Balcones Canyonlands Conservation Plan

2018 Annual Report

(October 1, 2017 – September 30, 2018)

USFWS Regional Section 10(a)(1)(B) Permit No. TE-788841-2

Travis County – City of Austin

Submitted by
The Balcones Canyonlands Conservation Plan
Coordinating Committee
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Appendix Q – *Travis Audubon Society Baker Sanctuary 2017-2018 Annual Report*
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Appendix S – Research Reports:

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Background

On May 2, 1996, the City of Austin and Travis County were jointly issued a U.S. Fish and Wildlife Service (USFWS) regional permit referred to as the Balcones Canyonlands Conservation Plan (BCCP). This permit allows incidental "take" of eight locally occurring endangered species in compliance with Section 10(a)1(B) of the Endangered Species Act (USFWS, 1996a). The 30-year permit covers approximately 561,000 acres in western Travis County identified in the Habitat Conservation Plan and Final Environmental Impact Statement (HCP) (USFWS, 1996b). The permit also covers incidental take of 27 species of concern should any become listed as threatened or endangered during the life of the permit (Table 1).

Table 1. Species Covered by the Balcones Canyonlands Conservation Plan.

Common name	Scientific name	Status
Black-capped vireo	*Vireo atricapilla*	Delisted*
Golden-cheeked warbler**	*Setophaga chrysoparia*	Endangered
Tooth Cave pseudoscorpion	*Tartarocreagris texana*	Endangered
Tooth Cave spider	*Neoleptoneta myopica*	Endangered
Bee Creek Cave harvestman	*Texella reddelli*	Endangered
Bone Cave harvestman	*Texella reyesi*	Endangered
Tooth Cave ground beetle	*Rhadine persephone*	Endangered
Kretschmarr Cave mold beetle	*Texamaurops reddelli*	Endangered
Canyon mock-orange	*Philadelphus ernestii*	Species of Concern
Texabama croton	*Croton alabamensis*	Species of Concern
Flatworm	*Sphalloplana mohri*	Species of Concern
Ostracod	*Candona* sp. nr. *stagnalis*	Species of Concern
Isopod	*Caecidotea reddelli*	Species of Concern
Isopod	*Trichoniscinae* N.S.	Species of Concern
Isopod	*Miktoniscus* N.S.	Species of Concern
Spider	*Cicurina wartoni*	Species of Concern
Spider	*Cicurina ellioti*	Species of Concern
Spider	*Cicurina bandida*	Species of Concern
Spider	*Cicurina reddelli*	Species of Concern
Spider	*Cicurina reyesi*	Species of Concern
Spider	*Cicurina cueva*	Species of Concern
Spider	*Cicurina travisae*	Species of Concern
Spider	*Neoleptoneta concinna*	Species of Concern
Spider	*Neoleptoneta devia*	Species of Concern
Spider	*Eidmannella reclusa*	Species of Concern
Harvestman	*Texella spinoperca*	Species of Concern
Pseudoscorpion	*Aphrastochthonius* N.S.	Species of Concern
Pseudoscorpion	*Tartarocreagris reddelli*	Species of Concern

Pseudoscorpion	*Tartarocreagris intermedia*	Species of Concern
Pseudoscorpion	*Tartarocreagris* N.S. 3	Species of Concern
Pseudoscorpian	*Tartarocreagris comanche*	Species of Concern
Millipede	*Speodesmus* N.S.	Species of Concern
Ground beetle	*Rhadine s. subterranea*	Species of Concern
Ground beetle	*Rhadine s.mitchelli*	Species of Concern
Ground beetle	*Rhadine austinica*	Species of Concern

*Previously listed as Endangered, the Black-capped vireo was delisted in April 2018

**Scientific reclassification in 2011 from *Dendroica chrysoparia* to *Setophaga chrysoparia*

Permit Requirements

The City of Austin and Travis County (the Permit Holders) are required to assemble and manage a minimum of 30,428 acres of suitable habitat for the golden-cheeked warbler and the black-capped vireo. Additionally, Permit Holders are required to protect and manage populations of canyon mock orange and Texabama croton. The Permit Holders are also required to acquire, manage, and/or ensure protection for 35 karst features which support populations of six species of endangered karst invertebrates and an additional 27 karst features that are known to harbor 25 karst-specific species of concern. This system of managed and protected habitats is known as the Balcones Canyonlands Preserve (BCP or Preserve). The locations of habitat areas and specific karst features proposed for protection are delineated in the HCP (USFWS, 1996b).

Agencies or organizations which enter into formal agreements with the Permit Holders in order to manage designated Preserve lands in accordance with the BCCP are considered Managing Partners. Until 2014, the sole BCP Managing Partner was the Lower Colorado River Authority (LCRA), which manages 2,707 acres as a portion of the Preserve system. As a Managing Partner, LCRA may mitigate for capital improvement and infrastructure development projects through the mitigation credit system established by the BCCP. On 7 February 2014, the City of Sunset Valley entered into a BCP Managing Partner Agreement and designated 21.585 acres, known as the Gaines Greenbelt, to be included as part of the BCP. The Gaines Greenbelt mitigates for impacts to golden-cheeked warblers, black-capped vireos, and karst species due to maintenance, improvement and public use of the Gaines Greenbelt Trail, and future impacts associated with social trail closure, fencing and signage.

The Nature Conservancy of Texas (TNCTX) and the Travis Audubon Society (TAS) also manage lands for public and environmental benefit within the BCP. In April of 2015 Travis County purchased a conservation easement over 672 acres of the Travis Audubon Society Baker Sanctuary.

The Permit further requires that the Permit Holders submit an annual report which provides the following:

- an annual summary of development activities within the Permit area
- an annual list of tracts for which Participation Certificates were issued
- the amount of funds collected through Participation Certificate and USFWS directed mitigation fees
- the amount of funds expended for land acquisition
- the amount of funds expended for BCP operations and maintenance
- an updated map of BCP lands
- a summary of public use and habitat management activities within the BCP
- copies of all research and investigation reports prepared within the last year.

Development Activity within the Permit Area

The City of Austin development activity report for Fiscal Year 2018 (FY18), which details building permits issued by the City of Austin west of Loop 1 within the Permit area, is located in Appendix A.

The Travis County development activity report for FY18, which details building permits issued by Travis County in precincts 2 and 3 within the Permit area, is located in Appendix B.

Mitigation Credit Balance

The City of Austin's BCP staff administers the Capital Improvement and Infrastructure Development Project mitigation credit system on behalf of the BCCP Coordinating Committee. The mitigation needs of the Permit Holders and the Managing Partner for these projects are provided under the terms of the regional Permit. Mitigation credits are issued at a rate equal to the number of acres within the Preserve system managed under the terms and conditions of the Permit and the HCP/FEIS (U.S. Fish and Wildlife Service, 1996a and 1996b). BCP acreage that was originally mitigation under the BCCP Alternative Determination Process, or another Section 10(a) or Section 7 permit, is not included in this mitigation bank acreage total. Capital improvement and infrastructure development mitigation needs are subtracted from this accumulated "bank" of credits at a rate of one acre of credit per acre of habitat impact, regardless of habitat zone (Table 2).

Table 2. Infrastructure Projects Mitigated Through the Use of Mitigation Credits in FY18 by Participating Agency**.**

City of Austin	
Starting City of Austin Balance	**11,571.54 acres**
New preserve additions (credits) –	0
Barton Creek Greenbelt Wastewater Collection System Replacement Lines Group A	3.0
Spicewood Springs Road Wastewater Collection System Replacement Lines Group A	0.2
AFD Additions Phase V and EMS Vehicle Expansions and Renovations	0.6
Sun Tree Cove Flow Meter & Golf Course Service Connection	0.1
Pole Replacement at 778 S. Capital of TX Hwy	0.1
Cure in Place Piping at Seven Separate Locations	0.1
Pole Replacement WR176201 Vegetation Work	0.2
Meredith Street Storm Drain Improvements Project	2.2
Violet Crown Trail, North Phase 2A	2.6
Forest Ridge Ground Storage Reservoir Improvements	10.0
Violet Crown Trail, Phase 2a Alignment Parking Lot	0.3
In Situ Wastewater Line Renewal Group B	0.1
Old Lampasas Lift Station By-Pass Valve Vault (CIP 3168.153)	0.1
Zilker Park Staging Area	0.8
Parke 27	1.0
Remaining Mitigation Credits	**11,550.14 acres**
Travis County	
Starting Travis County Balance	**8,182.633 acres**
New preserve additions (credits)	369.270
Travis County Hamilton Pool Road Safety Project	0.9
Remaining Mitigation Credits	**8,551.003 acres**
Lower Colorado River Authority (LCRA)	
Starting LCRA Balance	**271.23 acres**
New preserve additions (credits) –	0
Fairland to Lago Vista (T414) Transmission Line Vegetation Maintenance for Fiber Build-out Project	10.2
Marshall Ford to McNeil Transmission Line (TL) Relocation – Geotechnical Investigations/Soil Borings	0.1
Remaining Mitigation Credits	**260.93 acres**

A number of private landowners also manage habitat within the proposed preserve boundaries, often as required under individually issued Section 10(a) permits. These landowners are responsible for reporting in accordance with the terms and conditions of their individual permits directly to the USFWS and their reports are not

incorporated into this Annual Report. The Permit Holders strive to cooperate with these entities and private landowners to address species and land management concerns common to all BCP properties.

