAE		SAPODILLA FAMILY
	Bumelia lanuginosa (Michx.) Pers.	Gum elastic, ironwood, coma, chittamwood
EBENACEAE		EBONY FAMILY
	Diospyros texana Scheele	Texas persimmon
OLEACEAE		OLIVE FAMILY
	Forestiera pubescens Nutt.	Elbow-bush, spring herald
s)	Fraxinus pensylvanica Marsh	Red ash
	F. texensis (Gray) Sarg.	Texas ash
i)	Ligustrum japonicum Thunb.	Japanese privet
LOGANIACEAE		LOGANIA FAMILY
s)	Buddleja racemosa Torr.	Wand butterfly-bush
	Cynoctonum mitreola (L.) Britt.	Lax hornpod, miterwort
	Polypremum procumbens L.	Juniperleaf
GENTIANACEAE		GENTIAN FAMILY
	Centaurium beyrichii (T. & G.) Robins.	Rock centaury, mountain pink
	C. texense (Griseb.) Fern.	Texas centaury, Lady Bird’s centaury
APOCYNACEAE		DOGBANE FAMILY
	Amsonia ciliata Walt.	Fringe slimpod, blue-star

TABLE VI (continued)

Vascular Plants of Wild Basin

ASCLEPIADACEAE	MILKWEED FAMILY
Asclepias asperula (Dene.) Woods. subsp. capricornu (Woods.) Woods.	Spider antelope-horn
A. oenotheroides Cham. & Schlecht.	Hierba de zizotes
A. texana Heller	Texas milkweed
Cynanchum barbigerum (Scheele) Shinners	Bearded swallow-wort
Matelea reticulata (Gray) Woods.	Milkvine
CONVOLVULACEAE	MORNING GLORY FAMILY
Convolvulus equitans Benth.	Texas bindweed
Dichondra carolinensis Michx.	Ponyfoot
Ipomoea lindheimeri Gray	Blue morning glory
I. trichocarpa Ell.	Sharp-pod morning glory
POLEMONIACEAE	PHLOX FAMILY
Gilia incisa Benth.	Splitleaf gilia
Phlox roemeriana Scheele	Roemer phlox, gold-eye phlox
HYDROPHYLLACEAE	WATERLEAF FAMILY
Nemophila phacelioides Nutt.	Baby blue-eyes
Phacelia congesta Hook.	Blue curls, blue pearls
BORAGINACEAE	BORAGE FAMILY
Heliotropium tenellum (Nutt.) Torr.	Pasture heliotrope
Lithospermum incisum Lehm.	Narrowleaf gromwell, puccoon
r)Onosmodium helleri Small	Heller marbleseed, Heller false gromwell
VERBENACEAE	VERBENA FAMILY
Callicarpa americana L.	American beautyberry, French mulberry, filigrana
Lantana horrida H.B.K.	Common lantana, Texas lantana
Phyla incisa Small	Texas frog-fruit
Verbena bipinnatifida Nutt.	Dakota vervain
V. canescens H.B.K.	Gray vervain

TABLE VI (continued)

Vascular Plants of Wild Basin

V. neomexicana (Gray) Small	Hillside vervain, New Mexico vervain
i)*Vitex agnus-castus* L.	Chaste tree, lavender tree
LABIATAE (LAMIACEAE)	MINT FAMILY
Brazoria scutellarioides Engelm. & Gray	Prairie Brazoria
Hedeoma drummondii Benth.	Limoncillo
Monarda citriodora Cerv.	Lemon beebalm
Salvia roemeriana Scheele	Cedar sage
S. texana (Scheele) Torr.	Texas blue sage
Scutellaria drummondii Benth.	Drummond skullcap
Teucrium canadense L.	American germander
SOLANACEAE	NIGHTSHADE FAMILY
Bouchetia erecta DC.	Erect bouchetia
Chamaesaracha coronopus (Dun.) Gray	Green false nightshade
Physalis viscosa L.	Ground cherry
SCROPHULARIACEAE	FIGWORT FAMILY
Agalinis edwardsiana Penn.	Plateau gerardia, plateau remarkable-flax
Bacopa monnieri (L.) Wettst.	Coastal water-hyssop
Castilleja purpurea (Nutt.) G. Don, var. *lindheimeri* (Gray) Shinners	Lindheimer paintbrush, orange paintbrush
s)*Leucophyllum frutescens* (Berl.) I. M. Johnst.	Cenizo, purple sage, Texas silverleaf, barometer-bush
Maurandya antirrhiniflora Willd.	Snapdragon vine
ACANTHACEAE	ACANTHUS FAMILY
Justicia americana (L.) Vahl	American water-willow
Ruellia humilis Nutt.	Low ruellia
R. occidentalis (Gray) Tharp & Barkl.	False petunia
PLANTAGINACEAE	PLANTAIN FAMILY
Plantago helleri Small	Cedar plantain
P. rhodosperma Dene.	Red-seeded plantain

TABLE VI (continued)

Vascular Plants of Wild Basin

RUBIACEAE	MADDER FAMILY
Cephalanthus occidentalis L.	Common buttonbush
Galium virgatum Nutt.	Southwest bedstraw
Hedyotis nigricans (Lam.) Posb.	Prairie bluets, star-violet
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
i)*Lonicera japonica* Thunb.	Japanese honeysuckle
L. sempervirens L.	Trumpet honeysuckle
Viburnum rufidulum Raf.	Southern black-haw
VALERIANACEAE	VALERIAN FAMILY
Valerianella radiata (L.) Dufr.	Beaked cornsalad
CUCURBITACEAE	GOURD FAMILY
Ibervillea lindheimeri (Gray) Greene	Lindheimer globe-berry, balsam gourd, balsam apple
CAMPANULACEAE	BLUEBELL FAMILY
Triodanis coloradoensis (Buckl.) McVaugh	Colorado Venus' looking-glass
COMPOSITAE (ASTERACEAE)	SUNFLOWER FAMILY
Achillea millefolium L.	Common yarrow
Ambrosia psilostachya DC.	Western ragweed
A. trifida L.	Giant ragweed
Aster spinosus Benth.	Mexican devil-weed
A. subulatus Michx.	Hierba del marrano
A. texanus Burgess	Texas aster
Baccharis neglecta Britt.	Roosevelt weed, New Deal weed, poverty weed
Brickellia cylindracea Gray & Engelm.	Gravelbar brickle-bush
Calyptocarpus vialis Less.	Prostrate lawnflower
Centaurea americana Nutt.	American basketflower, powderpuff thistle
Chaptalia nutans (L.) Polak var. *texana* (Greene) Burk.	Silverpuff
Cirsium texanum Buckl.	Texas thistle
C. undulatum (Nutt.) Spreng.	Wavyleaf thistle
Conyza canadensis (L.) Cronq.	Horse-weed

TABLE VI (continued)

Vascular Plants of Wild Basin

Erigeron modestus Gray	Plains fleabane
Eupatorium havanense H.B.K.	Shrubby boneset
E. rugosum Houtt.	White snakeroot
E. serotinum Michx.	Late eupatorium
Gaillardia pulchella Foug.	Indian blanket, firewheels
Gnaphalium purpureum L.	Purple cudweed
Gymnosperma glutinosum (Spreng.) Less.	Tatalencho
Helenium microcephalum DC.	Smallhead sneezeweed
Hellianthus annuus L.	Common sunflower
Hymenopappus scabiosaeus L'Her. var. corymbosus (T. & G.) B. L. Turner	Old plainsman
Hymenoxys linearifolia Hook.	Fineleaf bitterweed
H. scaposa (DC.) Parker	Plains bitterweed
Iva angustifolia DC.	Narrowleaf sumpweed
I. annua L.	Marsh-elder
Lygodesmia texana (T. & G.) Greene	Texas skeleton-plant
Melampodium leucanthum T. & G.	Plains black-foot
Palafoxia callosa (Nutt.) T. & G.	Small palafoxia
Perezia runcinata (D. Don) Gray	Peonía
Pinaropappus roseus (Less.) Less.	White rock-lettuce
Pyrrhopappus multicaulis DC.	Many-stemmed false dandelion
Ratibida columnaris (Sims) D. Don	Mexican hat, prairie coneflower
Rudbeckia hirta L.	Brown-eyed susan
Tetragonotheca texana (Gray) Engelm. & Gray	Plateau nerve-ray
Thelesperma simplicifolium (Hook.) Gray	Slender greenthread
Verbesina encelioides (Cav.) Gray	Cowpen daisy, golden crownbeard
V. lindheimeri Robins. & Greenm.	Lindheimer crownbeard
V. virginica L.	Frostweed, white crownbeard
Vernonia lindheimeri Gray & Engelm.	Woolly ironweed

TABLE VI (continued)

Vascular Plants of Wild Basin

Viguiera dentata (Cav.) Spreng.	Plateau golden-eye, sunflower golden-eye
Zexmenia hispida (H.B.K.) Gray	Hairy zexmenia

CHECKLIST OF THE VASCULAR PLANTS OF WILD BASIN PRESERVE, TRAVIS COUNTY, TEXAS

Principal Contributors:
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Compiled by William. R. Carr
9 August 1996 Draft

Wild Basin Preserve has long been a focus for the botanical curiosity of Austinites, and as a result there have been many editions of plant lists for the area. The first was included as an appendix to The Vegetation of Wild Basin, an ecological analysis of the site's plant communities completed in 1977 by John E. Williams. His checklist has served as the framework into which additional species have been added over the years by preserve staff, primarily Judy Walther and David Mahler, with contributions by Marshall Johnston, Brother Daniel Lynch, Edward Kutac, Steven Muzos and others. Additions between 1977 and 1986 were captured in a listed compiled by Walther (1985) and in a key to the area's herbaceous flowering plants by Muzos (1986). The current edition includes annotations which hopefully will serve to put some of the botanical resources of Wild Basin into a regional perspective. Nomenclature generally follows Correll & Johnston (1970); in cases where more recent nomenclature is used, that of Correll & Johnston appears in parentheses.

FERNS AND FERN ALLIES

ANEMIACEAE NAKED FERN FAMILY

Anemia mexicana. Mexican curlygrass fern. Native perennial. Source(s): Williams, 1977; Walther, 1985.

ASPLENIACEAE SPLEENWORT FAMILY

Asplenium resiliens. Little spleenwort. Native perennial. Source(s): Walther, 1985.

PTERIDACEAE MAIDENHAIR FERN FAMILY

Adiantum capillus-veneris. Maidenhair fern. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Cheilanthes alabamensis. Alabama lipfern. Native perennial. Source(s): Walther, 1985.
Pellaea atropurpurea. Purple cliffbrake. Native perennial. Source(s): Walther, 1985.
Pellaea ovata. Zigzag cliffbrake. Native perennial. Source(s): Williams, 1977; Walther, 1985.

SELAGINELLACEAE SPIKEMOSS FAMILY

Selaginella wrightii. Wright spikemoss. Native perennial. Source(s): Williams, 1977; Walther, 1985. A species of western Texas, New Mexico and adjacent northern Mexico. The Wild Basin population probably represents the eastern limit of the range of this species, which is not otherwise known from Travis County.

