

# **Baker Sanctuary**

## **2012 - 2013 Annual Report**

(October 1, 2012 - September 30, 2013)

*prepared for the*

## **Balcones Canyonlands Preserve**

By

Christopher Murray, Baker Sanctuary Steward



**TRAVIS**  
**A U D U B O N**

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*Listen. Look. And Learn.*

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## **Introduction**

Baker Sanctuary is owned by Travis Audubon Society (TAS) with approximately 682 acres managed as part of the Balcones Canyonlands Preserve (BCP). Approximately nine additional acres along the northwest boundary, the Ruth Fredericksen Tract, were purchased by TAS in 2007 and have not been added to the BCP. Straddling Lime Creek Road, the Sanctuary is within the Cypress Creek Macrosite and adjacent to several other BCP tracts including the City of Austin's Lime Creek and Austin Simon tracts to the northeast, the Lower Colorado River Authority's Wheless tract to the southwest, the City of Cedar Park's waterline tract to the south, and several recent additions to Travis County's Lime Creek Unit along the southwestern boundary (**Appendix A**). The Sanctuary features densely wooded uplands, slopes, and canyons dominated by mature oak-juniper woodlands with occasional pockets of open and semi-open savannah that are being encroached by Ashe juniper (*Juniperus ashei*).

## **Golden-cheeked Warbler Survey**

This season, the annual 100-acre survey saw its third year of participation with the City of Austin as a partner in a five year study to determine golden-cheeked warbler (*Setophaga chrysoparia*) population viability and habitat suitability in the BCP, for details see the complete report in **Appendix B**. Based on compiled observations, including patterns of movement, re-sighting of color banded individuals, counter-singing, and the presence of females and fledglings, it is estimated that six golden-cheeked warbler males established territories substantially within plot boundaries (full), eight males occupied territories partially within the plot (edge), and one male held a territory directly adjacent to the plot (out) yielding an adjusted total of 10 territories for the 100-acre plot area.

The 2013 season adjusted total of ten territories present in and around the 100-acre plot has been relatively constant since the 2010 survey, a pattern that is beginning to suggest that ten territories may be the norm for this 100-acre patch of habitat. With a total of 17 fledglings observed in either edge or full territories this season compared to the 38 recorded during the 2012 survey, it would seem that fecundity was depressed. While nest searching efforts were not as successful as the prior season, a 38% discovery rate versus 100% for 2012, it is unlikely a substantial number of fledglings evaded detection by both observers. The decrease in fecundity was most likely due to the on-going tree mortality, a result of the severe drought Texas has been experiencing the last several years. Many trees that managed to survive the 2011 and 2012 summers have continued to decline or have fallen victim, due to their stressed condition, to insect damage and fungal pathogens. However, it is interesting to note that even though fecundity was depressed compared to the 2012 season, which may have been an exceptionally productive year due to timely

rains and the resultant increase in the insect population, the number of observed fledglings in 2013 was very similar to the 2006 – 2008 seasons.

### **Deer Management**

Baker Sanctuary was closed from October 31, 2012 – January 20, 2013 for the annual whitetail deer (*Odocoileus virginianus*) management hunt. Seven primary hunters hunting at sites 3, 5, 10, 11, 12, 13, and 14 (**Figure 1**) harvested a total of four deer, two bucks and two does, during 289 hours of hunt effort, a decrease from the average harvest of thirteen deer per season over the prior 11 recorded seasons; **Figure 2** summarizes yearly take data. The Sanctuary will be closed for the 2013-2014 season from October 31, 2013 – January 19, 2014.

The Hatfield Tract is a 50-acre parcel deeded to TAS in 1986 with the following stipulation: “it will never lease any portion of the property for hunting or trapping purposes”; as a result, no hunting took place on this tract during the 2012 – 2013 whitetail deer season.

### **Vegetation Management**

Approximately 61 cubic yards of vegetation was trimmed from trails, roads, and shooting lanes when it impeded the movement of hikers, posed a safety hazard, or compromised hunting efforts. Unless it posed an immediate safety threat, all trimming was restricted to the golden-cheeked warbler non-breeding season (September – February) and was performed so that canopy fragmentation, if it occurred, was kept to a minimum. When oaks (*Quercus spp.*) were trimmed, precautionary techniques such as disinfecting saws and painting wounds were utilized to prevent the spread of oak wilt (*Ceratocystis fagacearum*). Slash from cut vegetation was chipped prior to the onset of the golden-cheeked warbler-breeding season and was used primarily to mulch the Jackie Arnold Education Center (JAEC) educational garden. In addition to the routine maintenance of the trail system, roads, and shooting lanes, 18 cubic yards of Ashe juniper were removed from the access lane running the length of the Lime Creek Road fence and 58 cubic yards from Ashe juniper brakes in the Headquarters savannah.

To create a safer environment for outdoor educational activities, approximately 0.42 cubic yards of prickly pear (*Opuntia spp.*), an invasive native, was removed from the JAEC savannah and disposed of off-site.

Baker Sanctuary is composed mainly of dense mature oak-juniper woodlands interspersed with pockets of open and semi-open savannah; there are nine Fire Behavior Prediction System (FBPS) fuel models that correspond with the habitats within the BCP

and a fire management plan based upon these prediction systems is located in the Baker Sanctuary headquarters and available to assist the Steward in monitoring for fire safety and response readiness. The Sanctuary is also equipped with a wildfire calldown list and basic wildfire response tools to help better expedite early response to wildfires.

### **Brown-headed Cowbird Trapping**

TAS operated two brown-headed cowbird (*Molothrus ater*) traps from April 8 through May 31 of the 2013 season; trap TAS1 is located on the south side of Lime Creek Road near the Steward's residence and trap TAS2 in the open area near hunt site 11. Traps were checked every other day and non-target species were released when discovered. This season neither trap captured a single brown-headed cowbird, a significant decline from the 18 captured the previous season. Non-targets captured were one northern mockingbird (*Mimus polyglottos*), one northern cardinal (*Cardinalis cardinalis*), and one painted bunting (*Passerina ciris*), all of which were released unharmed.

### **Exotics Control**

Two large, distinct populations of Malta star-thistle (*Centaurea melitensis*) are known to occur at the Sanctuary, one centered around Baker Cabin on the north side of Lime Creek Road and another centered around the Steward's residence on the south side of Lime Creek Road. While both populations occur in heavily disturbed, savannah habitat, the population on the north side of the road is more established and extensive, typically forming a dense monoculture where it occurs. With the wet, mild fall, Malta star-thistle management began on October 5 and continued through April.

Malta star-thistle that occurred in the Baker Cabin area was treated with two different strategies. In areas where herbicide had been applied the previous season, star-thistle emerged in a much more patchy distribution compared to areas that had only been mowed. The patchy distribution of star-thistle in these areas allowed primarily hand-removal techniques to be utilized. Approximately 67 gallons of herbicide (50% glyphosate at five ounces/gallon) were applied to formerly non-treated areas adjacent to the treated area, working steadily outward from the treated core centered on Baker Cabin. Areas that were not treated with herbicide or hand-pulled were mowed before the star-thistle could set seed and all clippings were disposed of off-site.

Star-thistle that occurred around the Steward's residence on the south side of Lime Creek Road was less extensive and was effectively managed with the utilization of only hand-removal techniques. All plants were disposed of off-site.

The extensive tree-of-heaven (*Ailanthus altissima*) grove discovered in December of 2010 in a northern drainage of the Sanctuary is still being actively monitored and treated.

Over the last year, 2064 tree-of-heaven saplings were hand pulled, many of which were root sprouts from trees treated with Arsenal the previous years. In addition to the hand-pulled saplings, three larger trees were stump cut and treated with a total of 25 ml of 10% Arsenal solution. In the same area, 12 chinaberry (*Melia azedarach*), some root sprouts from the two trees treated in 2010, were manually removed. Since the grove was discovered in 2010, a total of 3847 tree-of-heaven and 29 chinaberry seedlings have been removed from the area.

