

**FY20 Report on Monitoring
Golden-cheeked Warblers (*Setophaga chrysoparia*) on
Travis County-managed Balcones Canyonlands Preserve Tracts**



Male golden-cheeked warbler

Photo: Courtesy of Heather Valey

Travis County

Department of Transportation and Natural Resources

Natural Resources and Environmental Quality Division



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Introduction

As specified in the Balcones Canyonlands Conservation Plan (USFWS 1996; hereafter BCCP), the City of Austin and Travis County developed and implemented a Land Management Plan (LMP) to provide guidelines for managing the Balcones Canyonlands Preserve (BCP). The LMP Tier IIA-7 section (BCP 2007) describes the current management and monitoring goals for golden-cheeked warbler (*Setophaga chrysoparia*; hereafter GCWA) populations on the BCP. It states, “The GCWA population within the BCP will be monitored through a regional program to determine population size, territory density and trends, distribution, productivity, use of marginal habitat, and to determine the effects of habitat manipulation, urbanization, and recreation... Guidelines are provided for various levels of monitoring including presence/absence, territory mapping, pair detection and productivity.”

This report summarizes the results of the Travis County Natural Resources fiscal year 2020 (FY20) GCWA monitoring program. In FY20, Travis County Natural Resources staff and volunteers attempted to conduct various GCWA surveys and monitoring efforts on the Travis County-managed BCP properties. However, due to the Coronavirus disease (COVID-19) pandemic and related government mandated shut-downs, County staff were required to cancel all field survey activities for a portion of the nesting season. During the COVID-19 pandemic many County field staffs' job responsibilities shifted from conducting GCWA surveys to essential duties, such as BCP patrol. County staff were suspended from conducting GCWA surveys between 25 March and 24 April 2020. All volunteer survey activities were canceled on Travis County BCP between 25 March and 17 May 2020. Once Travis County allowed certain activities to resume with updated health and safety protocols, staff were able to conduct avian surveys a maximum of two days per week (resuming essential duties the rest of the week) for the remainder on the GCWA survey season. With reduced field staffing, the number of GCWA surveys areas was reduced to focus survey efforts on areas where the most data had been collected prior to the COVID-19 shut-down.

Methods

Enumeration Surveys

County staff use enumeration surveys, or territory mapping, to provide an estimate of GCWA abundance, occupancy, distribution, and territory density in selected study areas (or plots). Enumeration surveys on Travis County-managed properties are typically carried out every five years or on an “as needed” basis should new or future potential disturbance activities occur on or adjacent to the BCP.

Enumeration plots are typically surveyed from 15 March to 15 June with a minimum of eight visits in each plot to ensure adequate plot coverage. Due to the COVID-19 pandemic, County staff were suspended from conducting GCWA surveys between 25 March and 24 April 2020. Afterwards, County staff were only allowed to conduct GCWA surveys a maximum of two days per week. Several GCWA enumeration study areas were canceled this year in order focus survey efforts on areas where the most data had been collected prior to the COVID-19 shut-down (Figure1; Table 1). Planned FY20 surveys that were canceled due to COVID-19 will be rescheduled for future survey seasons. Due to the COVID-19 pandemics' mandatory shutdown and subsequent reduced GCWA survey season and resources, Travis County biologists determined there were insufficient data to calculate estimated GCWA abundance, individual male territories, and territory densities based on FY20 enumeration survey results. The determination to not analyze these data was because most survey areas did not achieve the target goal of eight GCWA enumeration surveys per survey area and because the missing survey time occurred during prime GCWA breeding season when males are the most vocal and establishing territories (Pulich 1976).

During each visit, surveyors attempted to audibly locate and follow male GCWA and obtain several spatial and behavioral observations, while also recording male counter-singing to assist with the identification and delineation of male territory boundaries. Counter-singing male GCWA locations were often recorded as an estimated location, as they were heard audibly from a distance. GCWA locations were recorded using Garmin handheld global positioning units (GPS) and/or on paper maps with an aerial imagery background using topographic lines and 100-meter Universal Transverse Mercator (UTM) grid. Data were recorded and analyzed in an ArcGIS 10.7 (ESRI, Inc., Redlands, California) geodatabase using a spatial reference of NAD 1983/UTM 14N. Data recorded for each GCWA observation included date, spatial location, individual male observation ID, sex, song type, band information, counter-singing presence, and counter-singing directions, presence of a mate/nests, and presence/number of fledglings. Due to limitations inherent to territory mapping methods (i.e., differences in observer ability, observer bias, GPS/mapping accuracy, and mobility of the target species), results of all GCWA survey observations should be interpreted as approximations.