THELYPTERIDACEAE MARSH-FERN FAMILY

Thelypteris ovata var. *lindheimeri* (*Thelypteris kunthii*). Southern shield fern. Native perennial. Source(s): Williams, 1977; Walther, 1985.

CONIFERS

CUPRESSACEAE CYPRESS FAMILY

Juniperus ashei. Ashe juniper, cedar. Native tree or large shrub. Source(s): Williams, 1977; Walther, 1985.

TAXODIACEAE BALDCYPRESS FAMILY

Taxodium distichum. Baldcypress. Native tree. Source(s): Walther, 1985.

FLOWERING PLANTS

ACANTHACEAE ACANTHUS FAMILY

Dyschoriste linearis. Snake-herb. Native perennial. Source(s): Walther, 1985.

Justicia americana. American water-willow. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ruellia caroliniensis. Carolina wild-petunia. Native perennial. Source(s): Walther, 1985; Muzos, 1986. A species of the southeastern United States, ranging into East Texas but probably only sporadically as far west as Travis County. Local herbaria contain no voucher specimens from Travis County, but in addition to Wild Basin this species has also been reported from McKinney Falls State Park.

Ruellia humilis. Low wild-petunia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ruellia occidentalis. Western wild-petunia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ruellia nudiflora. Common wild-petunia. Native perennial. Source(s): TCTNRD, 1995.

Ruellia pedunculata. Stalk ruellia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986. A species of the eastern United States, ranging southwest into eastern Texas. Wild Basin is the only area in Travis County from which this species has been reported. Local herbaria contain no voucher specimens from Travis County.

ACERACEAE MAPLE FAMILY

Acer negundo. Box-elder maple. Native tree. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

AMARYLLIDACEAE AMARYLLIS FAMILY

Cooperia drummondii. Drummond rain-lily. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Cooperia pedunculata. Evening-star rain-lily. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

ANACARDIACEAE SUMAC FAMILY

Rhus lanceolata. Flameleaf sumac. Native tree. Source(s): Williams, 1977; Walther, 1985.

Rhus toxicodendron (*Toxicodendron radicans*). Poison ivy. Native shrub or woody vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Rhus trilobata var. *trilobata* (*Rhus aromatica* var. *flabelliformis*). Native shrub. Source(s): Williams, 1977; Walther, 1985.
Rhus virens. Evergreen sumac. Native shrub. Source(s): Williams, 1977; Walther, 1985.

APIACEAE (UMBELLIFERAE) CARROT FAMILY

Chaerophyllum tainturieri. Chervil. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Daucus pusillus. Little carrot. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Sanicula canadensis. Canada snakeroot. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Spermolepis inermis. Smooth scaleseed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Torilis arvensis. Tall sockbane. Naturalized annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Torilis nodosa. Tiny sockbane. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

APOCYNACEAE DOGBANE FAMILY

Amsonia ciliata. Blue-star. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

AQUIFOLIACEAE HOLLY FAMILY

Ilex decidua. Deciduous holly. Native shrub. Source(s): Williams, 1977; Walther, 1985.
Ilex vomitoria. Yaupon. Native shrub. Source(s): Williams, 1977; Walther, 1985.

ARACEAE ARUM FAMILY

Arisaema dracontium. Green dragon. Native perennial. Source(s): Wild Basin News Vol. 5, No. 3 (June-July 1983); Walther, 1985; Muzos, 1986.

ASCLEPIADACEAE MILKWEED FAMILY

Asclepias asperula. Antelope-horn milkweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Asclepias oenotheroides. Hierba de zizotes. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Asclepias texana. Texas milkweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Cynanchum barbigerum. Bearded swallow-wort. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Cynanchum unifarium. Tayalote. Native perennial herbaceous vine. Source(s): Walther, 1985; Muzos, 1986.
Matelea reticulata. Pearl milkvine. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Sarcostemma crispum. Wavyleaf twinevine. Native perennial herbaceous vine. Source(s): Walther, 1985; Muzos, 1986.

ASTERACEAE (COMPOSITAE) SUNFLOWER FAMILY

Achillea millefolium. Yarrow. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Acourtia runcinata (*Perezia runcinata*). Peonia, stemless perezia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ambrosia psilostachya. Western ragweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ambrosia trifida. Giant ragweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Aster drummondii var. *texanus* (*Aster texanus*). Texas aster. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Aster ericoides. Heath aster. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Aster subulatus var. *ligulatus*. Hierba del marrano. Native annual or perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Baccharis neglecta. Rooseveltweed. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Brickellia cylindracea. Brickellbush. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Calyptocarpus vialis. Straggler daisy. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Centaurea americana. American basketflower. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Chaptalia nutans var. *texana*. Nodding lettuce. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Chrysactinia mexicana. Damianita. Native shrub. Source(s): Wild Basin News Vol. 5, No. 3 (June-July 1983); Walther, 1985.

Cirsium texanum. Texas thistle. Native biennial or perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Cirsium undulatum. Wavyleaf thistle. Native biennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986. Wild Basin is the only reported Travis County location for this thistle, which is quite common in calcareous prairies just to the north. Local herbaria contain no voucher specimens from Travis County.

Conyza canadensis. Horseweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Dyssodiopsis tagetoides (*Dyssodia tagetoides*). Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Erigeron modestus. Plains fleabane. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Erigeron ortegae var. *spinosus* (*Aster spinosus*). Mexican devilweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Erigeron strigosus. Plains fleabane. Native perennial. Source(s): Walther, 1985.

Eupatorium havanense. Shrubby boneset. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Eupatorium rugosum. White snakeroot. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Eupatorium serotinum. Late boneset. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Evax prolifera. Flathead rabbit-tobacco. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Evax verna. Roundhead rabbit-tobacco. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Gaillardia pulchella. Firewheel. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Gnaphalium obtusifolium. Fragrant cudweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Gnaphalium purpureum. Purple cudweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Gutierrezia texana (*Xanthocephalum texanum*). Texas broomweed. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Gymnosperma glutinosum. Tatalencho. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Helenium elegans var. *elegans*. Pretty sneezeweed. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Helenium microcephalum. Smallhead sneezeweed. Native annual. Source(s): Williams, 1977. Not included in later lists; perhaps based on misidentification of specimens of *Helenium elegans*.

Helianthus annuus. Common sunflower. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Helianthus maximiliani. Maximilian sunflower. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Heterotheca latifolia. Camphor goldenaster. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Hymenopappus scabiosaeus var. *corymbosus*. Old plainsman. Native biennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Hymenoxys linearifolia. Slenderleaf bitterweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Hymenoxys scaposa. Slenderstem bitterweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Iva angustifolia. Narrowleaf sumpweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Iva annua. Eggleaf sumpweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lactuca serriola. Prickly lettuce. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Liatris mucronata. Blazing-star. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Lindheimera texana. Texas star. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Lygodesmia texana. Texas skeletonplant. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Marshallia caespitosa. Barbara's buttons. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Melampodium leucanthum. Blackfoot daisy. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Palafoxia callosa. Palafoxia. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Parthenium hysterophorus. False ragweed. Native (?) annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Pinaropappus roseus. Rock lettuce. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Pluchea purpurascens. Camphor marsh-fleabane. Source(s): Walther, 1985; Muzos, 1986.

Pyrrhopappus multicaulis. False dandelion. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ratibida columnaris. Mexican hats. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Rudbeckia hirta. Brown-eyed Susan. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Senecio obovatus. Golden groundsel. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Senecio tampicanus (*Senecio imparipinnatus*). Cutleaf groundsel. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Solidago altissima var. *canescens* (*Solidago canescens*). Tall goldenrod. Native perennial. Source(s): Walther, 1985; Muzos, 1986. Specimens at Wild Basin may actually be the recently described Julia goldenrod (*Solidago juliae*).

Solidago nemoralis. Gray goldenrod. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Solidago radula. Cat-tongue goldenrod. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Sonchus asper. Sow-thistle. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.
Sonchus oleraceus. Sow-thistle. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.
Taraxacum officinale. Dandelion. Naturalized perennial. Source(s): Walther, 1985; Muzos, 1986.
Tetragonatheca texana. Texas square-bud, nerveray. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Thelesperma simplicifolium. Navajo tea. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Thymophylla pentachaeta (*Dyssodia pentachaeta*). Parralena. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Verbesina encelioides. Cowpen daisy. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbesina lindheimeri. Lindheimer crownbeard. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbesina virginica. Frostweed, iceplant. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Vernonia lindheimeri. Woolly ironweed, silverleaf ironweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Vernonia sp. Ironweed. Native perennial. Source(s): Walther, 1985; Muzos, 1986. Other than *Vernonia lindheimeri*, the only other ironweed to be expected at Wild Basin is *Vernonia baldwinii*, which would occur in moist alluvial soils on unshaded to partially shaded creekbanks.
Viguiera dentata. Plateau goldeneye. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Wedelia hispida (*Zexmenia hispida*). Hairy zexmenia. Native perennial or sub-shrub. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Xanthium strumarium. Cocklebur. Native annual. Source(s): Walther, 1985; Muzos, 1986.

BERBERIDACEAE BARBERRY FAMILY

Berberis trifoliolata. Agarito. Native shrub. Source(s): Williams, 1977; Walther, 1985.

BORAGINACEAE BORAGE FAMILY

Heliotropium tenellum. White heliotrope. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Lithospermum incisum. Fringed puccoon. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Onosmodium helleri. Heller marbleseed. Endemic perennial. Source(s): Williams, 1977; Wild Basin News Vol. 3, No. 2 (April-May 1981); Wild Basin News Vol. 6, No. 2 (April-May 1984); Walther, 1985; Muzos, 1986.

BRASSICACEAE MUSTARD FAMILY

Capsella bursa-pastoris. Shepherd's purse. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.
Descurainia pinnata. Tansy mustard. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Draba cuneifolia. Wedgeleaf draba. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Draba platycarpa. Broadpod draba. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lepidium austrinum. Southern pepperweed, hairy pepperweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lepidium virginicum. Smooth pepperweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lesquerella gracilis. Slender bladderpod. Native annual. Source(s): Williams, 1977; Walther, 1985.

Lesquerella recurvata. Plateau bladderpod. Endemic annual. Source(s): Walther, 1985; Muzos, 1986.

Nasturtium officinale (*Rorippa nasturtium-aquaticum*). Water cress. Naturalized annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

BROMELIACEAE PINEAPPLE FAMILY

Tillandsia recurvata. Ballmoss. Native perennial epiphyte. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Tillandsia usneoides. Spanish moss. Native perennial epiphyte. Source(s): Walther, 1985; Muzos, 1986. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

CACTACEAE CACTUS FAMILY

Coryphantha sulcata. Nipple cactus. Native succulent shrub (cactus). Source(s): Wild Basin News Vol. 2, No. 5 (October-November 1982; Walther, 1985. F. G. Breckenridge reported finding a single plant on "semiexposed limestone strata in sparse topsoil and leaf litter from the mature junipers (*Juniperus ashei*) which shade it" (Wild Basin News, 1982).

