



**ST. EDWARD'S<sup>®</sup>**  
**U N I V E R S I T Y**

Wild Basin Creative Research Center

**Wild Basin Wilderness Preserve**

**2013 Annual Report**

(October 1, 2012 – September 30, 2013)

Submitted by

Wild Basin Creative Research Center and St. Edward's University

to

Travis County Commissioners Court  
And Transportation and Natural Resources

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## **OVERVIEW OF PRESERVE MANAGEMENT**

The Wild Basin Wilderness Preserve staff implements the policies and priorities set forth by both the previous Committee for Wild Basin Wilderness, Inc., and the current owner and manager St. Edwards University (SEU), while maintaining accordance with regulations established by the Balcones Canyonlands Conservation Plan and Travis County. In 2009, Wild Basin was incorporated into St. Edward's University's School of Natural Sciences. Wild Basin now serves as an interdisciplinary laboratory for SEU that supports environmental education, research, and conservation. Through this fortunate and welcomed merger, Wild Basin continues to support environmental education, research, conservation and preservation. This merger and growing collaboration has enhanced past programs and created novel research opportunities for Wild Basin, SEU, and the Balcones Canyonlands Preserve (BCP).

Throughout 2012 and 2013, Wild Basin staff devoted their time to daily management and enhancement activities, including scheduling and supervising educational programs, practicing land management, coordinating and training volunteers and trail guides, as well as promoting Wild Basin through various events in Austin's environmental community. Wild Basin staff has made a huge effort to increase the awareness of the BCP and its connection to Wild Basin and SEU by designing an education center that will be completed no later than December 2014. Additionally, staff spoke to numerous SEU classes on conservation issues and current land management practices taking place at Wild Basin and within the BCP.

Wild Basin's education and land management programs are designed to promote conservation and environmental awareness, while encouraging and demonstrating land stewardship practices. Situated at the periphery of the Texas Hill Country and surrounded by commercial and residential growth in west Austin, Wild Basin is a singular and significant conservation property for Travis County and the larger BCP. Its urban proximity supports the incursion of invasive species and is a source for pollution into the watershed. Additional forms of pollution, such as air, noise and light, also impact Wild Basin's more sensitive components. Yet through the promising merger with SEU and by continuing past efforts to promote conservation, research, and environmental awareness, Wild Basin aspires to become an exemplary model for urban preserves and a gateway to the BCP.

## **TRAIL MAINTENANCE, RESTORATION AND CONSTRUCTION**

Our vision is to preserve endangered species habitat and to educate students and the general public about the role Wild Basin and the BCP has in maintaining habitat integrity and ecosystem services. Together with our partners, we are:

- Managing and restoring a mosaic of habitats indigenous to Wild Basin, including oak-juniper woodlands, riparian corridors, semi-open grasslands and cedar breaks
- Protecting native biodiversity
- Protecting habitat for the federally endangered golden-cheeked warbler and black-capped vireo
- 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 preserves the regional flora and fauna, while minimizing impacts to the preserve's biotic community and inherent beauty

### *Trail maintenance*

- Vegetation on designated trails (Appendix A) was pruned throughout the year to maintain a visible trail for visitors. Well-maintained trails will minimize confusion of trail vs no trail areas so the public can easily and efficiently get to scenic areas. This maintenance is done weekly to every other week, keeping up with vegetative growth.
- Throughout the year as "social trails" (informal trails created by public or animals) were created, signs were erected indicating that the area was not a trail and dead and downed material was placed to deter foot traffic by humans and wild animals.
- Self-guided markers (12) were replaced on the trail.
- Water had eroded and uplifted a large stepping-stone on the down slope of the rerouted Creek trail in July 2013. The step was dug out and replaced and water was successfully diverted off the trail again (Appendix B).
- The southeast side of the Yaupon trail needed a lot of work. There is quite a bit of erosion and rotting of the juniper logs. We replaced three log steps and converted one of the steps into a water diversion bar to help prevent future run off and damage to the logs (Appendix B).

### *Restoration*

- Land management activities use only native juniper for trail/erosion bars and native limestone for steps and gravel 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 to cultural and archaeological resources.
- In November 2012, the closed trail to the pond and back gate was pruned to maintain foot traffic access in case of emergency. This trail is of concern for the Westlake Fire Department as it may be the only way homeowners on Wild Basin Ledge Rd. can escape if a fire is coming from the east (Appendix C). This trail should remain closed to the public (except for authorized neighbors) as it is a dead-end trail off of the main

trail system and is unmarked (no signs) causing confusion for visitors. This trail is currently depicted on all maps, but is being removed as maps are being updated.

- Trash on 360 was picked up on several occasions throughout the year to prevent it from traveling onto the preserve and into Bee Creek.

### *Construction*

- A new bench was placed at the waterfall overlook in November 2012 to replace the one that was becoming unsafe.

## **BOUNDARY MANAGEMENT**

Staff performed three perimeter walks between October 2012 and September 2013 to check the integrity of fencing and boundary markers. Brush was cleared to provide easier patrolling on line-of-sight pathways along all boundaries.