The less extensive population of tree-of-heaven discovered in May of 2012 approximately 1000 feet downstream from the larger population is still being actively monitored and treated. Over the last year, 299 saplings were manually removed and 11 larger individuals were treated with a total of 50 ml of 10% Arsenal solution. Since the grove was discovered in 2012, a total of 325 saplings have been removed from the area. Both populations will be actively monitored and managed until eradicated.

Other invasive plants were removed when encountered throughout the Sanctuary, including johnsongrass (*Sorghum halepense*) near the Steward's residence, 1202 common mullein (*Verbascum thapsus*) and 470 common horehound (*Marrubium vulgare*) in the Baker Cabin area, 18 medium-sized common fig (*Ficus carica*) near Walnut Spring, and four heavenly bamboo (*Nandina domestica*), three privet (*Ligustrum spp.*), and four chinaberry discovered in various drainages.

## **Research**

In an effort to achieve a more complete understanding of the composition, distribution, and density of avian species found on the Sanctuary, the fixed-radius point count methodology proposed by Hutto *et al.* (1986) has been employed in an annual breeding bird survey. From late May through early June, the third annual count was performed which utilized a combination of vegetation and bird monitoring plots (**Figure 3**) for a total of 37 point count stations. In the past, the count had been performed over the course of one morning but due to inclement weather, the count was extended over several weeks while the Steward performed all the point counts. Of the 39 species recorded, the top three detected were northern cardinal, black-crested titmouse (*Baeolophus bicolor*), and mourning dove (*Zenaida macroura*). Golden-cheeked warblers were detected at 49% of the point count stations compared to 35% for the previous year (**Table 1**).

Two karst feature surveys led by Zara Environmental, LLC were conducted on October 9, 2012 and June 26, 2013 in an on-going effort to document all karst features occurring on the Sanctuary. To date, a total of 35 karst features have been discovered and recorded on the roughly 30% of the Sanctuary surveyed (**Figure 4**). When the survey is complete,

karst features that have potentially suitable habitat for endangered karst invertebrates will be surveyed by a qualified and permitted karst specialist.

## **Education and Outreach**

From October 2012 through September 2013 the Sanctuary experienced a total of 381 visitations from day hikers. Of those visitations, 328 were by TAS members and 53 were by non-members. An additional 653 visitations occurred during organized activities such as educational programs, TAS events, and guided hikes. A total of 424.5 volunteer hours were logged at Baker Sanctuary on a variety of activities (see below).

**October:** Youth Nature Camp, trail maintenance, karst survey, and planting trees.

**November:** Assessment of the Baker Cain windmill, trash removal, and garden upkeep.

**December:** Trail maintenance.

**January:** Trail maintenance and garden upkeep.

**February:** Trail maintenance, leading guided hikes, chipping slash.

**March:** Invasive species removal, Youth Nature Camp, and Hiking Club.

**April:** Hiking Club and Baker Open House.

**May:** Point counts (see **Appendix C** for current bird list).

**June:** Vegetation data collection, grounds maintenance, curriculum development, and karst survey.

**July:** No volunteer activity.

**August:** Trails maintenance.

**September:** Trash removal, land management plan development, and trail maintenance.

The Youth Nature Camp program now consists of two, full-day sessions, one in March which focuses on Neotropical migrants, with emphasis on the golden-cheeked warbler, and one in October which focuses on orienteering and cavity nesting avifauna. Offered free of charge to children from the ages of nine to twelve, the camps typically experience an average of 20 students per session.

The Hiking Club, formerly associated with Deer Creek Elementary, shifted to Whitestone Elementary, an underserved campus located north of the Sanctuary, for its spring and fall sessions. For six consecutive weeks approximately 20 fifth grade students spent two hours per session hiking the Sanctuary, learning about central Texas flora, fauna, and habitats. The program was developed with support from Linda Lippe, the Leander Independent School District (LISD) elementary science curriculum coordinator, and

Charlie Ciernia, an educator at Deer Creek Elementary, to emphasize grade-appropriate science concepts as outlined in the Texas Essentials Skills and Knowledge.

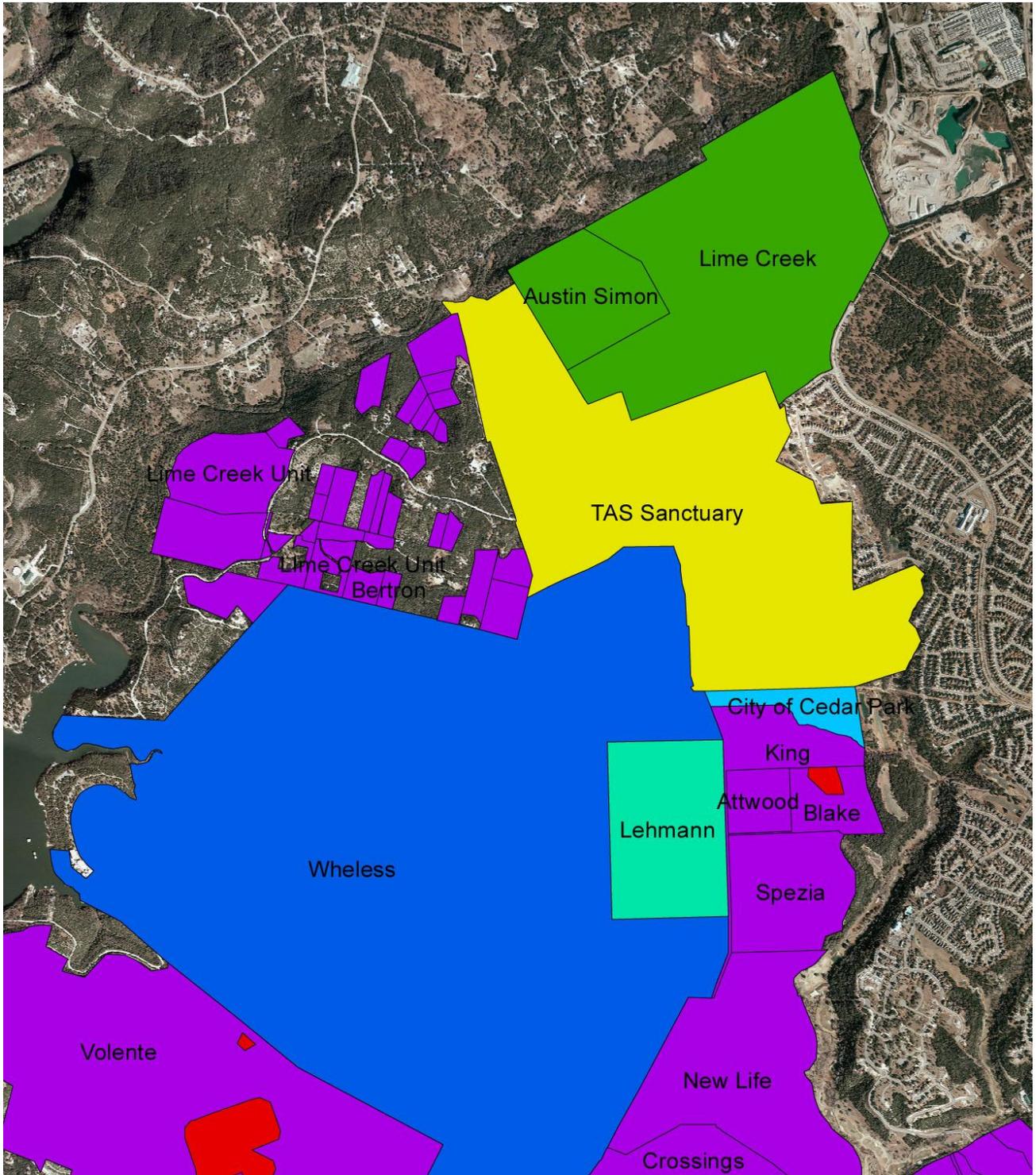
Other activities to enhance community involvement and knowledge of Baker Sanctuary and the BCP mission included Baker Open House, a guided hike for LISD educators, 13 guided hikes for various community groups, three LISD golden-cheeked warbler presentations to a total of 360 fifth grade students, and one community-centered birding presentation.

