2025 Annual Report:
Golden-cheeked Warbler *(Setophaga chrysoparia)*
Monitoring Program
Balcones Canyonlands Preserve



Golden-cheeked Warbler male © Arman Moreno

City of Austin, Austin Water
Wildland Conservation Division
and
Travis County
Department of Transportation and Natural Resources
Natural Resources and Environmental Quality Division
Balcones Canyonlands Preserve
Austin, Texas

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Disclaimer: The data and information presented in this report are provisional and subject to revision.

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SUMMARY

This report summarizes the results of the golden-cheeked warbler (*Setophaga chrysoparia*) endangered species monitoring program on the Balcones Canyonlands Preserve (BCP) for the 2025 field season. The return rate of color-banded males across all sites monitored on the BCP in 2025 was 50%, which is greater than the average return rate (43%) recorded for the BCP. We monitored 151 territories on 13 intensive monitoring plots, with an average estimated density of 0.15 males per hectare, an increase from 0.13 territories per hectare in 2024. Overall breeding success declined in 2025 to 56% from 60% in 2024 and 65% in 2023. Of 130 active nests monitored in 2025, 69 nests fledged one or more young (53%) and 61 nests failed (47%).

ACKNOWLEDGMENTS

We would like to thank all the BCP partners, staff, and volunteers for their collaboration in the 2025 survey effort. Without their support and assistance, it would not have been possible to obtain these critical data. Volunteers in 2025 included: Gabriela Alvarez, Andy Balinsky, Julia Balinsky, Sally Beadles, Macy Beauchamp, Jimma Byrd, Alan Carlin, Eileen Cassidy, Kasey Clarke, Paul Clements, Catherine Cuddihy, Sheila Ellwood, Andy Foss-Grant, Chance Gammill, Leneka Gammill, Pamela Garrison, Mark Haller, Shelia Hargis, Amanda Hargrave, Wendy Harte, Caleb Helsel, Elizabeth Hingle, Ranleigh Hirsh, Kinsey Holbrook, Joseph Hunt, Brad James, Leigh Jandle, Adrian Johnson, Andrea Julian, Jennifer Leeper, Paula Levihn-Coon, Danielle Macedo, Cheryl McGrath, Joe Mitchell, Arman Moreno, Paige Moreno, Dennis Palafox, Karen Perez, Tim Philips, John Porterfield, Alexis Puchek, Stephanie Putnam, Ronnie Renick, Flo Rice, Mary Ann Robalino, Leslie Roberts, Sara Rudokas, Sara Schubert, Gary Sertich, Louise Smyth, Anna Stalcup, Larry Thatcher, Sal Tijerina, Tam Tran, Ryan Ubias, Dylan Wake, John Walmsley, Jim Weber, Lynne Weber, Lewis Weil, and Virginia Williams.

INTRODUCTION

Background

The golden-cheeked warbler (warbler) is a federally endangered neotropical migrant passerine that breeds only in central Texas in mature Ashe juniper–oak (*Juniperus ashei–Quercus*) woodlands (Ladd and Gass 1999, USFWS 1990). In western Travis County, these habitats occur within the Balcones Canyonlands Conservation Plan (BCCP) permit area, which was established to mitigate development-related impacts on the warbler and other covered species.

The BCP requires the protection and management of at least 12,300 hectares (30,428 acres) of habitat in western Travis County under a Section 10(a)(1)(B) permit issued in 1996 (USFWS 1996). Because

habitat loss is authorized under the permit, ongoing protection and active management of remaining woodlands are necessary to support a viable breeding population within the preserve system.

Objectives

The Balcones Canyonlands Conservation Plan (USFWS 1996) states that "baseline monitoring will be gathered in accordance with the Land Management Guidelines and approved land management plans and should concentrate on determining basic population levels on preserve lands, key population parameters, and other ecological parameters that may affect the target species." The Tier IIA-7 Land Management Plan (BCP 2007) identifies the following goals and objectives: "The warbler population within the BCP will be monitored through a regional program to determine population size, territory density and trends, distribution, productivity, and use of marginal habitat, and to determine the effects of habitat manipulation, urbanization, and recreation."

The current long-term monitoring plan is intended to continue collecting demographic data to meet the objectives of the Balcones Canyonlands Conservation Plan and the 2007 land management plan. A series of studies by the U.S. Forest Service/University of Missouri, in particular the most recent (Reidy et al. 2023), highlighted the importance of consistent collection of demographic data to determine the long-term prospects for the warbler on the BCP.

SITE DESCRIPTION

The topography and vegetation of the BCP are typical of the eastern edge of the Edwards Plateau. Steep, wooded canyons and riparian corridors dissect drier uplands. Most streams are intermittent, though a few have a permanent water source, such as a perennial spring. The predominant vegetation association is mature, closed-canopy juniper-oak woodland, although several sites include more open canopy and shrublands.

In woodlands and forests, the canopy is dominated by Ashe juniper, Texas red oak (*Q. buckleyi*), plateau live oak (*Q. fusiformis*), shin oak (*Q. sinuata* var. *breviloba*), escarpment black cherry (*Prunus serotina* var. *eximia*), Texas ash (*Fraxinus texensis*), and cedar elm (*Ulmus crassifolia*). Aside from seedlings of the canopy trees, common understory species include Carolina buckthorn (*Frangula caroliniana*), yaupon holly (*Ilex vomitoria*), Mexican-buckeye (*Ungnadia speciosa*), Lindheimer silk-tassel (*Garrya ovata* var. *lindheimeri*), Texas mountain-laurel (*Dermatophyllum secundiflorum*), and elbowbush (*Forestiera pubescens*). These woodlands were logged in the late 1800s and early-to-mid 1900s (Bray 1904, Keddy-Hector 1996). Through natural succession, the woodlands are returning, though they are still in various stages of recovery.

Study Sites

Staff monitored abundance and productivity on a set of 13 intensive monitoring plots in 2025 (Table 1, exhibits A, B, and C). Intensive monitoring includes data collection to estimate warbler territory density, territory size and location, age structure, pairing success, breeding success, and productivity. Staff color-banded as many territorial males as possible to improve the accuracy of these parameters. BCP staff and

volunteers also made a concerted effort to search for color-banded warblers outside of the intensive monitoring areas (see below) to gather additional data on site fidelity, dispersal, and return rates.

Intensive Monitoring Plots. The long-term monitoring plan includes 12 intensive monitoring plots (see City of Austin and Travis County [2019] for details) and additional plots contingent on staff and resource availability. In 2025, City of Austin staff were able to continue intensive monitoring on the Emma Long Bike Park. Staff continued lower-intensity re-sighting efforts on the Emma Long Expansion and Collins plots, with the intention of terminating monitoring on those plots once banded warblers no longer return.

Intensive monitoring plots were located within six of eight BCP macrosites (all but the Pedernales and Big Sandy Creek macrosites). Each of the 40.5-ha study plots includes a 100-m buffer around its perimeter (where access is permitted) to expand the search area for color-banded warblers and to obtain additional information on return rates, dispersal, territory size and configuration, and productivity. The larger plots generally encompass habitat patches and do not include buffers. Intensive monitoring plots and the former Collins and Emma Long Expansion plots (re-sighting plots as described in the next paragraph) covered about 6% of the BCP (Table 1). Including the 100-m buffers around each 40.5-ha plot and additional areas surveyed by volunteers to search for color-banded warblers, monitoring for this project covered about 17% of the BCP in 2025.

Re-sighting Plots. When color-banding is suspended on an intensive study plot, it becomes a re-sighting plot. Biologists or volunteers visit a re-sighting plot five times per season to determine return rates of the warblers that had been banded there. Re-sighting continues each year until banded males are no longer observed on the plot, after which monitoring is discontinued. Travis County staff set up a research plot in 2018 on the Collins tract to see if tawny crazy ants (*Nylanderia fulva*) had direct impacts to nesting warblers or their prey base within the canopy arthropod community. This study was discontinued in 2023 once the tawny crazy ant population acquired a natural biological control agent in the form of a parasitic fungus (*Myrmecomorba nylanderiae*), which subsequently diminished their densities and eventually eradicated them from the study site. Staff also discontinued intensive monitoring of the Emma Long Expansion plot because we already have two plots in that area, which allowed staff to focus more time on nest-searching and monitoring on the remaining plots. Biologists continued to monitor these sites as re-sighting plots in 2025.

Search Efforts for Banded Warblers Outside of Intensive Monitoring Plots. To obtain additional information on return rates and dispersal outside of the intensive monitoring plots, volunteers and staff searched for color-banded warblers on 32 search areas totaling approximately 1,303 ha (Exhibit C).

Table 1. Intensive monitoring plots for macrosites within the Balcones Canyonlands Preserve, Travis County, Texas, field season 2025.

Plot Name, Ownership[1], and Size (ha)	Barton Creek Macrosite	Bull Creek Macrosite	Cypress Creek Macrosite	No. Lake Austin Macrosite	So. Lake Austin Macrosite	West Austin Macrosite
Intensive Monitoring Plots						
Barton Creek (COA)	40.5					
Barton Creek Habitat Preserve (TNC)	81.5					
Forest Ridge (COA)		40.5				
Hamilton West (COA)		40.5				
Kent Butler (COA)		40.5				
Vista Point (TC)			40.5			
Wheless (TC)			40.5			
Cortaña (COA)				62		
Emma Long (COA)				40.5		
Emma Long Bike Park (COA)				96		
JJ&T (COA)					40.5	
Reicher (COA)					40.5	
Wild Basin/Vireo Preserve (COA, St. Edwards, TC)						180
Re-sighting Plots						
Collins (TC)			40.5			
Emma Long Expansion (COA)				34		
Total BCP Hectares Owned (as of December 2025)[2]	2482	2029	3984	2292	1673	275
% of macrosite surveyed[3]	4.9%	6.0%	3.1%	10.1%	4.8%	65.4%

[1]COA = City of Austin, TC = Travis County, TNC = The Nature Conservancy
[2]Does not include the Pedernales macrosite (106 ha) or Big Sandy Creek macrosite (638 ha).
[3]Does not include the 100-m buffers around the intensive monitoring plots (approx. 28.7 ha for each of the ten 40.5-ha plots, where access was allowed, totaling about 256 ha), or the search areas beyond the buffers (about 1311 ha, see Exhibit C).

METHODS

Golden-cheeked Warbler Monitoring on Intensive Monitoring Plots

Color Banding. Color banding of adult warblers was conducted in conjunction with territory mapping on 13 intensive monitoring plots. We targeted mist-netting within a male warbler's territory, using playback of a recorded male warbler's song to attract the bird to the net. Although a few females were caught using this method, most of the warblers captured were males. All warblers captured in mist nets were marked with a unique combination of a U.S. Geological Survey numbered aluminum band and auxiliary color bands to allow identification of each individual. We used color-band combinations issued by the biological staff at Ft. Hood/Cavazos Military Reservation. Other data collected during banding included date, time, banding location, temperature, and weather conditions. Individuals were sexed and aged (second-year [SY], after second-year [ASY], hatching-year [HY], or after hatching-year [AHY] according to Pyle [1997] and Peak and Lusk [2009]), using data sheets developed by Ft. Hood/Cavazos staff. Each warbler was photographed just prior to release to assist with documentation of band combinations.

Territory Delineation. Surveys on each intensive monitoring plot were conducted at least once a week from March 15 through May 25, with one exception: surveys at the Barton Creek Habitat Preserve did not begin until March 31. During each visit, biologists attempted to identify the color combination of each banded warbler, obtain multiple locations for each male to assist with delineating territory boundaries, locate and monitor nests, and determine the presence of a female and fledglings for each territory. Exhibit C lists the lead surveyors and survey hours for each intensive monitoring plot. Exhibit D provides details on the 2025 intensive study plot protocols.

At least one biologist was assigned to map territories on each low-density (<5 territories/40.5 ha) plot, and at least two biologists on each medium-density plot (5-10 territories/40.5 ha) and each high-density plot (>10 territories/40.5 ha). Exceptions were the Emma Long (14 territories) and Cortaña plots (5 territories), each monitored by only one biologist. To delineate territory size and configuration as accurately as possible, observers strived to obtain at least 33 locations, separated by 30 meters or more, for each male from March 15 through May 25 (Davis et al. 2010). Observations after May 25 were recorded but were used to determine productivity and not to delineate territory boundaries. Males were considered territorial if they were observed in the same area on three different days, spread over a 21-day period. Males were also considered territorial if they disappeared prior to the end of the 21-day period, but after they had paired and nest construction had begun. Volunteers and other staff also assisted with monitoring on the Barton Creek Habitat Preserve, Reicher, and Wild Basin/Vireo Preserve plots.

Warbler observations were recorded with Garmin global positioning units (GPS), which have an accuracy of 3 to 9 m. All observations were recorded on topographic maps, using a 100-m Universal Transverse Mercator (UTM) grid. For each observation, biologists recorded date; color combination (for observations of banded birds); UTM coordinates; and presence of female, nest, and/or fledglings. Biologists also recorded vocalization type and whether birds were counter-singing. Song is the primary method males use to defend territory, so observations of singing males help to delineate territory boundaries. Observations of counter-singing also help to verify the number of males. The data were then entered into ArcGIS Pro 2.x (ESRI, Redlands, California) and territorial boundaries for each male were delineated using minimum convex polygons.

The number of territories on the study plots was calculated three ways: 1) full territories (territories contained entirely within the plot); 2) full and edge territories, in which each is counted as 1.0 territory; and 3) applying Verner's (1985) method (each full territory counted as 1.0 territory and each edge territory counted as 0.5 territory). Verner's counting method was recommended by Weckerly and Ott (2008) and avoids the upward bias inherent in the IBCC (1970) method (both full territories and edge territories counted as 1.0 territory). For this study we assumed a full territory to be one in which a male was observed singing outside the plot no more than once (could be multiple positions on one visit) between March 15 and May 25. We considered a territory to be outside the plot if the singing male was found within the plot no more than once (could be multiple positions on one visit). An edge territory was one in which the singing male was observed both inside and outside the plot on more than one visit each or where a nest was found within

a few meters of the plot boundary. We calculated territory density to be the number of territories (using Verner's [1985] counting method) divided by the plot size.

Age Structure. To calculate age structure for each study plot, the number of territorial SY, ASY, and AHY males was divided by the total number of territorial males with a known age (i.e., color-banded males only).

Return Rate. Return rates are calculated from the number of males observed as returns in the current year divided by the total number of banded males from the previous year. (The latter number includes all males banded in the previous year plus all those observed as returns in that year.)

Pairing and Reproductive Success. Biologists surveyed plots to document productivity from March 15 through the week ending June 15, or until biologists had determined for each territory whether it had been successful.

Mated status and reproductive success are reported for both full and edge territories. Territories for which mated status and reproductive success were undetermined are not included in the analyses for these parameters. A male was determined to be paired if he was observed associating with a female, observed tending young, or a nest was located for that male. Plot pairing success is calculated as the percentage of males determined to have paired with a female for territories in which the pairing success is known.

Reproductive success is presented in several ways: breeding (territory) success, total number of fledglings per plot, fledgling density per plot, and mean number of fledglings per territory (productivity). A territory was considered successful if the male or female was observed tending one or more fledglings. Breeding success is the percentage of territories determined to have produced at least one fledgling. The total number of fledglings for each plot is shown as a range -- observed and adjusted (described in the following paragraph). Fledgling density is estimated using Verner's (1985) method (number of fledglings per full + 0.5 edge territories, divided by the plot size), also given as observed and adjusted. Finally, to allow for comparison with previous years, productivity is also presented in two ways: as the sum of all fledglings divided by the total number of territories, and as the sum of all fledglings divided by the number of successful territories. Since documentation of successful second broods is opportunistic, the estimated number of fledglings and productivity are for first broods only.

Breeding success and productivity are generally believed to represent minimum estimates because fledglings are difficult to locate. Females and males often split their broods and can travel long distances from nests shortly after their young have fledged. In addition, young are often difficult to detect unless they are vocalizing. Based on camera monitoring, Reidy et al. (2008) documented a mean number of 3.6 young fledged per successful nest in the Bull Creek and North Lake Austin macrosites. This estimate was applied to those territories where the number of fledglings was uncertain, and less than four, to obtain adjusted estimates of the number of young produced and productivity estimates. Since the estimate of 3.6 young fledged per nest may be high for some habitat patches, the actual number of fledglings is likely somewhere between the observed and adjusted values.