- South Perimeter Fence – In November 2012 the fence line was walked and noted that all fencing was in good condition.
- In the beginning of July 2013 the 360 perimeter was walked and an abundance of trash was found and subsequently cleaned up during a workday in September.
- At the end of July 2013 the rest of the fence perimeter was walked. The fence line was steep and dense with brush in areas, but the fence looked good along the southeastern edge. However, there were two spots that have been cut and rolled back just off the Yaupon trail (Figure 1). It appears these two areas are from neighbors that had cut the fence to gain access to Wild Basin property. The fence will need to be repaired.
- In August the perimeter was walked again to give a student mapping invasive species experience with our boarder and to document some species at the edge of the property. The fence line looked the same.

## **VEGETATION MANAGEMENT**

Preserve staff and volunteers continued to aggressively remove invasive, non-native species, such as japanese honeysuckle (*Lonicera japonica*), bastard cabbage (*Rapistrum rugosum*), chinese tallow (*Triadica sebifera*), Chinaberry (*Melia azedarach*), Firethorn (*Pyracantha coccinea*), japanese ligustrum (*Ligustrum japonicum*), chinese privet (*Ligustrum sinense*), Nandina (*Nandina domestica*), King ranch bluestem (*Bothriochloa ischaemum*), Johnson grass (*Sorghum halepense*), vitex (*Vitex agnus-castus*), and giant cane (*Arundo donax*), among others (Appendix D). Land manager Mitch Robinson, a certified pesticide applicator, oversaw volunteers and staff during pesticide application as they continued to suppress the few persistent invasive species until May 2013. Since June 2013 we are reassessing the herbicide protocol and may explore non-chemical control methods on the property.

# Wild Basin Wilderness Preserve: Fence Cuts



**Figure 1.** Map of fence cuts found on the boundary walk in July 2013.

- Wild Basin staff continued installing deer exclosures of hog wire cages around stands of native trees and shrubs to prohibit excessive browse by deer and other animals.
- As of July 2013, documentation of rare plants are being cataloged using GIS and mapped annually to understand where and when populations are occurring (Appendix E).
- During a storm in October 2012 a large, mature ashe juniper fell across the perimeter fence in the southwest corner of the preserve, along Yaupon Valley Rd. The fallen tree was on the fence line and required attention and removal. The dead tree was cut into movable pieces that were subsequently distributed downslope.
- A hackberry (*Celtis laevigata*) fell in the parking lot in February 2013. This tree was removed and mulched.
- Aaron Waters, a Masters student in Environmental Management and Sustainability, has agreed to help start a project mapping all of our invasive plants. He is using ArcGIS to complete this project. He is incorporating our rare plants so we can then make a strategic plan to target some areas of Wild Basin for invasive removal and encourage the growth of rare plants.
- In August 2013, Kendra Abbott met with Renee Fields from the county to get their herbicide protocol on several non-native invasive plant species. Copies of the forms used by Travis County were acquired so that herbicide use can be more efficiently documented.
- Found glass mountain crested coralroot (*Hexalectris nitida*), on the trails at Wild Basin on August 17, 2013. We are creating shapefiles for this rare species so we can track them over time (Appendix E).

## WILDLIFE MANAGEMENT

- Golden-cheeked warbler (GCWA) (*Setophaga chrysoparia*) — During the 2013-nesting season, approximately 35 independent surveys were conducted at Wild Basin by the City of Austin BCP staff. The surveys were executed in partnership and according to the protocols of the City of Austin's Balcones Canyonlands Preserve GCWA Demographic Project (City of Austin, Travis County, U.S. Forest Service, 2012 Annual report: golden-cheeked warbler (*Setophaga chrysoparia*) monitoring program, Balcones Canyonlands Preserve. Austin, Texas). There were 5 pairs of GCWA at Wild Basin in 2013 and only 3 of them had successful fledglings (See Appendix F for full report).
- Texas madrone (*Arbutus xalapensis*) — With the assistance of student volunteers, Professor William Quinn made a complete survey of the madrones at Wild Basin, including assessing health, diameter at breast height, slope, and aspect. In 2012, 18 trees were found but no other data was documented. In 2013 17 trees were located and 31% were dead. An ANOVA was run on the 17 trees to see if aspect had anything to do with tree health. The results were not significant, meaning there was no relationship with aspect and health.

- White-tailed feer (*Odocoileus virginianus*) — There was no deer survey conducted in 2012.
- Salamander Survey (*Eurycea sp.*) — In August 2013, Travis LaDuc, Assistant Curator of Herpetology at the University of Texas Natural History Collections, and Nathan Bendik from the city of Austin, came to Wild Basin to look at potential salamander habitat. We looked at multiple locations along the watershed and found that there are several sites with suitable habitat and they encouraged us to come up with a sampling protocol and survey for the salamanders.

## WATER QUALITY AND QUANTITY

Water quality testing was started in June of 2012 and continued through March of 2013 by Wild Basin staff. The protocol used was the Colorado River Watch Network Water Quality Monitoring. Several different parameters were tested and the results are included below (Table 1). All data from water quality testing at Wild Basin can be found at <https://crwn.lcra.org/events.aspx?qrySite=72>

**Table 1.** Water quality parameters tested with Colorado River Watch Network at Wild Basin (CRWN Site #72). Surveyor was M. Robinson.