The City of Austin operates the BCCP Capital Improvement and Infrastructure Development Mitigation Process, and Travis County administers the BCCP Public Participation Process that addresses the mitigation needs of agencies and landowners under the terms of the Permit. The BCCP provides a voluntary, streamlined alternative for agencies and landowners seeking to comply with the Endangered Species Act (the Act). Those entities participating through the BCCP have met their obligations under the Act and may proceed with development under the terms of their respective Participation Agreements. Those agencies and landowners choosing not to participate may comply with the Endangered Species Act by obtaining an individual 10(a) permit from the USFWS.

Participation Certificate Activity

Travis County's Natural Resources Department administers the BCCP Public Participation Process on behalf of the BCCP Coordinating Committee and issues Participation Certificates for cooperating landowners within the Permit area. Descriptions of participation categories are defined in the interlocal agreement entitled "Interlocal Cooperation Agreement between Travis County and the City of Austin Implementing the Balcones Canyonlands Conservation Plan Shared Vision" (City of Austin and Travis County, 1995). As required by the terms of the regional Permit, copies of each Participation Certificate and Habitat Determination map are provided to USFWS Austin Ecological Services office. During FY18, 21 Participation Certificates were issued as follows: seven for subdivisions, six for infrastructure projects, four for single family residential, three for commercial development, and one multi-family residential project (Table 3).

Funds Collected through Participation Certificates

A total of $438, 325.00 was collected through the sale of Participation Certificates in FY18 (Table 3). To facilitate a 50/50 split in participation certificate revenue between the City of Austin and Travis County, participants pay the mitigation fee with two checks, half to "BCCP-City of Austin" and the other half to "BCCP-Travis County." The checks are delivered to each agency for separate processing.

Table 3. FY18 Projects Mitigated Through the Purchase of Participation Certificates.

Application Number	Date	Name	Category	Amount Paid
0864	10/18/2017	Parker	SF Residential	$3,300.00
0881	10/18/2017	Pedernales Electric Cooperative	Infrastructure	$550.00
0882	10/18/2017	Pedernales Electric Cooperative	Infrastructure	$275.00
0883	10/18/2017	Pedernales Electric Cooperative	Infrastructure	$4,950.00
0887	10/18/2017	Simmons	SF Residential	$1,650.00
0889	10/18/2017	Lakeway M.U.D.	Commercial	$11,825.00
0855	10/23/2017	Lacrosse at Circle C	Multi-Family Residential	$10,050.00
0888	10/30/2017	Lakeway Plaza Partners IV	Commercial	$11,275.00
0866	11/13/2017	Boston Lane Storage	Commercial	$3,100.00
0721-J	12/11/2017	Travisso, Ltd., Heath Melton	Subdivision	$167,200.00
776h	1/9/2018	Sweetwater Village Sect. 2, AA	Subdivision	$3,850.00
0898	1/9/2018	Pedernales Electric Cooperative	Infrastructure	$4,400.00
0904	2/9/2018	Texas Gas Service	Infrastructure	$100.00
776j	2/15/2018	Sweetwater Village Sect. 2, Village P3B	Subdivision	$36,850.00
0907	4/30/2018	Stephane and Karen Huaulme	SF Residential	$2,000.00
0911	4/30/2018	Texas Gas Service	Infrastructure	$5,150.00
0721-K	7/12/2018	Travisso, Ltd., Heath Melton	Subdivision	$4,600.00
0721-L	7/12/2018	Travisso, Ltd., Heath Melton	Subdivision	$71,500.00
0918	9/1/2018	Thornton	SF Residential	$23,650.00
776n	9/11/2018	Sweetwater Centre, Phase 1	Subdivision	$39,600.00
776k	9/20/2018	Sweetwater Village Sect. 2, Village N	Subdivision	$32,450.00
			Total	**$438,325.00**

Funds Collected through Tax Benefit Financing

Travis County's Tax Benefit Financing Plan is a funding mechanism outlined in the "Interlocal Cooperation Agreement between Travis County and the City of Austin

implementing the Balcones Canyonlands Conservation Plan Shared Vision" (City of Austin and Travis County, 1995). It is the method Travis County agreed to use for funding land acquisition and management. In FY18, Travis County's Tax Benefit Financing Plan generated $17,945,598 for Travis County's land acquisition and management projects.

Funds Expended for Land Acquisition

The Permit Holders received $60,584,037 in federal grant funds from 1997 to 2010 through the USFWS Section 6 HCP Land Acquisition Assistance Program. With the required match, a total of $81,222,130 was spent on grant-funded BCP Preserve Acquisition, as indicated in Table 4.

Table 4. USFWS HCP Land Acquisition Grants Received by the Permit Holders, 1997-2010.

Year	Federal Grant Funds	Minimum Local Match *	Total Grant	Local Recipient
1997	$1,000,000	$333,333	$1,333,333	City of Austin
1998	$2,000,000	$666,667	$2,666,666	Travis County
1999	$1,500,000	$500,000	$2,000,000	Travis County
2000	$4,140,000	$1,380,000	$5,520,000	Travis County
2001	$14,362,500	$4,787,500	$19,150,000	City of Austin, Travis County
2002	$10,000,000	$3,333,333	$13,333,333	Travis County
2003	$4,993,794	$1,664,598	$6,658,392	Travis County
2004	$3,375,000	$1,125,000	$4,500,000	Travis County
2005	$6,890,000	$2,296,667	$9,186,667	Travis County
2007	$5,742,500	$1,914,167	$7,656,667	Travis County
2008	$5,250,000	$1,750,000	$7,000,000	Travis County
2010	$1,330,243	$886,829	$2,217,072	Travis County
Total	**$60,584,037**	**$20,563,927**	**$81,222,130**	

* Minimum match does not include overmatches

Travis County continues to purchase preserve properties using County funds without grant assistance. Fee simple purchases and alternative protection strategies such as conservation easements, donations, and deed transfers have also been utilized. Use of these non-traditional measures provides opportunities to secure in-perpetuity protection for habitat lands that may not otherwise be available.

Travis County expended $15,894,107.00 in FY18 on non-grant land acquisition activities and secured 395.8 acres for inclusion in the BCP. The City of Austin expended $35,147 on non-grant land acquisition and secured 17.7 acres as well as one BCP permit named cave, during FY18. At the end of FY18, the City of Austin owned and managed 13,615 acres of land within the BCP and Travis County managed 12,320 acres of land within the BCP. For a detailed account of all BCP tracts assembled see Appendices C, D, and E. All City of Austin and Travis County FY18 BCP land acquisitions are shown by tract in Table 5.

Table 5. City of Austin and Travis County FY18 BCP Land Acquisitions.

Tract Name	Agency	Date Acquired	Acreage	Total Expenditures
Franklin	Travis County	11/21/2017	17.592	$858,648
Lime Creek Unit: Morrison	Travis County	7/31/2018	13.844	$529,454
Montandon II	Travis County	12/12/2017	1.648	$22,131
Richards II	Travis County	12/26/2017	5.380	$657,044
Ross CE	Travis County	7/11/2018	9.649	$0 (donation)
Volente Peak	Travis County	5/11/2018	226.635	$7,670,181
Volente Valley	Travis County	7/31/2018	56.077	$1,924,586
Woods of Greenshores CE	Travis County	8/28/2018	16.899	$0 (USFWS 10a Permit Condition)
Woods of Greenshores Phase II	Travis County	8/28/2018	48.094	$4,232,063
		Total	**395.818**	**$15,894,107.00**
Massey	City of Austin	9/1/2018	5.0	$35,147
Village of Western Oaks Karst Preserve and Watershed Management Area	City of Austin	7/8/2018	12.7	$0
		Total	**17.7**	**$35,147**

Funds Expended for Operations and Maintenance

In FY18, the Permit Holders, LCRA, TNCTX, the Travis Audubon Society (TAS) and the City of Sunset Valley spent $4,434,258 on operation and maintenance of BCP lands (Table 6).