Nest monitoring. Though we generally followed the protocol of past years, in field season 2025, as in 2024, biologists shifted emphasis to finding and monitoring nests across the 10 study plots that have been surveyed since 2011 (as noted in Exhibit C and in Reidy et al. 2023). Nests were monitored on the other intensive monitoring plots as staff and resources allowed. Nest searches from 2017 through 2023 had been focused on three to four high density plots (Forest Ridge, Kent Butler, Emma Long Bike Park, Emma Long Expansion).

Because relatively few nests have been found on low-density plots, effort shifted from high-density plots to assist with finding nests on lower-density plots such as Barton Creek, JJ&T, and Reicher. The purpose of this shift was to obtain a more representative sampling of nests across the BCP, particularly on lower-density sites that had previously been under-sampled. This will provide a more representative sampling needed to obtain statistically significant conclusions about the factors that could be impacting nest success or whether nest success varies by site.

UTM coordinates were recorded for each nest location using Garmin GPS units. Staff observers monitored each nest every few days to confirm activity and nest stage and predicted the expected fledge date based upon nesting phenology, apparent nestling age, and adult behavior. Observers monitored the nest more frequently around the expected fledging date (nestlings ≥9 days old); they searched for fledglings from any nest that was no longer active until 1) fledglings were confirmed, 2) evidence of re-building was confirmed, or 3) the field season ended. A nest was considered successful only if one or both adults were detected tending to fledglings. If nesting activity ceased prior to possible fledging, nest fate was recorded as a failure. If nesting activity ceased around the time of anticipated fledging, and the pair was not detected or rarely detected for the remainder of the breeding season, nest fate was recorded as unknown.

Search for Banded Warblers Outside of Intensive Monitoring Plots

Sixty volunteers searched for banded warblers from March 21 through May 26 within 31 search areas, and staff monitored an additional search area. Volunteers committed to three 6-hour searches per 40.5-ha site. The list of areas where searches were conducted, and the effort for each search area, are reported in Exhibit C.

Incidental Golden-cheeked Warbler Observations

Staff recorded incidental observations of warblers outside of study plots and volunteer search areas on the Bright Leaf Preserve, Bull Creek District Park, and the Cortaña tract.

RESULTS AND DISCUSSION

In 2025, survey effort, measured as total hours spent on nest searching and monitoring, continued the shift implemented in 2024 toward more intensive coverage of lower-density plots. Some high-density plots received less effort than the five-year mean (2018–2023, excluding 2020), while others received more. For example, Kent Butler, Forest Ridge, and Emma Long plots received 11%, 16%, and 22% less effort, respectively, whereas JJ&T and Reicher plots received over 60% more effort than the five-year mean. JJ&T in particular has received 116% and 207% more effort over the past two years. Additional increases

were recorded for Hamilton (67%), Vista Point (104%), and Wheless (84%) plots (see Exhibit C for summary of 2025 effort). While total survey hours across all intensive monitoring plots remained constant, these adjustments reflect a deliberate study design change aimed at balancing monitoring across plots and improving nest detection on lower-density sites. Survey hours do not always reflect the amount of data collected, as time needed can vary by plot, observer, and field conditions.

Territory Delineations

A total of 151 territories were identified in field season 2025, or 115.0 territories using Verner's (1985) method, for all 13 intensive monitoring plots. This represents an average estimated density of 0.15 territories per hectare for the combined 784 ha of intensive monitoring plots, ranging from 0.04 to 0.35 territories/ha (Table 2). Territory densities were generally highest in closed-canopy woodlands of the largest habitat patches (Forest Ridge, Kent Butler, Vista Point, and Emma Long plots), and lowest in the small habitat patches surrounded by urban development (Barton Creek and Wild Basin/Vireo Preserve) and areas with higher proportions of shorter (<3.35 m) canopy heights (Barton Creek Habitat Preserve and Cortaña). A summary of the 2009-2025 territory data is provided in Exhibit E.

Table 2. Golden-cheeked warbler territory number and estimated territory density (per hectare) within 13 intensive study plots on the Balcones Canyonlands Preserve, Travis County, Texas, field season 2025.

Plot Name	No. of Full Territories	No. of Full and Edge Territories	No. of Full Territories + (0.5 x Edge Territories)[1]	Territory Density Per Hectare[1]
Barton Creek Macrosite				
Barton Creek	1	3	2.0	0.05
Barton Creek Habitat Preserve	2	4	3.0	0.04
Bull Creek Macrosite				
Forest Ridge	6	18	12.0	0.30
Kent Butler	8	20	14.0	0.35
Hamilton West	7	16	11.5	0.28
Cypress Creek Macrosite				
Vista Point	10	16	13.0	0.32
Wheless	4	11	7.5	0.19
North Lake Austin Macrosite				
Cortaña	4	5	4.5	0.07
Emma Long	8	14	11.0	0.27
Emma Long Bike Park	13	22	17.5	0.18
South Lake Austin Macrosite				
Double J&T	5	6	5.5	0.14
Reicher	2	6	4.0	0.10
West Austin Macrosite				
Wild Basin/Vireo Preserve	9	10	9.5	0.05
All Plots Combined	**79**	**151**	**115.0**	**0.15**

[1]Calculation based on Verner's counting method (see Methods section for calculations). Plots average 40.5 ha except for Barton Creek Habitat Preserve (81.5 ha), Emma Long Bike Park (96 ha), Cortaña (62 ha), and Wild Basin/Vireo Preserve (180 ha).

Territory density on the 10 intensive study plots monitored since 2011 continued a downward trend (Exhibit F).

Territory density on the Barton Creek plot dropped from a mean of 0.15 territories/hectare from 2009 to 2017 to a mean of 0.05 territories from 2022-2025. Density on the Hamilton West plot nearly doubled from 0.15 in 2024 to 0.28 in 2025. The Hamilton West plot is within the large Bull Creek Macrosite habitat patch, but past land clearing left the forest highly fragmented. An even larger increase occurred in 2011, when the territory density spiked to 0.35 per hectare, from 0.20 per hectare in 2010, then returned to the 0.20 territory density in 2012. Another spike, to 0.25 territories per hectare, occurred in 2021-2022. Territory density on the Wheless plot in 2025 surpassed that of all previous years. The density on the Wheless plot reached 0.19 territories per hectare (previous high of 0.15 in 2022). The increased territory density could also mirror the spike on the Hamilton West plot and may subside in coming years. (Exhibit E.)

Color Banding

John Chenoweth (City of Austin), with assistance on the Vista Point plot by Jennifer Reidy (Travis County consultant), color-banded a total of 115 adult warblers (97 males, 18 females) on the 13 plots in 2025.

Age Structure

Of the 151 territorial males identified on the 13 intensive study plots in 2025, 123 were color-banded (81%; Table 3). Of these 123 males, 59% were ASY and 41% were SY. Barton Creek, Forest Ridge, Cortaña, and Reicher had the highest percentages of ASY males in 2024 (100%, 88%, 80%, and 80%, respectively), while Wheless and Emma Long Bike Park had the highest percentage of SY males (75% and 65%, respectively). The different age structures observed among plots may be due to the influence of habitat characteristics on the recruitment of young territorial males, immigration of warblers displaced due to habitat loss outside of the preserves, prior reproductive success (or failure), juvenile and adult survival, and/or other factors. A summary of male age structure on intensive monitoring plots from 2009-2025 is presented in Exhibit G.

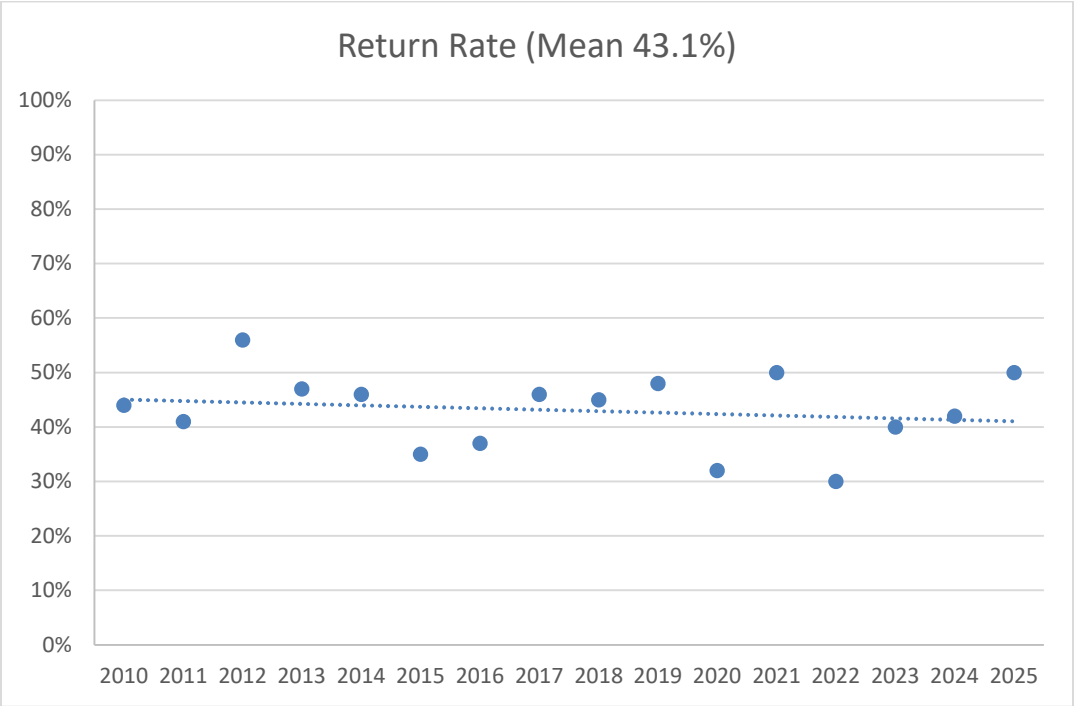
Table 3. Golden-cheeked warbler age structure data for color-banded territorial males observed within 13 intensive study plots on the Balcones Canyonlands Preserve, Travis County, Texas, field season 2025.

Plot Name	SY Males	ASY Males	AHY Males	Total Banded Males	Total Unbanded Males	% Banded Males
Barton Creek Macrosite						
Barton Creek	0	2	0	2	1	67
Barton Creek Habitat Preserve	1	3	0	4	0	100
Bull Creek Macrosite						
Forest Ridge	2	14	0	16	2	89
Kent Butler	10	7	0	17	3	85
Hamilton West	7	6	0	13	3	81
Cypress Creek Macrosite						
Vista Point	4	7	0	11	5	69
Wheless	3	1	0	4	7	36
North Lake Austin Macrosite						
Cortaña	1	4	0	5	0	100
Emma Long	2	9	0	11	3	79
Emma Long Bike Park	13	7	0	20	2	91
South Lake Austin Macrosite						
Double J&T	2	4	0	6	0	100
Reicher	1	4	0	5	1	83
West Austin Macrosite						
Wild Basin/Vireo Preserve	4	5	0	9	1	90
All Plots Combined	**50**	**73**	**0**	**123**	**28**	**81**

Return Rates

The overall return rate of color-banded warbler males in 2025 was 50% (70/140). This rate is greater than the mean of 43% from 2010 through 2024.

Year	Return Rate	Year	Return Rate
2025	50%	2017	46%
2024	42%	2016	37%
2023	40%	2015	35%
2022	30%	2014	46%
2021	50%	2013	47%
2020	32%	2012	56%
2019	48%	2011	41%
2018	45%	2010	44%
Mean (2010-2025)	43.1%		



A male banded on the Barton Creek plot in 2023, but not resighted in 2024, was resighted by a volunteer approximately 850 meters northwest of the plot in 2025. A male banded on the JJ&T plot in 2024 returned to the Cortaña plot in 2025 (~6.3 km from banding location). The only prior dispersal in which a male continued to return to the new site in 2025 was a male banded on Emma Long Bike Park in 2018 who returned to the Emma Long plot (for the 7th year).

Six returning females were observed in 2025. One female, banded in 2021 on Forest Ridge, returned for the fourth year to the Forest Ridge plot. Another female, banded on Forest Ridge in 2022, returned to that plot for the third year. A female banded on the Hamilton West plot in 2023 returned to that plot for the second year. A female banded on the Vista Point plot in 2022 but not seen in 2023 or 2024 re-appeared on that plot once late in the 2025 season.

Pairing and Reproductive Success

In 2025, a total of 151 territories were monitored for pairing and reproductive success on the 13 intensive study plots (Table 4). The overall pairing and breeding success rates observed for all territories was 94% (range 67-100% among plots) and 56% (range 0-100%), respectively. Breeding success was highest on the Barton Creek Habitat Preserve and Reicher plots (100% and 83%, respectively) and lowest on the Barton Creek and JJ&T plots (0% and 17%, respectively). Breeding success was the third lowest (after 50% in 2022 and 55% in 2019) and below the mean of 64% from 2011 to 2024.

Biologists detected 239 fledglings from first broods in the 85 territories known to have been successful. Fledglings from second successful broods and second females of polygamous males are not included in this

total. Applying the Reidy et al. (2008) estimate (of 3.6 young fledged per successful nest in the Bull Creek and North Lake Austin macrosites) to the territories where the number of fledglings was uncertain and less than four resulted in an adjusted total estimate of 308 young fledged. While the observed number of fledglings may be an underestimate, the adjusted number may be upwardly biased. The actual number is likely somewhere between these estimates.

Based upon both the observed and adjusted number of fledglings, study plots in closed-canopy woodlands of the largest habitat patches in the Bull Creek (Forest Ridge, Kent Butler) and Cypress Creek (Vista Point) macrosites produced the greatest density of fledglings. Though the Hamilton plot has more open-canopy woodland than the other sites in the Bull Creek and Cypress Creek macrosites, it produced comparable densities of fledglings to the Vista Point plot in 2025. For the first time since we began monitoring the Emma Long Bike Park in 2010, this plot had greater reproductive output than the Emma Long plot – despite having lower territory density and less closed-canopy woodland.

The Barton Creek, Barton Creek Habitat Preserve, Cortaña, JJ&T, and Wild Basin/Vireo Preserve plots had very low reproductive output. A record-high fledgling count of 16 (observed) at the Wild Basin/Vireo Preserve plot continued the pattern of the past two years (14 fledglings in 2024 and 15 in 2023), significantly greater than the previous mean of 6.0 in the previous twelve years. By contrast, only one fledgling was observed on the Cortaña tract (mean 6.6 in the previous eight years). For the third year in the past four, no pairs successfully raised young on the Barton Creek plot. However, there were at least two successful broods on the Barton Creek Habitat Preserve for the third consecutive year; prior to 2023, success had been documented in only one year out of five. A summary of the 2009-2025 reproductive success data is presented in Exhibit H.

Observers found only one successful double brood in 2025, compared to eight in 2024 and 19 in 2023. The second brood produced at least an additional 2 fledglings in 2025. The fledglings from the second brood accounted for less than 1% of all the fledglings observed in 2025; however, in 2024 and 2023, 18 and 44 fledglings from second broods, respectively, accounted for 6.9% and 13.1% of all observed fledglings in those two years.

As in past years, staff also observed some variations from the outwardly monogamous pairings typical of the species. Observers confirmed polygyny for two males this year. A male on the Barton Creek Habitat Preserve plot apparently paired simultaneously with two females; each had a successful nest. The other polygynous male, on the Reicher plot, successfully raised a brood with one mate.

Table 4. Golden-cheeked warbler reproductive success on 13 intensive study plots on the Balcones Canyonlands Preserve, Travis County, Texas, field season 2025. Data are based on observations for both full and edge territories.