### **Literature Cited**

Hutto, R.L., Pletschet, S.M., and Hendricks, P. 1986. A fixed-radius point count for nonbreeding and breeding season use. *Auk* 103: 593-602.

# Appendix A

## Map of Baker Sanctuary and BCP partner properties



**Appendix B**

**RESULTS OF THE GOLDEN-CHEEKED WARBLER SURVEY  
FOR THE BAKER SANCTUARY 100-ACRE PLOT  
SPRING 2013  
TRAVIS COUNTY, TEXAS**

Prepared for:

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October 2013

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**Results of the Golden-cheeked Warbler Survey  
for the Baker Sanctuary 100-acre Plot  
Spring 2013**

This season, the annual 100-acre survey saw its third year of participation with the City of Austin as a partner in a five year study to determine Golden-cheeked Warbler (*Setophaga chrysoparia*) population viability and habitat suitability in the Balcones Canyonlands Preserve (BCP). In accordance with the protocol adopted by BCP partners at the beginning of the viability and habitat suitability study in 2011, small crews continued to mist net and band males in addition to spot-mapping territories and searching for and monitoring nests. Captured birds were again aged into one of two categories based on plumage characteristics, second year (SY) or after second year (ASY). Second year birds fledged the previous breeding season whereas ASY birds are on their third season, at the least. While not specifically targeted, if females or juvenile Golden-cheeked Warblers (GCWA) were netted they were also banded. During the 2013 season, three males were captured and banded for a three season total of 26 banded individuals (**Table 1**).

Similar to the 2012 season, during the 2013 survey City of Austin wildlife biologist Cindy Sperry and I split survey duties, allowing us to more accurately document territories and locate nests as well as to determine breeding productivity. To accommodate two observers, each week the plot was split in half with each observer responsible for their assigned section. The assigned section was rotated every week, effectively allowing each observer to survey the entire plot throughout the course of a month. For example, if the first week I surveyed the northern section, Cindy would cover the southern section. The following week I would survey the eastern section and Cindy the western, and so on, rotating through the plot in a clockwise fashion. When splitting the plot in half, no hard line was set as a boundary, rather each observer estimated where the halfway mark was located and used discretion if a GCWA needed to be pursued over the imaginary division. By splitting coverage in this fashion, observer bias should be lessened and a more accurate picture of territory distribution realized. In addition to covering the traditional 100-acres, the 100 meter buffer zone surrounding the plot was again routinely searched in an effort to detect additional banded males.

Beginning on March 15<sup>th</sup> and continuing through May 24<sup>th</sup>, one half of the study plot was formally surveyed by Murray and the other half by Sperry each week with additional visits by Sperry to specifically search for and monitor nests and fledglings, of which the final visit was on June 12. In total, 234 hours were invested in monitoring the Baker 100-acre plot for the 2013 season, a 29% decrease from the 326.5 survey hours logged last year but still well above the 60 hours spent surveying annually prior to the population viability study. All surveys were conducted following the protocol outlined in the BCP Land Manager's Handbook. Locations of individual Golden-cheeked Warblers were mapped by hand in the field and GPS coordinates obtained for all detections. Due to the presence of color banded individuals, visual confirmation of GCWAs was attempted whenever possible. Movements, counter-singing by males, and color bands were

documented and used to distinguish individuals and identify territory boundaries. All survey observations were compiled and analyzed to obtain an estimate of established male territories within the plot as well as the buffer zone.

In an effort to consistently analyze the number of territories present in the 100-acre plot regardless of plot, year, or observer, the BCP partners have adopted a method to enumerate territories that we used last season and again for the 2013 survey. Males found displaying territorial behavior (e.g. singing, carrying food, feeding fledglings) on at least 3 survey dates at least a week apart are considered to have established territories. To be classified as holding an ‘edge’ territory, a GCWA male must have been observed displaying territorial behavior on at least two surveys both inside and outside the plot. Otherwise, the territory will be designated as ‘full’ or ‘out’ depending on where the majority of the observations occur. Full territories are enumerated as 1.0, edge territories as 0.5, and out territories as zero. Based on compiled observations, including patterns of movement, re-sighting of color banded individuals, counter-singing, and the presence of females and fledglings, it is estimated that six Golden-cheeked Warbler males established territories primarily within plot boundaries (full), eight males occupied territories partially within the plot (edge), and one male held a territory directly adjacent to the plot (out) yielding an adjusted total of 10 territories for the 100-acre plot area (**Table 2**). While the presence of color banded GCWAs has eliminated some of the guesswork involved with attributing territories to males, some individuals remain unbanded. In the instances where males were not banded, territories were estimated in a conservative fashion to avoid overstating the number of territories associated with the plot.

Pairing success for 2013 was similar to that of the prior season with all but one territory-holding male being observed with a female; 17 fledglings were detected throughout the breeding season (**Table 4**). Prior to 2011 and the launch of the viability and habitat suitability project, surveyors documented females and fledglings, but the focus was on determining the density and distribution of territorial males. With the addition of the banding program, more personnel, and a substantial increase in the time spent in the field, a more accurate picture of fecundity has begun to emerge along with valuable data illuminating nest site preferences. For the five nests discovered during the 2013 survey, average nest tree height was 8.4 meters, average nest tree diameter at breast height was 14.3 cm, and average nest height was 7.8 meters. Three nests were placed in Ashe Juniper (*Juniperus ashei*), one in a Cedar Elm (*Ulmus crassifolia*), and one in a Shin Oak (*Quercus sinuata*) (**Table 3**).