The City of Austin spent a total of $1,774,183 for FY18 to fund BCP management expenditures by the Austin Water Utility's Wildland Conservation Division - Balcones Canyonlands Preserve Program (WCD-BCP). This figure understates the City's total expenditures on this program since it does not include (1) work by other staff in Austin Water Utility on program administration and support; (2) operation and maintenance expenditures by Austin Parks and Recreation Department (PARD) operations on BCP-designated parkland; or (3) capital improvement projects related to offices, and other facilities/ infrastructure. The aforementioned expenditures cannot be readily determined from their program budgets.

Table 6. Annual FY16 through FY18 BCP Budgets (excluding land acquisition costs) for Permit Holders, the Managing Partners, and Cooperating Entities with Summary of Total Budgets since Plan Inception.

BCP Partner	FY 2016	FY 2017	FY 2018	Total Budget: 1996 to Present
City of Austin	$1,205,825	$1,768,118	$1,774,183	Up to FY 18 $20,449,303
Travis County	$2,061,798	$2,188,286	$2,492,553	Up to FY 17 $19,043,629
LCRA*	$31,542	$10,200	$69,903.00	Up to FY 18 $1,812,324
TNCTX	$68,000	$30,000	$10,000	Up to FY 18 $1,090,000
TAS	$85,000	$85,000	$85,000	Up to FY 18 $306,986
City of Sunset Valley	$16,242	$0	2,619.08	Up to FY 18 $18,861
TOTALS	**$3,468,407**	**$4,081,604**	**$4,434,258.08**	Up to FY 17 $42,721,103.08

* Does not include expenditures by Westcave Preserve Corporation

In FY2018 the City of Sunset Valley hired a consultant to survey Gaines Greenbelt, and this cost is reflected as the budget above (Table 6). The City of Sunset Valley does not track staff time related to open space management for budgetary purposes. Therefore there are no operation and maintenance costs available for the City of Sunset Valley's management of Gaines Greenbelt.

The Travis County Natural Resources budget for the BCP Program in FY18 was $2,492,553. This total includes Travis County General Fund expenditures, BCP Participation funds, funds for land acquisition and funds negotiated and received from private 10(a) holders for land managed by Travis County to support ongoing operations and maintenance of County-managed Conservation Easements. This sum does not include administrative, legal, law enforcement support or non-habitat-related operations and maintenance provided by other Travis County Departments. This sum does not include estimated expenditures by St. Edwards University, which holds a contract to conduct educational programming and management of the County-owned Wild Basin Wilderness Preserve.

Updated Map of Lands Dedicated to the Balcones Canyonlands Preserve

As of FY18, 32,232 acres of black-capped vireo and golden-cheeked warbler habitat have been assembled by the Permit Holders with the assistance of cooperating landowners and entities. Even though the minimum 30,428 acres of endangered bird habitat has now been acquired, additional acreage will still be needed to meet the configuration requirements for the bird habitat blocks by macrosite and to acquire additional specific karst features required in the Permit.

Forty-eight of the 62 karst features which are identified to be protected in the permit have been afforded some level of protection. Eleven additional endangered species karst features which are not listed on the permit are also protected on BCP land. A map illustrating the current status of the BCP is enclosed as Appendix E. Summaries of BCP lands sorted by macrosite and managing entity are attached as Appendices C and D, respectively.

FY 2018 Research or Investigative Reports

Research reports for activities that occurred on the BCP are included as Appendices F through R, and S1 through S9. See the table of contents for a list of appendices which include the author and title of each research report.

Public Use, Habitat and Wildlife Monitoring, and Management Activities Occurring within the Balcones Canyonlands Preserve

CITY OF AUSTIN

The following section lists the wildlife and habitat monitoring, management, and public use activities on City of Austin (COA) land counted as part of the BCP. The COA's BCP tracts are managed by WCD-BCP and PARD with different management responsibilities assigned to each entity (Table 7). PARD operations

performs regular maintenance such as mowing, trash pickup, and some trail management activities, while WCD-BCP staff assumes primary responsibility for BCP management and monitoring.

Table 7. Management Status of City of Austin BCP Properties

Tract	Primary Management Responsibility	Acreage
Upper Bull Creek Unit (Franklin, Gass, Lucas, Hanks, Lanier, COA Canyon Creek plus MUD tracts, Gardens at Bull Creek, Bowman, and Sam Hamilton Memorial Reserve (former WTP 4 "entire tract")	AWU/BCP	1166.50
Middle Bull Creek Unit (Kent Butler Ecological Reserve, Beard Trust)	AWU/BCP	996.71
Lower Bull Creek Unit (Jester, Forest Ridge, 3M, Hilltop, Gibson/Nott, Hiller, Kruger)	AWU/BCP	1090.98
Lime Creek (incl. 100 acres of Austin-Simon, Ltd.)	AWU/BCP	586.70
Parke West, Coldwater/Cowfork, Long Canyon, Vaught Ranch	AWU/BCP	1393.86
Cortaña	AWU/BCP	1751.95
Double J&T	AWU/BCP	1730.00
Reicher Ranch	AWU/BCP	819.74
Bohls Ranch	AWU/BCP	450.14
Bohls II	AWU/BCP	18.81
Sansom	AWU/BCP	13.00
Senna Hills	AWU/BCP	35.00
Schramm Ranch	AWU/BCP	100.63
Vireo Preserve	AWU/BCP	214.00
Ullrich Water Treatment Plant	AWU/BCP	18.00
Barton Creek Ventures	AWU/BCP	13.62
Massey	AWU/BCP	5.00
	AWU/BCP Subtotal	**10,404.64**
Bull Creek District Park, Bull Creek Greenbelt	PARD/BCP	129.48
St. Edward's Park	PARD/BCP	50.00
Barrow Preserve	PARD/BCP	8.00
Emma Long Metro Park	PARD/BCP	950.00
Commons Ford Park	PARD/BCP	115.00
Barton Creek Wilderness Area (Barton Creek Venture)	PARD/BCP	1075.24
Barton Creek Greenbelt	PARD/BCP	814.64
Friesenhahn	PARD/BCP	62
Mt. Bonnell	PARD/BCP	6
	PARD/BCP Dual-Managed Subtotal	**3,210.36**

	TOTAL ACREAGE	**13,615.00**

******PARD Operations does not manage for Endangered Species; they perform regular maintenance, i.e. mowing, trash pickup, and some trail management activities. AWU BCP staff provides BCP management activities.

Table 8. City of Austin Monitoring and Management Activities on BCP Tracts within the Bull Creek Macrosite

		Bull Creek macrosite																				
		upper Bull Creek unit										**middle unit**			**lower Bull Creek unit**							
	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	**Bowman**	**Canyon Creek**	**Canyon Creek MUD tracts 1 to 3**	**Franklin**	**Gardens at Bull Creek**	**Gass**	**Hanks**	**Lucas**	**Lanier**	**Sam Hamilton Memorial Reserve**	**Beard Trust**	**Kent Butler Ecological Resv**	**Jester Estates Cave Preserve**	**Barrow Preserve**	**Bull Cr. Greenblt.**	**Forest Ridge**	**Gibson/Nott**	**Hiller/Hilltop**	**Jester**	**Krueger**	**St. Edwards Park**	**3M**
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers										X		X				X					
	search for banded golden-cheeked warblers										X		X				X	X	X	X	X	X	X
	mist-net, band, and spot-map black-capped vireos												X				X					
	karst monitoring (faunal surveys, cricket counts, karst feature searches)			X									X	X			X			X		
	spring/stream monitoring (including Jollyville Plateau Salamanders)				X			X				X	X				X			X		X
	bracted twistflower monitoring															X						
	canyon mock-orange monitoring												X									
	vegetation monitoring				X					X	X						X					
	fuel moisture sampling of junipers																					
	deer & hog trap photo monitoring		X		X			X		X	X											X
	monitoring of oak wilt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Management Activities	deer control		X		X			X		X	X											
	feral hog control		X		X			X		X	X		X									X
	red imported fire ant control													X								
	habitat restoration (native plants & karst)				X			X			X		X		X		X			X		X
	non-native plant control	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X
	trash removal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X
	patrol for evidence of trespass, vandalism, or dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	maintenance of roads, fences, signs	X	X	X	X	X	X	X	X	X	X	X	X	X			X			X	X	X
	inspect utility corridor maintenance				X	X					X	X	X				X			X		X