Opuntia leptocaulis. Tasajillo, pencil cactus. Native succulent shrub (cactus). Source(s): Williams, 1977; Walther, 1985.

Opuntia lindheimeri. Lindheimer pricklypear. Native succulent shrub (cactus). Source(s): Williams, 1977; Walther, 1985.

Opuntia macrorhiza. Plains pricklypear. Native succulent shrub (cactus). Source(s): Williams, 1977; Walther, 1985.

CAMPANULACEAE BELLFLOWER FAMILY

Triodanis coloradoensis. Western Venus' looking-glass. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Triodanis perfoliata. Venus' looking-glass. Native annual. Source(s): Walther, 1985; Muzos, 1986.

CAPPARACEAE CAPER FAMILY

Polanisia dodecandra. Clammy-weed. Native annual. Source(s): Walther, 1985; Muzos, 1986.

CAPRIFOLIACEAE HONEYSUCKLE FAMILY

Lonicera albiflora. White bush-honeysuckle. Native shrub or woody vine. Source(s): Wild Basin News Vol. 2, No. 5 (October-November 1980); Walther, 1985.

Lonicera japonica. Japanese honeysuckle. Naturalized woody vine. Source(s): Williams, 1977; Walther, 1985.

Lonicera sempervirens. Coral honeysuckle. Native (?) woody vine. Source(s): Williams, 1977; Walther, 1985.

Viburnum rufidulum. Rusty black-haw. Native shrub. Source(s): Williams, 1977; Walther, 1985.

CARYOPHYLLACEAE PINK FAMILY

Arenaria benthamii. Bentham sandwort. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Cerastium fontanum (*Cerastium vulgatum*). Common mouse-ear. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Cerastium glomeratum. Mouse-ear chickweed. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Paronychia virginica (*Paronychia parksii*). Parks' nailwort. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

COMMELINACEAE SPIDERWORT FAMILY

Commelina erecta. Dayflower. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Commelinantia anomala (*Tinantia anomala*). Widow's tears. Endemic annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Tradescantia gigantea. Giant spiderwort. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Tradescantia hirsutiflora. Hairyflower spiderwort. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Tradescantia ohiensis. Ohio spiderwort. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

CONVOLVULACEAE MORNING-GLORY FAMILY

Convolvulus equitans. Common bindweed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Dichondra carolinensis. Carolina ponyfoot. Native perennial Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Evolvulus sericeus. Silky evolvulus. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Ipomaea lindheimeri. Lindheimer morning-glory. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Ipomaea trichocarpa (*Ipomaea cordatotriloba*). Common morning-glory. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

CORNACEAE DOGWOOD FAMILY

Cornus drummondii. Roughleaf dogwood. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Garrya ovata subsp. *lindheimeri* (*Garrya lindheimeri*). Lindheimer silk-tassel. Native shrub or small tree. Source(s): Williams, 1977; Walther, 1985.

CRASSULACEAE STONECROP FAMILY

Sedum nuttallianum. Yellow stonecrop. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

CUCURBITACEAE GOURD FAMILY

Ibervillea lindheimeri. Balsam gourd. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

CYPERACEAE SEDGE FAMILY

Carex microdonta. Smalltooth sedge. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Carex planostachys. Cedar sedge. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Cladium jamaicense. Sawgrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Cyperus ochraceus. Umbrellasedge. Native perennial. Source(s): Carr, 1996.
Cyperus rotundus. Purple nutgrass. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.
Eleocharis acutisquamata. Splitscale spikesedge. Native perennial. Source(s): Carr, 1996.
Eleocharis montividensis. Perennial spikesedge. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Eleocharis obtusa. Blunt spikesedge. Native annual. Source(s): Williams, 1977; Walther, 1985.
Fuirena simplex. Porcupine sedge. Native annual. Source(s): Williams, 1977; Walther, 1985.
Rhynchospora colorata (*Dichromena colorata*). Whitetop sedge. Native perennial. Source(s): Walther, 1985.
Rhynchospora nivea (*Dichromena nivea*). Snowy whitetop sedge. Native perennial. Source(s): Williams, 1977; Walther, 1985.

EBENACEAE EBONY FAMILY

Diospyros texana. Texas persimmon. Native shrub. Source(s): Williams, 1977; Walther, 1985.

ERICACEAE HEATH FAMILY

Arbutus xalapensis. Texas madrone. Native tree. Source(s): Williams, 1977; Walther, 1985. Wild Basin is one of the few protected sites for this species in Travis County.

EUPHORBIACEAE SPURGE FAMILY

Acalypha lindheimeri. Lindheimer copperleaf. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Acalypha radians. Radiant copperleaf. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Agaloma marginata (*Euphorbia marginata*). Snow-on-the-pasture. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Argythamnia simulans. Plateau wild-mercury. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Bernardia myricifolia. Brush myrtlecroton. Native shrub. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.
Chamaesyce angusta (*Euphorbia angusta*). Blackfoot spurge. Endemic perennial. Source(s): Walther, 1985; Muzos, 1986.
Chamaesyce fendleri (*Euphorbia fendleri*). Fendler spurge. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Chamaesyce nutans (*Euphorbia nutans*). Nodding spurge. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Chamaesyce prostrata (*Euphorbia prostrata*). Hairy mat-spurge. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Chamaesyce villifera (*Euphorbia villifera*). Villous spurge. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Cnidoscolus texanus. Texas bullnettle. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Croton fruticulosus. Bush croton. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Croton monanthogynus. Oneseed croton. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Croton texensis. Texas croton. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Phyllanthus polygonoides. Knotweed leaf-flower. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Poinsettia cyathophora (*Euphorbia cyathophora*). Wild poinsettia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Poinsettia dentata (*Euphorbia dentata*). Wild poinsettia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Sapium sebiferum. Chinese tallow. Naturalized tree. Source(s): Williams, 1977; Walther, 1985.

Stillingia texana. Texas queen's-delight. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Tithymalus longicruris (*Euphorbia longicruris*). Wedgeleaf spurge. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Tragia ramosa. Common noseburn. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

FABACEAE (LEGUMINOSAE) PEA FAMILY

Amorpha fruticosa. Indigobush. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Astragalus crassicarpus. Ground-plum. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Astragalus nuttallianus. Nuttall milkvetch. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Cercis canadensis var. *texensis*. Texas redbud. Native tree. Source(s): Williams, 1977; Walther, 1985.

Dalea aurea. Golden dalea. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Dalea frutescens. Black dalea. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Dalea nana. Dwarf dalea. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Desmanthus velutinus. Velvet bundleflower. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Desmanthus virgatus var. *depressus*. Bundleflower. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Desmodium paniculatum. Tall tickseed. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Desmodium psilophyllum. Oneleaf tickseed. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Eysenhardtia texana. Texas kidneywood. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Galactia volubilis. Downy milkpea. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Indigofera miniata var. *leptosepala*. Scarlet pea. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lathyrus pusillus. Low peavine. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Lespedeza texana. Texas bushclover. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Lupinus texensis. Texas bluebonnet. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Medicago lupulina. Black medick. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Medicago minima. Least burclover. Alfalfa. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Medicago polymorpha var. *vulgaris*. Bur-clover. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Melilotus alba. White sweet-clover. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Melilotus indicus. Yellow sweet-clover. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Melilotus officinalis. Yellow sweet-clover. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.

Mimosa borealis. Fragrant mimosa, pink mimosa. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Mimosa texana (*Mimosa biuncifera*). Catclaw mimosa. Native shrub. Source(s): Walther, 1985.

Parkinsonia aculeata. Retama. Native or perhaps recently naturalized shrub. Source(s): Williams, 1977; Walther, 1985.

Pediomelum cyphocalyx (*Psoralea cyphocalyx*). Turniproot scurfpea. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986. This species ranges across the Edwards Plateau to north-central Texas, with records from Bandera, Bexar, Blanco, Burnet, Comal, Coryell, Hamilton, Hays, Kendall, Kerr, Lampasas, Parker and Wise counties. Wild Basin is the only site in Travis County from which it has been reported, and there are no Travis County specimens in local herbaria.

Pediomelum hypogaeum (*Psoralea hypogaea*). Edible scurfpea. Endemic perennial. Source(s): Wild Basin News Vol. 3, No. 2 (April-May 1981); Walther, 1985; Muzos, 1986.

Pediomelum latestipulatum var. *appressum* (*Psoralea latestipulata* var. *appressa*). Scurfpea. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Pediomelum rhombifolium (*Psoralea rhombifolia*). Red scurfpea. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Prosopis glandulosa. Honey mesquite. Native tree. Source(s): Williams, 1977; Walther, 1985.

Rhynchosia senna var. *texana* (*Rhynchosia texana*). Texas snoutbean. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Schrankia roemeriana (*Mimosa roemeriana*). Roemer sensitive-briar. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Senna lindheimeriana (*Cassia lindheimeriana*). Lindheimer senna. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Senna roemeriana (*Cassia roemeriana*). Twoleaf senna. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Sophora affinis. Eve's necklace. Native tree. Source(s): Wild Basin News Vol. 2, No. 5 (October-November 1980); Walther, 1985.

Sophora secundiflora. Texas mountain-laurel. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Strophostyles helvola. Trailing wildbean. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Trifolium repens. White clover. Naturalized perennial. Source(s): Walther, 1985; Muzos, 1986.

Trifolium resupinatum. Persian clover. Adventive annual. Source(s): Walther, 1985; Muzos, 1986.

Vicia ludoviciana. Louisiana vetch. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

FAGACEAE BEECH FAMILY

Quercus buckleyi (*Quercus texana*). Texas oak. Native tree. Source(s): Williams, 1977; Walther, 1985.

Quercus fusiformis. Plateau live oak. Native tree. Source(s): Williams, 1977; Walther, 1985.
Quercus sinuata var. *breviloba*. Shin oak, scalybark oak. Native tree, occasionally forming shrub thickets. Source(s): Williams, 1977; Walther, 1985.

GENTIANACEAE GENTIAN FAMILY

Centaurium beyrichii. Mountain pink. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Centaurium texense. Lady Bird centaury. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Eustoma grandiflorum. Giant bluebells. Native annual. Source(s): Walther, 1985; Muzos, 1986.

GERANIACEAE GERANIUM FAMILY

Erodium cicutarium. Alfilerillo. Naturalized annual. Source(s): Walther, 1985; Muzos, 1986.
Erodium texanum. Texas crane's-bill. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Geranium texanum. Texas wild-geranium. Native annual. Source(s): Walther, 1985; Muzos, 1986.

HIPPOCASTANACEAE HORSE-CHESTNUT FAMILY

Aesculus pavia. Red buckeye. Native shrub or tree. Source(s): Williams, 1977; Walther, 1985.

