FINAL REPORT

SURVEYS OF LCRA LANDS AT WESTCAVE PRESERVE FOR THE ENDANGERED GOLDEN-CHEEKED WARBLER – 2009



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1.0 Introduction

Surveys were conducted to investigate the status of the golden-cheeked warbler (*Dendroica chrysoparia*, GCWA) on the Westcave Preserve during the breeding season. The purpose of this survey was to monitor the existing population and determine presence or absence on the newly acquired land adjacent to the preserve, as well as meet LCRAs obligations as a managing partner of the Balcones Canyonlands Conservation Plan (BCCP).

2.0 Background Information

Westcave Preserve is located in Travis County, Texas and is a 30-acre nature preserve owned by the Lower Colorado River Authority (LCRA) and jointly managed by LCRA and the Westcave Preserve Foundation. It is managed as a preserve for the federally and state listed endangered Golden-cheeked warbler, a songbird that nests exclusively in the Texas Hill Country, as well as a public education facility. The entire preserve provides nesting and foraging habitat for the GCWA and is managed as part of the BCCP.

Prior surveys at Westcave were conducted in 1994, 2000, 2001, 2002, 2003, 2004, 2005, and 2007. The habitat is listed as Zone 1 or prime BCCP habitat for the Golden-cheeked warbler and is an important contributing area of foraging, nesting and breeding habitat.

3.0 Golden-cheeked Warbler Information

The GCWA is a small songbird 4.5-5 inches long, with a wingspan of approximately 7.9 inches. The GCWA is an insectivorous bird and males are easily distinguished by their yellow cheeks with a black eye stripe, black cap, back and throat. Females are similar in appearance but not as brightly colored. Both sexes have bellies and flanks that are white with black streaks (USFWS 1992).

The GCWA is a neotropical migrant and winters in the pine-oak woodlands found in southern Mexico, Honduras, Nicaragua and Guatemala while nesting/breeding habitat is found exclusively in the oak-juniper woodlands of the Texas Hill Country. Its entire nesting/breeding range is confined to 33 counties within central Texas. Typical nesting habitat is found in tall, thick, mature stands of Ashe juniper (*Juniperus ashei*) mixed with deciduous trees such as Texas red oak (*Quercus buckleyi*), Lacey oak (*Quercus glaucoides*), white shin oak (*Quercus sinuata* var. *breviloba*), plateau live oak (*Quercus fusiformis*), post oak (*Quercus stellata*), Texas ash (*Fraxinus texensis*), cedar elm (*Ulmus crassifolia*), netleaf hackberry (*Celtis*

reticulata), bigtooth maple (*Acer grandidentatum*), American sycamore (*Platanus occidentalis*), Arizona walnut (*Juglans major*), escarpment cherry (*Prunus serotina*), and pecan (*Carya illinoinensis*). This type of woodland is often found in relatively moist areas such as steep-sided canyons and slopes. GCWAs are also occasionally found in drier, upland juniper-oak (live oak, post oak, blackjack oak (*Quercus marilandica*) woodlands over flat topography, rather than the typical canyons. Although the composition of woody vegetation may vary from place to place, Ashe juniper is a necessary component for nest construction and is always present.

The males arrive in early March in Texas, and begin to establish breeding territories. The GCWA males will defend against other males by singing from visible perches within their territories. The females arrive a few days later but are more difficult to detect in the dense woodland habitat. Usually three or four eggs are laid. The average nest height is 5 m (16.4 ft) above ground. Eggs are generally incubated in April and, unless there is a second nesting attempt, nestlings fledge in May to early June. By early August, GCWAs begin their migration south.

Most studies report GCWA territory sizes ranging from 0.09 to 0.21 pairs per acre (Ladd 1985). Wahl et al. (1990) reported that density estimates ranged from zero to 0.26 pairs per acre with a median of 0.06 pairs per acre among several sites throughout the GCWA's range. Pulich (1976) classified warbler habitat into excellent, average, and marginal corresponding to five, two, and one pair per 100 acres.

The primary threats to the GCWA are habitat loss and urban encroachment. Other factors include the loss of deciduous oaks (used for foraging) to oak wilt, nest parasitism by brown-headed cowbirds *(Molothrus ater)*, and predation and competition by blue jays (*Cyanocitta cristata*) and other urban-tolerant birds (USFWS 1992).