Plot Name	No. of Territories	No. of Territories w/ Female	Pairing Success[1]	No. of Territories Producing ≥ 1 Young	Breeding Success[1]	Observed and Adjusted[2] Productivity	Observed and Adjusted[2] Productivity Per Successful Territory	Total No. of Fledglings Observed and Adjusted[2] Fledglings	Density of Observed and Adjusted[2] Fledglings Per Hectare[3]
Barton Creek Macrosite									
Barton Creek	3	3	100%	0	0%	0 / 0	0 / 0	0 / 0	0 / 0
BCHP[4]	4	4	100%	4	100%	1.3 / 1.8	1.3 / 1.8	5 / 7.2	0.04 / 0.07
Bull Creek Macrosite									
Forest Ridge	18	17	94%	12	67%	1.9 / 2.5	2.9 / 3.8	35 / 45.2	0.58 / 0.74
Kent Butler	20	20	100%	13	65%	1.8 / 2.4	2.7 / 3.7	35 / 47.6	0.62 / 0.85
Hamilton West	16	16	100%	8	50%	1.9 / 2.0	3.9 / 4.0	31 / 31.6	0.53 / 0.54
Cypress Creek Macrosite									
Vista Point	16	16	100%	8	50%	1.3 / 1.6	2.6 / 3.2	21 / 25.8	0.49 / 0.58
Wheless	11	7	78%	5	45%	1.2 / 2.0	2.6 / 4.3	13 / 21.6	0.26 / 0.44
North Lake Austin Macrosite									
Cortaña	5	4	80%	1	20%	0.2 / 0.7	1.0 / 3.6	1 / 3.6	0.02 / 0.06
Emma Long	14	14	100%	6	43%	1.4 / 1.7	3.3 / 3.9	20 / 23.2	0.37 / 0.43
Emma Long Bike Park	22	22	100%	16	73%	1.9 / 2.6	2.6 / 3.5	42 / 56.4	0.39 / 0.49
South Lake Austin Macrosite									
JJ&T	6	4	67%	1	17%	0.5 / 0.6	3.0 / 3.6	3 / 3.6	0.07 / 0.09
Reicher Ranch	6	6	100%	5	83%	2.8 / 3.3	3.4 / 3.9	17 / 19.6	0.31 / 0.34
West Austin Macrosite									
Wild Basin/Vireo Preserve	10	9	90%	6	60%	1.6 / 2.2	2.7 / 3.7	16 / 22.4	0.08 / 0.11
All Plots Combined	**151**	**142**	**94%**	**85**	**56%**	**1.6 / 2.0**	**2.8 / 3.6**	**239 / 307.8**	**0.24 / 0.31**

[1]Calculations do not include territories where mated and/or breeding status was unknown.
[2]Based on mean number of 3.6 young per successful nest (Reidy et al. 2008) for territories where the number of fledglings was uncertain and less than 4. See Methods section for calculations.
[3]Density based on number of fledglings produced per full + 0.5 territories divided by the plot size.
[4]BCHP = Barton Creek Habitat Preserve

Nest Data

BCP staff found and monitored a total of 130 active warbler nests within or around the intensive monitoring plots during the 2025 field season. Of these, 78% were in Ashe junipers, 5% were in cedar elms, and 17% were in oaks. The first nest was found on March 12. Fledging dates for observed nests ranged from April 21 through June 3 for first broods. Of the 130 observed nests, 69 nests fledged one or more young (53%) and 61 nests failed (47%). This success rate is the second lowest (after 47% in 2015) in 15 years, and lower than the mean of 59% from 2011 to 2024.

Table 5. Fates of monitored Golden-cheeked Warblers nests within the Balcones Canyonlands Preserve, Travis County, Texas, field season 2025. Successful nests include any nest that fledged ≥1 young.

Plot Name	Total No. Nests	No. Failed Nests	No. Successful Nests	No. Nests Unknown Fate
Barton Creek Macrosite				
Barton Creek	2	2	0	0
Barton Creek Habitat Preserve	1	0	1	0
Bull Creek Macrosite				
Forest Ridge	17	5	12	0
Butler	29	14	15	0
Hamilton West	18	11	7	0
Cypress Creek Macrosite				
Vista Point	19	11	8	0
Wheless	0	0	0	0
North Lake Austin Macrosite				
Emma Long	10	4	6	0
Emma Long Bike Park	17	5	12	0
Cortaña	3	3	0	0
South Lake Austin Macrosite				
Double J&T	4	3	1	0
Reicher	7	2	5	0
West Austin Macrosite				
Wild Basin/Vireo Preserve	3	1	2	0
Total	**130**	**61 (46.9%)**	**69 (53.1%)**	**0**

Other Observations

The arrival of the earliest male warbler (March 4) was slightly earlier than average (March 6). Observers found the first nest on March 12, a week earlier than the average date of March 19 (Reidy et al. 2018).

Food appeared to be somewhat scarce, at least during the early part of the breeding season, possibly due in part to sparse rain during the previous autumn and winter. This may have contributed to what biologists noted seemed to be higher than normal early nest failures.

A male on JJ&T appeared to be unmated and sang a persistent A song until the end of May, when he lost his voice and made quiet "tink" call notes in response to his neighbor's B song.

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Exhibit A: Distribution of Intensive Monitoring Plots within the Balcones Canyonlands Preserve, 2025.

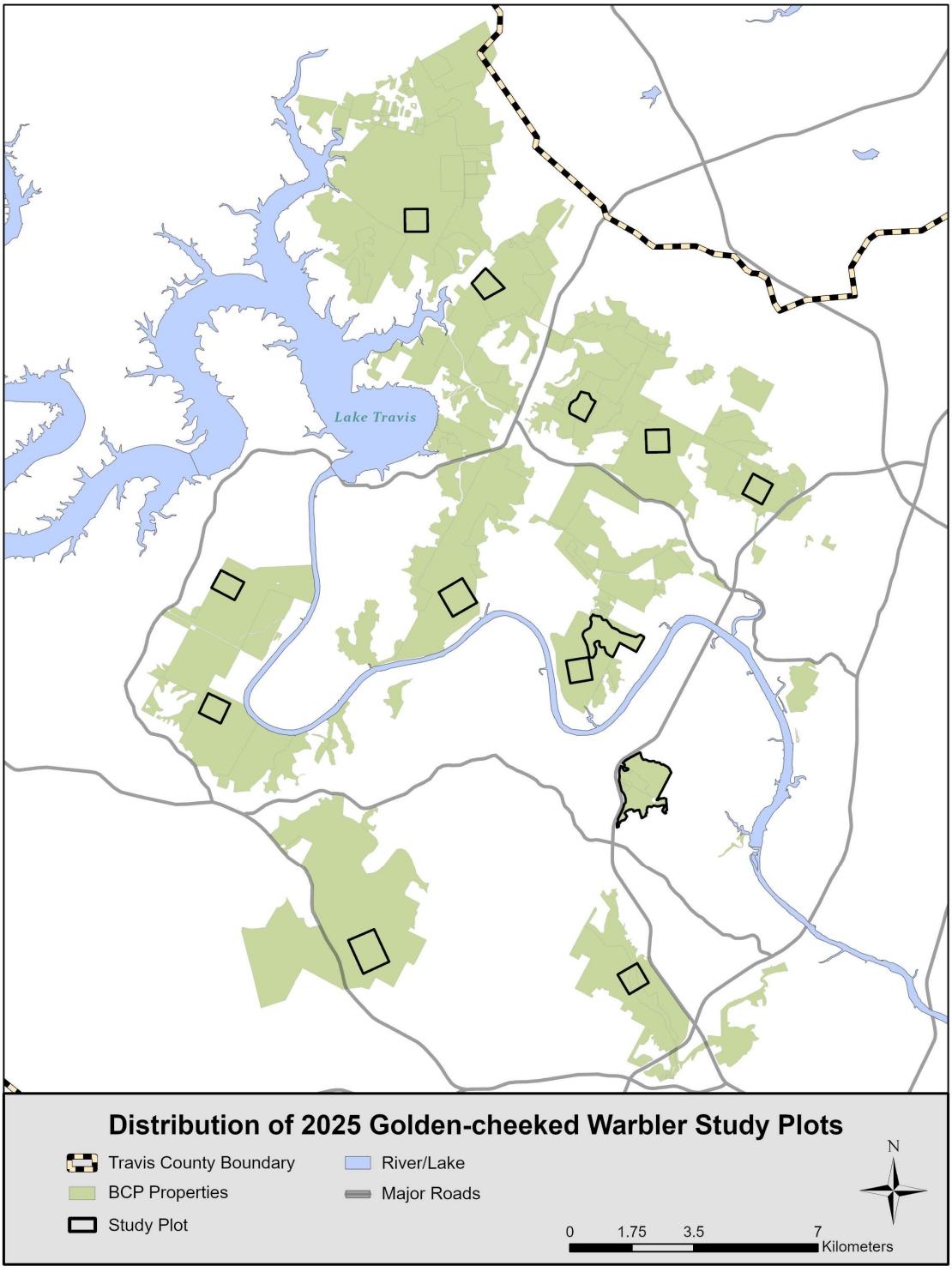


Figure 1

Exhibit B: Minimum Convex Polygons Representing Estimated Golden-cheeked Warbler Territory Boundaries for Intensive Monitoring Plots, 2025 (Figures 2-14). All observations of golden-cheeked warblers are shown on the maps, including non-territorial males. Disclaimer: these products are for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. They do not represent an on-the-ground survey and represent only the approximate relative location of property boundaries. These products have been produced by the Wildland Conservation Division for the sole purpose of geographic reference. No warranty is made by the City of Austin regarding specific accuracy or completeness.

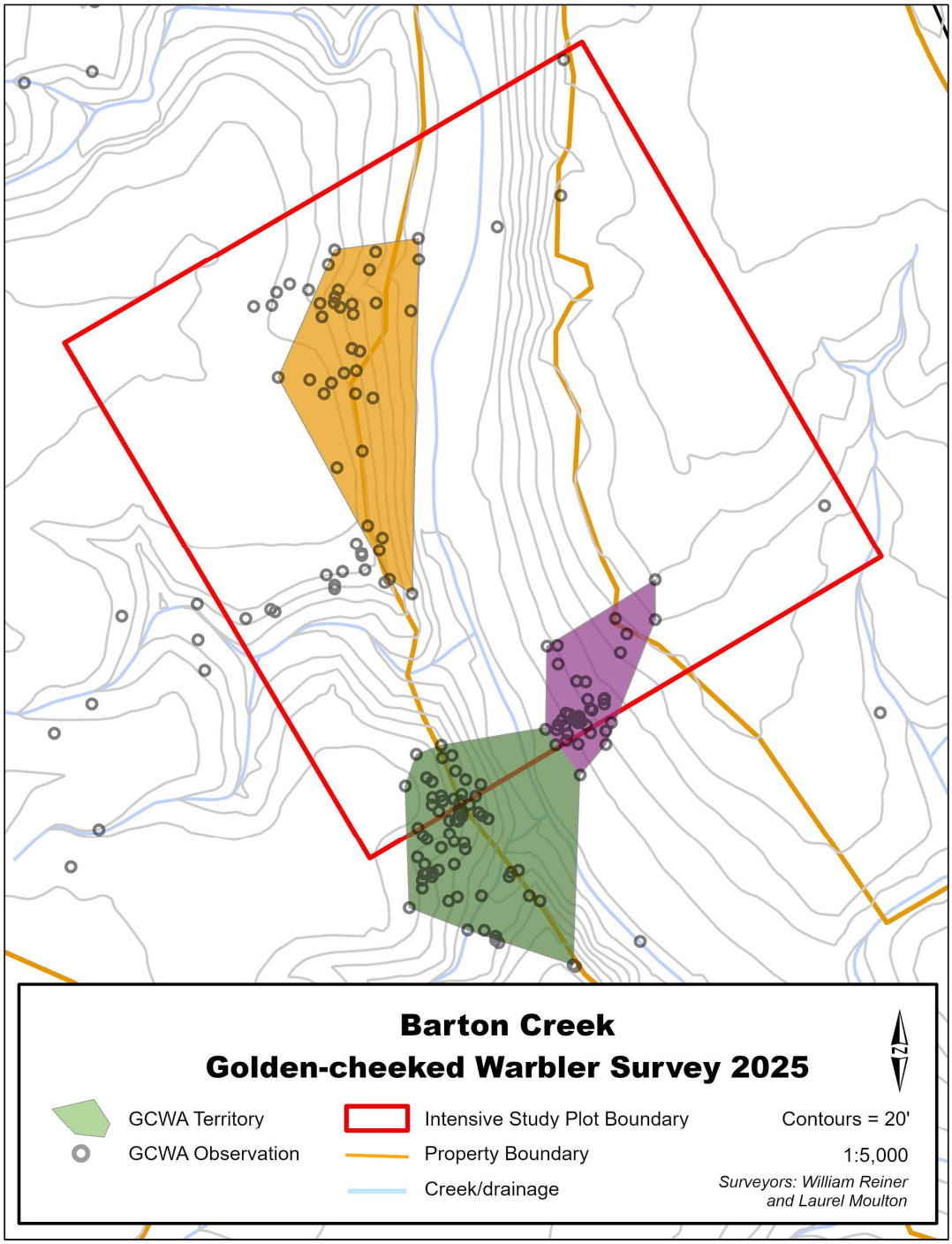


Figure 2

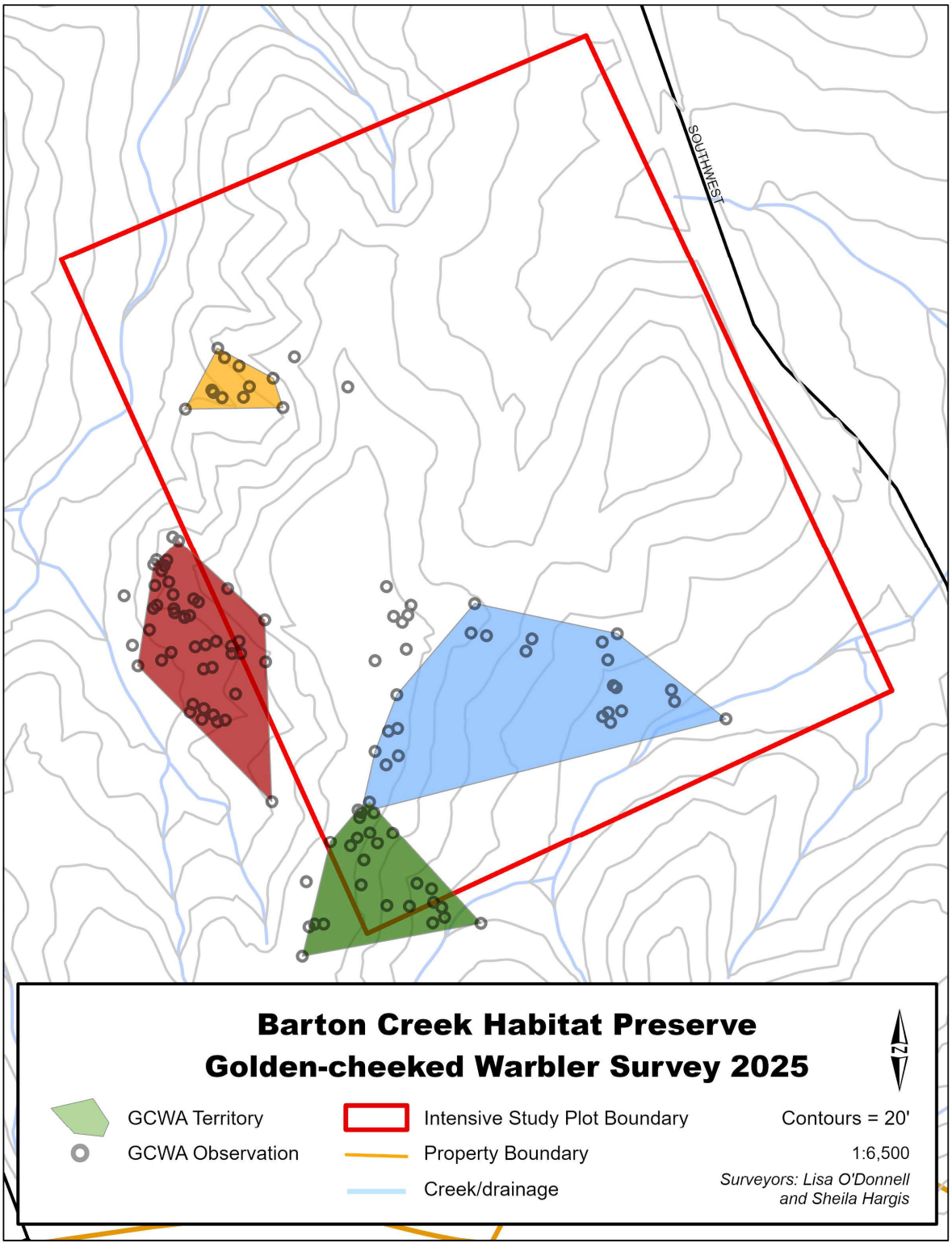

SOUTHWEST
Barton Creek Habitat Preserve
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:6,500
Surveyors: Lisa O'Donnell and Sheila Hargis