HYDROPHYLLACEAE WATERLEAF FAMILY

Nama jamaicense. Fiddleleaf nama. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Nemophila phacelioides. Blue-eyes. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Phacelia congesta. Blue curls. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

IRIDACEAE IRIS FAMILY

Nemastylis geminiflora. Twinflower. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Sisyrinchium dimorphum. Blue-eyed grass. Native perennial. Source(s): Walther, 1985.
Sisyrinchium minus. Annual blue-eyed grass. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Sisyrinchium pruinosum. Blue-eyed grass. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Sisyrinchium scabrum (*Sisyrinchium ensigerum*). Blue-eyed grass. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

JUGLANDACEAE WALNUT FAMILY

Carya illinoinensis. Pecan. Native tree. Source(s): Williams, 1977; Walther, 1985.
Juglans major. Arizona walnut. Native tree. Source(s): Williams, 1977; Walther, 1985.
Juglans microcarpa. Little walnut. Native tree or large shrub. Source(s): Williams, 1977; Walther, 1985.

JUNCACEAE RUSH FAMILY

Juncus interior. Inland rush. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Juncus texanus. Texas rush. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Juncus torreyi. Torrey rush. Native perennial. Source(s): Williams, 1977; Walther, 1985.

KRAMERIACEAE RATANY FAMILY

Krameria lanceolata. Trailing ratany. Native perennial. Source(s): Williams, 1977; Muzos, 1986; Walther, 1985.

LAMIACEAE (LABIATAE) MINT FAMILY

Brazoria scutellarioides. Prairie brazoria. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Hedeoma acinoides. Annual pennyroyal. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Hedeoma drummondii. Drummond hedeoma, limoncillo. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Lamium amplexicaule. Henbit. Naturalized annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Marrubium vulgare. Common horehound. Naturalized annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Monarda citriodora. Purple horsemint, lemon beebalm. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Salvia roemeriana. Cedar sage. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Salvia texana. Texas sage. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Scutellaria drummondii. Drummond skullcap. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Scutellaria ovata. Eggleaf skullcap. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Scutellaria wrightii. Wright skullcap. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Stachys crenata. Shade betony. Native annual. Source(s): Walther, 1985; Muzos, 1986.
Teucrium canadense. American germander. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

LILIACEAE LILY FAMILY

Allium canadense. Canada wild-onion. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Allium drummondii. Drummond wild-onion. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Nolina lindheimeriana. Devil's shoestring. Endemic yucca-like succulent shrub. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Nolina texana. Sacahuista. Native succulent shrub. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Nothoscordum bivalve. Crow poison. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Schoenocaulon texanum. Texas green-lily. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Smilax bona-nox. Common greenbriar. Native woody vine. Source(s): Williams, 1977; Walther, 1985.
Yucca rupicola. Twistleaf yucca. Endemic succulent shrub. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

LINACEAE FLAX FAMILY

Linum rigidum var. *berlandieri*. Stiff flax. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Linum rupestre. Rock flax. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

LOGANIACEAE LOGANIA FAMILY

Buddleja racemosa. Wand butterflybush. Endemic shrub. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Mitreola petiolata (*Cynoctonum mitreola*). Hornpod. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Polypremum procumbens. Juniperleaf. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

MALPIGHIACEAE MALPIGHIA FAMILY

Galphimia angustifolia (*Thryallis angustifolia*). Narrowleaf thryallis. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

MALVACEAE MALLOW FAMILY

Abutilon fruticosum (*Abutilon incanum*). Texas Indian-mallow. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Allowissadula holosericea (*Wissadula holosericea*). Velvetleaf mallow. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Callirhoe involucrata. Low winecup. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Callirhoe leiocarpa. Tall winecup. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Modiola caroliniana. Carolina modiola. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Pavonia lasiopetala. Rose pavonia. Native shrub. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Sida abutifolia (*Sida filicaulis*). Spreading sida. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

MARTYNIACEAE UNICORN-PLANT FAMILY

Proboscidea louisianica. Devil's claw. Native annual. Source(s): Walther, 1985; Muzos, 1986.

MELIACEAE MAHOGANY FAMILY

Melia azedarach. Chinaberry. Naturalized tree. Source(s): Williams, 1977; Walther, 1985.

MENISPERMACEAE MOONSEED FAMILY

Cocculus carolinus. Carolina snailseed. Native woody vine. Source(s): Williams, 1977; Walther, 1985.

MORACEAE MULBERRY FAMILY

Ficus carica. Common fig. Introduced shrub or small tree. Source(s): Williams, 1977; Walther, 1985.

Maclura pomifera. Osage orange, bois d'arc. Native tree. Source(s): Wild Basin News Vol. 5, No. 4 (August-September 1983); Walther, 1985.

Morus microphylla. Littleleaf mulberry. Native shrub or small tree. Source(s): Williams, 1977; Walther, 1985.

NYCTAGINACEAE FOUR-O'CLOCK FAMILY

Boerhavia coccinea. Scarlet spiderling. Naturalized perennial. Source(s): Walther, 1985; Muzos, 1986.

OLEACEAE OLIVE FAMILY

Forestiera pubescens. Elbowbush. Native shrub. Source(s): Williams, 1977; Walther, 1985.

Fraxinus pensylvanica. Red ash. Native tree. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Fraxinus texensis. Texas ash. Native tree. Source(s): Williams, 1977; Walther, 1985.

Ligustrum japonicum. Japanese privet. Naturalized shrub. Source(s): Williams, 1977; Walther, 1985.

ONAGRACEAE EVENING-PRIMROSE FAMILY

Calylophus berlandieri (*Calylophus drummondianus*). Sundrops. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Oenothera laciniata. Cutleaf evening-primrose. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Oenothera missouriensis. Fluttermill. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Oenothera speciosa. Pink evening-primrose. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Oenothera triloba. Stemless evening-primrose. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

ORCHIDACEAE ORCHID FAMILY

Hexalectris nitida. Glass Mountains coral-root, shining coral-root. Native perennial. Source: Victor Engel (pers. comm., 1995).

Hexalectris spicata. Crested coral-root. Native perennial. Source(s): Wild Basin News Vol. 3, No. 4 (August-September 1981); Walther, 1985; Muzos, 1986. This orchid was first discovered at Wild Basin on 8 July 1981.

Spiranthes odorata (*Spiranthes cernua* var. *odorata*). Ladies' tresses. Source(s): Wild Basin News Vol. 2, No. 6 (December 1980-January 1981); Wild Basin News Vol. 3, No. 5 (October-November 1981); Walther, 1985; Muzos, 1986.

OROBANCHACEAE BROOM-RAPE FAMILY

Orobanche ludoviciana. Louisiana broomrape. Native perennial. Source(s): Walther, 1985; Muzos, 1986. Wild Basin is the only known site for this root parasite in Travis County. It has been collected in the county only once, from "hills east of Bee Creek" by B. C. Tharp in 1919.

Orobanche uniflora. Naked broom-rape. Native perennial. Source(s): Wild Basin News Vol. 4, No. 2 (April-May 1982); Walther, 1985; Muzos, 1986. Wild Basin is the only protected site for this species in Travis County. It was discovered at Wild Basin by a group of school children on 19 March 1982 (Walther in Wild Basin News, 1982) and was seen regularly in March during the 1980's (David Mahler, pers. comm. 1996). *Orobanche uniflora* has never been collected in Travis County; in fact, it has been seen only a few times in all of Texas.

OXALIDACEAE WOOD-SORREL FAMILY

Oxalis dillenii. Common sourclover. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Oxalis drummondii. Purple wood-sorrel, Drummond wood-sorrel. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Oxalis violacea. Violet wood-sorrel. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

PAPAVERACEAE POPPY FAMILY

Argemone polyanthemos. Pricklypoppy. Native annual or biennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

PASSIFLORACEAE PASSIONFLOWER FAMILY

Passiflora lutea. Yellow passionflower. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Passiflora tenuiloba. Slenderlobe passionflower. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

PLANTAGINACEAE PLANTAIN FAMILY

Plantago helleri. Heller plantain. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Plantago rhodosperma. Redseed plantain. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

PLATANACEAE SYCAMORE FAMILY

Platanus occidentalis. Sycamore. Native tree. Source(s): Williams, 1977; Walther, 1985.

POACEAE (GRAMINEAE) GRASS FAMILY

Agrostis semiverticillata. Water bentgrass. Native annual. Source(s): Walther, 1985.

Andropogon glomeratus. Bushy bluestem. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Aristida glauca. Blue threeawn. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Aristida purpurea var. *purpurea* (incl. *Aristida roemeriana*). Purple threeawn. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Aristida purpurea var. *wrightii*. Wright threeawn. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bothriochloa hybrida. Hybrid bluestem. Source(s): Williams, 1977; Walther, 1985.

Bothriochloa ischaemum var. *songarica*. King Ranch bluestem. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.

Bothriochloa saccharoides var. *torreyana* (*Bothriochloa laguroides* var. *torreyana*). Silver bluestem. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bouteloua curtipendula. Sideoats grama. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bouteloua hirsuta. Hairy grama. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bouteloua pectinata. Tall grama. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bouteloua rigidiseta. Texas grama. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bouteloua trifida. Red grama. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Bromus japonicus. Japanese brome. Naturalized annual. Source(s): Williams, 1977; Walther, 1985.

Bromus unioloides. Rescuegrass. Naturalized annual. Source(s): Williams, 1977; Walther, 1985.

Buchloe dactyloides. Buffalograss. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Cenchrus incertus. Sandburgrass. Native perennial. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Chasmanthium latifolium. Creek oats. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Chloris cucullata. Hooded windmillgrass. Native annual. Source(s): Williams, 1977; Walther, 1985.

Chloris verticillata. Tumble windmillgrass. Native perennial. Source(s): Walther, 1985.

Cynodon dactylon. Bermudagrass. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.

Dichanthelium lindheimeri (*Panicum lindheimeri*). Lindheimer panicgrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Dichanthelium oligosanthes var. *scribnerianum* (*Panicum oligosanthes* var. *scribnerianum*). Scribner panicgrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Dichanthelium pedicellatum (*Panicum pedicellatum*). Cedar panicgrass. Source(s): Williams, 1977; Walther, 1985.

Digitaria ciliaris (*Digitaria adscendens*). Southern crabgrass. Native annual. Source(s): Williams, 1977; Walther, 1985.

Digitaria cognata (*Leptoloma cognatum*). Fall witchgrass. Source(s): Williams, 1977.

Echinochloa colona. Jungle-rice. Naturalized annual. Source(s): Walther, 1985.

Eleusine indica. Goosegrass. Naturalized annual. Source(s): Williams, 1977; Walther, 1985.

Elymus virginicus. Virginia wildrye. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Eragrostis curtipedicellata. Gummy lovegrass. Native perennial. Source(s): Walther, 1985.

Eragrostis intermedia. Plains lovegrass. Native perennial. Source(s): Walther, 1985.

Eragrostis lugens. Mourning lovegrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Leptochloa dubia. Green sprangletop. Native perennial. Source(s): Walther, 1985.

Limnodea arkansana. Ozarkgrass. Native annual. Source(s): ; Walther, 1985.

Melica nitens. Shining melic. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Muhlenbergia involuta. Canyon muhly. Endemic perennial. Source(s): Walther, 1985.

Muhlenbergia lindheimeri. Lindheimer muhly. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Muhlenbergia reverchonii. Seep muhly. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Panicum capillare. Witchgrass. Native annual. Source(s): Walther, 1985.

Panicum hallii. Hall panicgrass. Native perennial. Source(s): Walther, 1985.