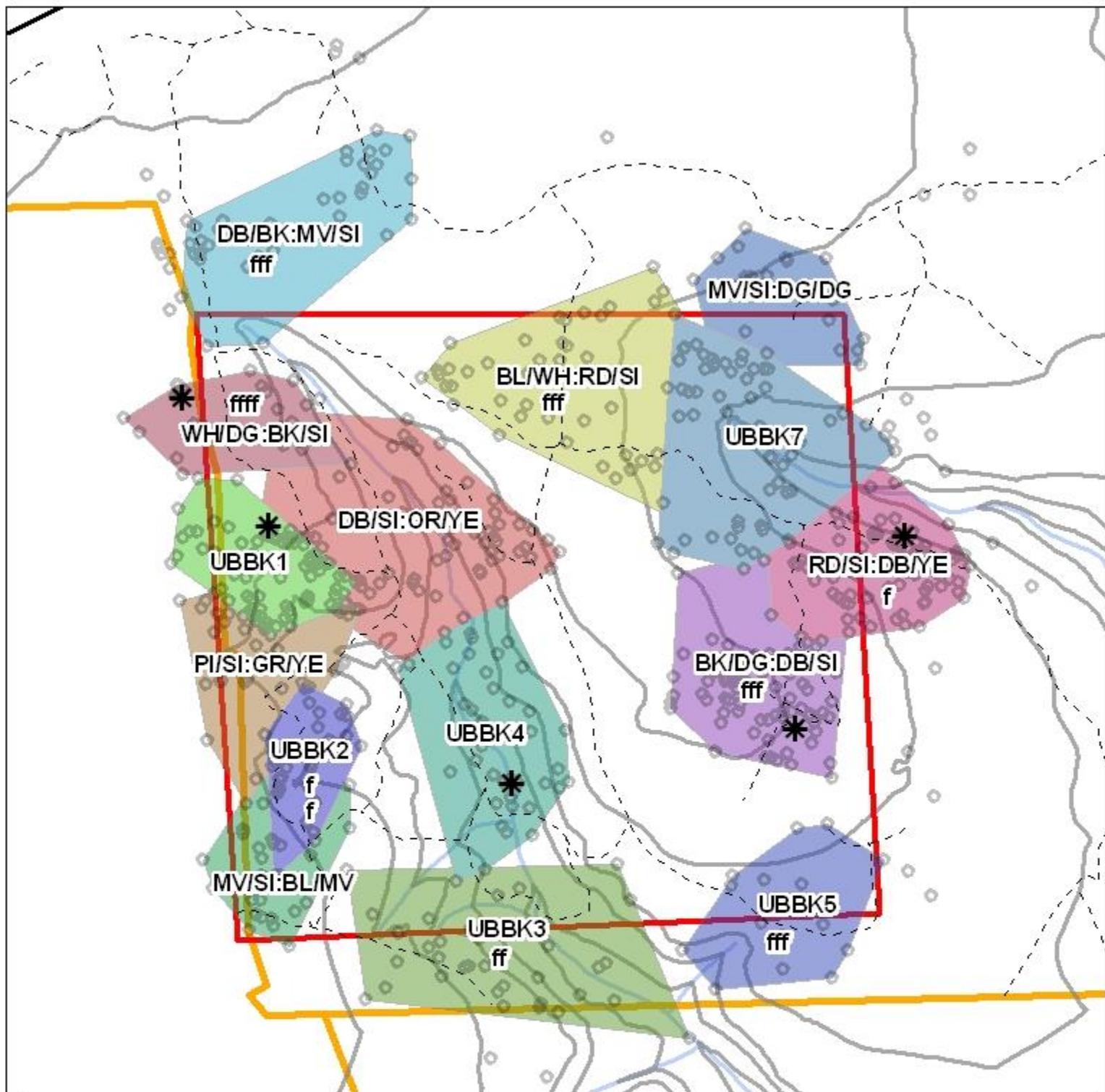
The 2013 season yielded an adjusted total of ten territories present in and around the 100-acre plot. This total has been relatively consistent since the 2010 survey (**Table 4**), a pattern that is beginning to suggest that ten territories may be the norm for this 100-acre patch of habitat. With a total of 17 fledglings observed in either edge or full territories this season compared to the 38 recorded during the 2012 survey, it would seem that fecundity was depressed. While nest searching efforts were not as successful as the prior season, a 38% discovery rate versus 100% for 2012, it is unlikely a substantial number of fledglings evaded detection by both observers. The decrease in fecundity was most likely due to the on-going tree mortality, a result of the severe drought Texas has been

experiencing the last few years. Many trees that managed to survive the 2011 and 2012 summers have continued to decline or have fallen victim, due to their stressed condition, to insect damage and fungal pathogens. However, it is interesting to note that even though fecundity was depressed compared to the 2012 season, which may have been an exceptionally productive year due to timely rains and the resultant increase in the insect population, the number of observed fledglings in 2013 was very similar to the 2006 – 2008 seasons.

The map on page four displays locations of all Golden-cheeked Warbler observations and estimated territory boundaries for 2013. Polygons surrounding the observations represent approximate boundaries of male territories, with each territory identified by color band combinations or an unbanded designation. The number of fledglings (**f**) detected and nest locations (black asterisk) are also indicated within each territory. The only known territory to produce two broods this season belonged to UBBK2 with one fledgling detected for each breeding attempt. In addition to clarifying territory and fecundity data, the presence of color-banded individuals also allows recognition of males returning to the plot from previous seasons. The 2013 survey saw four banded individuals (PI/SI:GR/YE, WH/DG:BK/SI, BK/DG:DB/SI, BL/WH:RD/SI) return to the 100-acre plot area from the 2012 season as well as two individuals banded during the 2011 season (RD/SI:DB/YE, DB/BK:MV/SI).

**Table 5** lists the 51 bird species detected in or near the 100-acre plot during the 2013 surveys. In addition to Golden-cheeked Warblers, species detected on most surveys included Turkey Vulture, Mourning Dove, Ladder-backed Woodpecker, Western Scrub-jay, Carolina Chickadee, Black-crested Titmouse, Bewick's Wren, Blue-gray Gnatcatcher, Black-and-white Warbler, and Northern Cardinal. Passing migrants included Nashville Warbler, Blackburnian Warbler, and American Redstart. Commonly seen birds presumed to be nesting in or near the plot included Painted Bunting, Yellow-billed Cuckoo, Summer Tanager, Northern Mockingbird, White-eyed Vireo, and White-winged Dove. Brown-headed Cowbirds were detected twice during the surveys.

Other vertebrates detected during the survey include Whitetail Deer (*Odocoileus virginianus*), Eastern Fox Squirrel (*Sciurus niger*), and Gray Fox (*Urocyon cinereoargenteus*).



## Baker Sanctuary

### Golden-cheeked Warbler 100-acre Plot 2013

- GCWA male observation
- f GCWA fledgling observed in territory
- \* GCWA nest

- GCWA territory
- 100-acre plot boundary
- Baker Sanctuary boundary



Surveyors: Christopher Murray and Cindy Sperry

0 125 250 500  
Feet

**Table 1.** GCWA individuals banded during the 2011- 2013 Baker Sanctuary 100-acre surveys.

<b>Date Banded</b>	<b>Combo</b>	<b>UTM-easting</b>	<b>UTM-northing</b>	<b>Sex</b>	<b>Age</b>
3/21/2011	MV/SI:NB/YE	608592	3372177	M	SY
3/21/2011	MV/BL:PI/SI	608562	3372050	M	ASY
3/21/2011	OR/OR:DG/SI	608782	3372118	M	SY
3/21/2011	BK/YE:DG/SI	608662	3371918	M	SY
3/21/2011	YE/DG:DB/SI	609077	3372089	M	ASY
3/21/2011	DB/BK:MV/SI	608949	3372688	M	ASY
3/21/2011	RD/SI:BK/DG	608949	3372688	F	ASY
3/30/2011	NB/SI:PI/MV	609134	3372328	M	ASY
4/27/2011	WH/SI:OR/BL	608699	3372373	M	SY
5/9/2011	NB/MV:GR/SI	608606	3372329	M	SY
5/9/2011	WH/BK:WH/SI	608582	3372040	M	SY
5/9/2011	OR/SI:MV/DG	608582	3372040	F	ASY
5/9/2011	RD/SI:DB/YE	608842	3371939	M	ASY
3/14/2012	BL/DB:RD/SI	608600	3372362	M	ASY
3/14/2012	BK/SI:OR/PI	608549	3372107	M	ASY
3/14/2012	BL/WH:RD/SI	609212	3372594	M	SY
3/23/2012	BK/DG:DB/SI	609128	3372113	M	SY
3/23/2012	WH/SI:DG/YE	609044	3372468	M	SY
3/23/2012	RD/SI:BL/PI	608907	3372627	F	ASY
3/30/2012	WH/DG:BK/SI	608541	3372481	M	SY
4/7/2012	OR/SI:WH/RD	608907	337056	M	SY
4/7/2012	PI/SI:GR/YE	608535	3372162	M	SY
4/11/2012	PI/SI:NB/DG	608774	3372341	M	ASY
3/14/2013	MV/SI:BL/MV	608522	3371966	M	SY
3/14/2013	DB/SI:OR/YE	608708	3372450	M	ASY
4/20/2013	MV/SI:DG/DG	609055	3372590	M	SY

**Table 2.** Designation of Golden-cheeked Warbler territory status and number of females and fledglings detected per territory for the 2013 Baker Sanctuary 100-acre survey.