Figure 1. GCWA Survey Areas on the Balcones Canyonlands Preserve, FY20, Travis County, Texas.

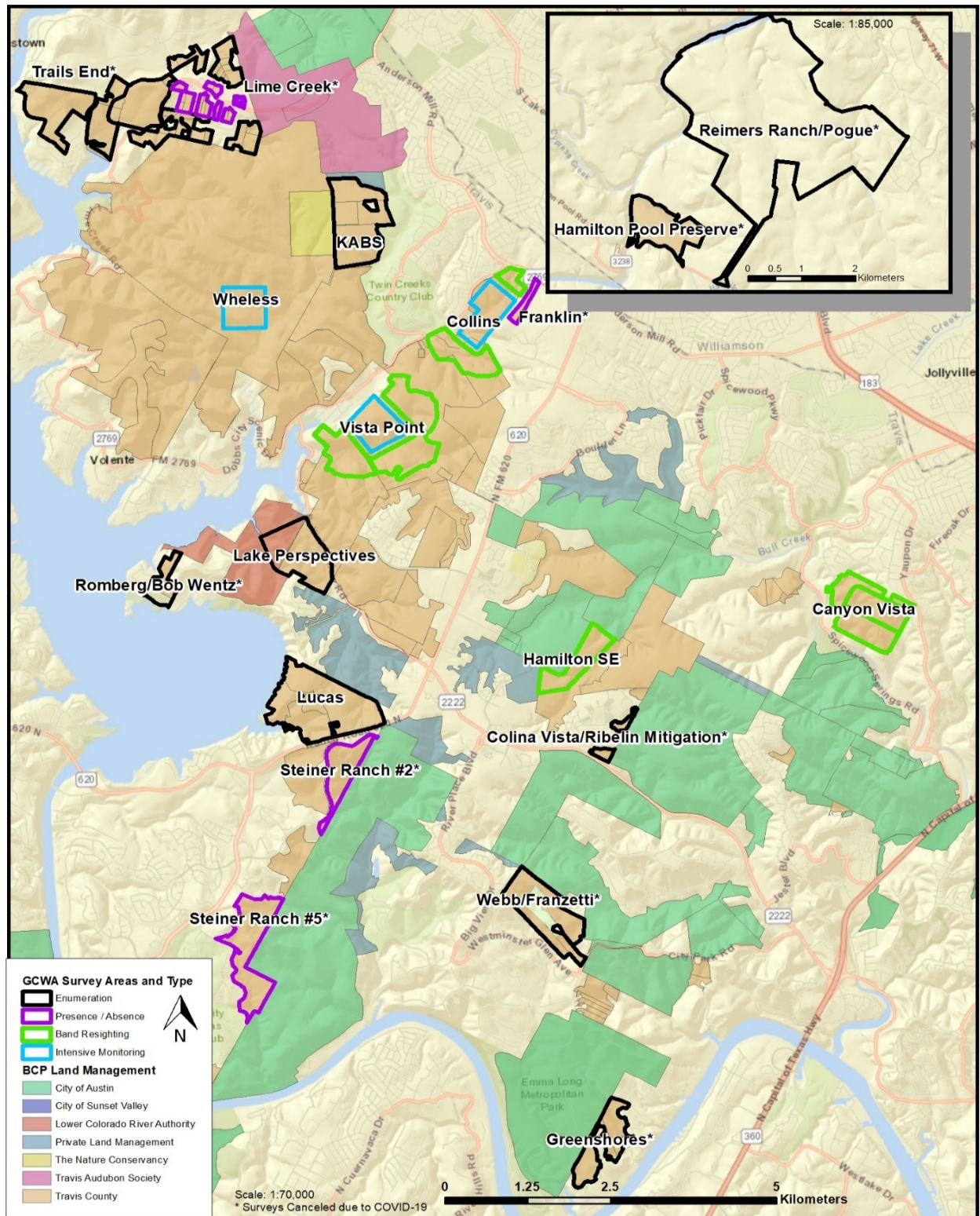


Table 1. GCWA Survey and Monitoring Efforts, FY20, Travis County BCP, Texas.