Figure 3

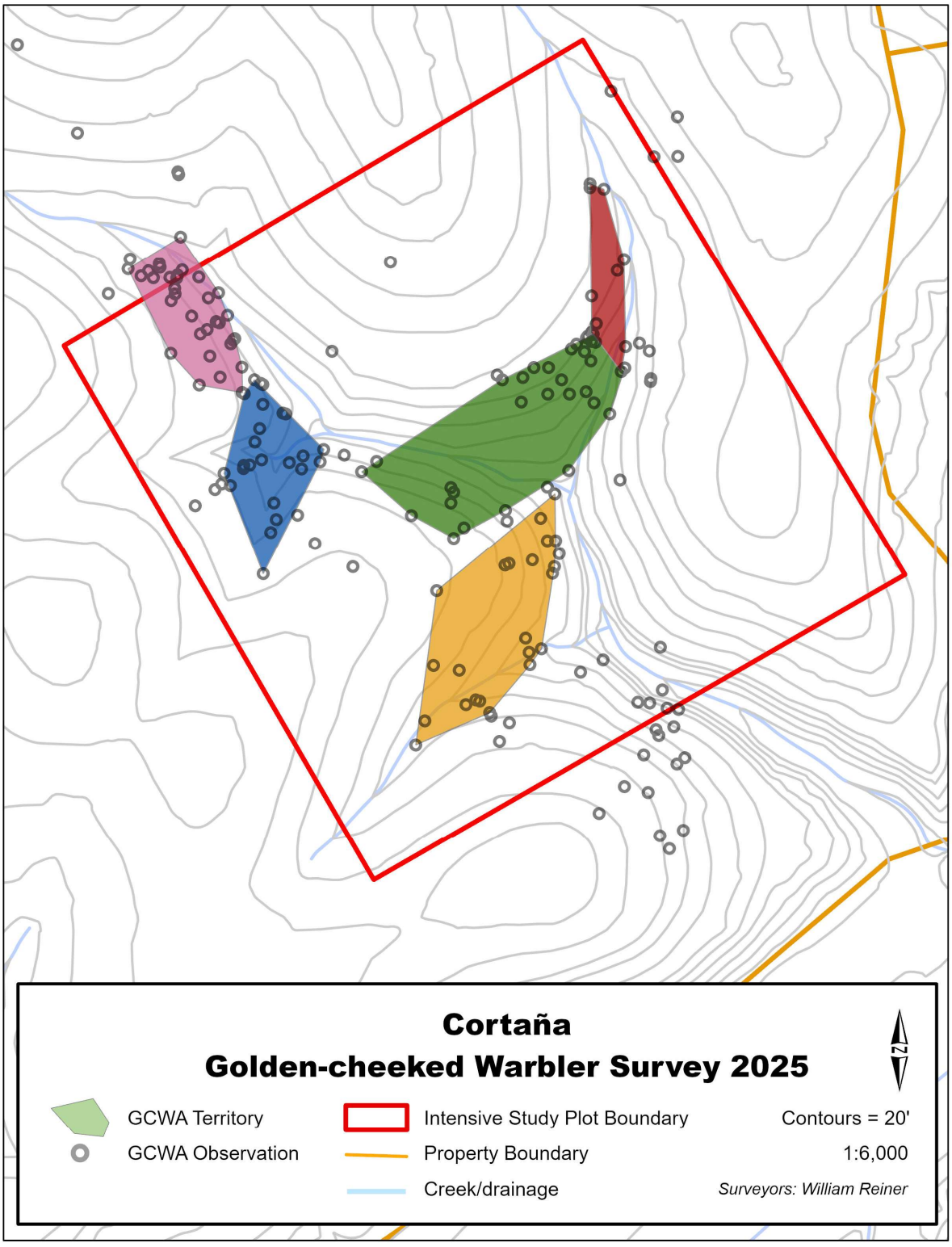

Cortaña
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:6,000
Surveyors: William Reiner

Figure 4

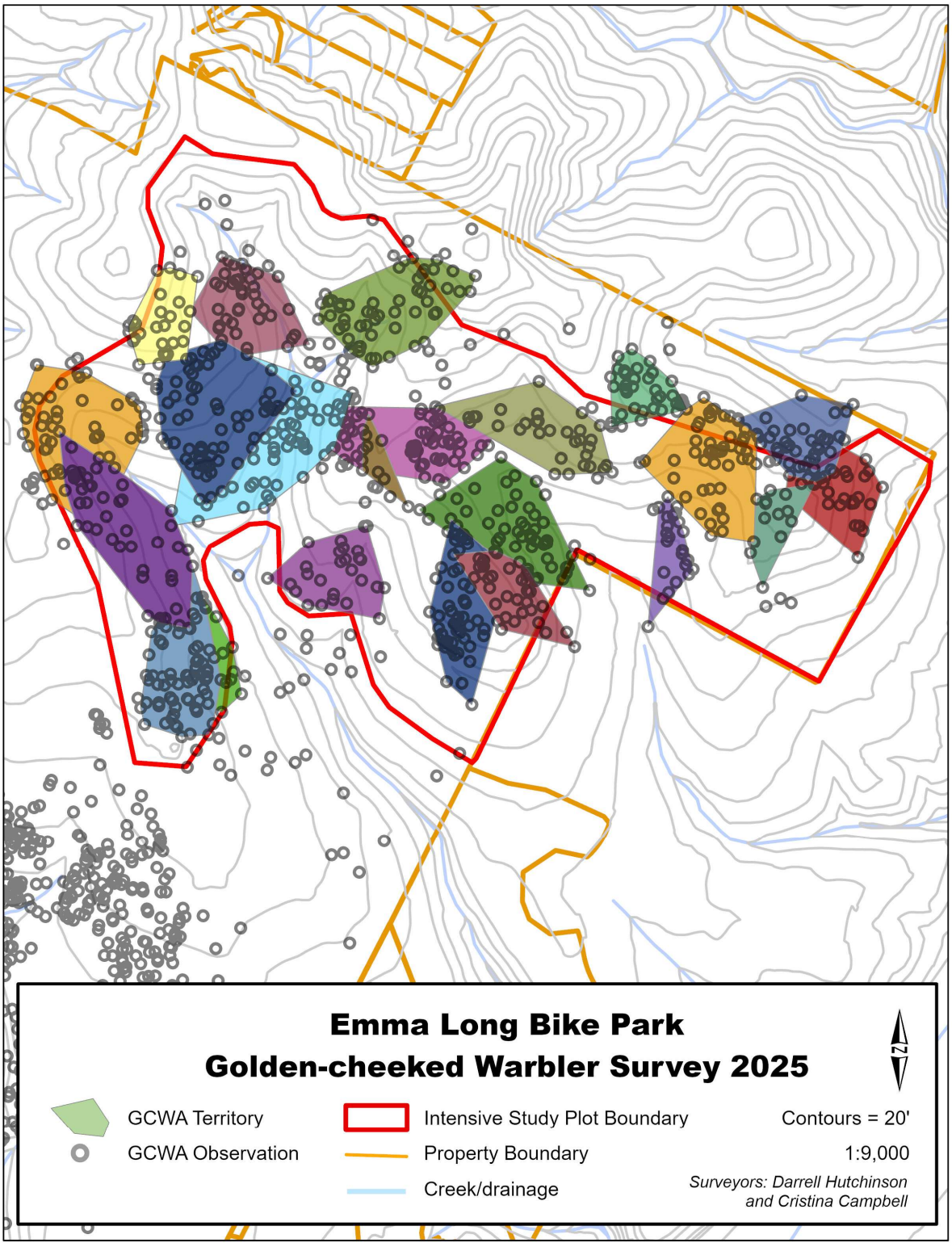

Emma Long Bike Park
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:9,000
Surveyors: Darrell Hutchinson and Cristina Campbell

Figure 5

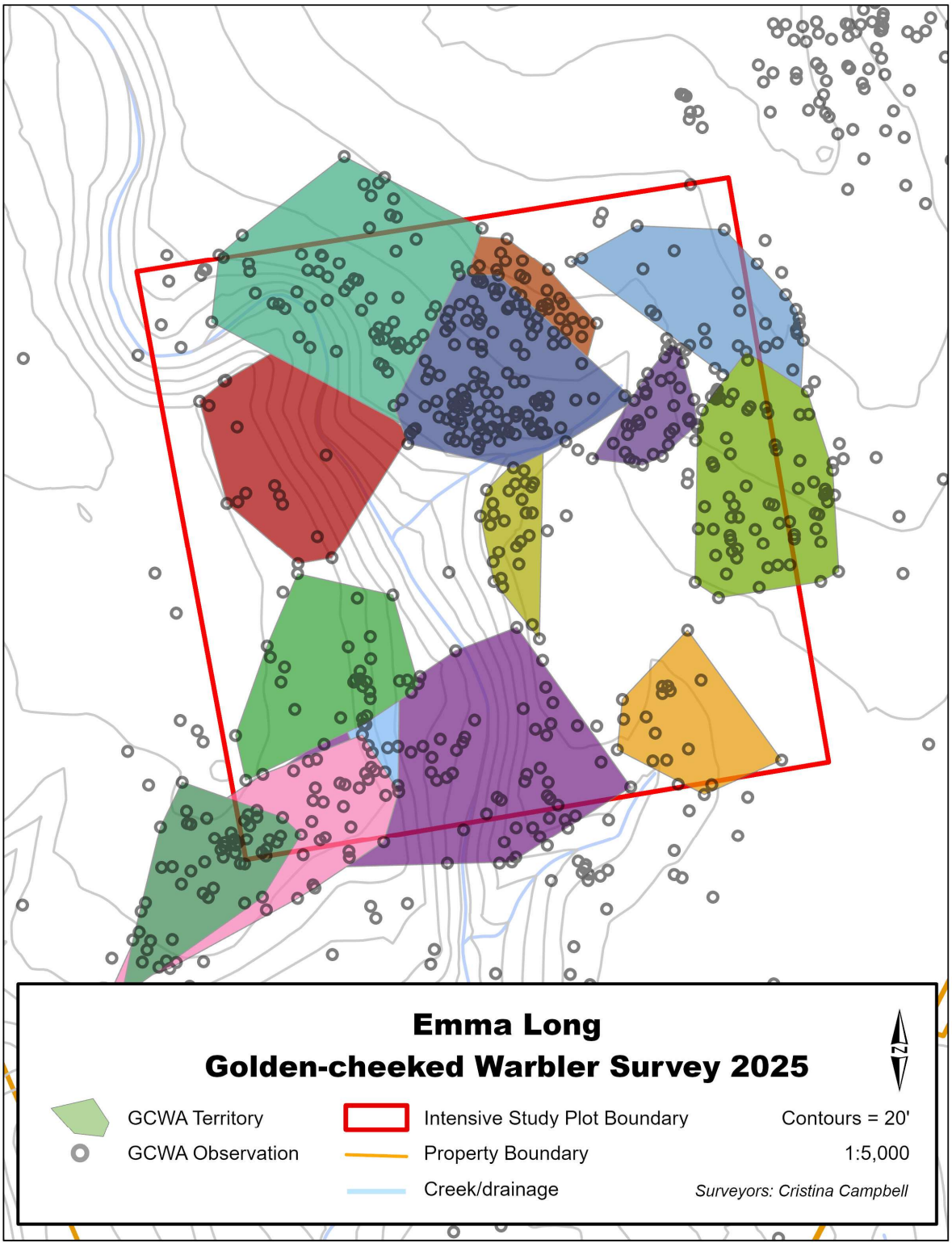

Emma Long
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Cristina Campbell

Figure 6

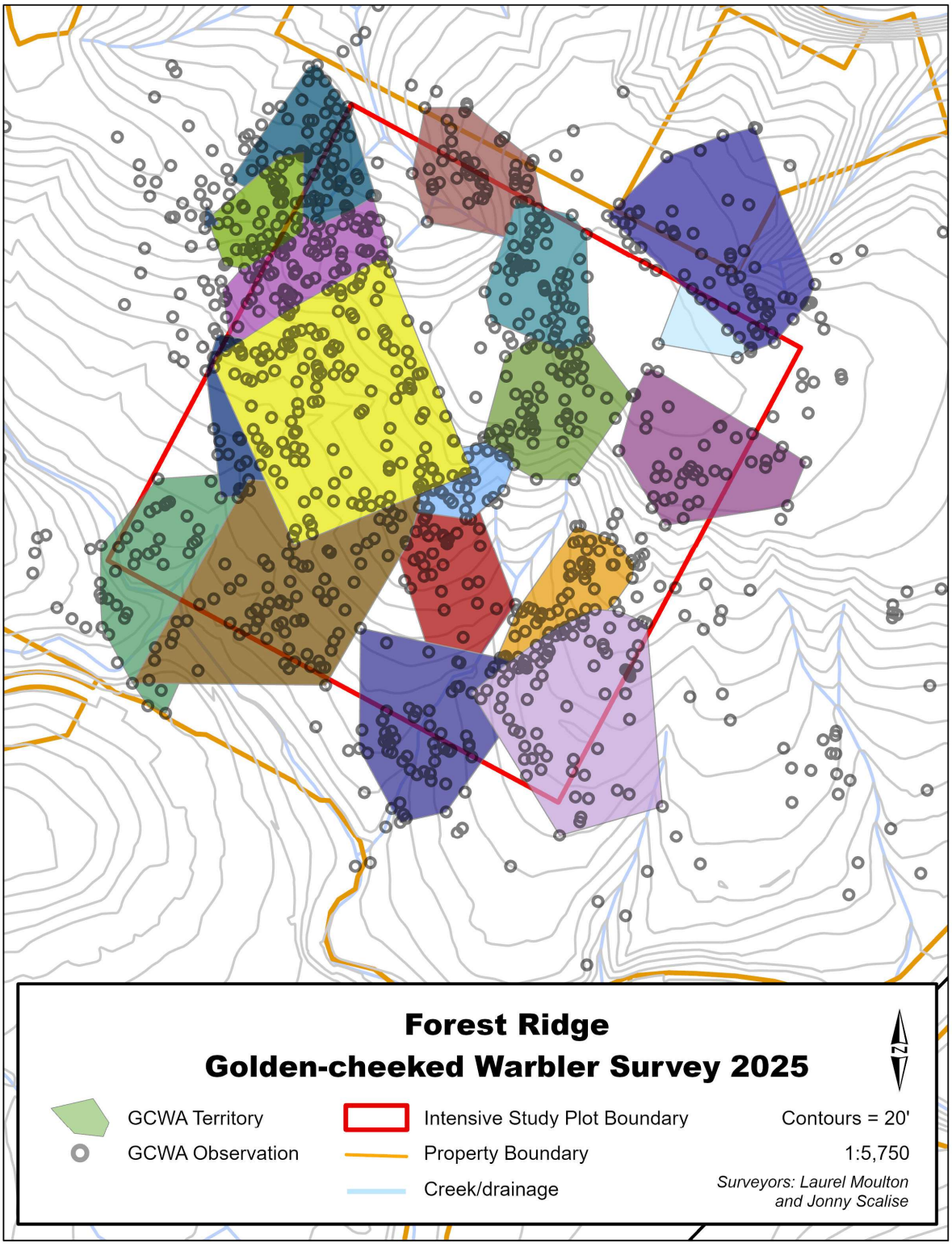

Forest Ridge
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,750
Surveyors: Laurel Moulton and Jonny Scalise