<b>GCWA Designation</b>	<b>Territory Status</b>	<b>Female Detected</b>	<b>Number of Fledglings Detected</b>
<b>DB/SI:OR/YE</b>	<b>Full</b>	<b>Yes</b>	<b>0</b>
<b>MV/SI:BL/MV</b>	<b>Edge</b>	<b>Yes</b>	<b>0</b>
<b>PI/SI:GR/YE</b>	<b>Edge</b>	<b>No</b>	<b>0</b>
<b>WH/DG:BK/SI</b>	<b>Out</b>	<b>Yes</b>	<b>4</b>
<b>BK/DG:DB/SI</b>	<b>Full</b>	<b>Yes</b>	<b>3</b>
<b>BL/WH:RD/SI</b>	<b>Full</b>	<b>Yes</b>	<b>3</b>
<b>RD/SI:DB/YE</b>	<b>Edge</b>	<b>Yes</b>	<b>1</b>
<b>DB/BK:MV/SI</b>	<b>Edge</b>	<b>Yes</b>	<b>3</b>
<b>MV/SI:DG/DG</b>	<b>Edge</b>	<b>Yes</b>	<b>0</b>
<b>UBBK1</b>	<b>Edge</b>	<b>Yes</b>	<b>0</b>
<b>UBBK2</b>	<b>Full</b>	<b>Yes</b>	<b>2*</b>
<b>UBBK3</b>	<b>Edge</b>	<b>Yes</b>	<b>2</b>
<b>UBBK4</b>	<b>Full</b>	<b>Yes</b>	<b>0</b>
<b>UBBK5</b>	<b>Edge</b>	<b>Yes</b>	<b>3</b>
<b>UBBK7</b>	<b>Full</b>	<b>Yes</b>	<b>0</b>

\* Total fledglings produced in two broods.

**Table 3.** Nest tree data for Golden-cheeked Warbler nests discovered during the Baker Sanctuary 100-acre survey, 2013.

<b>Nest ID</b>	<b>Nest Tree Height (m)</b>	<b>Nest Height (m)</b>	<b>Nest Tree DBH (cm)</b>	<b>Nest Tree Species</b>
<b>01CM13</b>	<b>10</b>	<b>9.7</b>	<b>9.3</b>	<b>Ashe Juniper</b>
<b>06CS13</b>	<b>5.8</b>	<b>5.6</b>	<b>9.4</b>	<b>Shin Oak</b>
<b>03CS13</b>	<b>11.4</b>	<b>10.4</b>	<b>25</b>	<b>Ashe Juniper</b>
<b>07CS13</b>	<b>8.2</b>	<b>7.7</b>	<b>15</b>	<b>Ashe Juniper</b>
<b>05CS13</b>	<b>6.8</b>	<b>5.5</b>	<b>13</b>	<b>Cedar Elm</b>

**Table 4.** Adjusted total of Golden-cheeked Warbler territories, females and fledglings detected during Baker Sanctuary 100-acre plot surveys, 2006 - 2013.

Survey Date	Territories (full/edge)	Females	Fledglings
2006	24 (22/4)	18	17
2007	23.5 (20/7)	8	17
2008	17.5 (14/7)	10	16
2009	16 (14/4)	6	7
2010	10 (9/2)	6	11
2011	10.5 (6/9)	9	21
2012	10 (8/4)	12	38
2013	10 (6/8)	13	17

**Table 5.** Bird species detected in the Baker Sanctuary 100-acre plot during the 2013 Golden-cheeked Warbler surveys.

SPECIES	WEEKS COUNTED														Weeks Detected
	3/10	3/17	3/24	3/31	4/7	4/14	4/21	4/28	5/5	5/12	5/19	5/26	6/2	6/9	
Northern Bobwhite										X	X			X	3
Turkey Vulture	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Sharp-shinned Hawk								X							1
Cooper's Hawk														X	1
Red-shouldered Hawk				X				X							2
Wild Turkey	X	X	X	X						X					5
White-winged Dove	X	X	X	X		X	X	X			X	X	X		10
Mourning Dove	X	X	X	X	X	X		X	X	X	X	X	X	X	13
Yellow-billed Cuckoo							X	X		X	X	X	X	X	7

SPECIES	WEEKS COUNTED														Weeks Detected
	3/10	3/17	3/24	3/31	4/7	4/14	4/21	4/28	5/5	5/12	5/19	5/26	6/2	6/9	
Greater Roadrunner		X	X	X											3
Eastern Screech Owl				X											1
Great Horned Owl													X		1
Common Nighthawk											X				1
Chuck-will's-widow														X	1
Chimney Swift		X					X		X	X	X	X	X		7
Black-chinned Hummingbird				X	X	X		X	X			X	X	X	8
Red-bellied Woodpecker		X				X									2
Ladder-backed Woodpecker	X	X	X	X	X	X		X			X			X	9
Least Flycatcher									X						1
Eastern Phoebe	X	X			X	X									4
Ash-throated Flycatcher		X	X	X		X						X			5
Great Crested Flycatcher												X	X		2
White-eyed Vireo		X	X	X				X			X		X	X	7
Hutton's Vireo					X	X									2
Blue-headed Vireo							X								1
Red-eyed Vireo								X	X		X	X	X	X	6
Blue Jay					X										1
Western Scrub-Jay			X	X	X	X	X	X	X	X	X	X	X	X	12
American Crow			X												1
Purple Martin					X		X		X		X				4
Barn Swallow					X				X		X	X		X	5
Carolina Chickadee	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Black-crested Titmouse	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14

SPECIES	WEEKS COUNTED														Weeks Detected
	3/10	3/17	3/24	3/31	4/7	4/14	4/21	4/28	5/5	5/12	5/19	5/26	6/2	6/9	
White-breasted Nuthatch					X										1
Carolina Wren	X	X	X	X	X	X		X	X	X	X	X	X	X	13
Bewick's Wren	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Blue-gray Gnatcatcher	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Golden-crowned Kinglet		X													1
Ruby-crowned Kinglet	X	X	X	X	X	X	X	X							8
Hermit Thrush				X			X								2
Cedar Waxwing		X													1
Northern Mockingbird		X	X	X	X				X				X	X	7
Louisiana Waterthrush												X			1
Orange-crowned Warbler		X		X	X	X		X							5
Nashville Warbler	X		X	X	X	X	X	X	X						8
Yellow Warbler										X	X				2
Chestnut-sided Warbler									X						1
Northern Parula					X										1
Magnolia Warbler				X											1
Yellow-rumped Warbler (Myrtle)		X													1
Golden-cheeked Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Black-throated Green Warbler						X									1
Canada Warbler											X				1
Blackburnian Warbler				X					X						2

SPECIES	WEEKS COUNTED														Weeks Detected
	3/10	3/17	3/24	3/31	4/7	4/14	4/21	4/28	5/5	5/12	5/19	5/26	6/2	6/9	
Black-and-white Warbler	X	X	X	X	X	X	X	X	X	X	X	X			12
American Redstart										X					1
Field Sparrow			X								X			X	3
Summer Tanager					X			X		X	X	X	X		6
Northern Cardinal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Dickcissel					X		X			X					3
Painted Bunting								X	X	X	X	X	X	X	7
Eastern Meadowlark			X												1
Grackle species					X									X	2
Brown-headed Cowbird	X			X											2
House Finch		X	X		X									X	4
Lesser Goldfinch	X	X	X		X	X		X	X	X	X	X	X	X	12
<b>TOTAL SPECIES</b>	18	27	24	28	29	23	18	25	23	21	27	23	22	25	67

**Acknowledgements:** Once again, special thanks to Cindy Sperry for helping to collect data, verify data, and assisting in creating the final 2013 GCWA survey map. Cindy was always available to answer questions and her expertise and professionalism was a great help in the completion of this report.