Survey Area ¹	Survey Type	Macrosite	Summary of GCWA Survey Data Collected	Acres	Hectares	Approximate Survey Hours
Colina Vista/Ribelin Mitigation ⁴	Enumeration	Bull Creek	Surveys Canceled due to COVID-19	22	10	4.0
Greenshores	Enumeration	North Lake Austin	Surveys Canceled due to COVID-19	118	48	0.0
Hamilton Pool Preserve	Enumeration	Pedernales River	Surveys Canceled due to COVID-19	232	94	0.0
KABS ¹	Enumeration	Cypress Creek	Surveyed: Data missing during shutdown	232	94	75.5
Lake Perspectives ¹	Enumeration	North Lake Austin	Surveyed: Data missing during shutdown	181	73	64.0
Lime Creek ^{1,4}	Enumeration	Cypress Creek	Surveys Canceled due to COVID-19	333	135	4.0
Lucas ¹	Enumeration	North Lake Austin	Surveyed: Data missing during shutdown	331	134	125.3
Romberg/Bob Wentz ⁴	Enumeration	Cypress Creek	Surveys Canceled due to COVID-19	55	22	3
Trails End ¹	Enumeration	Cypress Creek	Surveys Canceled due to COVID-19	235	95	0.0
Webb/Franzetti	Enumeration	Cypress Creek	Surveys Canceled due to COVID-19	198	80	0.0
Collins ^{2,3}	Intensive Monitoring	Cypress Creek	Surveyed: Data missing during shutdown	138	56	124.0
Vista Point ^{2,3}	Intensive Monitoring	Cypress Creek	Surveyed: Data missing during shutdown	172	70	105.8
Wheless ^{2,3}	Intensive Monitoring	Cypress Creek	Surveyed: Data missing during shutdown	172	70	56.0
Canyon Vista ²	Band Resighting	Bull Creek	Reduced volunteer and Staff survey effort	234	95	See ²
Vista Point ²	Band Resighting	Cypress Creek	Reduced volunteer survey effort only	297	120	See ²
Hamilton ²	Band Resighting	Bull Creek	Reduced volunteer survey effort only	100	40	See ²
Collins ²	Band Resighting	Cypress Creek	Reduced volunteer survey effort only	120	49	See ²
Franklin	Presence/Absence	Cypress Creek	Surveys Canceled due to COVID-19	18	7	0.0
Lime Creek	Presence/Absence	Cypress Creek	Surveys Canceled due to COVID-19	60	24	0.0
Reimers Ranch/Pogue	Presence/Absence	Pedernales River	Surveys Canceled due to COVID-19	2358	954	0.0
Steiner Ranch #2 ⁴	Presence/Absence	North Lake Austin	Surveys Canceled due to COVID-19	196	79	3.5
Steiner Ranch #5 ⁴	Presence/Absence	North Lake Austin	Surveys Canceled due to COVID-19	101	41	6
Attempted Total (Pre-COVID-19 Shutdown)				5903	2390	
Total (Post-COVID-19 Shutdown)				1977	801	452.8

¹ Study Areas may contain multiple BCP tracts

² The City of Austin staff analyzed these data, see Appendix F of the FY20 BCCP Annual Report for additional information

³ Area surveyed includes 100-meter survey buffer

⁴ Survey hours occurred prior to COVID-19 shutdown

Intensive Plot Monitoring and Band Resighting

In coordination with the City of Austin, Travis County Natural Resources staff participated in a BCP-wide monitoring program of established intensive monitoring plots. These previously established “100-acre (ac) plots” are arranged across a spectrum of GCWA habitat types. Intensive monitoring includes data collection of color banded GCWA to estimate territory density, territory size and location, age structure, pairing success, breeding success, productivity, and nest survival. County staff conducted GCWA intensive plot monitoring at Vista Point, Wheless, and Collins plots (Figure 1).