Survey Date	Time	Sample Depth (m)	Total Depth (m)	Conductivity	Air Temp °C	Water Temp °C
22-June-12	14:00	0.03	0.75	600	30.5	26.0
18-Jul-12	9:30	0.30	0.50	600	27.0	24.0
20-Aug-12	11:45	0.15	0.30	600	30.5	25.0
2-Oct-12	13:20	0.15	0.30	600	26.5	20.0
5-Nov-12	14:00	0.02	0.30	600	28.0	21.0
14-Dec-12	12:30	0.07	0.15	600	17.0	13.0
29-Jan-12	12:00	0.15	0.30	600	24.0	18.0
6-Mar-13	10:45	0.02	0.03	600	11.0	10.0

**Table 1 continued.** Water quality parameters tested with Colorado River Watch Network at Wild Basin (CRWN Site #72). Surveyor was M. Robinson.

Survey Date	Dissolved O <sub>2</sub>	Conductance	pH	Days since last rain	Rainfall (in)	Comments
22-June-12	6.50	940	7.5			Degraded cladophora
18-Jul-12	6.63	900	7.5	3	1.84	
20-Aug-12	6.50	1060	7.5	2	1.37	
2-Oct-12	7.90	970	7.5	3	1.98	
5-Nov-12	7.20	1000	7.5	8	0.00	White gray to tan foam
14-Dec-12	7.90	980	7.5	30	0.00	
29-Jan-12	8.20	940	7.0	14	0.00	Clear water; lots of tadpoles
6-Mar-13	9.70	1000	7.5	20	0.00	

## OUTREACH, EDUCATION AND VOLUNTEER COORDINATION

One hundred fifty-six volunteers donated approximately 645 hours of their time to the preserve's education and outreach programs. The following summarizes these programs:

### *Environmental Education & Interpretation*

- School & Group Tours – Approximately 878 adolescents, including students from local schools and community groups, attended education programs at Wild Basin. Group size limits are restricted and capped at a maximum of 40 students per visit. 240 volunteer hours were donated in assisting with these education programs.
- Family & Public Programs – Local children and families attended several public programs hosted by Wild Basin in 2013 including stargazing, kid-friendly hikes and public guided hikes. The stargazing tours were made possible through the volunteer efforts of the Austin Astronomical Society. The kid-friendly hikes were programs set up for the BCP hike and lecture series. On the second Saturday of every month Wild Basin hosts a guided hike.
- Sierra Club Night Hikes – During several full moons this year, Wild Basin hosted free night hikes that were open to the public and organized by the Austin chapter of the Sierra Club.

- Interpretive Education Center – School groups and the general public have access to our interpretive center Monday-Friday, 9am-4pm. This summer the location of the interpretive center was moved into the main hall with the addition of a live invertebrate display, lounge area and welcome desk. One hundred seventy volunteer hours were donated in assistance with greeting hikers and maintaining the interpretive center. The interpretive is being transformed into a unique and engaging environmental education center.

### *Public Outreach*

- Balcones Canyonlands Preserve (BCP) – Wild Basin staff attended and participated in quarterly meetings of the BCP Land Managers group. Several of the meetings were scheduled at Wild Basin. Wild Basin also hosted the Scientific Advisory Council (SAC) Golden-cheeked Warbler Subcommittee meeting.
- Capital Area Master Naturalists (CAMN) – CAMN held their certification ceremony in February at Wild Basin, as well as part of their 2013 class's geology and soils section.
- Native Plant Society of Texas, Austin chapter – Wild Basin hosted the regular monthly meetings of the Austin chapter of this statewide organization.
- Land Management Workdays – Wild Basin provides an opportunity for the public to volunteer and assist with land management activities, as well as learn about the BCP and conservation management. Workdays are held every Thursday and every third Saturday of the month. 235 hours were donated in Fall 2012 and through September 2013.
- BCP Hike and Lecture Series – Wild Basin hosted five events focusing on kid-friendly and family activities such as flint knapping, insect safari hike, snake lecture, spider lecture and a family birding hike.

### *Special Programs/Events*

- Lion's Club International Students – Wild Basin hosted 35 international students who were traveling as part of the Lion's Club exchange program. Wild Basin volunteer, Lion's club member, and retired geologist Wayne Orłowski gave a lecture on how geology connects the world, with an overview of TX geological history in a world context. Volunteer trail guides then led the students on a guided hike.
- NASORLO (National Association of Outdoor Recreational Liaison Officers) – Wild Basin hosted a guided hike coordinated through the Texas Parks and Wildlife for 30 recreational officers from various county and state park programs who were in town for a NASORLO convention.
- Habitat Steward's Class – Wild Basin hosted the City of Austin's Habitat Steward Class on designing native landscapes and cultivating birds in your backyard.

- Qi Gong Workshops – In partnership with the El Tule Organization, Wild Basin hosted two qi gong workshops that were open to the public and SEU students and staff.
- US Fish and Wildlife Service Karst Invertebrates Meeting – meeting of private, public and non-profit experts from the geology, hydrology and biology community concerning karst invertebrate recovery in Travis, Williamson and parts of Bear County. Gary Boyd of the Williamson County Conservation Foundation and Dr. Kemble White from SWCA, a private consulting firm, presented updates on the Williamson County Karst Fauna Areas. Mark Sanders and Todd Bayless, biologists for the City of Austin and Travis County respectively, presented on management, monitoring and protection efforts for caves of the Balcones Canyonlands Conservation Plan (BCCP). Nico Hauwert, from the City of Austin and Brian Cowan, of ZARA Environmental presented on their recent methods for delineating hydrologic drainage basins as a means of understanding contributing sources to sinkholes, caves, etc.