## Appendix C

### Baker Sanctuary Vertebrates List

Species	Scientific Name
<b>Class AMPHIBIA: Amphibians</b>	
Jollyville Plateau Salamander	<i>Eurecea tonkawae</i>
<b>Family Hylidae: Treefrogs and Allies</b>	
Strecker's Chorus Frog	<i>Pseudacris streckeri streckeri</i>
<b>Family Bufonidae: Toads</b>	
Gulf Coast Toad	<i>Bufo valliceps valliceps</i>
<b>Class REPTILIA: Reptiles</b>	
<b>Family Emydidae: Box and Water Turtles</b>	
Three-toed Box Turtle	<i>Terrapene carolina triunguis</i>
<b>Family Gekkonidae: Geckos</b>	
Mediterranean Gecko	<i>Hemidactylus turcicus</i>
<b>Family Phrynosomatidae: Earless, Spiny, Tree, Side-blotched and Horned Lizards</b>	
Texas Spiny Lizard	<i>Sceloporus olivaceus</i>
<b>Family Teiidae: Whiptails</b>	
Six-lined Racerunner	<i>Cnemidophorus sexlineatus sexlineatus</i>
<b>Family Anguidae: Glass and Alligator Lizards</b>	
Texas Alligator Lizard	<i>Gerrhonotus liocephalus infernales</i>
<b>Family Colubridae: Colubrids</b>	
Eastern Yellowbelly Racer	<i>Coluber constrictor flaviventris</i>
Rough Green Snake	<i>Opheodrys aestivus</i>
Texas Patchnose Snake	<i>Salvadora grahamiae lineata</i>
Eastern Blackneck Garter Snake	<i>Thamnophis cyrtopsis ocellatus</i>
<b>Family Elaphidae: Coral Snakes</b>	
Texas Coral Snake	<i>Micrurus fulvius tener</i>
<b>Family Viperidae: Vipers</b>	
Broad-banded Copperhead	<i>Agkistrodon contortrix laticinctus</i>
Western Diamondback Rattlesnake	<i>Crotalus atrox</i>
<b>Class AVES: Birds</b>	
<b>Family Pelecanidae: Pelicans</b>	
American White Pelican	<i>Pelecanus erythrorhynchos</i>
<b>Family Phalacrocoracidae: True Cormorants</b>	
Double-crested Cormorant	<i>Phalacrocorax auritus</i>

<b>Family Ardeidae: Bitterns, Herons and Egrets</b>	
Great Blue Heron	<i>Ardea herodias</i>
Green Heron	<i>Butorides striatus</i>
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>
<b>Family Cathartidae: New World Vultures</b>	
Black Vulture	<i>Coragyps atratus</i>
Turkey Vulture	<i>Cathartes aura</i>
<b>Family Anatidae: Swans, Geese, and Ducks</b>	
American Wigeon	<i>Anas americana</i>
Mallard	<i>Anas platyrhynchos</i>
<b>Family Accipitridae: Diurnal Raptors</b>	
Osprey	<i>Pandion haliaetus</i>
Mississippi Kite	<i>Ictinia mississippiensis</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Swainson's Hawk	<i>Buteo swainsoni</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
<b>Family Falconidae: True Falcons and Caracara</b>	
Crested Caracara	<i>Polyborus plancus</i>
*American Kestrel	<i>Falco sparverius</i>
<b>Family Phasianidae: Upland Game Birds</b>	
Wild Turkey	<i>Meleagris gallopavo</i>
<b>Family Odontophoridae: Quail</b>	
Northern Bobwhite	<i>Colinus virginianus</i>
<b>Family Gruidae: Cranes</b>	
Sandhill Crane	<i>Grus canadensis</i>
<b>Family Charadriidae: Plovers</b>	
Killdeer	<i>Charadrius vociferus</i>
<b>Family Scolopacidae: Shorebirds</b>	
Upland Sandpiper	<i>Bartramia longicauda</i>
<b>Family Laridae: Gulls, Terns, and Skimmers</b>	
Ring-billed Gull	<i>Larus delawarensis</i>
<b>Family Columbidae: Pigeons and Doves</b>	
Rock Dove	<i>Columba livia</i>
White-winged Dove	<i>Zenaida asiatica</i>
Mourning Dove	<i>Zenaida macroura</i>

Eurasian Collared-dove	<i>Zenaida chinensis</i>
Inca Dove	<i>Columbina inca</i>
<b>Family Cuculidae: Cuckoos and Their Allies</b>	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
Greater Roadrunner	<i>Geococcyx californianus</i>
<b>Family Tytonidae: Barn Owls</b>	
Barn Owl	<i>Tyto alba</i>
<b>Family Strigidae: Owls</b>	
Eastern Screech-Owl	<i>Otus asio</i>
Great Horned Owl	<i>Bubo virginianus</i>
<b>Family Caprimulgidae: Goatsuckers</b>	
Common Nighthawk	<i>Chordeiles minor</i>
Common Poorwill	<i>Phalaenoptilus nuttallii</i>
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>
<b>Family Apodidae: Swifts</b>	
Chimney Swift	<i>Chaetura pelagica</i>
<b>Family Trochilidae: Hummingbirds</b>	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>
<b>Family Alcedinidae: Kingfishers</b>	
Belted Kingfisher	<i>Ceryle alcyon</i>
<b>Family Picidae: Woodpeckers</b>	
Golden-fronted Woodpecker	<i>Melanerpes aurifrons</i>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>
Ladder-backed Woodpecker	<i>Picoides nuttallii</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Northern Flicker	<i>Colaptes auratus</i>
<b>Family Tyrannidae: Tyrant flycatchers</b>	
Eastern Wood-Pewee	<i>Contopus virens</i>
Least Flycatcher	<i>Empidonax minimus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Great Crested Flycatcher	<i>Myarchus crinitus</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>
<b>Family Laniidae: Shrikes</b>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>
<b>Family Vireonidae: Vireos</b>	
White-eyed Vireo	<i>Vireo griseus</i>
Blue-headed Vireo	<i>Vireo solitarius</i>

Hutton's Vireo	<i>Vireo huttoni</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
<b>Family Corvidae: Jays, Crows, and Their Allies</b>	
Blue Jay	<i>Cyanocitta cristata</i>
Western Scrub Jay	<i>Aphelocoma californica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
<b>Family Hirundinidae: Swallows</b>	
Purple Martin	<i>Progne subis</i>
Cliff Swallow	<i>Hirundo fulva</i>
Barn Swallow	<i>Hirundo rustica</i>
<b>Family Paridae: Titmice and Chickadees</b>	
Carolina Chickadee	<i>Poecile carolinensis</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
Black-crested Titmouse	<i>Baeolophus atricristatus</i>
<b>Family Aegithalidae: Bushtit</b>	
Bushtit	<i>Psaltriparus minimus</i>
<b>Family Sittidae: Nuthatches</b>	
Red-breasted Nuthatch	<i>Sitta canadensis</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
<b>Family Certhiidae: Creepers</b>	
Brown Creeper	<i>Certhia americana</i>
<b>Family Troglodytidae: Wrens</b>	
Canyon Wren	<i>Catherpes mexicanus</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
House Wren	<i>Troglodytes aedon</i>
<b>Family Regulidae: Kinglets</b>	
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
<b>Family Sylviidae: Old World Warblers and Gnatcatchers</b>	
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
<b>Family Turtidae: Thrushes</b>	
Eastern Bluebird	<i>Sialia sialis</i>
Hermit Thrush	<i>Catharus guttatus</i>
American Robin	<i>Turdus migratorius</i>
<b>Family Mimidae: Mimids</b>	
Gray Catbird	<i>Dumetella carolinensis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
<b>Family Sturnidae: Starlings</b>	
European Starling	<i>Sturnus vulgaris</i>