Band resighting plots include previously established intensive plots (not intensively monitored in the current survey year) and selected areas surrounding intensive monitoring plots (intensively monitored during the current survey year). These resight plots are regularly surveyed for returning color banded GCWA and these survey efforts continue until no banded GCWA are observed within these plots for one entire survey season. In FY20, County staff and volunteers assisted with band resighting efforts at the Canyon Vista and volunteer only efforts were conducted surrounding the Vista Point, Collins, and Hamilton SE intensive monitoring plots (Figure 1). Due to the COVID-19 pandemic shutdown, County staff were suspended from conducting GCWA surveys between 25 March and 24 April 2020, although some opportunistic GCWA data was collected while County field staff were conducting essential patrol duties on the BCP. Also, all volunteer survey activities were canceled on Travis County BCP between 26 March and 17 May 2020. For a more detailed description of survey methods and results of the intensive monitoring program and band resighting effort, see the City of Austin’s “Appendix F” of the FY20 BCCP Annual Report.

The Collins plot was established after Travis County Staff discovered a colony of invasive tawny crazy ants (*Nylanderia fulva*; hereafter TCA) on an adjacent property in 2017. TCAs are arboreal foragers and there are concerns of negative impacts to the GCWA prey-base. In response, Travis County staff began a pilot study to examine the composition of the canopy arthropod community within affected and adjacent areas, along with an intensive monitoring plot for GCWA within the Collins tract. Additional information on the on-going TCA project is detailed in “Appendix U4” of the FY20 BCCP Annual Report.

Presence/Absence Surveys

In FY20, Travis County staff attempted to conduct GCWA presence/absence surveys within five survey areas (Figure 1). These survey areas included portions of the Franklin, Lime Creek, and Steiner Ranch #2 and Steiner Ranch #5 BCP tracts, as well as Reimers Ranch – Pogue [Milton Reimers Ranch Park] managed by Travis County

Parks) totaling 1,105 ha. Presence/absence surveys are conducted to determine if potential GCWA habitat, breeding territories, or individuals are present. GCWA surveys and habitat assessments are conducted following USFWS (2010) presence/absence surveying protocol. Due to the COVID-19 pandemic shutdown and subsequent reduced field surveyor availability, all FY20 GCWA presence/absence surveys were canceled.