Table 9. City of Austin Monitoring and Management Activities on BCP Tracts within the Barton Creek, Cypress Creek, North Lake Austin, South Lake Austin, and West Austin Macrosites

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	Barton Creek macrosite					Cypress Creek		North Lake Austin macrosite						South Lake macrosite					West Austin macrosite		
		Barton Creek Wilderness	Barton Creek Greenbelt	Bohls II	Friesenhahn	Senna Hills	Austin-Simon	Lime Creek	Coldwater	Cortaña	Cowfork/Vaught	Emma Long	Long Canyon	Parke West	Bohls	Commons Ford	JJ&T/Sansom	Reicher Ranch	Schramm Ranch	Mount Bonnell	Ullrich	Vireo Preserve
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers	X	X							X		X					X	X				X
	search for banded golden-cheeked warblers	X	X						X	X		X	X				X	X				X
	mist-net, band, and spot-map black-capped vireos									X					X							
	karst monitoring (faunal surveys, cricket counts, karst feature searches)	X	X					X		X				X							X	
	spring/stream monitoring (including Jollyville Plateau Salamanders)	X	X					X		X				X							X	
	bracted twistflower monitoring	X	X																	X	X	X
	canyon mock-orange monitoring																					X
	vegetation monitoring									X						X		X	X			X
	fuel moisture sampling of junipers									X								X				
	deer & feral hog trap photo monitoring							X						X	X		X	X				
	monitoring of oak wilt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Management Activities	deer control							X						X	X		X	X				
	feral hog control																X					
	red imported fire ant control						X	X		X				X					X				
	habitat restoration (native plants, karst)	X	X							X	X		X	X		X	X	X				X
	non-native plant control	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
	trash removal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	patrol for evidence of trespass, vandalism, or dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	maintenance of roads, fences, signs	X	X		X	X		X		X		X		X	X	X	X	X	X	X	X	X
	inspect utility corridor maintenance	X	X		X					X		X				X		X				X

Table 10. City of Austin Monitoring and Management Activities on Karst Preserves

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	Karst Preserves										
		Village of Western Oaks	Blowing Sink	Goat Cave	Dick Nichols Park	Testudo Tube Cave	Circle C Metro Park	Tabor tract (WQPL)	Stillhouse Hollow Preserve	Schroeter Park	Shoal Creek Greenbelt	Massey Tract
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers											
	search for banded golden-cheeked warblers											X
	mist-net, band, and spot-map black-capped vireos											
	karst monitoring (faunal surveys, cricket counts, karst feature searches)	X	X	X	X	X	X	X	X	X		X
	spring/stream monitoring (including Jollyville Plateau Salamanders)										X	
	bracted twistflower monitoring											
	canyon mock-orange monitoring											
	vegetation monitoring											
	fuel moisture sampling of junipers											
	deer & hog trap photo monitoring											
	monitoring of oak wilt		X	X								X
Management Activities	deer control											
	feral hog control											
	red imported fire ant control	X	X	X		X	X					
	habitat restoration (native plants & karst)	X	X	X			X	X	X			X
	non-native plant control	X	X	X	X	X	X		X	X	X	
	trash removal	X	X	X	X	X	X	X	X	X	X	
	patrol for evidence of trespass, vandalism, or dumping	X	X	X		X	X	X	X		X	X
	maintenance of roads, fences, signs	X	X			X	X		X			
	inspect utility corridor maintenance											

OTHER NOTABLE MANAGEMENT ACTIVITIES

In addition to the activities in the tables above, BCP staff conducted or coordinated the following:

BARTON CREEK MACROSITE

Barton Creek Wilderness Area and Greenbelt, and the Friesenhahn tract

- Austin Fire Department Fuels Crew completed a fuel reduction (shaded fuel break) project behind Cliffstone Cove and Canyonbend Drive, beginning November 2017. PARD staff planted native trees in a portion of the fuel break to discourage trail creation.
- Directed Abescape, Inc., under contract to remove old transient camps and trash dumps on Friesenhahn and adjacent parts of Barton Creek Wilderness, spring 2018. BCP and PARD staff cooperated to consolidate materials from remote and/or sparse trash sites before the contract work, February 2018, then cleaned up remaining fine debris, July and December 2018
- Found 366 Bracted Twistflower (*Streptanthus bracteatus*) plants during a one-day census, May 9.
- Assisted with volunteer-led clean-up of transient camp trash in greenbelt below Brodie Oaks shopping center, Nov. 2017
- With volunteer assistance, hand-pulled a dense growth of seedling exotic plants where parent plants had been removed a year earlier for a shaded fuel break behind the Moonshadow neighborhood.
- Documented and reported to PARD staff, encroachment by neighbors on Cedarview and Bluffview Drives, August.
- Acquired the 5-acre Massey tract in September 2018 through the Urban Forestry Fund. The Massey tract has a known cave (Spider Wire cave) and is contiguous with Barton Creek Wilderness and WQPL's Shudde Fath properties.

Senna Hills

- Removed vegetation that could damage a neighbor's fence.

BULL CREEK MACROSITE

Sam Hamilton Memorial Reserve West

- On December 11, 2017, worked with American Youthworks to remove and chip dead trees and shrubs along perimeter road.
- City of Austin BCP biologists are collaborating with researchers Dr. Brian Pickles (University of Reading and Monika Gorzelak (Agriculture Canada) on preparation of a manuscript to report results of the 4-year (2013-2017) shin oak seedling survival study.
- Led the annual summer night hike, focusing on the sounds at night and Jollyville Plateau salamanders.
- WP removed flow monitoring station from tributary 8.

Lower Bull Creek Unit

Forest Ridge

- Prepared and presented hikes for those requesting a permit to hike through the Bull Creek Preserve during Golden-cheeked Warbler breeding season.
- Staff and volunteer workdays to repair trail erosion problems, and to remove debris from abandoned camp.

Kent Butler Ecological Reserve

- Led field trip for Texas Invasives conference, with emphasis on exotic plants and their control, October 26.

Beard Trust

- Discovered and removed 3 snares that were wired to the Beard Trust perimeter fence bordering “The Hillside” development, staff talked with management at The Hillside, so hopefully this will not happen again.

Bull Creek Greenbelt

- Found 70 Bracted Twistflowers at the Valburn colony on May 15.

CYPRESS CREEK MACROSITE

Lime Creek/Austin Simon

- Worked with Pedernales Electric Cooperative to plan installation of emergency utility pole guy wire placement.

NORTH LAKE AUSTIN MACROSITE

Parke West/Coldwater/Cowfork/Long Canyon/Vaught Ranch

- By March 2018, 100% of the *Ligustrum lucidum* logs that were inoculated with Turkey Tail mushroom spawn in March 2015 (cultured by Jimm Stack of 100th Monkey Mushroom Farm) were in intermediate to advanced stages of decay, while only one of the controls showed signs of decomposition.
- Fence construction finalized along eastern Parke West and part of Long Canyon at the end of Standing Rock Drive, though contractors did not complete original intended length.
- Area cleared by neighbors on Long Canyon had sports court removed from BCP property, and initial round of habitat restoration work has been completed.

Cortaña

- Repeated trespass from River Place Nature Trail resulted in at least 4 calls for emergency rescues, from August 2017 through August 2018; staff planned to extend boundary fence from Sun Tree Cove into Panther Hollow to block access.
- Felled and poisoned woody exotic plants throughout Panther Hollow, from the northern boundary of the tract downstream to below the cascade.
- Found and repaired damage to fences on the eastern, western, and southern boundaries of the tract. Followed dirt bike tracks connecting two of the fence gaps, and what appeared to be an unauthorized bike course under development. With assistance from Travis County game wardens, confronted those responsible for the vandalism.
- Negotiated with AllTrails.com managers to remove misinformation from their application suggesting that public hiking trails exist on the southern portion of the tract. Staff who were monitoring one entrance to the tract (in response to prior trespass and vandalism noted above) in only a few hours turned away 23 app users searching for a trail, February.
- Found a road used by Austin Energy contractors to maintain a transmission line had been badly rutted, March. Repair is pending.
- During bi-annual helicopter reconnaissance for oak wilt on June 26, staff noticed a recent burn scar of approximately 1.25 acres on the southern end of the tract, mostly confined to a pre-existing grassy patch. According to an incident report filed July 26, Emergency Services District 6 responded to the

fire on June 13. Though the cause was undetermined, human involvement was suspected.