*St. Edward's University Events*

- Kozmetsky Center for Global Finance – In April, the Kozmetsky Center for Excellence hosted the Chief External Affairs Officer at The Nature Conservancy, Glenn Prickett. The Kozmetsky Center arranged for Glenn Prickett to visit the staff at Wild Basin.
- EcoLead Costa Rica – Wild Basin hosted students from the EcoLead Costa Rica course and provided a brief lecture on land use change and conservation in Austin and how this related to ecotourism.
- Project SUSTAIN – Project SUSTAIN is a 3M-funded grant to build secondary school curriculum related to sustainability at Wild Basin. The project brought together students in the Del Valle school district and SEU education students. In April 2012, 50 students from Del Valle visited Wild Basin for the afternoon and worked in small groups rotating through a series of activities.
- Staff Retreats and Meetings – Various departments scheduled their planning and staff retreats at Wild Basin including, School of Humanities, Dean's Retreat, Campus Ministry, Health and Counseling, and Office of International Education.
- Photocommunications Art Exhibit – End of the semester art exhibit for photocommunications course that was focused on environmental photography at Wild Basin. The art exhibit was displayed throughout the summer semester.

## *Publications*

- Wild Basin and SEU's marketing staff continued writing Wild Basin's column in our local newspaper, the *Westlake Picayune's* "Distinct" section on a semi-regular basis. Some of the articles include –
  - Grant to fund Basin's living database (April 2013) - <http://www.statesman.com/news/news/local/grant-to-fund-basins-living-database/nXXKT/>
  - Call of the Wild (May 2013) - <http://www.statesman.com/news/news/local/call-of-the-wild/nX558/>
  - Holistic health explored in upcoming Wild Basin summer course (July 2013) - <http://www.statesman.com/news/news/local/holistic-health-explored-in-upcoming-wild-basin-su/nYdD3/>
  - New Wild Basin director brings passion for conservation to St. Edward's students (Aug. 2013) - <http://www.statesman.com/news/news/local/new-wild-basin-director-brings-passion-for-conserv/nZGSJ/>
  - Research keeps students busy at Wild Basin Wilderness Preserve (Aug. 2013) - <http://www.statesman.com/news/news/local/research-keeps-students-busy-at-wild-basin-wildern/nZgcD/>

## *SEU Classes Using Wild Basin*

### Fall Courses 2012

ARTS 4399-01 – Art in Public Places

BIOL 3345 – Advanced Topics in Biology, J. Walther

PHCO 3322-01 – Styles and Themes Photocommunications

### Spring Courses 2013

ENSP 4349 – Wildlife Management at Wild Basin, P. Beck

BIOL 3245 – Field Biology, K. Abbott

PHCO 3322 – Styles and Themes, B. Kennedy

BIOL 3345 – Advanced Topics in Biology, J. Walther

MSEM 6315 – Applied Research (MS in Environmental Management & Sustainability), B. Quinn

BIOL 4142 – Population Biology and Ecology Lab, B. Quinn

*Affiliations*

Austin Astronomical Society	Dell
Austin Cactus & Succulent Society	Eanes Independent School District
Austin Community College	El Tule Non-profit
Austin Independent School District	Friendship Forest
Austin Museum Partnership	Girl Scouts of Central Texas
Bat Conservation International	Native Plant Society
Big Brothers Big Sisters	Nan Clayton Elementary
Boy Scouts	Not your Ordinary School
Camp Fire USA Balcones Council	Sierra Club
Capital Area Council, Boy Scouts of America	Texas School of the Deaf
Communities in Schools	Texas Trail Tamers
	US Fish and Wildlife Service

**SCIENTIFIC RESEARCH**

*Plant Community Structure* – Dr. David Johnson at St. Edwards University has been working on a long-term plant community project to help Wild Basin track the changes in plant communities over time. This data will also allow us to identify different plant communities at Wild Basin and factors that affect their structure.

*White-tailed Deer (Odocoileus virginianus) Browse on Red Oak (Quercus buckleyi)* – Dr. Bill Quinn has been working with students to assess the effect of deer browse on the red oak population. The purpose of this project is to document the degree to which browsing at Wild Basin Preserve is occurring so that the indirect effects of that browsing on the golden-cheeked warbler habitat can be estimated. Red oak populations are experiencing lack of recruitment from sapling stages into mid-or over-story stages.

*Microbial and fungal communities in different treatments at the Vireo Preserve* – Dr. Charles Hauser has been looking at the microbial and fungal community in differently managed areas on the Vireo Preserve. There are various treatments of mulch at the Vireo Preserve from mulch that has been burned, mulch that has decomposed, and untreated mulch. Soil is collected at each site to look how the microbial and fungal communities vary at the different sites.

*Arthropod diversity in two managed areas* – Kendra Abbott has been working with students to look at the effects of ant populations on two differently managed areas in the vireo preserve. One area was cleared and treated to attract black-capped vireo's (*Vireo atricapilla*)

and another area was left as oak/juniper woodland. Ant diversity was used as a proxy for invertebrate diversity in the two managed areas.

*Arthropod biomass and diversity along gradients of Plant Biomass* – Cyrus Harp has been looking at how arthropod production changes with plant production. He has documented trees that are > 1ft in diameter. He has chosen 4 live oak groves to assess biomass of the trees and relate that to biomass to the arthropods. Analysis is still underway.