Results

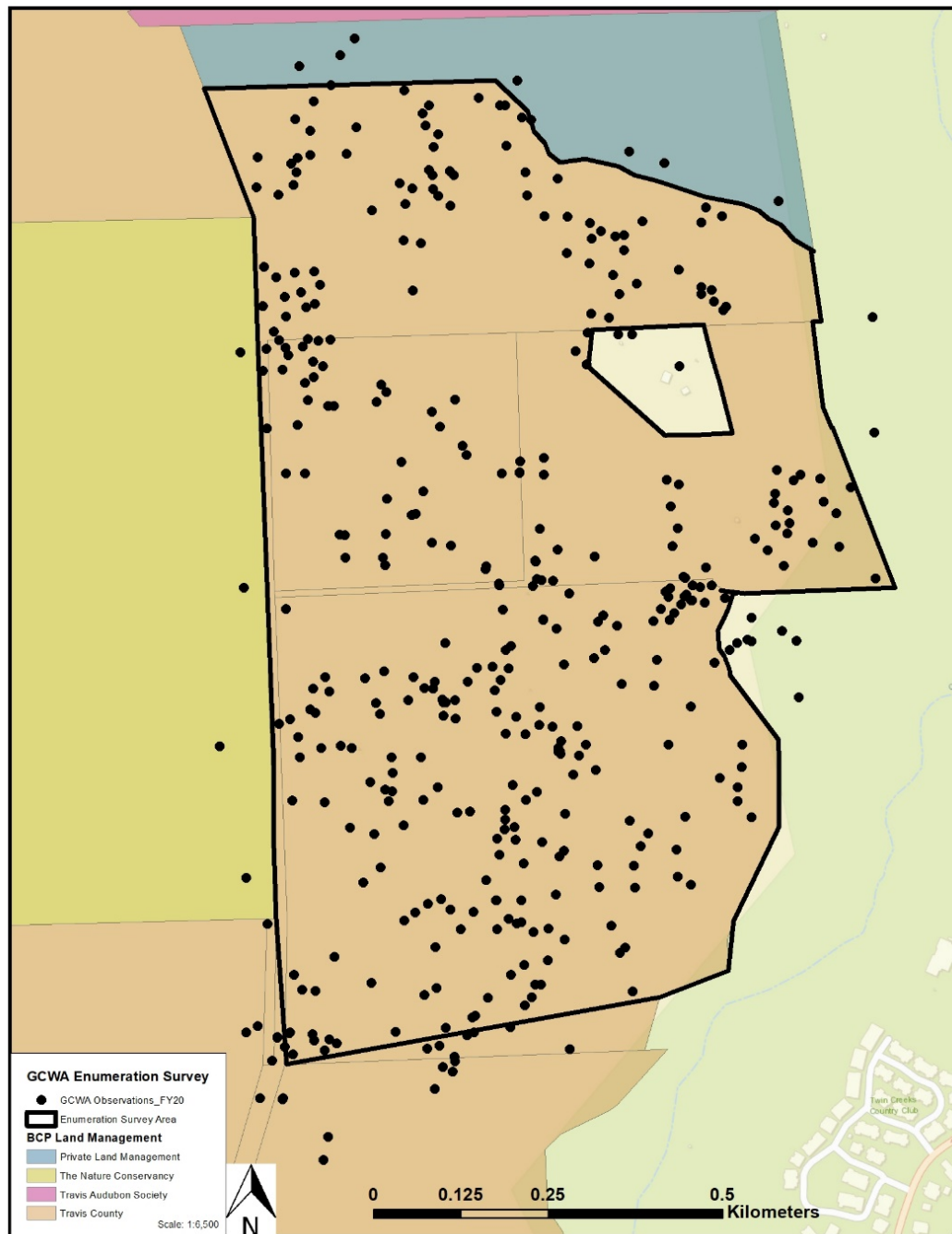
Enumeration Surveys Results

In FY20, Travis County staff conducted GCWA territory enumeration surveys within three study areas distributed across two macrosites, totaling approximately 301 ha and contributing approximately 264.8 hours of survey effort (Figure 1; Table 1). Due to the COVID-19 pandemics' mandatory shutdown and subsequent reduced GCWA survey season and resources, Travis County biologists determined there were insufficient data to calculate estimated GCWA abundance, territories, and territory density based on FY20 enumeration survey results. Spatial data collected from FY20 GCWA enumeration survey observations are shown in Figures 2 – 4.