- Found snare traps at gaps in iron fence near Sun Tree Cove, August 15. Game wardens confronted neighbor, who agreed to remove them.
- Collected shin oak (*Quercus sinuata*) acorns from the shinnery in September and October 2018, for use in re-vegetation work and studies elsewhere on the Preserve. Much better harvest than in recent years – approximately 3000 on October 11-12 alone. Planted 150 of these on the cleared ridge south of the shinnery.
- Planted 560 acorns of each of three oak species (*Quercus buckleyi*, *Q. fusiformis*, and *Q. sinuata* = 1680 acorns total) in plots in the mid-Cortaña Black-capped Vireo habitat creation area, to study survival rates for seedlings in shaded (by trees or shade cloth), unshaded, and caged/unshaded areas, October 29.
- Planted the remaining shin oak acorns in the mid-Cortaña Black-capped Vireo habitat creation area. Of these, flagged grouped plantings of 1360 acorns in three areas, so sprouting rates can be estimated.

Emma Long Park and Preserve

- AWU and PARD staff continued to meet monthly to discuss conservation issues at Emma Long.
- Conducted searches for the rare orchid, Large-flower/Giant Crested Coralroot (*Hexalectris grandiflora*) but did not find any blooming.
- AWU and PARD staff mapped trails at Emma Long Park in order to assess abundance of unauthorized trails. Next steps will include closure of unauthorized trails.

SOUTH LAKE AUSTIN MACROSITE

BCP staff participated in the Westcave Christmas Bird Count, where the count circle includes this macrosite (Bohls Ranch, Reicher Ranch, and JJ&T).

Bohls

- Wastewater discharge from Western Travis County Public Utility Agency occurred on November 6, 2018. Water samples were collected and sent to LCRA for analysis. Results came back negative.

Commons Ford Ranch Park

- Ongoing prairie restoration project. Vegetation surveys and Project Prairie Bird surveys conducted by volunteers.

JJ&T

- Continued monitoring of experimental restoration treatments along a set of 7x7m plots at a site off of Kollmeyer Road. Treatments include different combinations of berms and swales, vertical staking, vertical mulching, mulches, and seeding and planting native woody plants and grasses.
- Following on the pilot study at Vireo Preserve, on October 30, 2018, BCP staff planted 560 acorns of 3 different species (*Quercus buckleyi*, *Q. fusiformis*, and *Q. sinuata* = 1680 acorns total) in open, caged, and caged/shaded plots to evaluate effects of herbivory and shade on seedling survival.

Reicher Ranch

- Hosted multiple middle school groups for interpretive activities.
- Continued restoration of Golden-cheeked Warbler habitat on the grounds of the office headquarters and surrounding areas.
- Continued planting a pollinator garden demonstration area in front of the Caretaker's House.
- Demolished old pumphouse at Reicher Compound and removed former office trailers at Bethany House.
- Collected Texas Red Oak and Live Oak acorns in September and October 2018, for use in seedling survival study at Cortaña and JJ&T.

Schramm Ranch

- Continued to monitor restoration areas and compliance with sediment control measures with the Madrone and Cielo developments.

WEST AUSTIN MACROSITE

Mount Bonnell

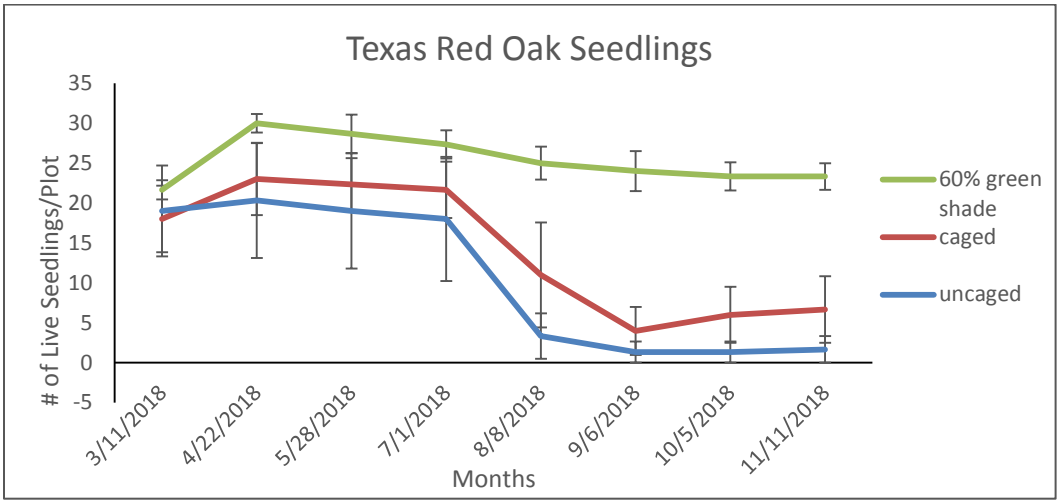
- Found 63 Bracted Twistflower (*Streptanthus bracteatus*) plants during a half-day census on May 2. In October, found at least 200 Bracted Twistflower seedlings.

Ullrich WTP

- Found 262 Bracted Twistflower (*Streptanthus bracteatus*) plants during a half-day census on April 25.

Vireo Preserve

- October through December 2017, gave presentations and led guided hikes for St. Edwards University, Huston-Tillotson, Travis Audubon's Master Birder, and Capitol Area Master Naturalist classes.
- Operated a bird banding station in a small restoration area in November and December 2017.
- On November 12, 2017, worked with volunteers to plant 480 Texas Red Oak acorns in 12 plots (40 acorns per plot) as a pilot study to evaluate effects of herbivory, shade, and soil conditions on germination and survival. Lessons learned from this pilot project will be applied to a larger study planned for JJ&T and Cortaña tracts in fall 2018. Monitored the plots monthly. Below are results to date:



- On February 15, 2018, gave a tour of restoration work for the American Association for the Advancement of Science conference.
- By March 2018, 92% of the *Ligustrum lucidum* logs that were inoculated with Turkey Tail mushroom spawn in March 2015 (cultured by Jimm Stack of 100th Monkey Mushroom Farm) were in intermediate to advanced stages of decay, while none of the controls showed any signs of decomposition.

- On March 4, 2018, Dr. Amy Concilio (St. Edwards University) brought her class out to help with inoculating *Ligustrum* logs with turkey tail mycelium.
- Expanded nursery operation to include more than 1500 plants.
- Surveyed Bracted Twistflowers on April 27th, 2018, and found 1 plant.
- Installed three rainwater collection systems (one with one 200-gallon barrel, two with two 200-gallon barrels) in restoration areas to provide supplemental water for over 100 plants during dry periods.
- Collected Texas Red Oak, Live Oak, and Shin Oak acorns in September and October 2018, for use in an expanded seedling survival study at Cortaña and JJ&T.
- On October 2, 2018, Dr. Moriah Sandy (University of Texas at Austin) brought her class out to collect juniper leaves and bark to begin investigating endophyte-plant relationships. Endophytes are fungi that live on the plant and may enhance host growth, nutrient acquisition, and/or improve the plant's ability to tolerate abiotic stresses such as drought and pathogens. Dr. Sandy's class is also exploring potential medicinal benefits and interactions with the oak wilt fungus.
- On October 10, 2018, Becky Woodward (St. Edwards University graduate student) planted 20 Antelope Horns (*Asclepias asperula*) to study the mycorrhizal connections.
- On October 12, 2018, Dr. Amy Concilio (St. Edwards University) brought her graduate students to hear about the BCP history and habitats of Black-capped Vireos and Golden-cheeked Warblers.
- A Vireo Preserve volunteer led a mushroom hike for ~30 people.
- On October 26, 2018, led an all-day field trip for the state convention of the Texas Master Naturalists.
- On October 27, 2018, gave a presentation at the state convention of the Texas Master Naturalists in Georgetown on restoring ecological diversity at the Vireo Preserve.
- On November 12, BCP staff gave an interview to KVUE reporter Rebecca Trejo on ecological benefits of juniper (the story was on juniper pollen).
- On November 13, Jim O'Donnell was interviewed by Joe Ferris (St. Edwards University graduate student) on how land managers are addressing climate change.
- On December 15, 2018, Jim O'Donnell gave a presentation to the 2019 class of the Capital Area Master Naturalists.