Panicum virgatum. Switchgrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Paspalum dilatatum. Dallisgrass. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.

Paspalum pubiflorum. Hairyseed paspalum. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Paspalum urvillei. Vaseygrass. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.

Schizachyrium scoparium. Little bluestem. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Setaria geniculata. Knotroot bristlegrass. Native perennial. Source(s): Walther, 1985.

Setaria scheelei. Southwestern bristlegrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

Sorghastrum nutans (*Sorghastrum avenaceum*). Indiangrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Sorghum halepense. Johnsongrass. Naturalized perennial. Source(s): Williams, 1977; Walther, 1985.
Sporobolus asper. Tall dropseed. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Sporobolus vaginiflorus. Poverty dropseed. Native annual. Source(s): Williams, 1977; Walther, 1985.
Stipa leucotricha. Texas wintergrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Tridens albescens. White tridens. Native perennial. Source(s): Walther, 1985.
Tridens buckleyanus. Buckley tridens. Endemic perennial. Source(s): Wild Basin News Vol. 4, No. 6 (December 1982-January 1983); Walther, 1985.
Tridens flavus var. *flavus*. Purpletop tridens, greasegrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.
Tridens muticus. Slim tridens. Native perennial. Source(s): ; Walther, 1985.
Tripsacum dactyloides. Eastern gamagrass. Native perennial. Source(s): Williams, 1977; Walther, 1985.

POLEMONIACEAE PHLOX FAMILY

Gilia incisa. Cutleaf gilia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Gilia rigidula. Blue gilia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Phlox roemeriana. Goldeneye phlox. Endemic annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

POLYGALACEAE MILKWORT FAMILY

Polygala alba. White milkwort. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Polygala lindheimeri. Purple milkwort, Lindheimer milkwort. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

POLYGONACEAE KNOTWEED FAMILY

Rumex sp. Dock. Source(s): Walther, 1985; Muzos, 1986.

PRIMULACEAE PRIMROSE FAMILY

Dodecatheon meadia. Shooting-stars. Native perennial. Source(s): Wild Basin News Vol. 3, No. 3 (June-July 1981); Wild Basin News Vol. 6, No. 2 (April-May 1984); Walther, 1985; Muzos, 1986. Several dozen plants have been reported from two locations within Wild Basin.
Samolus ebracteatus var. *cuneatus* (*Samolus cuneatus*). Largeflower brookweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Samolus parviflorus. Smallflower brookweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

RANUNCULACEAE BUTTERCUP FAMILY

Anemone berlandieri (*Anemone heterophylla*). Tenpetal anemone. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Clematis drummondii. Old man's beard. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Delphinium carolinianum. Carolina larkspur. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

RHAMNACEAE BUCKTHORN FAMILY

Berchemia scandens. Alabama supplejack, rattanvine. Native woody vine. Source(s): Williams, 1977; Walther, 1985.
Ceanothus herbaceus. Inland ceanothus. Native shrub. Source(s): Williams, 1977; Walther, 1985.
Colubrina texensis. Texas colubrina. Native shrub. Source(s): Williams, 1977; Walther, 1985.
Condalia hookeri. Brasil. Native shrub or small tree. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.
Rhamnus caroliniana. Carolina buckthorn. Native tree. Source(s): Williams, 1977; Walther, 1985.

ROSACEAE ROSE FAMILY

Geum canadense. White avens. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Prunus mexicana. Mexican plum. Native tree. Source(s): Williams, 1977; Walther, 1985.
Prunus rivularis. Hog plum, creek plum. Native shrub. Source(s): Walther, 1985.
Prunus serotina ssp. *eximia*. Escarpment black cherry. Native tree. Source(s): Williams, 1977; Walther, 1985.
Rubus trivialis. Southern dewberry. Native shrub. Source(s): Williams, 1977; Walther, 1985.

RUBIACEAE MADDER FAMILY

Cephalanthus occidentalis. Buttonbush. Native shrub. Source(s): Williams, 1977.
Galium aparine. Clingon bedstraw. Native annual. Source(s): Muzos, 1986.
Galium virgatum. Wand bedstraw. Native annual. Source(s): Williams, 1977; Muzos, 1986.
Hedyotis nigricans. Prairie bluets. Native perennial. Source(s): Williams, 1977; Muzos, 1986.

RUTACEAE CITRUS FAMILY

Ptelea trifoliata. Wafer ash. Native tree. Source(s): Williams, 1977; Walther, 1985.
Thamnosma texanum. Texas desert-rue. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Zanthoxylum hirsutum. Toothache tree, tickle-tongue. Source(s): Williams, 1977; Walther, 1985.

SALICACEAE WILLOW FAMILY

Populus deltoides. Eastern cottonwood. Native tree. Source(s): Walther, 1985.
Salix nigra. Black willow. Native tree. Source(s): Williams, 1977; Walther, 1985.

SAPINDACEAE SOAPBERRY FAMILY

Sapindus saponaria var. *drummondii*. Western soapberry. Native tree. Source(s): Williams, 1977; Walther, 1985.
Ungnadia speciosa. Mexican buckeye. Native shrub. Source(s): Williams, 1977; Walther, 1985.

SAPOTACEAE SAPODILLA FAMILY

Bumelia lanuginosa. Gum elastic, coma, bumelia. Native tree. Source(s): Williams, 1977; Walther, 1985.

SCROPHULARIACEAE FIGWORT FAMILY

Agalinis edwardsiana. Plateau gerardia. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Bacopa monnieri. Water-hyssop. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Castilleja purpurea var. *lindheimeri*. Lindheimer paintbrush. Endemic perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Leucophyllum frutescens. Cenizo. Native shrub. Source(s): Walther, 1985. Williams (1977) noted that this species was found in the watershed of Bee Creek but not within the Wild Basin property itself.

Leucospora multifida. Cutleaf conobea. Native annual. Source(s): Walther, 1985; Walther, 1985; Muzos, 1986.

Maurandya antirrhiniflora. Snapdragon-vine. Native perennial herbaceous vine. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Mecardonia vandellioides. Yellow mecardonia. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Verbascum thapsus. Common mullein. Naturalized biennial. Source(s): Walther, 1985; Muzos, 1986.

Veronica peregrina. Wandering speedwell. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Veronica polita. Wayside speedwell. Adventive annual. Source(s): Walther, 1985; Muzos, 1986.

SOLANACEAE POTATO FAMILY

Bouchetia erecta. Erect bouchetia. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Chamaesaracha coronopus. False ground-cherry. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

Datura inoxia. Jimsonweed. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Physalis heterophylla. Ground-cherry. Native perennial. Source(s): Walther, 1985.

Physalis viscosa var. *cinarescens*. Clammy ground-cherry. Native perennial. Source(s): Williams, 1977; Muzos, 1986.

Solanum elaeagnifolium. Silverleaf nightshade. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

Solanum ptyacanthum (*Solanum americanum*). Black nightshade. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Solanum rostratum. Buffalobur. Native annual. Source(s): Walther, 1985; Muzos, 1986.

Solanum triquetrum. Texas nightshade. Native sub-shrub. Source(s): Walther, 1985; Muzos, 1986.

TYPHACEAE CAT-TAIL FAMILY

Typha domingensis. Common cat-tail. Native perennial. Source(s): Walther, 1985; Muzos, 1986.

ULMACEAE ELM FAMILY

Celtis laevigata. Sugar hackberry. Native tree. Source(s): Williams, 1977; Walther, 1985.

Celtis reticulata. Netleaf hackberry. Native tree. Source(s): Williams, 1977; Walther, 1985.

Ulmus americana. American elm. Native tree. Source(s): Williams, 1977; Walther, 1985.

Ulmus crassifolia. Cedar elm. Native tree. Source(s): Williams, 1977; Walther, 1985.

URTICACEAE NETTLE FAMILY

Parietaria floridana. Florida pellitory, cucumberweed. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

VALERIANACEAE VALERIAN FAMILY

Valerianella radiata. Corn-salad. Native annual. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

VERBENACEAE VERVAIN FAMILY

Callicarpa americana. American beautyberry. Native shrub. Source(s): Williams, 1977; Walther, 1985.
Lantana horrida. Common lantana. Native shrub. Source(s): Williams, 1977; Walther, 1985.
Lantana montividensis. Weeping lantana. Naturalized shrub. Source(s): Walther, 1985.
Phyla nodiflora (incl. *Phyla incisa*). Fogfruit. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbena bipinnatifida. Dakota vervain. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbena canescens. Gray vervain. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbena neomexicana. New Mexico vervain. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.
Verbena officinalis subsp. *halei* (*Verbena halei*). Texas vervain. Native perennial. Source(s): Walther, 1985; Muzos, 1986.
Vitex agnus-castus. Chaste-bush. Naturalized shrub. Source(s): Williams, 1977; Walther, 1985.

VIOLACEAE VIOLET FAMILY

Viola missouriensis. Missouri violet. Native perennial. Source(s): Williams, 1977; Walther, 1985; Muzos, 1986.

VISCACEAE MISTLETOE FAMILY

Phoradendron tomentosum. Mistletoe. Native woody parasite. Source(s): Williams, 1977; Walther, 1985.

VITACEAE GRAPE FAMILY

Ampelopsis arborea. Peppervine. Native woody vine. Source(s): Williams, 1977; Walther, 1985.
Cissus incisa. Ivy treebine. Native woody vine. Source(s): Williams, 1977; Walther, 1985.
Parthenocissus heptaphylla. Sevenleaf creeper. Endemic woody vine. Source(s): Williams, 1977; Walther, 1985.
Parthenocissus quinquefolia. Virginia creeper. Native woody vine. Source(s): Williams, 1977; Walther, 1985.
Vitis berlandieri. Spanish grape, winter grape. Native woody vine. Source(s): Williams, 1977; Walther, 1985.

Vitis mustangensis. Mustang grape. Native woody vine. Source(s): Williams, 1977; Walther, 1985.

Vitis rupestris Scheele. Sand grape. Native woody vine. Source(s): Williams, 1977; Walther, 1985. This rare grape has been collected only once in Travis County, and Wild Basin is the only known protected site in central Texas on which it occurs.

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LISTING of WILD BASIN VERTEBRATES

For birds, please see Appendix: *Birds of Wild Basin Wilderness Preserve Checklist*, updated 2006

These vertebrates are known to be currently living or have been sighted in the Wild Basin Wilderness Preserve as of 31 December 2006. This is knowledge gathered through either actual encounters or indirect signs such as tracks or droppings.

Amphibia (Amphibians)

- Smallmouth Salamander – *Ambystoma texanum*
- Dwarf Salamander – *Eurycea quadridigitata***
- Rio Grande Chirping Frog – *Syrrhophus cystignathoides campi***
- Cliff Chirping Frog – *Syrrophus marnocki*
- Blanchard's Cricket Frog – *Acris crepitans blanchardi*
- Copes Gray Tree Frog – *Hyla chrysoscelis*
- Spotted Chorus Frog – *Pseudacris clarki*
- Spring Peeper – *Pseudacris crucifer*
- Strecker's Chorus Frog – *Pseudacris streckeri*
- Upland Chorus Frog – *Pseudacris triseriata feriarum*
- Eastern Green Toad – *Bufo debilis debilis*
- Rio Grande Leopard Frog – *Rana berlandieri*
- Great Plains Narrowmouth Toad – *Gastrophyryne carolinensis*

**These species, according to Dixon and other herpetologists, do not occur in this area. Their presence in Wild Basin was confirmed in 2001, but the reason is unknown at this time.