KABS GCWA Enumeration Survey Results

The KABS 94 ha (232 ac) GCWA enumeration survey area includes the King, Attwood, Blake, and Spazia tracts of the BCP. The KABS study area is located east of the Village of Volente and northwest of Farm-to-Market (FM) 2769, within the Cypress Creek macrosite. GCWA observation spatial locations from FY20 enumeration surveys are presented in Figure 2.

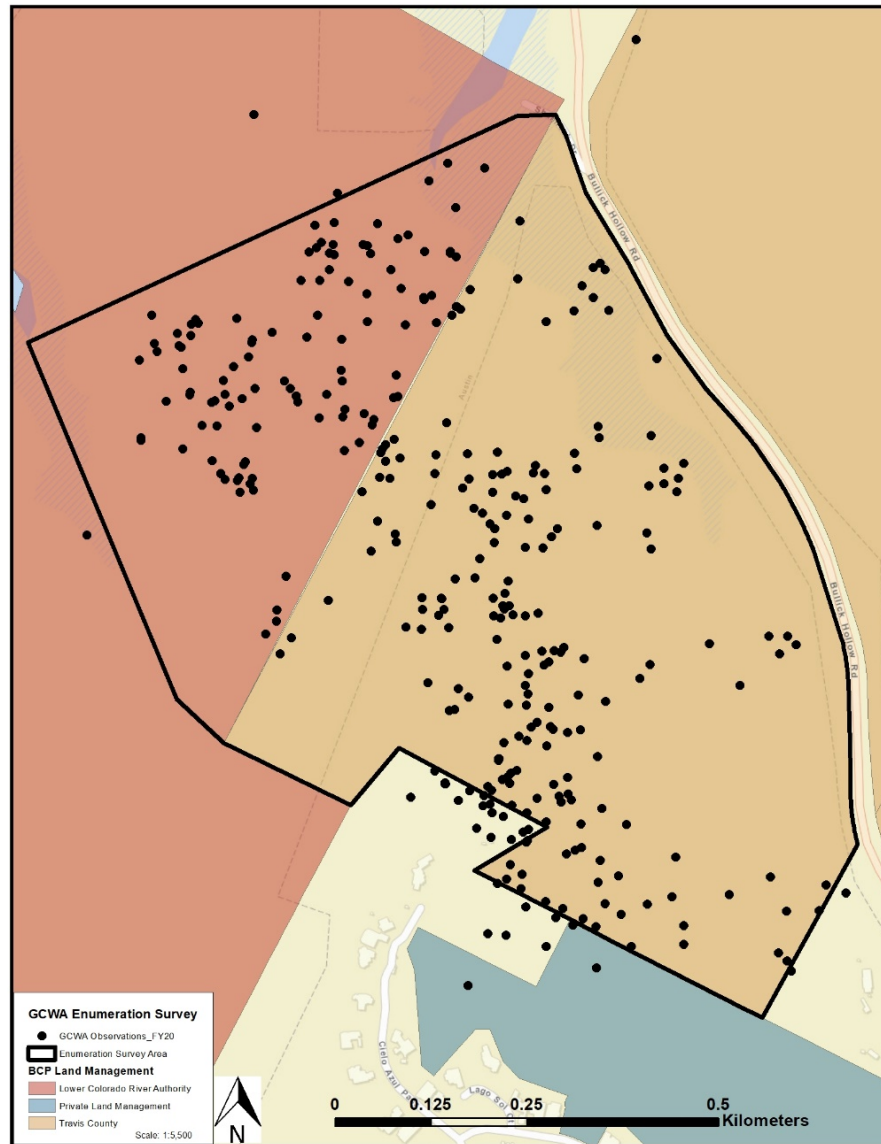
Figure 2. GCWA observations based on the KABS enumeration survey from FY20, Travis County BCP, Texas.