- In December 2018, Capitol Area Master Naturalists selected the Vireo Preserve for their 2019 class to plan and implement a restoration project.
- A core group of 10-15 volunteers assisted with habitat restoration, removal of invasive plants, erosion control, and patrols. Volunteer workdays are held weekly from March-June and four times a week the rest of the year.
- Planted many woody and herbaceous plants from the BCP greenhouse and local nurseries and seeded areas with native grasses and wildflowers.
- Since Vireo Preserve supports many of the habitat types observed throughout the BCP and is easily accessible, it is an ideal site to experiment with habitat creation and restoration techniques. Lessons learned at this site should be applicable to other areas within the BCP. We are continuing adaptive management efforts initiated in 2011 to restore areas degraded by past land use by building soils, controlling erosion, and increasing diversity, with the goal of creating and enhancing endangered species habitat. Adaptive management includes installing berms and swales on contour to capture, spread, and sink water, and using locally and commercially available materials (mulch, mulch socks, mycorrhizal fungi, soil amendments, native seed and plants, native saprophytic mushrooms) to help rebuild soils and promote regeneration of woody plants. Mulch is a common by-product of juniper-oak forest clearing and thus readily available for habitat restoration projects. Allowing mulch to age and "compost" contributes additional nutrients and micro-organisms. Other soil amendments used to date include organic fertilizers, composts, and/or native mycorrhizal fungi inoculants.

FY 2018 BCP Partners Outreach

Each quarter, the BCP partners that have education and outreach programs meet to coordinate efforts and produce a summary report for the Coordinating Committee. This report summarizes the education and outreach activities offered that quarter, including the number of people reached and the number of volunteer hours completed. An annual summary is provided in the final report of the year, and is included below as Table 11. The partners included in this report are Travis County, City of Austin, Travis Audubon (Baker Sanctuary), The Nature Conservancy (Barton Creek Habitat Preserve), Westcave Preserve, and St. Edward's University (Wild Basin Wilderness Preserve).

Several BCP partners also advertise hikes and presentations in the Friends of the Balcones Canyonlands Preserve group on Meetup.com, which has more than

2,800 members. In FY 2018, 65 hikes and presentations were offered on the Meetup page; five more were scheduled, but cancelled due to weather.

Table 11. Summary of FY18 BCP Outreach and Education Activities

Activity	Location	Events	Youth	Adults	Volunteer Hours
Guided Hikes	Onsite	514	2,441	5,694	1,279
Programs / Presentations	Onsite	120	2,707	1,854	144
	Offsite	48	2,266	2,035	235
Land Stewardship	Onsite	346	185	1,073	5,418
Ecological Monitoring	Onsite	163	26	245	1,038.25
	Offsite	1		6	29
Visiting Groups / Educators	Onsite	66	528	1,012	163
Administrative Help	Onsite	4		10	48.5
	Offsite			2	6.5
Campouts	Onsite	5	109	90	23
Training	Onsite	15		257	755.5
FY 2018 Total		**1,282**	**8,262**	**12,278**	**9,139.75***

* Monetary value of volunteer work ($24.64/hour): $225,203.44.

TRAVIS COUNTY

Travis County staff conducted a variety of resource monitoring and management activities on County-managed BCP lands in FY18, which are summarized in Tables 12 and 13. The wildlife and plant management activities are described in more detail in Appendices I through N, and S7. Additionally, the annual reports for Wild Basin Wilderness Preserve and the Baker Sanctuary can be found in Appendices O and Q, respectively. Wild Basin is owned jointly by Travis County (164 acres) and St. Edwards University (63 acres) and is managed by St. Edwards University under contract with Travis County. Travis Audubon Society

owns and manages the 715 acre Baker Sanctuary as part of the BCP, with Travis County holding a conservation easement over 675 acres of the sanctuary.

Natural Resources Staff changes that occurred in FY18 include:

- Maintenance Worker Senior, Mark Montgomery, retired in October 2017 and the position was filled by Samuel Berg in April 2018
- Environmental Specialist, Kayla Miloy, resigned in February 2018 and the position was filled by Kelsey Meisenhelder in July 2018
- Natural Resources Specialist, Todd Bayless, resigned in June 2018 and the position was filled by Travis Clark, who was promoted from a Natural Resources Tech position in August 2018
- Amanda Fernandez served as the seasonal Natural Resources Tech from April through September 2018
- Sara Hamilton was the Mickey Leland intern from June through August 2018

Infrastructure Corridor

Travis County and City of Austin staff hosted a BCCP Infrastructure Workshop which was held at the Lady Bird Johnson Wildflower Center on October 13, 2017. This workshop was designed to help explain the significance of the BCP and provide guidance to infrastructure service providers that cross the BCP or that pass through endangered species habitat outside of the preserve.

In FY18, Pedernales Electric Cooperative (PEC) and Austin Energy coordinated with Natural Resources staff to conduct routine inspections and/or vegetation trimming along utility lines that transect Travis County BCP tracts. This work was done during the winter to avoid the warbler and vireo nesting season. Staff coordinated with Austin Energy to design a vegetation maintenance plan that allows Austin Energy to trim under their utility lines in a way which benefits the black-capped vireo.

Maintenance

Travis County completed new boundary fence construction on portions of the Kotrla Unit (13,322 linear feet) and the Crossings Conservation Easement (207 linear feet). Fence repairs were made on the Lucas tract where a vehicular accident had caused fence damage. Three new gates were installed at several locations on the Jollyville Unit where trespassing was occurring. The new gates are designed to be more difficult to climb.

In October 2017, a small house within the floodplain on the Snowden tract was demolished.

A 3-acre oak wilt center on the Jollyville Unit was trenched in November 2017 to prevent further spread of the disease.

A large Trails End tract debris removal project was completed in February 2018. Many trash piles were removed along with two busses and a boat. Staff and volunteers assisted on additional trash cleanup workdays on the Snowden, Bunten, and Lake Perspective tracts.

In July 2018, repairs were made to the cave gate at Stark's North Mine after it had been vandalized.

Table 12. FY18 Monitoring and Management Activities on Tracts Managed by Travis County within the Bull Creek, North Lake Austin, South Lake Austin, West Austin, Pedernales River, Big Sandy Creek Macrosites and Cave Tracts.

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (Travis County Tracts)	**Bull Creek Macrosite**								**North Lake Austin Macrosite**						**South Lake Austin**		**Pedernales River**	**West Austin**	**Big Sandy Creek**	**Cave Tracts**	
		Canyon Vista	**Colina Vista**	**Concordia**	**Karnik/Richards/ Wendland**	**Origer**	**Ribelin**	**Sam Hamilton E**	**Woody Hollow CE**	Franzetti/Webb	**Gray Mountain**	**Greenshores**	**Hereford/Lemens/ Hunt/ CE/Ross CE**	**Steiner Ranch CE**	**Woods of Greenshores**	**Chandler**	**Medway**	**Hamilton Pool/ Martin**	**Wild Basin**	**Kotrla Unit**	**Ireland's**	**Stark's North Mine**
Monitoring Activities	spot-map golden-cheeked warblers (intensive plots)	X*																	X			
	spot-map golden-cheeked warblers (tract-wide survey)						X	X										X				
	spot-map black-capped vireos						X													X		
	presence/absence survey for black-capped vireos							X												X		
	karst surface monitoring	X		X	X		X													X	X	X
	karst faunal surveys																			X	X	X
	cave cricket exit counts																			X		X
	Jollyville plateau salamander surveys							X														
	Water quality							X										X				
	deer surveys																	X		X		
Management Activities	deer control																X			X		
	feral hog control	X		X	X		X	X												X		
	cowbird control																	X		X		
	red imported fire ant control																			X	X	X
	non-native plant control	X		X			X	X						X	X				X	X		
	black-capped vireo habitat restoration																					
	trash removal																					
	patrol for evidence of trespass, vandalism, and dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	fence maintenance or construction																			X		
	Wildfire fuel mitigation													X								

* Re-sighting of banded warblers only

Table 13. FY18 Monitoring and Management Activities on Tracts Managed by Travis County within the Cypress Creek Macrosite.