Mammalia (Mammals)

Didelphimorphia (Opossums and allies)

- Virginia Opossum – *Didelphis virginiana*

Xenarthra (Armadillos, Sloths and allies)

- Nine-banded Armadillo – *Dasypus novemcinctus*

Chiroptera (Bats)

- Mexican Free-tailed Bat – *Tadarida brasiliensis*

Carnivora (Carnivores)

- Coyote – *Canis latrans*
- Common Gray Fox – *Urocyon cinereoargenteus*
- Ringtail – *Bassariscus astutus*
- Northern Raccoon – *Procyon lotor*
- Western spotted skunk – *Spilogale gracilis*
- Striped Skunk – *Mephitis mephitis*
- Bobcat – *Lynx rufus*

Artiodactyla (Even-toed Ungulates)

- White-tailed Deer – *Odocoileus virginianus*

Rodentia (Rodents)

- Rock Squirrel – *Spermophilus variegatus*
- Eastern Fox Squirrel – *Sciurus niger*
- Texas Mouse – *Peromyscus attwateri*
- White-footed Mouse – *Peromyscus leucopus*
- White-ankled Mouse – *Peromyscus pectoralis*
- Hispid Cotton Rat – *Sigmodon hispidus*
- Eastern Woodrat – *Neotoma floridana*
- North American Porcupine – *Erethizon dorsatum*

Lagomorpha (Hares and rabbits)

- Eastern Cottontail – *Sylvilagus floridanus*
- Black-tailed Jackrabbit – *Lepus californicus*

Osteichthyes (Bony Fish)

- Channel catfish – *Ictalurus punctatus*
- Green sunfish – *Lepomis cyanellus*
- Mosquitofish - *Gambusia affinis*
- Texas shiner – *Notropis amabilis*

Reptilia (Reptiles)

- Common Snapping Turtle – *Testudo serpentina serpentina*
- Texas River Cooter – *Pseudemys texana*
- Eastern Box Turtle – *Terrapene carolina*
- Red-eared Slider – *Trachemys scripta elegans*
- Mediterranean Gecko – *Hemidactylus turcicus*
- Texas Earless Lizard – *Cophosaurus texanus texanus*
- Texas Spiny Lizard – *Sceloporus olivaceus*
- Southern Prairie Lizard – *Sceloporus undulatus consobrinus*
- Green Anole – *Anolis carolinensis*
- Southern Prairie Skink – *Eumeces septentrionalis obtusirostris*
- Four-lined Skink – *Eumeces tetragrammus tetragrammus*
- Ground Skink – *Scincella lateralis*
- Texas Spotted Whiptail – *Cnemidophorus gularis gularis*
- Six-lined Race Runner – *Cnemidophorus sexlineatus sexlineatus*
- Eastern Yellow-bellied Racer – *Coluber constrictor flaviventris*
- Bull Snake – *Pituophis catenifer sayi*
- Red-striped Ribbon Snake – *Thamnophis proximus rubilineatus*
- Eastern Garter Snake – *Thamnophis sirtalis sirtalis***
- Western Cottonmouth – *Agkistrodon piscivorus leucostom*

**This species, according to Dixon and other herpetologists, does not occur in this area. Its presence in Wild Basin was confirmed in 2001, but the reason is unknown at this time.

Amphibian Watch at Wild Basin Preserve

Date: 08/12/2008 **Observers:** Dana Spontak **Location:** Waterfall Overlook

Time

Start	End	Differential (min./person)	Total Effort (min.)
2100	2110	10	10

Atmospheric Data: Open/Shaded

Time	Temp.(oC)	Wind Speed (m/s)	Relative Humidity (%)
Start	27.8/27.3	0.3 / 0.3	
End	27.2/27.0	0.3 / 0.3	

General Comments: Start time began at the sighting of the 5th lightinging bug. Several bird calls (eg. Northern Cardinal). Partially cloudy night sky (very few clouds in the area ~4).

Anurans Heard

Common Name	Scientific Name	Approximate Numbers	Approximate Distance
Blanchard's Cricket Frog	Acris crepitans blanchardi	15+	50 m mostly in pond
Rio Grand Leopard Frog	Rana berlandieri	1 to 5	50m mostly in pond

Anurans Spotted

Common Name	Scientific Name	Location
Blanchard's Cricket Frog	Acris crepitans blanchardi	In the fountain next to the office and in the pond
Rio Grand Leopard Frog	Rana berlandieri	In the fountain next to the office and in the pond

WILD BASIN BIRD CHECKLIST 2006

INTRODUCTION

Wild Basin Wilderness Preserve is located at the eastern edge of the Balcones Canyonlands in central Travis County. Founded by “eight ladies in tennis shoes” in 1975 against overwhelming odds, it now protects a window into the Hill Country’s past. Bisected by Bee Creek and dissected by several of its tributary arroyos, this unique natural area of Glen Rose Limestone includes dry uplands of native grasslands, Texas Red and Platform Live Oaks and Ashe Juniper. Our mixed forest canopy together with our waterfall and fern-covered cliffs offer a densely vegetated understory of plant life. Our pond also offers a unique wetland for bird life. The two-mile trail system offers birders access to these various ecosystems.

The present list contains 194 species. Our unique location at the intersection of the geologic Western and Eastern US means you may see a variety of birds common to both halves of the United States. Common year-round species include Black-crested Titmice, Ladder-backed Woodpeckers, and Bewick’s Wrens. Cliff Swallows, Black-capped Vireos, Painted Buntings, Spotted Towhees and Scissor-tailed Flycatchers are a few of the many migrant species. Out-of-state birders would take special interest in the Golden-fronted Woodpecker, Black-chinned Hummingbird and Rufous-crowned Sparrow. From the end of March through June the endangered Golden-cheeked Warbler nests within Wild Basin and may be seen or heard calling.

••The use of playback tapes of bird songs is not allowed. Please help us protect the natural bird communities in the preserve by not disrupting normal bird activity patterns. All visitors are required to stay on trail at all times.

This checklist was compiled from staff records, volunteer sightings and the Hamilton Pool Preserve bird list. *Please help us update our checklist by providing sighting data to Preserve staff*.



LEGEND

A – Abundant
C - Common
U - Uncommon
R - Rare

SP - Spring (Mar.-May)
SU - Summer (June-Aug.)
F - Fall (Sept.-Nov.)
W - Winter (Dec.Feb.)

Common and scientific names and sequence follow the *Check-list of North American Birds*, 7th ed. (A.O.U. 1998) through the 44th supplement.

Name of Bird	(Season of Year)			
	SP	**SU**	**F**	**W**
Pelicans PELECANIDAE				
American White Pelican	R-O		R - O	
Cormorants				
PHALACROCORACIDAE				
Double-crested Cormorant	R-O			R - O
Herons, Egrets ARDEIDAE				
Great Blue Heron	U	U	U	U
Snowy Egret	R	R		
Little Blue Heron				R
Cattle Egret				R - O
Green Heron	U	U		
Ducks, Geese ANATIDAE				
Wood Duck	U	U	U	U
Vultures CATHARTIDAE				
Turkey Vulture	A-O	A-O	A-O	A-O
Black Vulture	A-O	A-O	A-O	A-O
Hawks, Kites, Ospreys ACCIPITRIDAE				
Mississippi Kite	R-O		R-O	
Sharp-shinned Hawk	R-O		R-O	R - O
Cooper's Hawk	R-O		R-O	R - O
Red-shouldered Hawk	R-O			
Broad-winged Hawk	U-O		U-O	
Swainson's Hawk	U-O		U-O	
Red-tailed Hawk	C-O	U-O	C-O	C-O

Bald Eagle				R - O
Osprey	R-O		U-O	
Kestrels, Caracara FALCONIDAE				
American Kestrel	U-O		U-O	U-O
Turkeys, Quail PHASIANIDAE				
Northern Bobwhite	U	U	U	U
Cranes GRUIDAE				
Sandhill Crane	R-O		R-O	R - O
Plovers CHARADRIIDAE				
Killdeer	C	C	C	C
Sandpipers, Woodcocks SCOLOPACIDAE				
Solitary Sandpiper	R	R		
Upland Sandpiper	R	R		
Long-billed Curlew	R			
American Woodcock	R			
Gulls LARIIDAE				
Franklin's Gull	U-O			
Doves COLUMBIDAE				
Mourning Dove	C	C	C	C
White-winged Dove	U-O			
Inca Dove	U	U	U	U
Common Ground Dove	R			
Rock Dove	R-O			
Roadrunners, Cuckoos CUCULIDAE				
Yellow-billed Cuckoo	U	U		
Black-billed Cuckoo	R			
Greater Roadrunner	U	U	U	U
Owls STRIGIDAE				
Great Horned Owl	U	R	R	U

Eastern Screech-Owl	U	U	U	U

Goastsuckers and Nightjars				
CAPRIMULGIDAE				
Common Poorwill	R	R		
Chuck-will's-widow	U	C	U	
Whip-poor-will	R			
Common Nighthawk	C	C	U	
Swifts **APODIDAE**				
Chimney Swift	C-O	C-O	C-O	
Hummingbirds **TROCHILIDAE**				
Black-chinned Hummingbird	C	C	U	
Ruby-throated Hummingbird	U	U	U	
Kingfishers **ALCEDINIDAE**				
Belted Kingfisher	C	C	U	
Woodpeckers **PICIDAE**				
Golden-fronted Woodpecker	U			
Red-bellied Woodpecker	U	U	U	U
Yellow-bellied Sapsucker	U			R
Downy Woodpecker	U	U	U	U
Ladder-backed Woodpecker	C	C	C	C
Northern Flicker	U		C	C

Flycatchers, Phoebes				
TYRANNIDAE				
Olive-sided Flycatcher	U		R	
Eastern Wood-Pewee	U	R	R	
Empidonax species	U	R	R	
Yellow-bellied Flycatcher	R	R		
Least Flycatcher	U		R	
Eastern Phoebe	C	C	C	R
Ash-throated Flycatcher	U	C	R	
Great Crested Flycatcher	U	U	U	
Western Kingbird		R		
Scissor-tailed Flycatcher	U	U		
Shrikes				
LANIIDAE				
Loggerhead Shrike	R	R	R	R
Vireos				
VIREONIDAE				
Red-eyed Vireo	R	R		
Philadelphia Vireo	R			
Bell's Vireo	R	R		
Black-capped Vireo	U	U		
White-eyed Vireo	C	C	R	R
Blue-headed Vireo	R		R	R
Jays, Crows, Ravens				
CORVIDAE				
Blue Jay	C	C	C	C
Western Scrub-Jay	C	C	C	C
Common Raven	C	R	U	U
American Crow	C	C	U	C