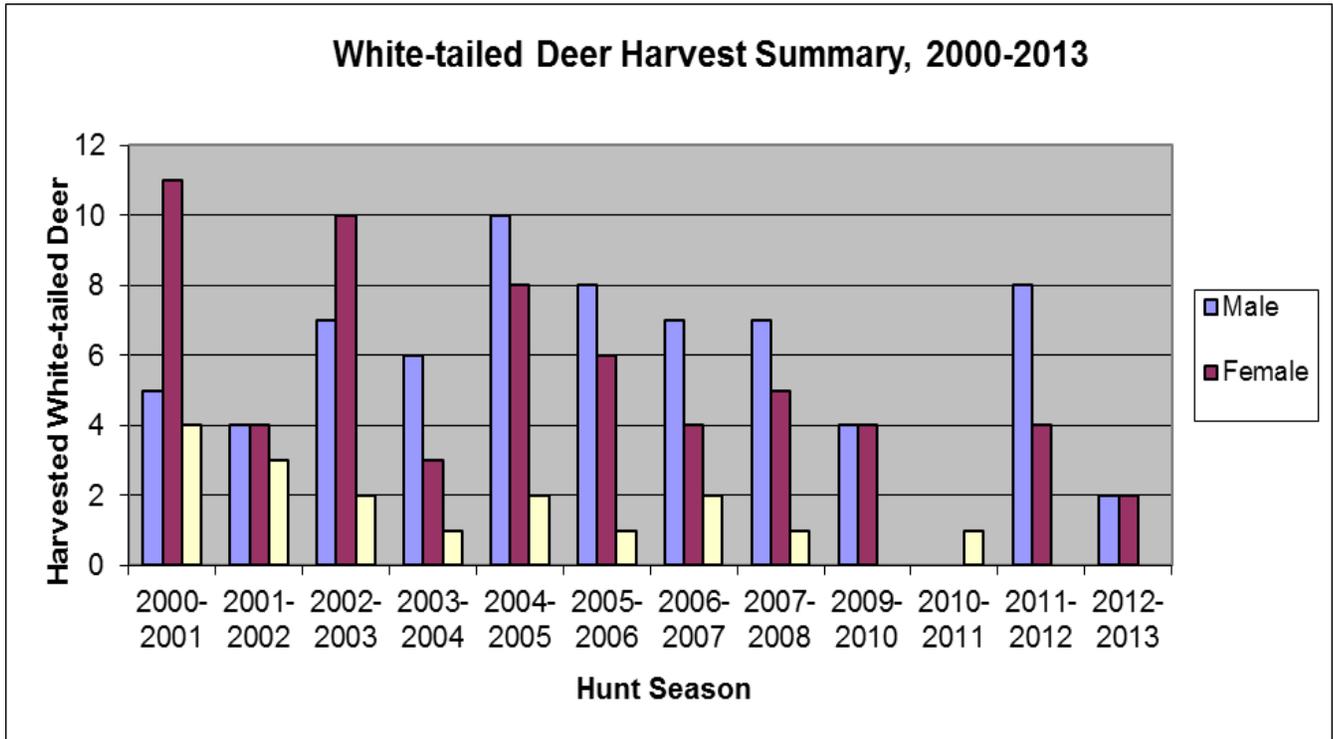
<b>Family Bombycillidae: Waxwings</b>	
Cedar Waxwing	<i>Bombycilla cedrorum</i>
<b>Family Parulidae: Wood-warblers</b>	
Tennessee Warbler	<i>Vermivora peregrina</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Nashville Warbler	<i>Vermivora ruficapilla</i>
Yellow Warbler	<i>Dendroica petechia</i>
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
Magnolia Warbler	<i>Dendroica magnolia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>
Black-throated Green Warbler	<i>Dendroica virens</i>
Pine Warbler	<i>Dendroica pinus</i>
Black-and-white Warbler	<i>Mniotilta varia</i>
Blackburnian Warbler	<i>Dendroica fusca</i>
American Redstart	<i>Setophaga ruticilla</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Canada Warbler	<i>Wilsonia canadensis</i>
Yellow breasted Chat	<i>Icteria virens</i>
<b>Family Thraupidae: Tanagers</b>	
Summer Tanager	<i>Piranga rubra</i>
<b>Family Emberizidae: Emberizine Sparrows and Their Allies</b>	
Green-tailed Towhee	<i>Pipilo chlorurus</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>
Chipping Sparrow	<i>Spizella passerina</i>
Field Sparrow	<i>Spizella pusilla</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Fox Sparrow	<i>Passerella iliaca</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
<b>Family Cardinalidae: Cardinals and Their Allies</b>	
Northern Cardinal	<i>Cardinalis cardinalis</i>
Pyrrhuloxia	<i>Cardinalis sinuatus</i>
Blue Grosbeak	<i>Guiraca caerulea</i>
Lazuli Bunting	<i>Passerina amoena</i>
Indigo Bunting	<i>Passerina cyanea</i>
Painted Bunting	<i>Passerina ciris</i>
Dickcissel	<i>Spiza americana</i>

<b>Family Icteridae: Icterids</b>	
Red-winged Blackbird	<i>Aeglais phoeniceus</i>
Eastern Meadowlark	<i>Sturnella magna</i>
Common Grackle	<i>Quiscalus quiscula</i>
Great-tailed Grackle	<i>Quiscalus mexicanus</i>
Bronzed Cowbird	<i>Molothrus aenus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Orchard Oriole	<i>Icterus spurius</i>
Baltimore Oriole	<i>Icterus galbula</i>
<b>Family Fringillidae: Finches</b>	
<b>Purple Finch</b>	<i>Carpodactus purpureus</i>
House Finch	<i>Carpodacus mexicanus</i>
Pine Siskin	<i>Carduelis pinus</i>
Lesser Goldfinch	<i>Carduelis psaltria</i>
American Goldfinch	<i>Carduelis tristis</i>
<b>Family Passeridae: Old World Sparrows</b>	
House Sparrow	<i>Passer domesticus</i>
<b>Class MAMMALIA: Mammals</b>	
<b>Family Didelphidae: Opossums</b>	
Virginia Opossum	<i>Didelphis virginiana</i>
<b>Family Soricidae: Shrews</b>	
Least Shrew	<i>Cryptotis parva</i>
<b>Family Dasypodidae: Armadillos</b>	
Nine-banded Armadillo	<i>Dasypus novemcinctus</i>
<b>Family Leporidae: Hares and Rabbits</b>	
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Black-tailed Jackrabbit	<i>Lepus californicus</i>
<b>Family Sciuridae: Squirrels</b>	
Rock Squirrel	<i>Spermophilus variegatus</i>
Eastern Fox Squirrel	<i>Sciurus niger</i>
<b>Family Muridae: Mice, Rats and Voles</b>	
Hispid Cotton Rat	<i>Sigmodon hispidus</i>
House Mouse	<i>Mus musculus</i>
<b>Family Erethizontidae: New World Porcupines</b>	
Porcupine	<i>Erethizon dorsatum</i>
<b>Family Canidae: Canids</b>	
Feral Dog	<i>Canis familiaris</i>
Coyote	<i>Canis latrans</i>
Common Gray Fox	<i>Urocyon cinereoargenteus</i>