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (Travis County Tracts)	**Bunten**	**Collins/Franklin**	**Cuevas East**	**Cuevas West/TSNL/Blackmore**	**Crossings CE**	**Grandview Hills North**	**Grandview Hills South**	**King/Atwood/Blake**	**Lake Perspectives**	**Lime Creek Unit**	**Lucas/ Lake Travis Bluffs**	**New Life**	**Nootsie**	**Romberg**	**Snowden**	**Spezia**	**Toops**	**Trails End**	**Wheless**	**Vireo Ridge/Stratton**	**Vista Point**	**Volente Unit**
Monitoring Activities	spot-map golden-cheeked warblers (intensive plots)		X							X*										X	X*	X	
	spot-map golden-cheeked warblers (tract-wide survey)																			X			
	spot-map black-capped vireos																				X		
	presence/absence survey for black-capped vireos											X										X	
	karst surface monitoring	X	X	X	X		X					X		X						X	X	X	
	karst faunal surveys			X	X		X					X		X								X	
	cave cricket exit counts			X	X							X											
	Jollyville plateau salamander surveys	X	X				X									X				X	X	X	
	water quality	X	X				X									X				X	X	X	
	deer surveys						X							X		X					X	X	
Management Activities	deer control															X					X		
	feral hog control																						
	cowbird control													X									
	red imported fire ant control			X	X		X	X	X			X										X	
	non-native plant control	X	X		X		X				X		X	X		X	X	X	X	X	X		
	black-capped vireo habitat restoration																						
	trash removal	X			X					X		X				X			X				
	patrol for evidence of trespass, vandalism, and dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
	fence maintenance or construction					X						X											
	Wildfire fuel mitigation					X												X					X

* Re-sighting of banded warblers only

Travis County Wildfire Mitigation and Preparedness

Travis County staff actively worked on BCP lands and coordinated with neighboring communities to reduce the risk of wildfire and to improve preparedness for wildfire events. The County's Natural Resources Program is committed to 1) ensuring that safety to the public, firefighters, and staff is the highest priority for all fire management activities; 2) mitigating the wildland-urban interface (WUI) from wildfires; and 3) meeting its obligations to protect endangered species habitat from loss due to wildfire.

Mitigation efforts on County BCP lands have focused on the WUI, where preserve tracts abut development, roads, and utility lines. Land management practices within the WUI are designed to reduce the probability of accidental ignition and to minimize the spread of wildfire into the forest crown. Fuel mitigation activities, such as the creation of shaded fuel breaks, reduce the risk of surface fires becoming crown fires, a highly destructive, less manageable fire type. Treated areas become fire adapted, thereby minimizing risk to habitat and adjacent structures.

In FY18, Natural Resources staff coordinated multiple shaded fuel treatment projects on the following BCP tracts: Steiner Ranch CE, the Crossings CE, Volente, and Toops. Lake Travis Fire & Rescue (ESD 6) and American Youthworks (AYW) were contracted to perform most of the work. All of the fuel mitigation activities followed a customized scope of work, derived from the USFWS Best Management Practices for fuel reduction in golden-cheeked warbler habitat.

Staff also met with many neighbors and attended neighborhood meetings to promote fire adapted communities and to explain BCP fuel mitigation efforts. Staff collaborated with Emergency Service Districts in disseminating information to the public.

Conservation Easement Monitoring

Staff conducted annual conservation easement monitoring at nine properties which are privately owned, but are managed by Travis County through conservation easement agreements. Compliance issues were identified on three conservation easement properties in FY18. Corrective measures are underway.

Travis County Law Enforcement and Preserve Patrol

Management of BCP lands to meet the terms and conditions of the BCCP permit in a rapidly developing urban interface presents unique challenges for public agencies. Many BCP tracts are subject to law enforcement issues including illegal trespass (pedestrian, mountain bike, all-terrain vehicle, and motorcycle traffic), dumping, vandalism, theft, , cutting of vegetation, and unauthorized use of fire.

Law enforcement on all Travis County managed properties, including County Parks and County BCP tracts, are provided by Park Police. Park Police are part of Travis County's Parks Division and are commissioned Texas Peace Officers operating as Deputy Sheriffs under the Travis County Sheriff's Office (TCSO). The Park Police and Travis County's Natural Resources staff regularly patrol and inspect County managed BCP tracts to look for signs of illegal activity and to assess management needs. Regular patrols provide a visible County presence, thereby minimizing the incidence of unauthorized activities. Patrols also allow staff to inspect fences, locked gates, facilities, trails and roads, and look for resource management issues such as non-native plant and animal encroachment and signs of oak wilt infestation.

In FY18, there were 72 incidents of illegal activities documented on the Travis County managed preserve tracts. Several of these incidents involved multiple violations. Most of the incidents were trespass only (on foot), however 12 involved vandalism/criminal mischief (cutting locks and fences, removing or damaging signs, trashing an area), three involved vehicular trespass, five involved illegal dumping, one involved unauthorized use of fire, and four involved notable incidents of illegal clearing. Travis County Park Police assisted with six of these violations and were involved in three cases where Travis County sought restitution from the perpetrators.

Most of the cases of trespass (52 incidents) were documented by surveillance cameras which were operated on various BCP tracts. Several individuals were found to have trespassed multiple times. Surveillance cameras posted at our Wheless tract identified a trespassing issue that staff was previously unaware of. This enabled staff to post clearer signage and increase patrols in the area which curtailed the behavior. In addition, a camera posted at the Karnik tract for wildlife management purposes, documented significant violations being committed by three trespassers that involved, amongst other things, illegal clearing of

vegetation and a dangerous unattended fire. Law enforcement was brought in to assist in apprehension of the perpetrators.

Travis County Park Police also assisted in facilitation of restitution in two other cases of significant illegal back-of-lot clearing on our Canyon Vista and Grandview Hills tracts. Law enforcement accompanied Natural Resources staff when they confronted homeowners and explained violations. They also wrote up official criminal reports that presented charges to the homeowners in the event they did not comply with restitution agreements.

In June 2018, a “lost person in distress” contacted emergency responders to report they were lost and injured on the 35 Acres tract. Several law enforcement and fire units were dispatched on the ground into the preserve, as well as Star Flight overhead, to locate the individual. Once located, it was determined that the individual was under the influence of a narcotic and had climbed over a fence into the preserve, became disoriented and sustained minor injuries.

Following this event on the 35 Acres tract, patrol staff was inspecting the area for further evidence and came across a previously unknown trespass area that involved a group of rock climbers utilizing one of the canyons as a recreation area. Patrol staff was able to seize belongings left behind and post signage in the area to alert trespassers of their violation.

Travis County BCP Volunteer and Outreach Programs

Travis County BCP Volunteer Program

In FY 18, 324 community volunteers donated their time and energy to help maintain the Travis County portion of the BCP and provide educational opportunities to the public. Volunteers are an integral part of the BCP team, extending the County’s capacity, while also increasing awareness of the BCP and BCCP within the community. The volunteers’ commitment, energy, and expertise strengthen the BCCP program and broaden the County’s impact.

In FY 18, volunteers contributed 2,208 hours of labor conducting wildlife surveys, leading guided hikes, controlling invasive species, patrolling BCP boundaries, maintaining trails, and assisting with general land stewardship (Table 14). In addition to benefiting the preserve, the volunteer program also provides a way for

people to connect with nature in a meaningful way, and builds a community of people who care about the BCP.

Table 14. FY18 BCP Volunteer Hours.

Activity	Hours
Land stewardship	1556.5
Invasive species control	353.5
Biological monitoring & surveying	192.25
Administration	47
Education	59.5
Total	**2,208.75**



Volunteers from Oracle removing invasive species boxes



Boy Scout Garrison Layne installs wood duck

Volunteer highlights included:

- Boy Scout Garrison Layne installed four nest boxes for wood ducks at the BCP tract at Concordia University for his Hornaday Award Conservation Project. He recruited volunteers and worked with County and Concordia staff to make the project a success.

- A total of 73 Oracle employees came out to volunteer on the preserve on two separate work days in FY 18. They removed invasive vinca, creating space for diverse native plants to grow.

- A group of seven committed volunteers worked 497 hours maintaining and improving the landscaping at Snowden House, including removing invasive plants. Snowden House is used as a starting point for many guided hikes and volunteer projects, and also hosts community presentations and meetings.

Travis County BCP Education & Outreach Program

Travis County continues to expand its education and outreach program, offering guided hikes throughout the year, providing information about the BCP at community meetings and public events, and offering educational activities and lectures by visiting speakers. Approximately 1,276 individuals were reached through these efforts (Table 15). In addition, thousands of people enjoy hiking the trails each year at Hamilton Pool Preserve and Wild Basin Preserve, which are open to the public year-round.