Swallows, Martins				
HIRUNDINIDAE				
Purple Martin	C	C		
N. Rough-winged Swallow	C	U	C	
Cliff Swallow	U	U		
Barn Swallow	U	U		
Titmice, Chickadees				
PARIDAE				
Black-crested Titmouse	A	A	A	A
Carolina Chickadee	A	A	A	A
Bushtits				
AEGITHALIDAE				
Bushtit				R
Wrens				
TROGLODYTIDAE				
Carolina Wren	C	C	C	C
Bewick's Wren	A	A	A	A
House Wren	R		R	R
Winter Wren				R
Kinglets				
REGULIDAE				
Golden-crowned Kinglet	C		U	U
Ruby-crowned Kinglet	A		C	A
Gnatcatchers				
SYLVIIDAE				
Blue-gray Gnatcatcher	C	U	U	
Thrushes				
TURDIDAE				
American Robin	C	R	U	A
Swainson's Thrush	R			
Hermit Thrush	C	U		U

Mockingbirds, Thrashers				
MIMIDAE				
Gray Catbird	R			
Northern Mockingbird	C	C	C	C
Brown Thrasher	U	U	U	U
Starlings				
STURNIDAE				
European Starling	R-O		R-O	R-O
Waxwings				
BOMBYCILLIDAE				
Cedar Waxwing	C		U	A
Wood Warblers				
PARULIDAE				
Northern Parula	R			
Orange-crowned Warbler	C		R	U
Tennessee Warbler	R			
Nashville Warbler	C		R	
Yellow Warbler	R			
Chestnut-sided Warbler	R			
Magnolia Warbler	U			
Blackburnian Warbler	R			
Yellow-rumped Warbler	C		C	C
Townsend's Warbler	R			
Black-throated Green Warbler	U		R	
Golden-cheeked Warbler	C	R		
Bay-breasted Warbler	R			
Black-and-white Warbler	C	R	R	
American Redstart	U		R	
Ovenbird	R			

WOOD WARBLERS (CONTINUED)				
Northern Waterthrush	R			
Louisiana Waterthrush	U	U		
Common Yellowthroat	U			
Wilson's Warbler	U		U	
Canada Warbler	R		R	
Hooded Warbler	R			
Yellow-breasted Chat	U	C	R	
Tanagers THRAUPIDAE				
Summer Tanager	U	U	R	
Western Tanager	R			
Cardinals CARDINALIDAE				
Northern Cardinal	A	A	A	A
Rose-breasted Grosbeak	R			
Blue Grosbeak		R		
Lazuli Bunting	R			
Indigo Bunting	R	R		
Painted Bunting	C	C		
Dickcissel	U			
Emberizids EMBERIZIDAE				
Spotted Towhee	C		C	C
Rufous-crowned Sparrow	C	C	C	C
Field Sparrow	A	C	A	A
Clay-colored Sparrow	R			
Chipping Sparrow	U	U	U	A
Grasshopper Sparrow	R			
Savannah Sparrow			U	U
Harris' Sparrow				R

White-throated Sparrow	C		C	C
White-crowned Sparrow	U			U
Fox Sparrow				R
Song Sparrow				U
Lincoln's Sparrow	U		U	U
Dark-eyed Junco	U		U	A
Meadowlarks, Blackbirds & Orioles ICTERIDAE				
Meadowlark, species	R	R	R	R
Brown-headed Cowbird	C	C	C	C
Bronzed Cowbird	R	R		
Red-winged Blackbird	R			
Common Grackle	R			
Great-tailed Grackle	U			
Bullock's Oriole	R	U		
Finches FRINGILLIDAE				
Purple Finch				R
House Finch	C	C	C	C
Pine Siskin	R		R	R
Lesser Goldfinch	U	C	U	U
American Goldfinch	U		U	C
Old World Sparrows PASSERIDAE				
House Sparrow	R	R	R	R

White-tailed Deer Census of Wild Basin Wilderness Area Using Modified Hahn Line Technique

Kirstine M. Thorne
December 2008

ABSTRACT

Census data for white-tailed deer (*Odocoileus virginianus*) utilizing Wild Basin Wilderness, Travis County, Texas was collected in two consecutive years (2007 and 2008. The estimated population density for the Wild Basin Wilderness herd is between 2.5 - 4 acres per deer. The ratio does per buck is between 3.8 - 7.7 and the ratio fawns to does is between 0.2 - 0.3. Both of these ratios support the conclusion that the Wild Basin Preserve does not have a healthy white-tailed deer population.

INTRODUCTION

The objective of the Deer Censuses of the Wild Basin Wilderness area is to evaluate the health of white-tailed deer (*Odocoileus virginianus*) herd that utilizes Wild Basin Wilderness in Travis County, Texas.

METHOD

Before beginning a census, the number of acres along the census route upon which deer may be observed is calculated. The previously selected route is driven and at regular intervals (0.10 mile), the vehicle is stopped and the distances to the right and left at which a deer could be seen are measured in yards (line of sight or LOS). Line of sight is not measured across an open draw of gully and cannot exceed 250 yards.

The LOS distances are added together and then divided by the number of stops to provide an average width (in yards) of the census strip. Then, the average width is multiplied by the length of the census route (also in yards) giving the census area in square yards. This number is divided by 4,840 sq. yds per acre to arrive at a final number of acres censused.

There are three types of census methods that are recommended by Texas Parks and Wildlife: Hahn Line, Spotlight Census and Mobile Line (*Deer Census*

Techniques, M Shult and B. Armstong, Texas Parks and Wildlife). A Modified Hahn Line was used:

1. The census route was laid out to follow the route used in 2007, with the exception of Wild Basin Road (east perimeter), which was omitted in order to concentrate on the central area of the wilderness area.
2. LOS measurements were taken at 0.10 mile intervals (as measured using the odometer on the research vehicle). An electronic rangefinder was used to measure the visibility distance. If a LOS was at a driveway or other non-habitat area, the vehicle rolled forward until a measurement could be taken.
3. The census route was surveyed five times by two researchers; a driver and a passenger.
4. The census was conducted between September 1 and October 31, the day before the opening of white-tailed deer season.
5. A census was conducted only when winds were less than 20 miles per hour, relative humidity was less than 70 percent (as measured using a Kestrel® 3000 Pocket Weather ® Meter with Backlight) and cloud cover was less than 50 percent (as estimated by researchers).
6. The census began 30 minutes prior to official sunset.
7. The research vehicle did not exceed 10 miles per hour.
8. Whenever deer were spotted, the driver stopped the vehicle. The driver counted and identified the deer to the left of the vehicle and the passenger counted and identified the deer to the right of the vehicle.
9. All deer observed within the census area were recorded. Deer were not recorded if they were across a draw or gully.
10. Binoculars were used as necessary to identify sex and age. Spotlights were not used.
11. The Wild Basin Wilderness Land Manager notified local fire and police dispatch centers before each survey and provided the description and license plate of the research vehicle. The vehicle also had magnetic signs on the sides and back identifying it as a Wild Basin Wilderness survey vehicle.

RESULTS

Wild Basin Wilderness totals 227 acres. The area surveyed in 2008 totaled 74 acres. The linear distance covered added up to 3.5 miles with line of sight (LOS) measurements taken 35 times. The average LOS distance was 29 yards per side (for a total average LOS width of 58 yards).

Five census surveys were completed (September 4, 5, 6, 19 and 27, 2008) and a total of 145 deer were observed (23 bucks, 96 does, 24 fawns and 2 unknown.) Based on the first 100 deer that were counted, the buck : doe : fawn ratio in 2008 is 1 : 3.76 : 1.12.

DISCUSSION

The total number of deer observed in 2008 was less than that observed in 2007 (145 in 2008 versus 540 in 2007). This is due to a number of reasons. There were fewer survey days in 2008 (5 in 2008 versus 13 in 2007). Although the driven distance surveyed remained the same (3.5 miles or 6160 yards), there were fewer stops in 2008 (35 stops in 2008 versus 43 stops in 2007). The average line of sight measurement was significantly less in 2008, also (58 yards in 2008 versus 122 yards in 2007), which leads to lower estimate of acres surveyed in 2008 than in 2007 (74 acres in 2008 versus 155 acres in 2007)

However, when the overall percent deer by sex is compared, 2008 and 2007 are similar:

2008 Total	Buck	Doe	Fawn	Unkn
145	23	96	24	2
Percent	16%	66%	17%	1%

2007 Total	Buck	Doe	Fawn	Unkn
540	50	390	100	0
Percent	9%	72%	19%	0%

Based on the first 100 deer recorded, sex ratios can be estimated:

2008	Buck	Doe	Fawn
100	17	64	19
Ratios	1.00	3.76	1.12
	0.27	1.00	0.30
	0.89	3.37	1.00

2007	Buck	Doe	Fawn
100	10	77	13
Ratios	1.00	7.70	1.30
	0.13	1.00	0.17
	0.77	5.92	1.00

Based on the table above, it appears that the number of does per buck has decreased from 8 does per buck to 4 does per buck (number rounded) – a 100% increase in the number of bucks. At the same time, the number of fawns per doe has increased from 1 fawn for every 6 does to 1 fawn for ever 3 does (numbers rounded) – also almost a 100% increase in the number of fawns.

In 2008 there were 2.55 acres per deer, down from 2007 when there were 3.69 acres per deer. However, neither year is close to the optimum carry capacity for deer in Travis County which is 15 - 20 acres per deer (J. Kuhl in *Playing Whack-a-Deer at Pace Bend Park*, The Austin Chronicle, February 2, 2007).

CONCLUSION

The preferred diet of white-tailed deer is forbs (broadleaf herbaceous plants) then browse (leaves and twigs of living woody plants). Grasses are less than 15% of a deer's diet (Armstrong, WE and EL Young; White-tailed Deer Management in the Texas Hill Country, Texas Parks and Wildlife, September 2000). When deer population density is greater than 10 - 20 acres per deer, the habitat will be negatively impacted. The estimated population density for the Wild Basin Wilderness herd is between 2.5 - 4 acres per deer.

A good ratio for a deer population is 1.2 - 1.5 does per buck. A healthy herd will have a ratio of 0.8 - 1.20 of fawns to does. (Armstrong, 2000) The ratio at Wild Basin is between 3.8 - 7.7 does per buck and between 0.2 - 0.3 fawns to does. Both of these ratios support the conclusion that the Wild Basin Preserve does not have a healthy white-tailed deer population.

Wild Basin Wilderness Preserve
Emergency Response Plan 2009

Wild Basin Wilderness Preserve reaffirms the principle that the safety and well being of visitors, members, and staff are the primary concern. No plan is a fixed instrument, nor all-inclusive. As situations arise not covered in this plan, remember that the safety of all persons is the primary concern. Protection of facilities and equipment is the secondary concern.