## **FACILITIES AND SIGNS**

### *Facilities*

- Telecommunications from St. Edwards University upgraded the wiring for the internal network. The internet coming to the building still only provides a maximum of 1.5mb in bandwidth.
- New larger recycling and trash dumpsters were placed in the driveway at Wild Basin near the port-a-potties and are managed through Texas Disposal Services.
- Compost toilets were full and needed to be pumped by a septic service. Unfortunately, the toilets were not maintained correctly and the wrong bulk was placed in the compost bin preventing proper decomposition. Very little was pumped from the toilettes and an alternative will have to be budgeted and discussed in 2013-2014.
- Facilities at St. Edwards University temporarily fixed the floor of the storage shed in the parking lot. This shed is starting to decompose and will need to be replaced in the future.

### *Signs*

- In November 2012 Handicap/Delivery driveway signs were moved to an area for easier viewing and to prevent damage from cars that were unable to see the sign at night. A sign was moved to the right side of the entrance of the driveway.
- New updated signs were placed at trailheads in January 2013 (Figure 2).
- After meetings and communication with the county, we are applying for funding to place signs near the creek on the trail. We have had several guests that get lost down by the waterfall and have a hard time finding their way back. These signs will have maps and “you are here” locations to help guide guests. This will also give us an opportunity to educate the public about some of our local flora and fauna at Wild Basin and the BCP (possible placement of signs in Appendix G).



Figure 2: Photo of new signs and map for Wild Basin Preserve.

## SECURITY, ACCESS AND SAFETY

### *Fire Safety*

- Started communications with the county liaison, Renee Fields, to create a fire prevention protocol at Wild Basin. This is an issue that has come up with many neighbors. We are planning on following the fire wise protocol and removing dead and down trees 100 feet from the road and limbing up the driveway 30ft. We also removed dead and downed trees along Hwy 360 to prevent potential fires along that roadway.
- Care Specialty has taken over fire monitoring from Stanley Security. We passed our fire code inspection.
- The security system currently monitored by Sonitrol needs to be updated. The system still in place dates back to the 90's.
- Securitas is the security company that opens the gate at dawn and closes gate at dusk and patrols the parking lot at those times.

**Appendix A.** Map of Wild Basin Wilderness Preserve.

## Wild Basin Wilderness Preserve: Main Trail



**Appendix B.** Map of areas where trail was rebuilt from erosion.

## Wild Basin Wilderness Preserve: Erosion Control



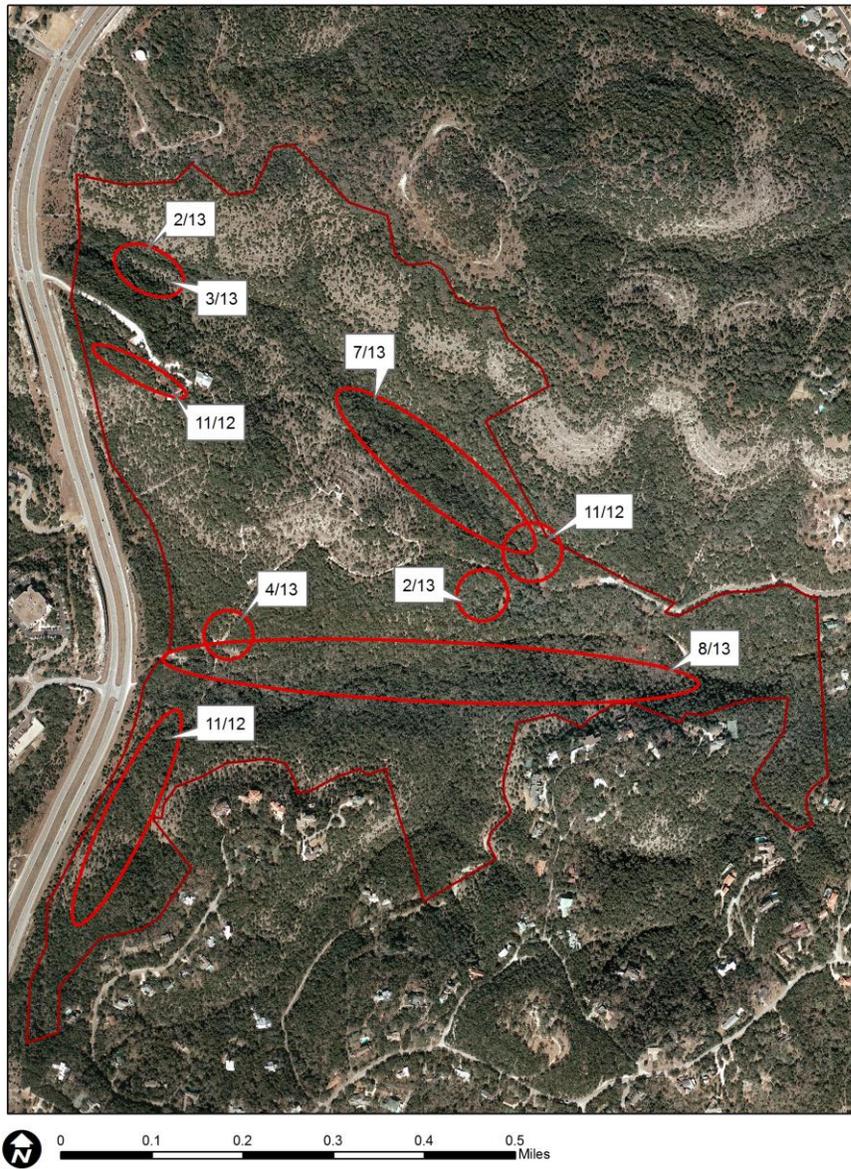
**Appendix C.** Aerial Map of Wild Basin and Neighbor proximity.