Table 15. Travis County BCP Education & Outreach Summary for FY18.

Activities	**Events**	**People reached**
Programs/Presentations	14	447
Guided hikes	27	345
Information table at events	3	440
Visiting Group	4	44
Total	**48**	**1,276**



Flyer for second Wild Neighbors event, focusing on dark skies.

Outreach highlights in FY18 included:

- Travis County began partnering with Concordia University and the City of Austin to provide a series of free educational lectures for BCP neighbors, called the Wild Neighbors series. Each lecture focuses on a different aspect of living with the natural world, and is paired with an interpretive hike on the preserve. The first event of the series featured City of Austin Park Ranger LaJuan Tucker, who gave an engaging presentation about ways to attract butterflies, birds and other wildlife to residential yards. The next event in the series paired a Tree ID hike with a presentation from Texas Forest Service representatives Brad Hamel and Clay Bales about general tree care and oak wilt prevention. The third event featured a night hike with a presentation about the importance of preserving dark skies from Cindy Luongo Cassidy from the Texas Chapter of the International

Dark-Sky Association and Dr. Susan Silberman, who talked about her experience working with her community to become a Dark Sky Friendly Development of Distinction in 2017.

- Participating in community events such as Austin Cave Festival at the Lady Bird Johnson Wildflower Center, the Balcones Canyonlands National Wildlife Refuge Round Up, and Lake Pointe Elementary's Family Science Night helps us reach broader audiences, and build awareness of the BCP over time.

- County staff gave 14 presentations about the BCP to local HOAs, community groups, partner organizations, and school classes ranging from elementary to university level, connecting with 447 people

LOWER COLORADO RIVER AUTHORITY

Annual Status Report for the Balcones Canyonlands Conservation Plan
October 1st 2017 - September 30th 2018.

Mitigation Credits Used

The Lower Colorado River Authority debited 10.3 acres from its mitigation bank balance between October 2017 and September 2018. LCRA has 260.93 mitigation credits remaining.

Management Highlights

The Lower Colorado River Authority (LCRA) managed 2,707 acres as a portion of the preserve system until April 27, 2017 when LCRA conveyed the Wheless Preserve property to Travis County by Special Warranty Deed. Management activities for the three LCRA preserves continued to focus on natural resource research and management, access management, and stewardship promotion.

McGregor

- In the fall of 2017, LCRA Conservation Services met with contractors to review bids for the Shaded Fuel Break Project. This addresses both access and fuel mitigation at strategic points along the urban interface. Work was completed for this project in late January 2018. Fire breaks

were created and existing fire breaks along existing roads and perimeter fences maintained. The maximum width of the fire breaks was 16 feet. The fire breaks were created and maintained using tractor/shredder and hand cutting/wood chipping to avoid the build-up of herbaceous litter. These breaks also serve as points of ingress and egress during emergency situations, and for future scheduled maintenance. This work was in accordance with U.S. Fish and Wildlife Service (FWS) guidance titled "Fuel Treatments in Juniper and Oak-Juniper Woodlands throughout the Range of the Golden-cheeked Warbler (GCWA)."

- Bird surveys and density modeling was performed in May 2018 by contractors working with Jim Mueller of U.S. Fish and Wildlife Service. Data is being compiled and a report will be submitted to LCRA in March 2019. The contractor discovered signs of potential trespassing that was reported to law enforcement officials.
- In September 2018, four Comanche Trail Community Association (CTCA) neighbors interested in obtaining a permit to hike McGregor Preserve on designated trails were trained and permitted. There are approximately 50 CTCA neighbors permitted to hike the preserve.

Westcave

- Westcave Outdoor Discovery Center hosted 13,569 students, teachers and visitors during 2017-2018.
- Dawn Houston (Preserve researcher, FWS permitted biologist) conducted territory mapping surveys on the tract and found three successful territories (see attached report).
- Westcave continued participating in the BCP-wide golden-cheeked warbler banding and re-sighting project. The objective is to provide an accurate estimate of return rates, dispersal and survival for the GCWA. Two males and one female were successfully banded.
- Research efforts include citizen scientist programs: FeederWatch, NestWatch, Dragonfly Pond Watch, and FrogWatch.
- Current non-citizen science research endeavors include: bat data collection using auto-classification methods, University of Texas sponsored cave research, Colorado River Watch-water quality monitoring, *Mahonia swaseyi* surveys, and salamander surveys.

- Westcave staff continues general maintenance of boundaries, trails, non-native plant removal, prairie restoration work, hog trapping operations employed, pollinator garden upkeep, and maintaining fire lines.
- Bird boxes are erected and maintained during nesting season.
- Westcave has continued to stay engaged with the surrounding community by hosting bi-annual round tables with topics pertinent to the local community, offering spring and fall programs including bird walks, wildflower and grass walks, night hikes and golden-cheeked warbler walks. All programs are led by local experts who are specialists in their field.
- The site for the new bird blind has been cleared, staked out, and post holes have been dug.

CITY OF SUNSET VALLEY

The City of Sunset Valley entered a BCCP Managing Partner Agreement on 7 February 2014 and designated 21.585 acres, known as the Gaines Greenbelt, as BCP. A report of the monitoring and management activities conducted on the Gaines Greenbelt for FY18 is included as Appendix P.

THE NATURE CONSERVANCY OF TEXAS
Annual Report for Barton Creek Habitat Preserve

Science / Stewardship

Annual surveys (point count) were completed for the golden-cheeked warblers (GCWA) to determine population densities. The GCWA population remains stable, one black-capped vireo (BCVI) was observed on the property during the 2018 season. Brown-headed cowbirds were removed from the property by shooting.

Preserve staff and TPWD public lands lottery hunters are helping to control the population of white-tailed deer in an effort to reduce browse and increase recruitment of Texas Oaks. Population is estimated through spot-light surveys, stand counts and camera surveys.

Ongoing research projects included “Status of Fall Breeding and Overwintering Monarch Butterflies in Texas” (Oklahoma State University), “KR Bluestem Effects on Grasslands” (The Nature Conservancy / Global Impact Invader Network – GIIN), “Best Practices for Restoration as Biocontrol for the Invasive KR Bluestem in Central Texas Grasslands“ (Trinity University), and “Geographic variation in floral traits, local pollinators, and genetic structure in *Castilleja sp.* (Northwestern University and Chicago Botanical Garden).

Water quality in Barton Creek is monitored by Austin Youth River Watch, the results have not found any anomalies.

Due to timing issues and burn bans, no prescribed fires were conducted.

Education/Outreach/Volunteers

The preserve hosted approximately 1090 visitors, 272 volunteers totaling 757 hours of work, and 566 used the property for educational purposes. Groups included the Boy Scouts of America, Cub Scouts, Camp Champions of Marble Falls, Texas Parks and Wildlife, Balconies Canyonlands Preserve visitors, Austin Youth River Watch, Rose Hill Christian School, KIPP, Westlake Hills Presbyterian Men’s Group, Capital Area Master Naturalists, Balcones Master Naturalists, Audubon Society, the University of Texas, Huston-Tillotson University, St. Edwards University, and the China State Forestry Administration.

Volunteer projects included removing old fencing, invasive species removal (Johnson grass – *Sorhum halepense*, Malta star-thistle – *Centaurea melitensis,* Chinaberry Tree – *Melia azedarach*, and *Ligustrum sp.*), trash pickup, trail maintenance, fireline preparation, juniper removal, deer surveys, bird surveys, and boundary monitoring.

Expense Summary

Operations and maintenance cost spent on BCP for FY 2018 was $10,000.

TRAVIS AUDUBON SOCIETY

Travis Audubon Society owns and manages 715 acres at the Baker Sanctuary which are included as part of the BCP. In April 2015, Travis County purchased a conservation easement for Baker Sanctuary to ensure that the function and purpose of the Sanctuary will be secured in perpetuity. A report of the monitoring and management activities conducted on the Bakers Sanctuary for FY18 is included as Appendix Q.

LITERATURE CITED

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U. S. Fish and Wildlife Service. 1996b. *Final Environmental Impact Statement / Habitat Conservation Plan for Proposed Issuance of a Permit to Allow Incidental Take of the Golden-cheeked Warbler, Black-capped Vireo, and six karst invertebrates in Travis County, Texas.*