Emergency Numbers

Westlake Fire/EMS	911
Wild Basin EE Center	327-7622
Genevieve Lung cell	203-7095
Security Alarm Co.	327-1469

Accident/Sudden Illness - Emergency

In building:
Call 911. Identify the problem, exact location, and person's name.
Notify the Wild Basin office: 327-7622. Identify the problem, exact location, and person's name.
Care for the injured/ill person until emergency services arrive. Do not move an injured person unless absolutely necessary. If a person is found unconscious, follow accident/sudden illness procedures until relieved by emergency personnel.
Move bystanders or other group members away.
Office will send a person at the 360 gate, to direct the emergency personnel to the injured or ill person.
If school or other groups are here, the teacher or leader should have Emergency Medical Forms or information. Try to make their Emergency Medical Authorization information available to emergency personnel on arrival. Make sure an adult from the group is with an injured or ill child at all times. Teachers or leaders should call their superintendent, council office, or other central authority as soon as possible. A leader from the group should also supervise any other children in the group.
File an accident report.

On the trail:
Call 911. Identify the problem, exact location, and person's name.
Call the Wild Basin office, 327-7622. Identify the problem, exact trail location, and person's name.
Care for the injured/ill person until emergency services arrive. Do not move an injured person unless absolutely necessary. If a person is found unconscious, follow accident/sudden illness procedures until relieved by emergency personnel.
Office will send a person at the 360 gate, to direct the emergency personnel to the injured or ill person.
Move bystanders or other group members away.
If school or other groups are here, the teacher or leader should have Emergency Medical Forms or information. Try to make their Emergency Medical Authorization information available to emergency personnel on arrival. Make sure an adult from the group is with an injured or ill child at all times. Teachers or leaders should call their Superintendent, Council Office, or other central authority as soon as possible. A leader from the group should also supervise any other children in the group.
File an accident report.

Note: adults make the decisions for themselves and any children they brought. Wild Basin can recommend a course of action, but cannot prevent any adult or the children in their care from any actions or from leaving at any time.

Non-emergency
(Accident or illness and non-critical condition)

In building:
Notify the Wild Basin office: 327-7622. Identify the problem, exact location, and person's name.
Care for the injured/ill person if requested.
Move bystanders or other group members away.
Call any contacts on request. Identify the problem, get instructions.
Have group leaders take attendance and account for their group. Ask family groups to do the same. A leader from each group should also supervise all children in the group.
File an accident report.

On the trail:
Notify the Wild Basin office: 327-7622. Identify the problem, exact location, and person's name.
Care for the injured/ill person if requested. Return to the EE center as soon as possible.
Move bystanders or other group members away.
Call any contacts on request. Identify the problem, get instructions.
Have group leaders take attendance and account for their group. Ask family groups to do the same. A leader from each group should also supervise all children in the group.
File an accident report.

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Fire

In building:
Call 911.
Pull the fire alarm.
Evacuate all persons from the building involved, using emergency exits.
If it is safe, walk through the building, checking restrooms, closets, kitchen, caretaker's apartment and all rooms for people.
If the fire is small and fairly contained, use a hand extinguisher to put it out. The building has an extinguishing system—if the fire is larger, leave it for the automatic system. Leave the system on until the fire department comes.
Move visitors and groups away from the building, but out of the path of emergency vehicles, to the brick area near the portable restrooms.
Call camp teachers/guides on trail to advise. Have them keep groups away from the building, and meet up with all near the portable restrooms.
Have group leaders take attendance and account for their group. Ask family groups to do the same.
Keep people away from driveways and building.
Wild Basin staff should stay with all visitors and groups.
Office will send a person to the 360 gate, to direct the emergency personnel to the fire.
File an accident report.

On the preserve:
Call 911.

Call the Wild Basin office, 327-7622.
Specify which trail and approximately where on the trail the fire is located.
Call camp teachers/guides on trail to advise. Have them move all persons away from and upwind of the fire area. They should stay with the group, and move groups to building as quickly as possible.
Office will send a person to the 360 gate, to direct the emergency personnel to the fire.
File an accident report.

If a sprinkler head goes off accidentally for obvious reasons, not a fire:
Evacuate all persons from the building, using emergency exits.
Make a quick check of the building for possible fires.
Call the alarm company to report the false alarm: 327-1469

Power Outage in Building

Procedure:
Do not use the composting toilets in the restrooms.
Close restroom doors; if outage is for a long period of time place plastic bags over composting toilets.
Post "Closed – Do Not Use" signs on restroom doors. Two portable toilets in the parking lot will still be available for use.
Land line phone service will be out. Use cell phones instead.
Ask visitors not to use any water. Water will be limited to what's in the tank at the time of power outage, since the well pump will not function.
Whenever power goes out, the fire alarm calls the alarm company. Since they cannot call us, staff should call the alarm company on a cell phone and explain the power outage: 327-1469.
Shut down and turn off all computers and electronic equipment within 5 minutes.
Don't forget to remove restroom signs and restart all electronic equipment when power returns.
File an accident report.

Tornado

Tornado watch:
Office staff will monitor internet radar, radio, and sky for signs of a tornado.
Call camp teachers/guides on trail to advise.
Advise visitors and groups in and around building. Keep organized groups in or near the building.

Tornado warning:
Call camp teachers/guides on trail to advise. Move groups to building as quickly as possible.
Move all persons to main floor interior rooms (kitchen, main office) away from doors and windows.
Office staff will monitor internet radar, radio, and sky for signs of a tornado.
Do not leave the interior shelter until the all-clear.
Have group leaders take attendance and account for their group. Ask family groups to do the same. A leader from each group should also supervise all children in the group.

Tornado touchdown:
Call 911.
Call camp teachers/guides on trail to advise. Move groups to building as quickly as possible.
Care for any injured until emergency services arrive. Do not move any injured person unless not moving them will cause further injury or to reach someone else who needs immediate first aid.
Office will send a person to the 360 gate, to direct the emergency personnel to the injured or ill.

If school or other groups are here, the teacher or leader should have Emergency Medical Forms or information. Try to make their Emergency Medical Authorization information available to emergency personnel on arrival. Make sure an adult from the group is with an injured or ill child at all times. Teachers or leaders should call their Superintendent, Council Office, or other central authority as soon as possible. A leader from each group should also supervise all children in the group.
Move uninjured persons away from the damaged areas. File an accident report.

Note: adults make the decisions for themselves and any children they brought. Wild Basin can recommend a course of action, but cannot prevent any adult or the children in their care from any actions or from leaving at any time.

Thunderstorm

Thunderstorm watch:
Office staff will monitor internet radar, radio, and sky for signs of a thunderstorm.
Call camp teachers/guides on trail to advise.
Advise visitors and groups in and around building. Keep organized groups in or near the building.

Thunderstorm warning/occurence:
Call camp teachers/guides on trail. Move groups to building as quickly as possible.
Office staff will continue to monitor internet radar, radio, and sky for signs of a thunderstorm.
If the power goes out, see Power Outage/Brownout and follow procedure.

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Hazardous Winter Conditions

Winter storm watch:
Office staff will monitor internet radar, radio, and sky for signs of a winter storms.
Call camp teachers/guides on trail to advise.
Advise visitors and groups in and around building. Keep organized groups in or near the building.

Winter storm warning/occurence:
Call camp teachers/guides on trail. Move groups to building as quickly as possible.
Office staff will continue to monitor internet radar, radio, and sky for signs of a winter storm.
If the power goes out, see Power Outage/Brownout and follow procedure.
If ice forms on stairs, porch, and trailhead, sprinkle sand to help diminish the danger.

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Lost/Missing Person

The WB office should send someone through the parking lot to the 360 gate to record all vehicle make, model, and license plate numbers. Note the time as they arrive or leave. This person can also direct emergency personnel when they arrive.

In building:

Call 911. Identify the problem, exact location, name and a description of the missing person.
Notify the Wild Basin office: 327-7622. Identify the problem, exact location, name and a description of the missing person. Note the name and phone number of the reporting person. Have the reporting person stay in the main office.
Walk through the building, checking restrooms, upstairs rooms and closets, main hall, porch, under porch storage, private staff rooms, and all offices for the missing person. If the missing person is possibly sighted, attempt to bring the missing person to the reporting person, ask the missing person to remain with you or, if he/she will not, follow and continue to report the missing person's location.
Station a volunteer or staff member outside the building, to watch the building entrance and exit. That person should look for the missing person leaving or entering the building. If the missing person is possibly sighted, attempt to bring the missing person to the reporting person, ask the missing person to remain with you or, if he/she will not, follow and continue to report the missing person's location.
If the missing person is not found after a thorough search of the building, begin searching trails (see below). When emergency personnel arrive, the person at the gate should tell them what has been done. Assist the emergency personnel as they lead the search.
If school or other groups are here, the teacher or leader should have Emergency Medical Forms or information. Try to make their Emergency Medical Authorization information available to emergency personnel on arrival. Teachers or leaders should call their superintendent, council office, or other central authority as soon as possible. A leader from the group should also supervise any other children in the group.
Ask family groups to account for their members.
Keep people away from driveways and building.
One staff member should stay with all visitors and groups.
File an accident report.

On the trail:
Call 911. Identify the problem, exact location, name and a description of the missing person.
Call the Wild Basin office, 327-7622. Identify the problem, exact location, name and a description of the missing person. Note the name and phone number of the reporting person. Have the reporting person stay in the main office.
Quickly search the building, evacuate all the people, then lock the building and organize any volunteers and staff to begin a search of the trails.
Leave one volunteer or staff member outside the building, to watch the building entrance and exit. That person should look for the missing person leaving or entering the building.
Each search team should have at least two people, and should take a cell phone. Begin with the most likely trail (where he/she was last seen or those closest to the building). Call for the missing person while searching.
If the missing person is possibly sighted, attempt to bring the missing person to the reporting person, ask the missing person to remain with you or, if he/she will not, follow and continue to report the missing person's location.
When emergency personnel arrive, the person at the gate should tell them what has been done. Assist the emergency personnel as they lead the search.
If school or other groups are here, the teacher or leader should have Emergency Medical Forms or information. Try to make their Emergency Medical Authorization information available to emergency personnel on arrival. Teachers or leaders should call their superintendent, council office, or other central authority as soon as possible. A leader from the group should also supervise any other children in the group.
Ask family groups to account for their members.
Keep people away from driveways and building.
One staff member should stay with all visitors and groups.

File an accident report.

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Threatening Person

Call 911. Identify the problem and exact location.
Get as many people to safety and away from the threat as possible. In a hold up, give whatever the person wants.
If possible office will send a person to the 360 gate, to direct the emergency personnel.

If the threat is inside the building:
Evacuate as many people as possible. Move visitors and groups away from the building, but out of the path of emergency vehicles, to the brick area near the portable restrooms.
Call camp teachers/guides on trail to advise them not to return to the building. Have them keep groups away from the building, and walk off trail to meet near the portable restrooms.
Lock as many interior doors as possible.
Have group leaders take attendance and account for their group. Ask family groups to do the same. A leader from each group should also supervise all children in the group.
If possible office will send a person to the 360 gate, to direct the emergency personnel.

If the threat is outside the building:
Keep all visitors and groups inside, away from windows.
Call camp teachers/guides on trail to advise them not to return to the building. Have them keep groups away from the building, and meet at the east side access of the preserve if necessary.
Lock as many exterior doors as possible.
Have group leaders take attendance and account for their group. Ask family groups to do the same. A leader from each group should also supervise all children in the group.

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