## Wild Basin Wilderness Preserve: Neighbors South of Property



**Appendix D.** Maps of areas where invasive plants were removed from Wild Basin from October 1, 2012-Sept 30, 2013.

**Wild Basin Wilderness Preserve: Invasives Removed**



**Appendix E.** Rare plant species that have been mapped at Wild Basin.

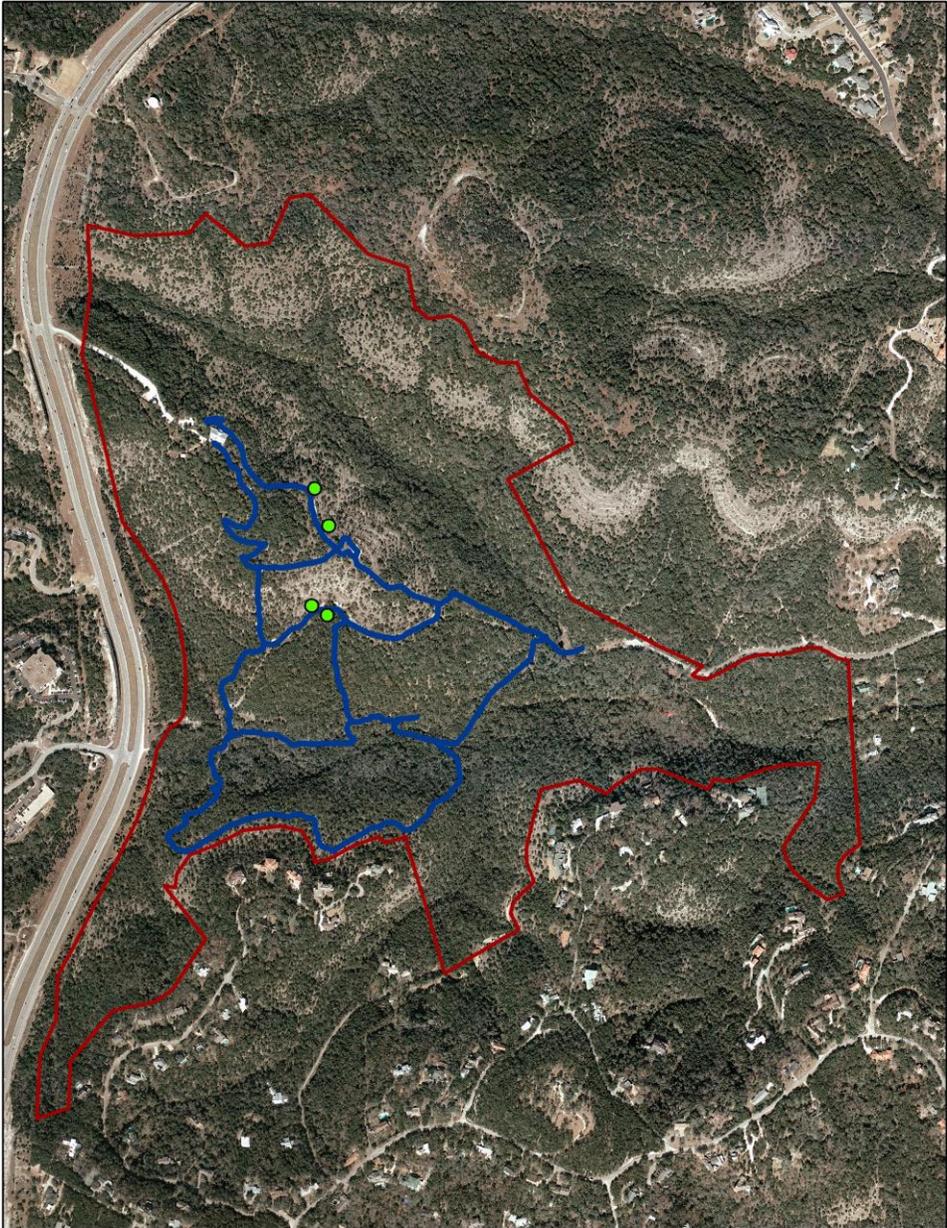
## Wild Basin Wilderness Preserve: Mock Orange