Figure 7

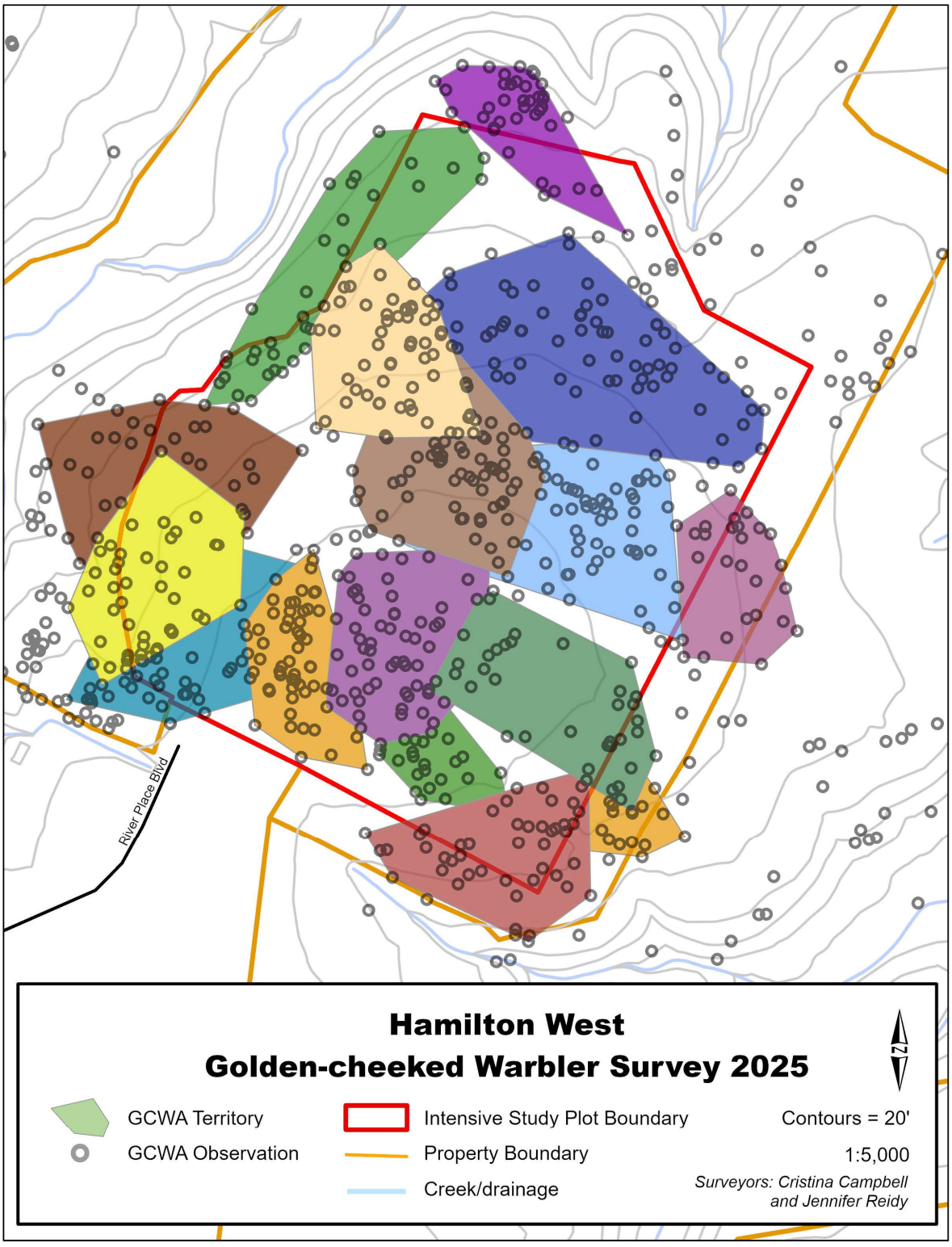

River Place Blvd
Hamilton West
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Cristina Campbell and Jennifer Reidy

Figure 8

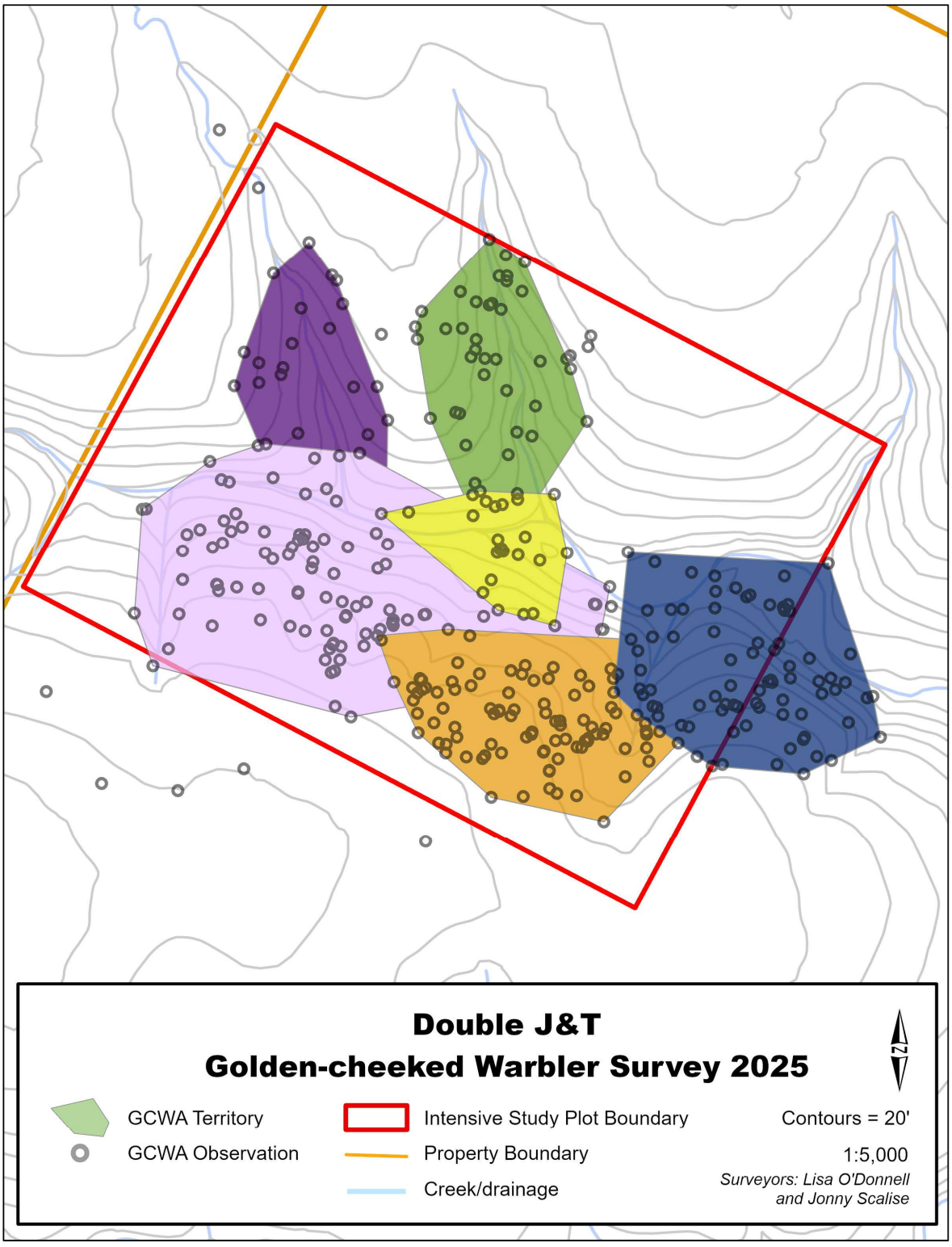

Double J&T
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Lisa O'Donnell and Jonny Scalise

Figure 9

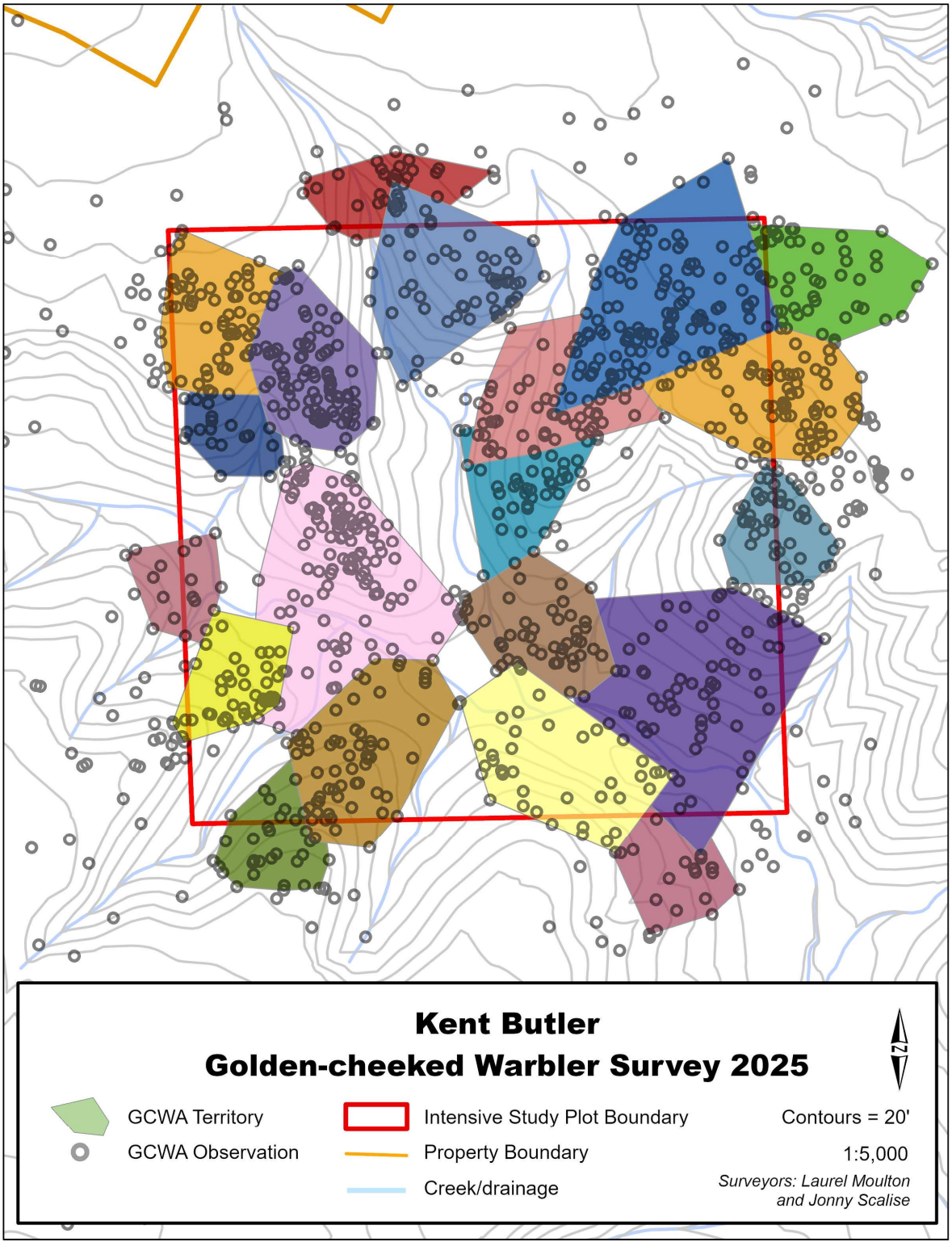

Kent Butler
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Laurel Moulton and Jonny Scalise

Figure 10

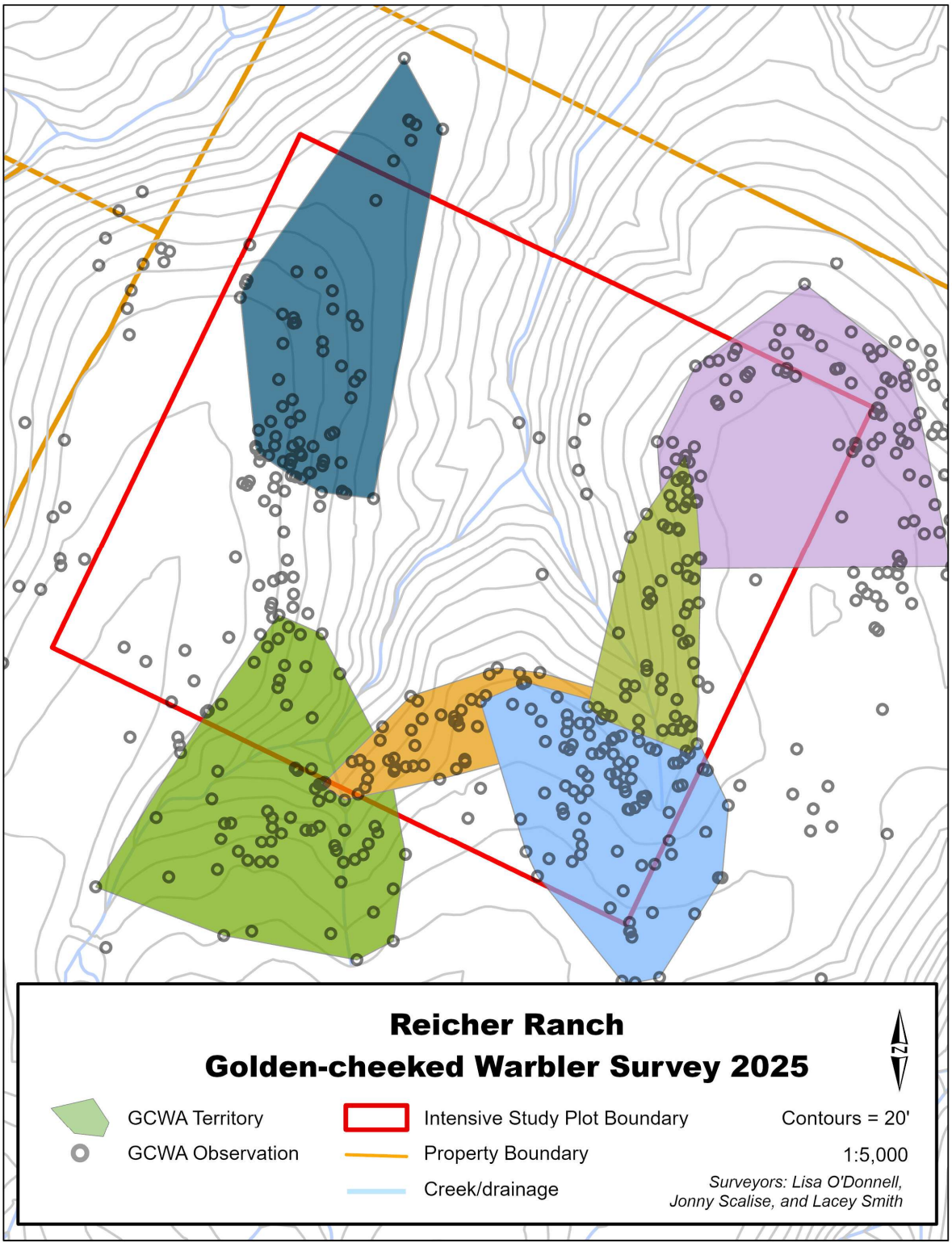

Reicher Ranch
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Lisa O'Donnell,
Jonny Scalise, and Lacey Smith

Figure 11

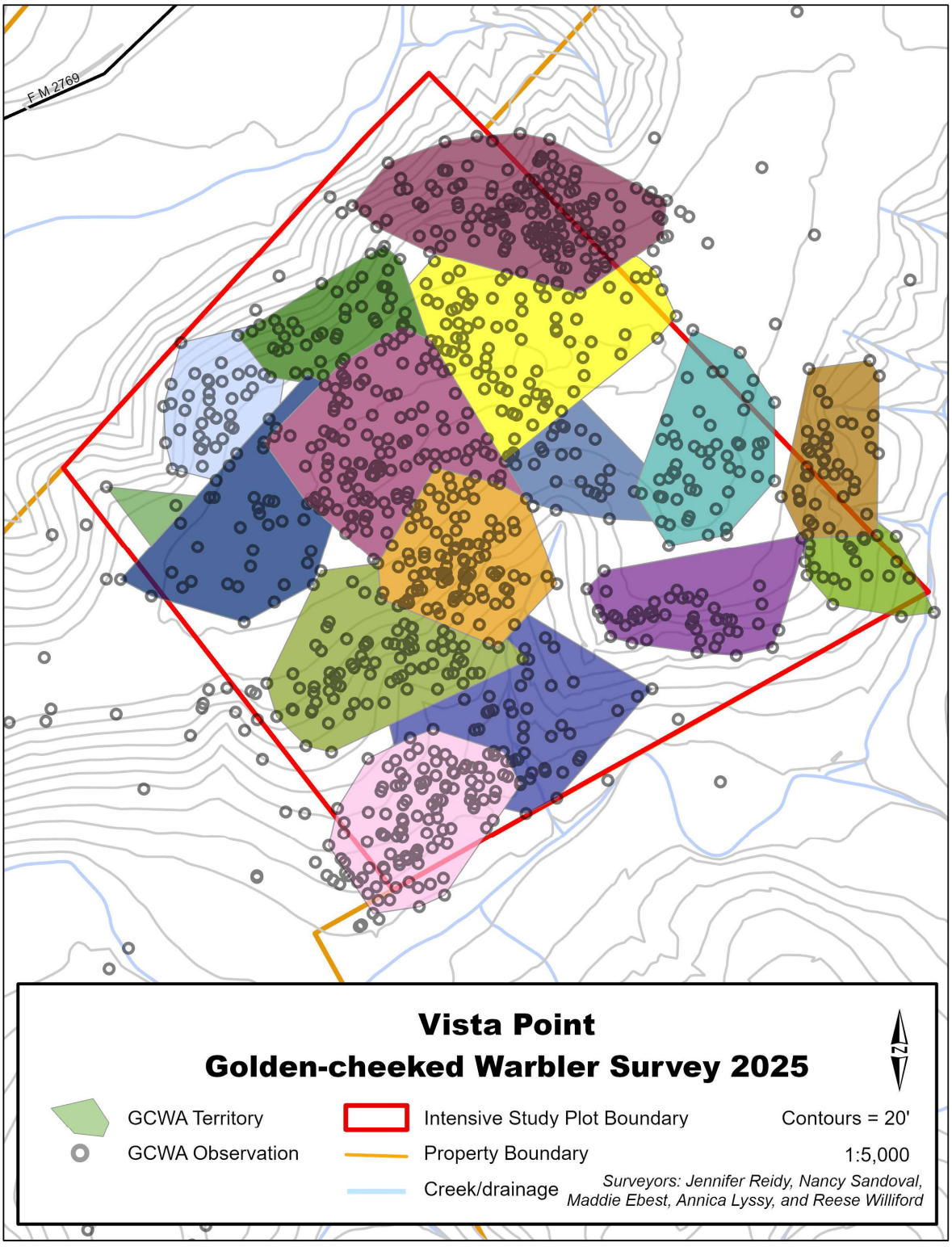

F M 2769
Vista Point
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Jennifer Reidy, Nancy Sandoval, Maddie Ebest, Annica Lyssy, and Reese Williford