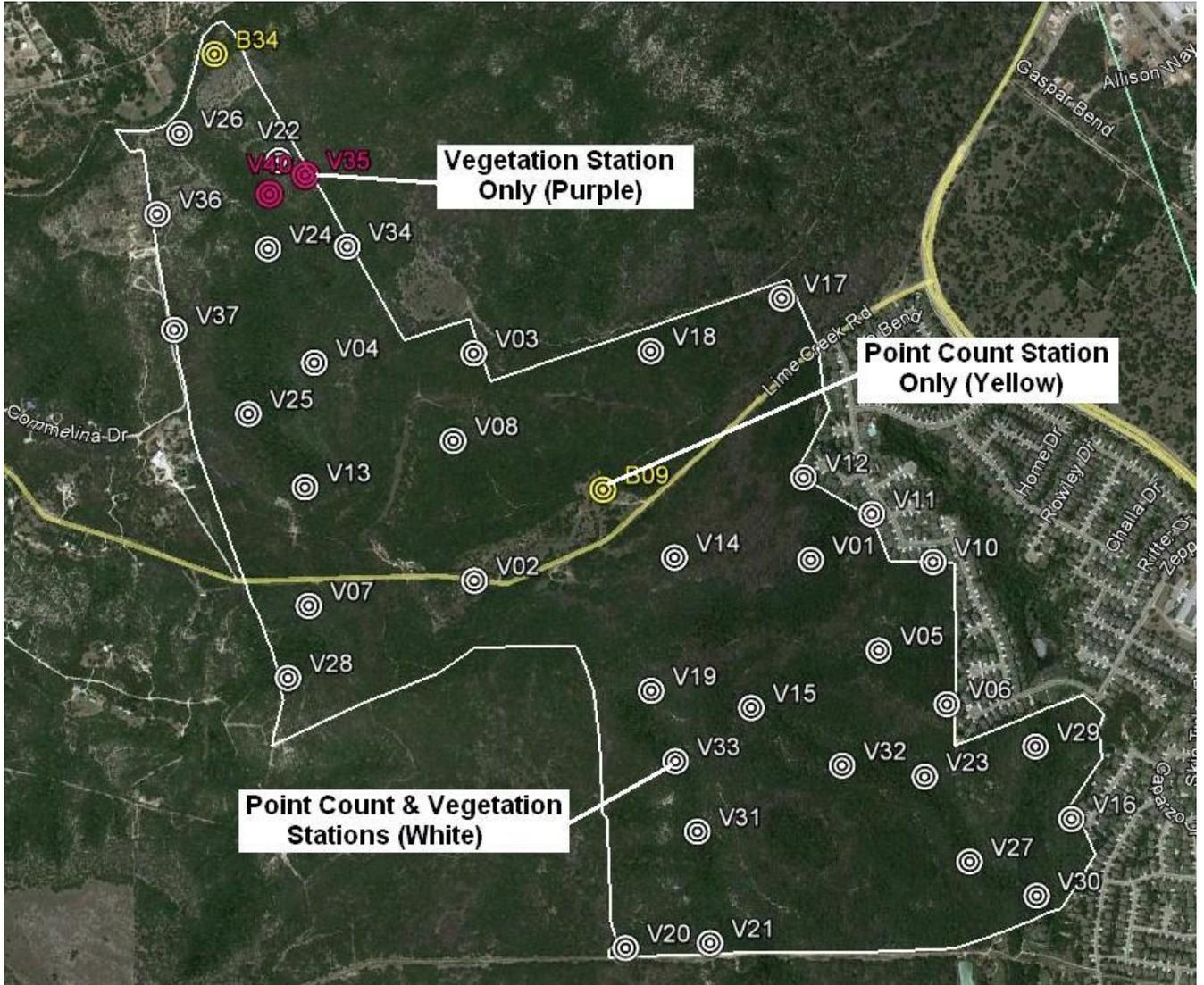
<b>Family Procyonidae: Procyonids</b>	
Ringtail	<i>Bassariscus astutus</i>
Common Raccoon	<i>Procyon lotor</i>
<b>Family Felidae: Cats</b>	
Feral Cat	<i>Felis catus</i>
Bobcat	<i>Felis rufus</i>
<b>Family Suidae: Pigs</b>	
Feral pig	<i>Sus scrofa</i>
<b>Family Cervidae: Cervids</b>	
Whitetail Deer	<i>Odocoileus virginianus</i>



**Figure 2.** Summary of whitetail deer harvest, 2000-2013. Juvenile deer are a year or less in age.



**Figure 3.** Avian point count stations at Baker Sanctuary.



**Figure 4.** Baker Sanctuary karst survey.



**Table 1.** Baker Sanctuary 2013 avian point count survey.

Common Name	Scientific Name	Number Observed	Mean <sup>1</sup>	Frequency (%) <sup>2</sup> (25 yd radius)	Frequency (%) <sup>3</sup> (unlimited radius)
Eastern Bluebird	<i>Sialia sialis</i>	0	0.00	0	3
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	2	0.05	5	8
Bewick's Wren	<i>Thryomanes bewickii</i>	9	0.24	22	51
Black-and-white Warbler	<i>Mniotilta varia</i>	1	0.03	3	5
Barn Swallow	<i>Hirundo rustica</i>	0	0.00	0	16
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	8	0.22	19	19
Black-crested Titmouse	<i>Baeolophus atricristatus</i>	9	0.24	19	89
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	1	0.03	3	5
Blue Jay	<i>Cyanocitta cristata</i>	0	0.00	0	8
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	17	0.46	43	65
Brown-headed Cowbird	<i>Molothrus ater</i>	0	0.00	0	3
Carolina Chickadee	<i>Poecile carolinensis</i>	16	0.43	35	65
Carolina Wren	<i>Thryothorus ludovicianus</i>	3	0.08	8	35
Chimney Swift	<i>Chaetura pelagica</i>	0	0.00	0	5
Common Grackle	<i>Quiscalus quiscula</i>	0	0.00	0	14
Common Ground-dove	<i>Columbina passerina</i>	0	0.00	0	3
Eastern Phoebe	<i>Sayornis phoebe</i>	0	0.00	0	3
Unknown spp		0	0.00	0	3
Field Sparrow	<i>Spizella pusilla</i>	0	0.00	0	11
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	12	0.32	27	49
Greater Roadrunner	<i>Geococcyx californianus</i>	0	0.00	0	5
House Finch	<i>Carpodacus mexicanus</i>	7	0.19	16	16
Indigo Bunting	<i>Passerina cyanea</i>	1	0.03	3	3
Ladder-backed Woodpecker	<i>Picoides scalaris</i>	1	0.03	3	14
Lesser Goldfinch	<i>Carduelis psaltria</i>	3	0.08	5	59
Mourning Dove	<i>Zenaida macroura</i>	4	0.11	5	70
Northern Bobwhite	<i>Colinus virginianus</i>	0	0.00	0	5
Northern Cardinal	<i>Cardinalis cardinalis</i>	12	0.32	27	92
Northern Mockingbird	<i>Mimus polyglottos</i>	2	0.05	5	32
Painted Bunting	<i>Passerina ciris</i>	8	0.22	22	51
Red-eyed Vireo	<i>Vireo olivaceus</i>	0	0.00	0	3
Red-shouldered Hawk	<i>Buteo lineatus</i>	1	0.03	3	5
Rock Dove	<i>Columba livia</i>	0	0.00	0	3
Summer Tanager	<i>Piranga rubra</i>	2	0.05	3	11
Turkey Vulture	<i>Cathartes aura</i>	0	0.00	0	16
Western Scrub-jay	<i>Aphelocoma californica</i>	1	0.03	3	19
White-eyed Vireo	<i>Vireo griseus</i>	3	0.08	8	16
White-winged Dove	<i>Zenaida asiatica</i>	0	0.00	0	16
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	4	0.11	11	54
Total		127			
Total Number of Points	37				

<sup>1</sup> Mean number of individuals observed within the survey radius of each point.

<sup>2</sup> Percentage of total points where species was observed within the survey radius.

<sup>3</sup> Percentage of total points where species was observed regardless of radius.