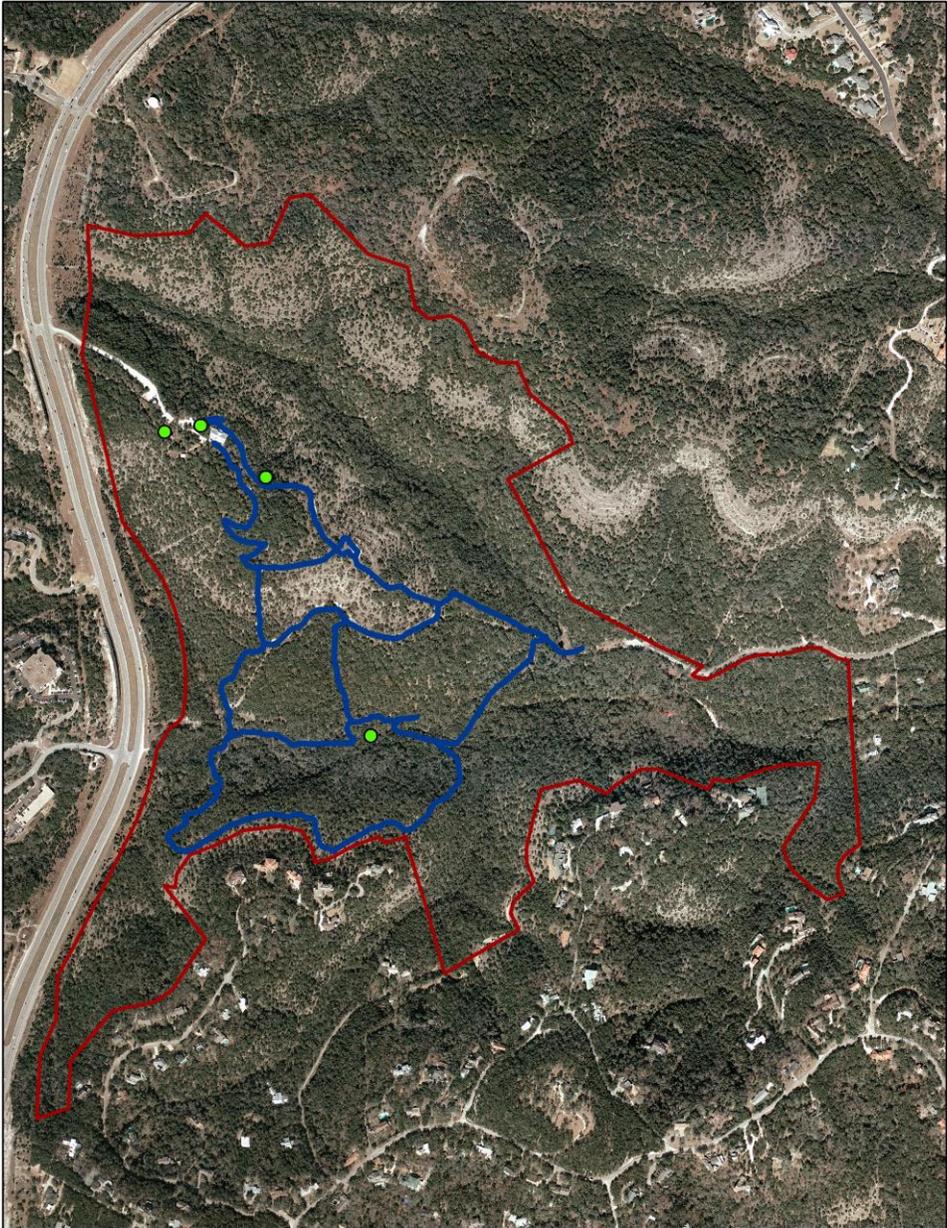
# Wild Basin Wilderness Preserve: Shooting Star



Wild Basin Wilderness Preserve:  
*Spiranthes cernua* 2013



Wild Basin Wilderness Preserve:  
*Hexalectris* spp 2013



**Appendix F.** Summary of 2013 Golden-cheeked Warbler Surveys at Wild Basin Wilderness Preserve by Darrell Hutchinson.

Thirty-five surveys were conducted between March 12 - June 14 by Darrell Hutchinson and Mitch Robinson for a total of 181 survey hours (Figure 1).

Five banded and two unbanded males occupied a total of seven territories inside and on the edge of the Wild Basin Preserve boundary (Figure 2). Four color-banded males returned for the third consecutive year. NB/WH:MV/SI, BK/RD:RD/SI, PI/SI:OR/GR, and BK/BL:YE/SI were banded at Wild Basin Preserve and adjacent Vireo Preserve in 2011. YE/SI:OR/BL was banded in Wild Basin on April 9, 2013. PI/SI:OR/GR arrived with its orange band missing, and is now identified as PI/SI:NB/OR. BK/BL:YE/SI was observed with its blue band pinched around its left ankle on April 23. Attempts to recapture it were unsuccessful, although its female mate was banded MV/SI:PI/YE on April 30 in Vireo Preserve.

Three pairs bred successfully, two pairs were unsuccessful, and two males were not observed with mates:

- A nest for PI/SI:NB/OR was located on April 16 and fledged minimum three on May 3.
- No nest was located for NB/WH:MV/SI, but fledged four on approximately May 12.
- The territory for UBWB1 was not well sampled due to private holdings and steep terrain, but an unbanded male was observed with two fledglings on June 7 and 11.
- A nest for BK/BL:YE/SI was located on April 28 and abandoned on May 4. Male was not resighted after April 30. On May 26, female MV/SI:PI/YE was observed copulating with another unbanded male, but no additional nesting behaviors were observed.
- BK/RD:RD/SI was paired, but its nest was not found and presumed predated.
- YE/SI:OR/BL was never observed with a mate.
- The territory for UBWB2 was located principally outside Wild Basin's southern boundary. Male was not observed with a mate.