Figure 12

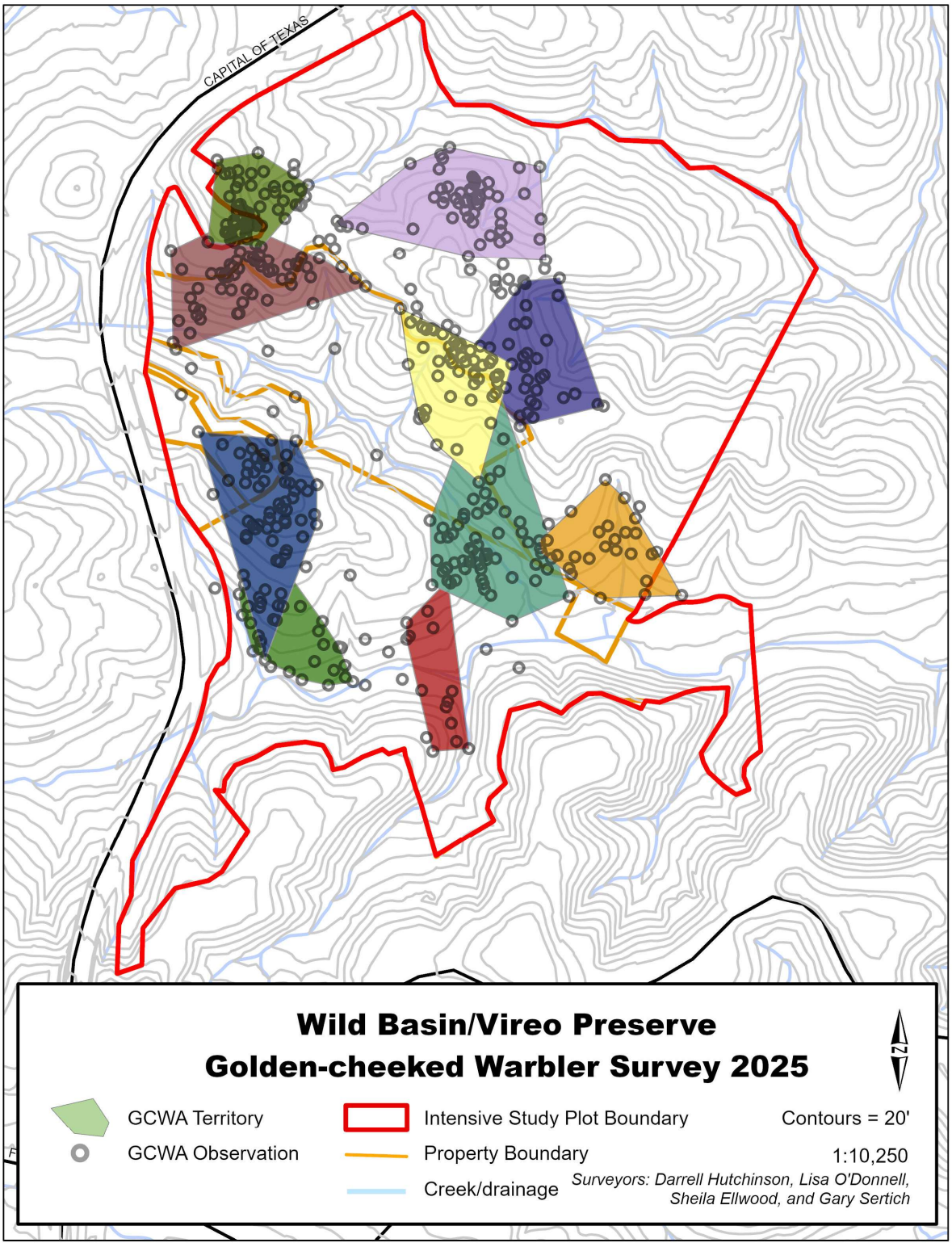

CAPITAL OF TEXAS
Wild Basin/Vireo Preserve
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:10,250
Surveyors: Darrell Hutchinson, Lisa O'Donnell, Sheila Ellwood, and Gary Sertich

Figure 13

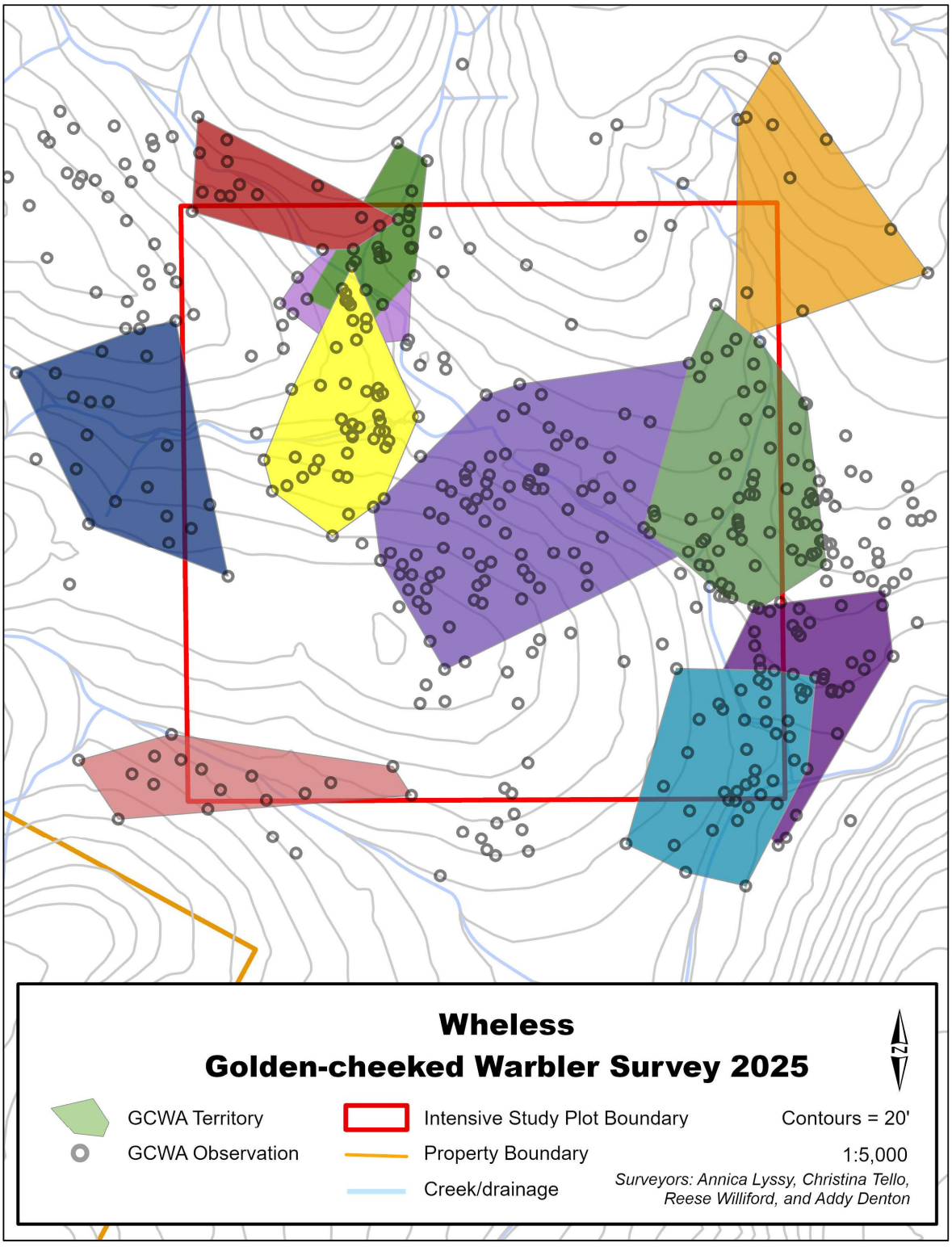

Wheless
Golden-cheeked Warbler Survey 2025
N
GCWA Territory
GCWA Observation
Intensive Study Plot Boundary
Property Boundary
Creek/drainage
Contours = 20'
1:5,000
Surveyors: Annica Lyssy, Christina Tello, Reese Williford, and Addy Denton

Figure 14

Exhibit C: Summary of Golden-cheeked Warbler Survey Effort on the Balcones Canyonlands Preserve, Travis County, Texas, 2025.

Intensive Monitoring Plots	Lead Surveyor(s)	Survey Hours	Area Surveyed (hectares)
Barton Creek Macrosite			
Barton Creek[2]	William Reiner, Laurel Moulton (COA)	135.75	40.5 + buffer
Barton Creek Habitat Preserve	Lisa O'Donnell (COA), Shelia Hargis (vol.)	36.25	81.5
Bull Creek Macrosite			
Forest Ridge[2]	Laurel Moulton, Jonny Scalise (COA)	384.50	40.5 + buffer
Kent Butler[2]	Laurel Moulton, Jonny Scalise (COA)	391.25	40.5 + buffer
Hamilton West[2]	Cristina Campbell (COA), Jennifer Reidy (TC)	275.00	40.5 + buffer
Cypress Creek Macrosite			
Vista Point[2]	Jennifer Reidy, Nancy Sandoval, M. Ebest, Annica Lyssy (TC)	440.75	40.5 + buffer
Wheless	Addy Denton, Annica Lyssy, Christina Tello, Reese Williford, (TC)	119.25	40.5
North Lake Austin Macrosite			
Emma Long[2]	Cristina Campbell (COA)	193.50	40.5 + buffer
Emma Long Bike Park[2]	Darrell Hutchinson, Cristina Campbell (COA)	334.50	96
Cortaña	William Reiner (COA)	107.75	62
South Lake Austin Macrosite			
Double J&T[2]	Lisa O'Donnell, Jonny Scalise (COA)	117.75	40.5 + buffer
Reicher[2]	Lisa O'Donnell, Jonny Scalise, Lacey Smith (COA)	199.50	40.5 + buffer
West Austin Macrosite			
Vireo Preserve/Wild Basin[2]	Darrell Hutchinson, Lisa O'Donnell, (COA) ; Sheila Ellwood, Gary Sertich (vol.)	234.25	180
	Total	**2970.00**	**784 + buffers**

COA = City of Austin, TC = Travis County, vol. = volunteer. Buffers = approx. 30 ha for each 40.5-ha plot, where access was allowed. Additional observers not listed here assisted with monitoring for fewer than 3 visits.
[2]Plot where biologists prioritized nest-searching and nest-monitoring in 2025.

Exhibit C: Summary of Golden-cheeked Warbler Survey Effort on the Balcones Canyonlands Preserve, Travis County, Texas, 2025 (continued).

Re-sighting Plot	Surveyor	Survey Hours	Area Surveyed (hectares)
Cypress Creek Macrosite			
Collins	Addy Denton, Annica Lyssy, Namara Timms, Reese Williford, Parker Youngman (TC)	96.50	40.5 + buffer
North Lake Austin Macrosite			
Emma Long Expansion	Cristina Campbell (COA)	10.25	34

TC = Travis County, COA = City of Austin. Additional observers not listed here assisted with monitoring for fewer than 3 visits.

Search Areas*	Survey Hours	Search Areas*	Survey Hours
3M Northeast	18.00	Hamilton Northeast	16.25
3M South	18.00	Hamilton Northwest	26.50
3M Southeast	17.75	Hamilton Southeast	35.25
Barton Creek Downstream	18.00	Interplot (33.4 ha)	37.75
Barton Creek Far Northwest	26.25	Kent Butler East	27.00
Barton Creek Northwest	19.75	Kent Butler Northwest	36.50
Barton Creek Southwest	18.75	Kent Butler Southeast	11.25
Collins South	18.00	Kent Butler Southwest	24.50
Cortaña – Boxelder Canyon (63.7 ha)	14.75	Lime Creek North	18.00
Cortaña – Panther Hollow east	12.00	Lime Creek South	34.75
Emma Long South	36.25	Long Canyon – Leaning Rock	38.50
Emma Long West	45.00	Long Canyon – Standing Rock	18.75
Forest Ridge Northeast	17.50	Reicher East (35.7 ha)	18.50
Forest Ridge Northwest	18.00	Vista Point North	23.75
Forest Ridge Southeast	28.75	Vista Point Southeast	18.00
Forest Ridge Southwest	18.00	Vista Point Southwest	17.75
		Total	**747.75**

*All search areas were approximately 40.5 ha except where noted.

Exhibit D: Golden-cheeked Warbler Intensive Monitoring Plot Protocol, Balcones Canyonlands Preserve, 2025.

Objective: To delineate golden-cheeked warbler (warbler) territories as accurately as possible (>33 locations per male) and to document return rates, dispersal, pairing success, breeding success, and productivity (number of young per territory) to estimate long-term trends in these parameters.

For the 2024 field season, staff will emphasize locating and monitoring nests and counting fledglings on the 10 plots that have been monitored since 2011 (see Reidy et al. 2023). These 10 plots are the Barton Creek, Emma Long, Forest Ridge, Hamilton West, JJ&T, Kent Butler, Reicher, and Vista Point 100-acre plots, Emma Long Bike Park, and Wild Basin/Vireo Preserve.). Nest searching and monitoring will occur on other plots as staff and time allow.

Study Sites: Within each intensive study plot, observers will focus on re-sighting color-banded warblers, mapping the location and extent of territories, and looking for nests, females, and fledglings. In addition, observers responsible for 100-acre study plots will search for color-banded birds within accessible portions of a 100-m buffer around each plot to provide better estimates of the size, extent, and breeding success of edge territories.

Survey Dates: March 15 to May 25 (for territory delineations); March 15 to June 15 (for documenting reproductive success). Separate visits may be required to band territorial males but warbler observations made during banding attempts are not to be reported as territory observations.

Survey Effort for Territory Mapping: 6 hours per 100 acres per week *minimum*. There will be no maximum time constraints. The number of hours devoted to a plot will be based on territory densities, terrain, surveyor's physical condition, etc. and the time needed to cover the entire survey area. Surveyors will take as much time as needed to collect data for each territory and, where possible, to obtain a minimum of 33 locations separated by at least 30 meters for each territorial male by May 25.

Mapping and Survey Procedures: Observers will obtain GPS locations for, **and** create hard copy maps of, all warbler observations for **every** survey visit, following the **Standards for Conducting and Documenting Golden-cheeked Warbler Surveys (COA 2023)**. Timely and accurate survey maps serve as a means of sharing observation information with other observers assigned to the same study plot, are critical for conducting data QA/QC, and provide important supporting documentation for subsequent analyses and reports.

Staffing:

- Territories will be delineated across each plot at least once each week.
- Each established territory should be monitored for approximately one hour each week, to search for females, nests or fledglings; to monitor nests; and to document male locations.

Training: All field staff will have prior experience conducting Golden-cheeked Warbler surveys or be trained by experienced personnel prior to the field season.

Exhibit E: Summary of Golden-cheeked Warbler Territory Data for Intensive Study Plots on the Balcones Canyonlands Preserve, Travis County, Texas, Field Seasons 2009-2025. See Methods section for calculations.