Lake Perspectives GCWA Enumeration Survey Results

The Lake Perspectives 73 ha (181 ac) GCWA enumeration survey area includes the Lake Perspectives tract of the Travis County BCP, as well as portions of the McGregor Tract of the BCP managed by the Lower Colorado River Authority (LCRA). Northern portions of this survey area are within the LCRA managed BCP and include a former City of Austin 100-acre monitoring plot that was last surveyed in 2015. This former plot was included to potentially compare past and present GCWA population data, however due to missing data from the COVID-19 shutdown, no quantitative comparisons were made. The Lake Perspectives survey area is located southeast of the Village of Volente, on the west side of Bullick Hollow Road, within the North Lake Austin macrosite. GCWA observation spatial locations from FY20 enumeration surveys are presented in Figure 3.

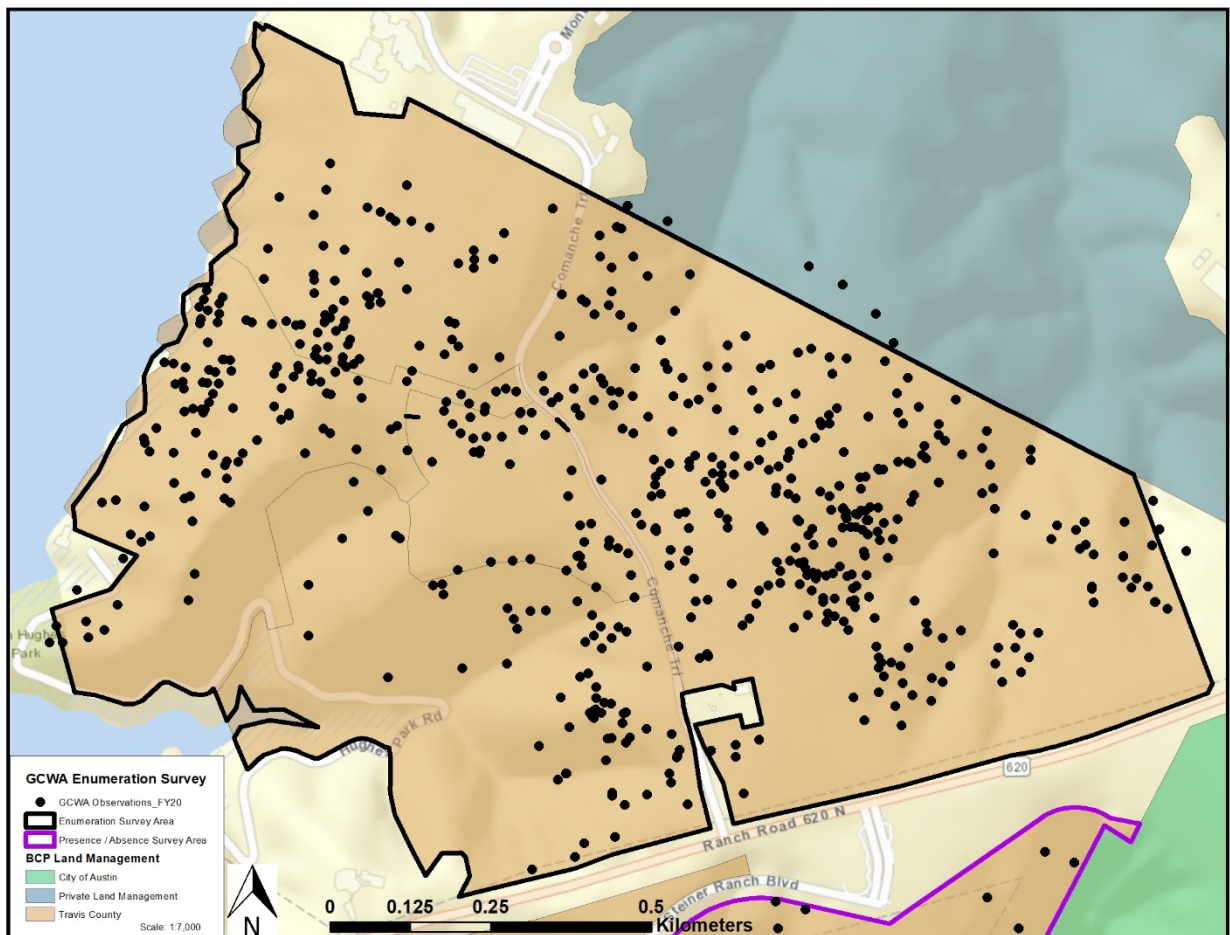
Figure 3. GCWA observations based on the Lake Perspectives enumeration survey from FY20, Travis County BCP, Texas.



Lucas GCWA Enumeration Survey Results

The Lucas 134 ha (331 ac) GCWA enumeration survey area includes the Lucas and Lake Travis Bluffs tracts of the BCP. The Lucas study area is located to the north of the intersection of Ranch-to-Market (RM) 620 and Comanche Trail within the North Lake Austin macrosite. GCWA observation spatial locations from FY20 enumeration surveys are presented in Figure 4.

Figure 4. GCWA observations based on the Lucas enumeration survey from FY20, Travis County BCP, Texas.



Intensive Plot Monitoring and Band Resighting Results

In FY20, Travis County staff surveyed Intensive Monitoring plots weekly from 15 March to 25 May 2020 (except during the COVID-19 shutdown). Additional visits to the plots occurred between 25 May and 15 June 2020 to continue monitoring nesting activity, obtain hatch-year bird observations, and gain addition band resight information. Travis County staff contributed approximately 124, 105.8, and 56 hours of survey time to the Collins, Vista Point, and Wheless intensive monitoring plots, respectively.

Travis County staff surveyed band resight plots between 29 April and 22 May 2020 to detect banded and dispersing GCWA. Travis County staff contributed approximately 31 hours of survey time on the Canyon Vista band resight plot. Canyon Vista, Collins, Vista Point, and Hamilton SE band resight plots were also surveyed by volunteers through the City of Austin's band resight program when allowed due to COVID-19 restrictions.

Travis County shared intensive plot monitoring and band resighting data collected in FY20 with the City of Austin staff for further analysis and publication. For a more detailed summary of the results and discussion of the intensive monitoring program and band resighting effort, see the City of Austin's "Appendix F" of the FY20 BCCP Annual Report.

Presence/Absence Survey Results

Due to the COVID-19 pandemics' mandatory shutdown and subsequent reduced GCWA survey season and resources, all FY20 Presence/Absence GCWA surveys were canceled. Proposed FY20 surveys that were canceled due to COVID-19 will be rescheduled for future survey seasons.

Acknowledgements

Travis County would like to thank all the BCP partners and staff for their collaboration in the 2020 GWCA survey efforts. Special thanks go to our seasonal natural resource survey technicians Kaitlin Lopez, Becky Woodward, and Bianca Perez. Thank-you also to all our dedicated BCP volunteers.

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