During the last three years of intensive GCWA surveys, 3 ASY males have returned to occupy their same territories located along Bee Creek. Each has bred successfully in, at least, 2 of the last 3 years. In contrast, a fourth territory, centered along the southern drainage, has been occupied by a different SY male each year. Each of these SY males has failed to breed successfully at Wild Basin, and the males from 2011 and 2012 both relocated to other parts of Balcones Canyonlands Preserve the following year. Apparently suitable space and habitat for another GCWA territory is located along North Hollow, but occupation has been intermittent for reasons unknown.

Surveys were funded by City of Austin Wildlands Conservation Division and conducted according to City of Austin's Balcones Canyonlands Preserve GCWA Demographic Study protocols. For the complete write up on the project see City of Austin, Travis County, U.S. Forest Service. 2012 Annual report: Golden-cheeked Warbler (*Setophaga chrysoparia*) monitoring program, Balcones Canyonlands Preserve. Austin, Texas.

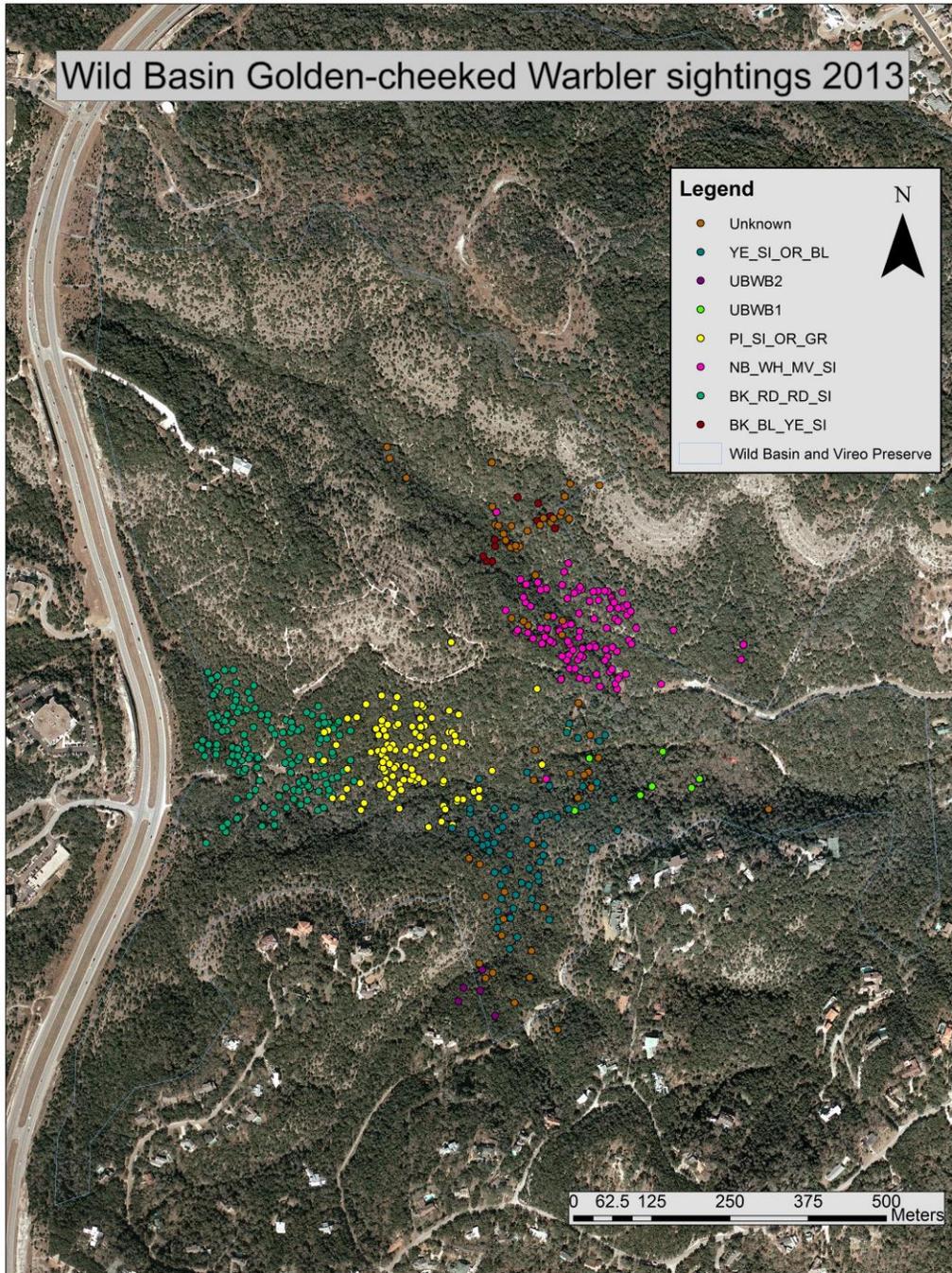


Figure 1. Map of Golden-cheeked Warbler sightings at Wild Basin Preserve

Figure 2. Map Golden-cheeked warbler sighting at Wild Basin in 2013 Map created by City of Austin, Travis County, U.S. Forest Service. 2012. Annual report: Golden-cheeked warbler (*Setophaga chrysoparia*) monitoring program, Balcones Canyonlands Preserve. Austin, Texas.

**Appendix G.** Proposed Wild Basin Trail signs for safety.