Exhibit E					
Plot Name	**Survey Year**	**Number of Full Territories**	**Number of Full and Edge Territories**	**Number of Full Territories + 50% of Edge Territories**	**Territory Density per Hectare**
Barton Creek Macrosite					
Barton Creek	2009	2	8	5.0	0.12
	2010	2	10	6.0	0.15
	2011	4	9	6.5	0.16
	2012	2	7	4.5	0.11
	2013	4	10	7.0	0.17
	2014	5	12	8.5	0.21
	2015	6	9	7.5	0.19
	2016	3	6	4.5	0.11
	2017	3	6	4.5	0.11
	2018	2	4	3.0	0.07
	2019	3	3	3.0	0.07
	2020	2	2	2.0	0.05
	2021	2	5	3.5	0.09
	2022	1	3	2.0	0.05
	2023	1	4	2.5	0.06
	2024	0	3	1.5	0.04
	2025	1	3	2.0	0.05
Barton Creek Habitat Preserve	2017	0	2	1.0	0.01
	2018	1	2	1.5	0.02
	2019	0	2	1.0	0.01
	2020	--	--	--	--
	2021	0	2	1.0	0.01
	2022	1	3	2.0	0.02
	2023	2	4	3.0	0.04
	2024	1	3	2.0	0.02
	2025	2	4	3.0	0.04
Bull Creek Macrosite					
Forest Ridge	2009	10	18	14.0	0.35
	2010	10	20	15.0	0.37
	2011	13	20	16.5	0.41
	2012	13	23	18.0	0.44
	2013	8	14	11.0	0.27
	2014	9	19	14.0	0.35
	2015	14	20	17.0	0.42
	2016	8	15	11.5	0.28
	2017	11	20	15.5	0.38
	2018	6	17	11.5	0.28
	2019	7	19	13.0	0.32
	2020	10	17	13.5	0.33
	2021	10	23	16.5	0.41
	2022	11	21	16.0	0.40
	2023	9	20	14.5	0.36
	2024	9	19	14.0	0.35
	2025	6	18	12.0	0.30

Exhibit E					
Plot Name	**Survey Year**	**Number of Full Territories**	**Number of Full and Edge Territories**	**Number of Full Territories + 50% of Edge Territories**	**Territory Density per Hectare**
Kent Butler	2009	11	25	18.0	0.44
	2010	11	20	15.5	0.38
	2011	12	22	17.0	0.43
	2012	11	24	17.5	0.43
	2013	18	32	25.0	0.62
	2014	15	20	17.5	0.43
	2015	13	25	19.0	0.47
	2016	11	20	15.5	0.38
	2017	7	19	13.0	0.32
	2018	8	15	11.5	0.28
	2019	8	19	13.5	0.33
	2020	12	18	15.0	0.37
	2021	8	23	15.5	0.38
	2022	9	22	15.5	0.38
	2023	5	16	10.5	0.26
	2024	8	16	12.0	0.30
	2025	8	20	14.0	0.35
Hamilton West	2010	2	14	8.0	0.20
	2011	8	20	14.0	0.35
	2012	6	10	8.0	0.20
	2013	5	11	8.0	0.20
	2014	5	12	8.5	0.21
	2015	6	10	8.0	0.20
	2016	5	9	7.0	0.17
	2017	5	9	7.0	0.17
	2018	4	10	7.0	0.17
	2019	3	12	7.5	0.19
	2020	6	12	9.0	0.22
	2021	5	15	10.0	0.25
	2022	6	14	10.0	0.25
	2023	3	9	6.0	0.15
	2024	2	10	6.0	0.15
	2025	7	16	11.5	0.28
Cypress Creek Macrosite					
Vista Point	2011	15	17	16.0	0.40
	2012	13	20	14.0	0.34
	2013	10	17	13.5	0.33
	2014	9	19	14.0	0.35
	2015	17	24	20.5	0.51
	2016	--	--	--	--
	2017	8	14	11.0	0.27
	2018	9	14	11.5	0.28
	2019	11	15	13.0	0.32
	2020	11	16	13.5	0.33
	2021	12	22	17.0	0.42
	2022	15	25	20.0	0.49
	2023	15	20	17.5	0.43
	2024	9	14	11.5	0.28
	2025	10	16	13	0.32

Exhibit E					
Plot Name	**Survey Year**	**Number of Full Territories**	**Number of Full and Edge Territories**	**Number of Full Territories + 50% of Edge Territories**	**Territory Density per Hectare**
Wheless	2017	1	3	2.0	0.05
	2018	0	2	1.0	0.02
	2019	1	5	3.0	0.07
	2020	3	5	4.0	0.10
	2021	2	7	4.5	0.11
	2022	4	8	6.0	0.15
	2023	3	4	3.5	0.09
	2024	2	5	3.5	0.09
	2025	4	11	7.5	0.19
North Lake Austin Macrosite					
Cortaña	2017	4	5	4.5	0.07
	2018	2	2	2.0	0.03
	2019	4	6	5.0	0.08
	2020	3	3	3.0	0.04
	2021	4	4	4.0	0.06
	2022	3	4	3.5	0.06
	2023	5	6	5.5	0.09
	2024	3	4	3.5	0.06
	2025	4	5	4.5	0.07
Emma Long	2009	9	19	14.0	0.35
	2010	10	16	13.0	0.32
	2011	10	16	13.0	0.33
	2012	11	18	14.5	0.36
	2013	11	20	15.5	0.38
	2014	9	17	13.0	0.32
	2015	10	17	13.5	0.33
	2016	--	--	--	--
	2017	3	11	7	0.17
	2018	4	9	6.5	0.16
	2019	5	9	7.0	0.17
	2020	7	12	9.5	0.23
	2021	7	14	10.5	0.26
	2022	6	11	8.5	0.21
	2023	7	12	9.5	0.23
	2024	7	16	11.5	0.28
	2025	8	14	11	0.27
Emma Long Bike Park	2010	9	9	9.0	0.09
	2011	12	15	13.5	0.14
	2012	12	17	14.5	0.15
	2013	5	13	9.0	0.09
	2014	12	19	15.5	0.16
	2015	6	14	10.0	0.10
	2016	4	13	8.5	0.09
	2017	3	10	6.5	0.07
	2018	6	10	8.0	0.08
	2019	6	11	8.5	0.09
	2020	5	14	9.5	0.10
	2021	13	23	18.0	0.19
	2022	11	18	14.5	0.15
	2023	12	21	16.5	0.17
	2024	9	17	13.0	0.14
	2025	13	22	17.5	0.18

Exhibit E					
Plot Name	**Survey Year**	**Number of Full Territories**	**Number of Full and Edge Territories**	**Number of Full Territories + 50% of Edge Territories**	**Territory Density per Hectare**
South Lake Austin Macrosite					
Double J&T	2009	2	3	2.5	0.06
	2010	3	3	3.0	0.07
	2011	3	4	3.5	0.09
	2012	4	4	4.0	0.10
	2013	2	4	3.0	0.07
	2014	3	5	4.0	0.10
	2015	2	2	2.0	0.05
	2016	2	3	2.5	0.06
	2017	2	3	2.5	0.06
	2018	1	2	1.5	0.04
	2019	3	4	3.5	0.09
	2020	4	6	5.0	0.12
	2021	3	5	4.0	0.10
	2022	3	4	3.5	0.09
	2023	3	4	3.5	0.09
	2024	4	5	4.5	0.11
	2025	5	6	5.5	0.14
Reicher	2011	3	4	3.5	0.09
	2012	2	6	4.0	0.10
	2013	3	6	6.0	0.11
	2014	5	11	8.0	0.20
	2015	3	8	5.5	0.14
	2016	--	--	--	--
	2017	3	6	4.5	0.11
	2018	2	6	4.0	0.10
	2019	3	8	5.5	0.14
	2020	3	8	5.5	0.14
	2021	3	7	5.0	0.12
	2022	3	6	4.5	0.11
	2023	5	8	6.5	0.16
	2024	4	9	6.5	0.16
	2025	2	6	4.0	0.10
West Austin Macrosite					
Wild Basin/ Vireo Preserve	2011	8	11	9.5	0.05
	2012	6	6	6.0	0.03
	2013	8	8	8.0	0.04
	2014	9	10	9.5	0.05
	2015	7	7	7.0	0.04
	2016	4	4	4.0	0.02
	2017	4	4	4.0	0.02
	2018	4	4	4.0	0.02
	2019	5	5	5.0	0.03
	2020	6	6	6.0	0.03
	2021	9	9	9.0	0.05
	2022	5	5	5.0	0.03
	2023	12	12	12.0	0.07
	2024	12	12	12.0	0.07
	2025	9	10	9.5	0.05

Exhibit F. Golden-cheeked Warbler Territory Density Trend for 10 Intensive Study Plots on the Balcones Canyonlands Preserve, Travis County, Texas, Field Seasons, 2011-2025.

Number of males is based on Verner (1985), and the mean is weighted by plot size (ha). The 10 plots include Barton Creek, Emma Long Bike Park, Emma Long, Forest Ridge, Hamilton West, Kent Butler, JJ&T, Reicher Ranch, Vista Point, and Wild Basin/Vireo Preserve. Data are not included for 2016 because three plots (Emma Long, Reicher Ranch, Vista Point) were not monitored intensively enough to obtain abundance data. None of the plots were monitored according to protocols in 2020 due to the COVID-19 pandemic.

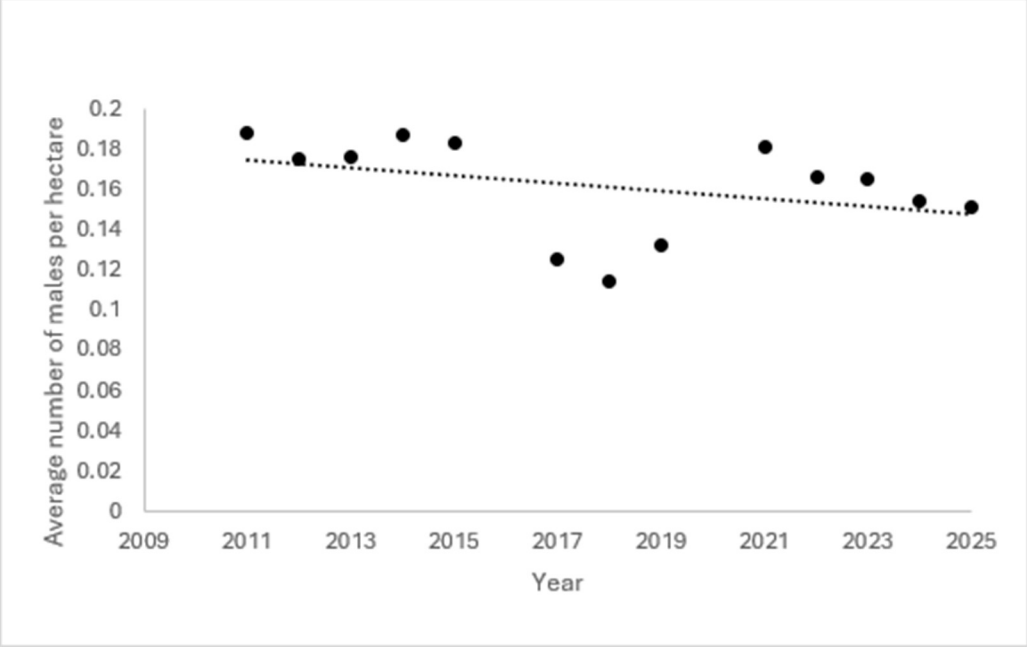


Exhibit G: Summary of Golden-cheeked Warbler Age Structure Data for Territorial Males on Intensive Study Plots on the Balcones Canyonlands Preserve, Travis County, Texas, Field Seasons 2009-2025.

Exhibit G							
Plot Name	**Survey Year**	**Percent SY Males**	**Percent ASY Males**	**Percent AHY Males**	**Total No. Banded Males**	**Total No. Unbanded Males**	**Percent Banded Males**
Barton Creek Macrosite							
Barton Creek	2009	20	60	20	5	3	63
	2010	22	78	0	9	1	90
	2011	0	100	0	6	3	67
	2012	0	100	0	5	2	71
	2013	40	60	0	5	5	50
	2014	25	75	0	8	4	67
	2015	0	100	0	3	6	33
	2016	17	83	0	6	0	100
	2017	20	80	0	5	1	83
	2018	0	100	0	4	0	100
	2019	67	33	0	3	0	100
	2020	0	100	0	2	0	100
	2021	80	20	0	5	0	100
	2022	0	100	0	2	1	67
	2023	50	50	0	4	0	100
	2024	33	67	0	3	0	100
	2025	0	100	0	2	1	67
Barton Creek Habitat Preserve	2017	100	0	0	1	1	50
	2018	100	0	0	2	0	100
	2019	100	0	0	2	0	100
	2020	--	--	--	--	--	--
	2021	50	50	0	2	0	100
	2022	100	0	0	3	0	100
	2023	50	50	0	2	2	50
	2024	67	33	0	3	0	100
	2025	25	75	0	4	0	100
Bull Creek Macrosite							
Forest Ridge	2009	20	73	7	15	3	83
	2010	21	79	0	14	6	70
	2011	35	65	0	17	3	85
	2012	0	100	0	16	7	67
	2013	11	89	0	9	5	64
	2014	27	73	0	11	8	58
	2015	30	70	0	10	10	50
	2016	25	75	0	12	3	80
	2017	8	92	0	13	7	65
	2018	14	86	0	14	3	82
	2019	50	50	0	16	3	84
	2020	43	57	0	14	3	82
	2021	47	53	0	17	6	74
	2022	31	69	0	16	5	76
	2023	31	69	0	16	4	80
	2024	36	64	0	14	5	74
	2025	13	88	0	16	2	89

Exhibit G							
Plot Name	**Survey Year**	**Percent SY Males**	**Percent ASY Males**	**Percent AHY Males**	**Total No. Banded Males**	**Total No. Unbanded Males**	**Percent Banded Males**
Kent Butler	2009	53	29	18	17	8	68
	2010	33	67	0	15	5	75
	2011	62	37	0	16	6	73
	2012	53	42	5	19	5	79
	2013	36	59	5	22	10	69
	2014	19	81	0	16	4	80
	2015	41	53	6	17	8	68
	2016	36	64	0	14	6	70
	2017	38	62	0	13	6	68
	2018	70	30	0	10	5	67
	2019	50	50	0	14	5	74
	2020	86	14	0	14	4	78
	2021	35	65	0	17	6	74
	2022	53	47	0	15	7	68
	2023	23	77	0	13	3	81
	2024	46	54	0	13	3	81
	2025	59	41	0	17	3	85
Hamilton West	2010	40	60	0	10	4	71
	2011	60	27	13	15	5	75
	2012	29	57	14	7	3	70
	2013	63	38	0	8	3	73
	2014	50	50	0	8	4	67
	2015	62	38	0	8	2	80
	2016	57	43	0	7	2	78
	2017	38	62	0	8	1	89
	2018	0	100	0	6	4	60
	2019	17	83	0	6	6	50
	2020	67	33	0	6	6	50
	2021	22	78	0	9	6	60
	2022	83	17	0	12	2	86
	2023	14	86	0	7	2	78
	2024	63	38	0	8	2	80
	2025	54	46	0	13	3	81
Cypress Creek Macrosite							
Vista Point	2011	24	76	0	17	0	100
	2012	12	88	0	17	3	81
	2013	29	71	0	14	3	82
	2014	9	91	0	11	8	59
	2015	67	33	0	12	12	50
	2016	--	--	--	--	--	--
	2017	9	91	0	11	3	79
	2018	27	73	0	11	3	79
	2019	28	72	0	18	5	78
	2020	37	63	0	8	8	50
	2021	42	58	0	12	10	55
	2022	40	60	0	15	10	60
	2023	45	55	0	11	9	55
	2024	33	67	0	6	8	43
	2025	36	64	0	11	5	69

Exhibit G							
Plot Name	**Survey Year**	**Percent SY Males**	**Percent ASY Males**	**Percent AHY Males**	**Total No. Banded Males**	**Total No. Unbanded Males**	**Percent Banded Males**
Wheless	2017	33	67	0	3	1	75
	2018	100	0	0	1	1	50
	2019	33	67	0	3	2	60
	2020	0	100	0	1	4	20
	2021	25	75	0	4	3	57
	2022	25	75	0	4	4	50
	2023	67	33	0	3	1	75
	2024	100	0	0	1	4	20
	2025	75	25	0	4	7	36
North Lake Austin Macrosite							
Cortaña	2017	20	80	0	5	0	100
	2018	0	100	0	2	0	100
	2019	67	33	0	6	0	100
	2020	67	33	0	3	0	100
	2021	100	0	0	2	2	50
	2022	33	67	0	3	1	75
	2023	60	40	0	5	1	83
	2024	25	75	0	4	0	100
	2025	20	80	0	5	0	100
Emma Long	2009	0	100	0	13	6	68
	2010	11	89	0	9	7	56
	2011	27	73	0	11	5	69
	2012	10	90	0	10	8	56
	2013	0	100	0	10	10	50
	2014	33	67	0	9	8	53
	2015	25	75	0	12	5	71
	2016	--	--	--	--	--	--
	2017	10	90	0	10	1	91
	2018	25	75	0	8	1	89
	2019	25	75	0	8	1	89
	2020	44	56	0	9	3	75
	2021	20	80	0	10	4	71
	2022	10	90	0	10	1	91
	2023	12	88	0	8	4	67
	2024	20	80	0	10	6	63
	2025	18	82	0	11	3	79
Emma Long Bike Park	2010	63	38	0	8	1	89
	2011	79	21	0	14	1	93
	2012	29	71	0	14	3	82
	2013	71	29	0	7	6	54
	2014	69	31	0	13	6	68
	2015	56	44	0	9	5	64
	2016	33	56	11	9	4	69
	2017	57	33	0	7	3	70
	2018	71	29	0	7	3	70
	2019	67	33	0	9	2	82
	2020	50	50	0	10	4	71
	2021	53	47	0	19	4	83
	2022	33	67	0	15	3	83
	2023	33	67	0	15	6	71
	2024	27	73	0	15	2	88
	2025	65	35	0	20	2	91

Exhibit G							
Plot Name	**Survey Year**	**Percent SY Males**	**Percent ASY Males**	**Percent AHY Males**	**Total No. Banded Males**	**Total No. Unbanded Males**	**Percent Banded Males**
South Lake Austin Macrosite							
Double J&T	2009	100	0	0	1	2	33
	2010	67	33	0	3	0	100
	2011	100	0	0	2	2	50
	2012	100	0	0	1	3	25
	2013	100	0	0	4	0	100
	2014	0	100	0	3	2	60
	2015	0	100	0	1	1	50
	2016	33	67	0	3	0	100
	2017	33	67	0	3	0	100
	2018	50	50	0	2	0	100
	2019	67	33	0	3	1	75
	2020	100	0	0	5	1	83
	2021	20	80	0	5	0	100
	2022	33	67	0	3	1	75
	2023	100	0	0	3	1	75
	2024	80	20	0	5	0	100
	2025	33	67	0	6	0	100
Reicher	2011	33	67	0	3	1	75
	2012	50	50	0	2	4	33
	2013	25	75	0	4	2	67
	2014	38	50	12	8	3	73
	2015	20	80	0	5	3	63
	2016	--	--	--	--	--	--
	2017	25	75	0	4	2	67
	2018	20	80	0	5	1	83
	2019	43	57	0	7	1	88
	2020	0	100	0	6	2	75
	2021	14	86	0	7	0	100
	2022	17	83	0	6	0	100
	2023	17	83	0	6	2	75
	2024	11	89	0	9	0	100
	2025	20	80	0	5	1	83
West Austin Macrosite							
Wild Basin/ Vireo Preserve	2011	78	22	0	9	2	82
	2012	20	80	0	5	1	83
	2013	33	67	0	6	2	75
	2014	50	50	0	8	2	80
	2015	67	33	0	6	1	86
	2016	50	50	0	4	0	100
	2017	25	75	0	4	0	100
	2018	67	33	0	3	1	75
	2019	60	40	0	5	0	100
	2020	0	100	0	1	5	17
	2021	100	0	0	7	2	78
	2022	50	50	0	4	1	80
	2023	70	30	0	10	2	83
	2024	45	55	0	11	1	92
	2025	44	56	0	9	1	90

Exhibit H: Summary of Golden-cheeked Warbler Reproductive Success Data for Full and Edge Territories within Intensive Study Plots on the Balcones Canyonlands Preserve, Travis County, Texas, Field Seasons 2009-2025. See Methods section for calculations.

Exhibit H					
Plot Name	**Survey Year**	**Percent Pairing Success**	**Percent Breeding Success**	**Total No. of Observed and Adjusted Fledglings**	**Density of Observed and Adjusted Fledglings per Hectare**
Barton Creek Macrosite					
Barton Creek	2009	75	63	12 / 14	0.22 / 0.27
	2010	100	80	24 / 29	0.40 / 0.44
	2011	100	67	17 / 21	0.33 / 0.40
	2012	100	100	24/ 27	0.37 / 0.44
	2013	90	70	24 / 27	0.43 / 0.48
	2014	100	58	17 / 21	0.36 / 0.41
	2015	100	78	22 / 25	0.51 / 0 58
	2016	83	50	7 / 7	0.12 / 0.12
	2017	100	17	4 / 4	0.10 / 0.10
	2018	100	50	5 / 6.6	0.10 / 0.12
	2019	33	0	0	0
	2020	100	100	5 / 7.2	0.12 / 0.18
	2021	80	20	2 / 3.6	0.05 / 0.09
	2022	67	0	0	0
	2023	67	0	0	0
	2024	100	67	5 / 7.2	0.06 / 0.09
	2025	100	0	0	0
Barton Creek Habitat Preserve	2017	0	0	0	0
	2018	100	0	0	0
	2019	100	0	0	0
	2020	--	--	--	--
	2021	100	100	2 / 7.2	0.02 / 0.04
	2022	67	0	0	0
	2023	75	50	4 / 7.2	0.04 / 0.07
	2024	100	67	7 / 7.6	0.06 / 0.07
	2025	100	100	5 / 7.2	0.04 / 0.07
Bull Creek Macrosite					
Forest Ridge	2009	83	78	25 / 50	0.49 / 0.98
	2010	80	65	30 / 47	0.53 / 0.89
	2011	100	74	29 / 47	0.59 / 0.99
	2012	83	74	55 / 65	1.10 / 1.28
	2013	86	71	28 / 37	0.62 / 0.77
	2014	100	89	49 / 57	0.89 / 1.02
	2015	100	88	33 / 47	0 68 / 1.00
	2016	93	73	30 / 41	0.53 / 0.73
	2017	100	70	37 / 51	0.73 / 0.99
	2018	100	71	29 / 41	0.54 / 0.73
	2019	100	68	28 / 44.6	0.52 / 0.82
	2020	100	100	33 / 47.6	0.68 / 0.95
	2021	100	78	44 / 62.4	0.86 / 1.19
	2022	100	62	31 / 47.2	0.57 / 0.85
	2023	100	95	55 / 67.2	1.01 / 1.23
	2024	94	47	24 / 33.6	0.43 / 0.60
	2025	94	67	35 / 45.2	0.58 / 0.74

Exhibit H					
Plot Name	**Survey Year**	**Percent Pairing Success**	**Percent Breeding Success**	**Total No. of Observed and Adjusted Fledglings**	**Density of Observed and Adjusted Fledglings per Hectare**
Kent Butler	2009	92	72	39 / 65	0.73 / 1.20
	2010	95	70	35 / 50	0.68 / 1.02
	2011	95	67	40 / 50	0.75 / 0.94
	2012	96	79	60 / 71	1.06 / 1.23
	2013	90	58	50 / 61	1.00 / 1.16
	2014	95	85	47 / 64	0.98 / 1.33
	2015	88	63	46 / 54	1.01 / 1.13
	2016	95	70	40 / 50	0.77 / 0.94
	2017	95	74	35 / 48	0.60 / 0.80
	2018	100	67	26 / 37	0.51 / 0.73
	2019	84	47	22 / 33.6	0.37 / 0.55
	2020	100	88	35 / 45.8	0.73 / 0.91
	2021	91	78	53 / 65.8	0.85 / 1.08
	2022	100	64	37 / 52.4	0.64 / 0.84
	2023	94	81	38 /47.6	0.59 / 0.77
	2024	94	81	40 /48.4	0.78 / 0.92
	2025	100	65	35 / 47.6	0.62 / 0.85
Hamilton West	2010	64	57	18 / 29	0.28 / 0.44
	2011	90	50	24 / 24	0.47 / 0/47
	2012	90	78	18 / 23	0.33 / 0.43
	2013	100	82	20 / 29	0.38 / 0.53
	2014	100	73	27 / 27	0.53 / 0.53
	2015	100	90	23 / 33	0.40/ 0.62
	2016	100	56	14 / 14	0.26 / 0.26
	2017	100	78	21 / 27	0.42 / 0.52
	2018	100	80	25 / 27	0.44 / 0.48
	2019	100	45	12 / 16.4	0.21 / 0.29
	2020	90	67	20 / 28.8	0.35 / 0.49
	2021	100	47	18 / 25.6	0.31 / 0.45
	2022	100	50	17 / 25.6	0.31 / 0.45
	2023	100	67	18 / 22.4	0.28 / 0.37
	2024	100	60	16 / 22.4	0.22 / 0.32
	2025	100	50	31 / 31.6	0.53 / 0.54
Cypress Creek Macrosite					
Vista Point	2011	94	75	42 / 45	1.01 / 1.08
	2012	100	63	41 / 42	0.83 / 0.85
	2013	100	53	27 / 27	0.52 / 0.52
	2014	89	68	49 / 50	0.86 / 0.88
	2015	100	52	30 / 37	0.65 / 0.82
	2016	--	--	--	--
	2017	86	64	31 / 31	0.49 / 0.49
	2018	79	79	39 / 39	0.79 / 0.79
	2019	73	60	28 / 33.4	0.57 / 0.68
	2020	81	31	17 / 19.2	0.31 / 0.34
	2021	95	59	31 / 44.6	0.53 / 0.80
	2022	92	50	23 / 31.2	0.48 / 0.64
	2023	89	42	24 / 26.2	0.49 / 0.55
	2024	93	79	42 / 42.6	0.84 / 0.85
	2025	100	50	21 / 21.6	0.49 / 0.58

Exhibit H					
Plot Name	**Survey Year**	**Percent Pairing Success**	**Percent Breeding Success**	**Total No. of Observed and Adjusted Fledglings**	**Density of Observed and Adjusted Fledglings per Hectare**
Wheless	2017	75	75	12 / 12	0.15 / 0.15
	2018	100	100	8 / 8	0.10 / 0.10
	2019	100	60	11 / 11	0.19 / 0.19
	2020	100	100	18 / 19.2	0.37 / 0.39
	2021	100	86	20 / 23.2	0.32 / 0.38
	2022	88	50	9 / 14.8	0.16 / 0.23
	2023	100	75	7 / 10.8	0.17 / 0.22
	2024	80	60	10 / 10.0	0.12 / 0.12
	2025	78	45	13 / 21.6	0.26 / 0.44
North Lake Austin Macrosite					
Cortaña	2017	80	40	5 / 7	0.08 / 0.11
	2018	100	100	5 / 7.6	0.08 / 0.12
	2019	50	33	7 / 7.6	0.11 / 0.12
	2020	100	100	6 / 10.8	0.10 / 0.17
	2021	75	50	6 / 7.2	0.10 / 0.12
	2022	100	75	7 / 10.8	0.10 / 0.15
	2023	67	50	10 / 11.6	0.15 / 0.16
	2024	100	50	7 / 7.6	0.11 / 0.12
	2025	80	20	1 / 3.6	0.02 / 0.06
Emma Long	2009	100	84	29 / 58	0.52 / 1.02
	2010	94	63	19 / 36	0.33 / 0.67
	2011	100	100	41 / 52	0.96 / 1.19
	2012	100	94	54 / 62	1.05 / 1.20
	2013	89	59	34 / 36	0.63 / 0.68
	2014	88	81	47 / 50	0.94 / 1.01
	2015	94	41	21 / 22	0.38 / 0.40
	2016	--	--	--	--
	2017	90	50	14 / 16.2	0.22 / 0.25
	2018	89	56	15 / 17	0.27 / 0.31
	2019	89	78	23 / 26.4	0.42 / 0.47
	2020	100	83	27 / 36.8	0.56 / 0.73
	2021	92	71	26 / 37.2	0.40 / 0.59
	2022	100	82	27 / 33.6	0.53 / 0.69
	2023	92	83	30 / 37.2	0.58 / 0.73
	2024	100	56	24 / 34.0	0.44 / 0.65
	2025	100	43	20 / 23.2	0.37 / 0.43
Emma Long Bike Park	2009	--	--	--	--
	2010	89	56	8 / 18	0.08 / 0.19
	2011	92	58	24 / 27	0.23 / 0.26
	2012	100	100	33 / 38	0.29 / 0.34
	2013	92	69	26 / 32	0.17 / 0.21
	2014	84	59	28 / 32	0.24 / 0.26
	2015	100	79	26 / 32	0.21 / 0.26
	2016	85	38	13 / 16	0.11 / 0.12
	2017	90	70	19 / 21	0.14 / 0.15
	2018	90	40	12 / 12	0.10 / 0.10
	2019	82	64	24 / 27.2	0.18 / 0.20
	2020	100	86	36 / 45.2	0.27 / 0.33
	2021	100	86	49 / 68.6	0.39 / 0.54
	2022	94	56	24 / 34.6	0.20 / 0.28
	2023	100	62	30 / 44.4	0.27 / 0.39
	2024	100	65	32 / 41.6	0.28 / 0.36
	2025	100	73	42 / 56.4	0.39 / 0.49

Exhibit H					
Plot Name	**Survey Year**	**Percent Pairing Success**	**Percent Breeding Success**	**Total No. of Observed and Adjusted Fledglings**	**Density of Observed and Adjusted Fledglings per Hectare**
South Lake Austin Macrosite					
Double J&T	2009	0	0	0	0
	2010	67	0	0	0
	2011	75	50	2 / 7	0.04 / 0.13
	2012	100	0	0	0
	2013	50	50	6 / 6	0.12 / 0.12
	2014	100	60	9 / 9	0.20 / 0.20
	2015	50	0	0	0
	2016	67	67	6 / 7	0.11 / 0.12
	2017	67	67	5 / 7	0.09 / 0.13
	2018	100	50	3 / 4	0.07 / 0.09
	2019	50	0	0	0
	2020	100	33	6 / 7.2	0.11 / 0.13
	2021	100	100	13 / 18.8	0.25 / 0.37
	2022	75	25	1 / 3.6	0.02 / 0.09
	2023	100	75	8 / 11.2	0.17 / 0.23
	2024	100	40	5 / 7.6	0.07 / 0.14
	2025	67	17	3 / 3.6	0.07 / 0.09
Reicher	2011	100	100	11 / 12	0.22 / 0.24
	2012	83	67	14 / 16	0.25 / 0.29
	2013	100	83	13 / 19	0.20 / 0.32
	2014	82	73	25 / 30	0.43 / 0.52
	2015	88	50	9 / 10	0.12 / 0.14
	2016	--	--	--	--
	2017	100	67	8 / 13	0.16 / 0.26
	2018	83	67	11 / 15	0.20 / 0.27
	2019	88	88	18 / 26	0.30 / 0.45
	2020	100	50	10 / 14.4	0.15 / 0.22
	2021	100	86	15 / 22.0	0.28 / 0.41
	2022	100	67	11 / 14.8	0.22 / 0.28
	2023	100	50	13 / 15.2	0.30 / 0.33
	2024	100	56	16 / 18.8	0.30 / 0.33
	2025	100	83	17 / 19.6	0.31 / 0.34
West Austin Macrosite					
Wild Basin/ Vireo Preserve	2011	73	45	9 / 18	0.05 / 0.10
	2012	100	75	7 / 10	0.04 / 0.06
	2013	86	43	9 / 11	0.05 / 0.06
	2014	56	11	3 / 3	0.02 / 0.02
	2015	86	14	4 / 4	0.02 / 0.02
	2016	75	25	4 / 4	0.02 / 0.02
	2017	50	0	0	0
	2018	75	75	6 / 11	0.03 / 0.06
	2019	80	20	3 / 3.6	0.02 / 0.02
	2020	100	67	9 / 14.4	0.05 / 0.08
	2021	78	33	12 / 12.0	0.07 / 0.07
	2022	80	40	6 / 7.2	0.03 / 0.04
	2023	73	50	15 / 22.4	0.08 / 0.12
	2024	83	42	14 / 17.8	0.08 / 0.10
	2025	90	60	16 / 22.4	0.08 / 0.11

Exhibit I. Golden-cheeked Warbler Adjusted Fledgling Trend for 10 Intensive Study Plots on the Balcones Canyonlands Preserve, Travis County, Texas, Field Seasons, 2011-2025.

Number of adjusted fledglings and the mean is weighted by plot size (ha). The 10 plots include Barton Creek, Emma Long Bike Park, Emma Long, Forest Ridge, Hamilton West, Kent Butler, JJ&T, Reicher Ranch, Vista Point, and Wild Basin/Vireo Preserve. Data are not included for 2016 because three plots (Emma Long, Reicher Ranch, Vista Point) were not monitored intensively enough to obtain abundance data. None of the plots were monitored according to protocols in 2020 due to the COVID-19 pandemic.