4.0 Methodology

Surveys were conducted beginning March 16 and completed April 23. Each study area was visited a minimum of five times with each visit to the property no fewer than five days apart. The surveys were performed by federally-permitted wildlife biologists by hiking slowly along roughly pre-determined routes, seeking potential habitat, and listening for GCWA vocalizations. At all locations where GCWAs were detected, notes were recorded including the following:

1. approximate distance from detection point to actual GCWA location (if the actual location couldn't be determined)
2. vocalization specifics
3. GCWA movement and behavior
4. other related information

Summaries of these field notes are included in the Survey Data Tables for the property and are located within the Results and Discussion section. Efforts were made to also make visual confirmation at each detection site. If utilized, photographs were taken primarily at detection locations to demonstrate habitat type and quality. Taped playback of GCWA vocalizations to determine presence or absence was not necessary because GCWA presence was readily established throughout the property. Field notes were taken during each site visit (see Appendix). A list of other bird species seen or heard while conducting GCWA surveys is located in Table 2.

5.0 Study Area

Westcave Preserve consists of a small box canyon adjacent to a surrounding plateau. The upper region is a typical Texas Hill Country habitat. It is composed primarily of juniper (*Juniperus ashei*, cedar), live oak (*Quercus fusiformis*), Texas oak (*Q. buckleyi*), shin oak (*Q. sinuate* var. *breviloba*) and cedar elm (*Ulmus crassifolia*). Inside the canyon many different plant species are found along the waterfall and creek. Large bald cypress (*Taxodium distichum*), pecan (*Carya illinoinensis*), Texas ash (*Fraxinus texensis*) black willow (*Salix negra*) and walnut (*Juglans microcarpa*) are examples of trees found within the preserve. Some plants inside the preserve are seldom seen in the hill country, such as chatterbox orchid (*Epipactis gigantia*), Carolina basswood (*Tilia Caroliniana,* linden) and chinquapin oak (*Q. muhlenbergii*).

The majority of the property (80%) can be considered prime or BCCP Zone 1 habitat for the GCWA with some of the remaining area as foraging habitat. Much of the upland property that was acquired in 2008 was historically thinned and is temporarily unsuitable for GCWA nesting requirements. However, regeneration and restoration of this area into contiguous nesting habitat is possible.

6.0 Results & Discussion

Surveys were conducted between March 16th and April 23rd. Since the property size was considerably smaller and since GCWA detections were readily heard, the survey routes were similar for all five surveys. The entire property was hiked with either the upper portion or the canyon area as the focus every other visit.

Six positive GCWA detections were determined after a results analysis (Figure 1). The largest concentration of birds occurred within the original preserve boundaries. Four males and two females were seen foraging in the portion of the preserve along the upper trail. Two other males were observed repeatedly using the other side of the canyon and part of the slope on the newly acquired property. One of these territories has been detected in previous surveys as a partial territory.

Since this property is such a smaller area of habitat and the multiple visits, it is reasonable to assume there are six GCWA territories that occur solely and partially on the preserve.

7.0 Recommendations

Since larger habitat areas are typically more productive than smaller areas, GCWA protection on adjacent properties would be beneficial to the conservation of this species. In addition, the property will benefit from the newly acquired land being utilized as a buffer for the prime habitat areas. This new acreage also has the potential to become supplementary habitat for the GCWA, if left to return to its natural state.

As a BCCP managing partner, LCRA is responsible for regularly surveying GCWAs on its preserves and it would be beneficial to continue monitoring the Westcave population, especially considering the newly acquired portion. At the same time, this population seems stable in comparing results from previous surveys.

8.0 Literature Cited

Ladd, C.G. 1985. Nesting habitat requirements of the golden-cheeked warbler. MS thesis. Southwest Texas State University, San Marcos, Texas. 65pp.

Pulich, W.M. 1976. The Golden-cheeked Warbler: A bioecological study, Texas Parks and Wildlife Department, Austin, Texas.

U.S. Fish and Wildlife Service (USFWS). 1992. Golden-cheeked Warbler (Dendroica chrysoparia) Recovery Plan. Albuquerque, New Mexico. 88pp.

Wahl, R., Diamond, D.D., and Duncan, C.D. 1990. The golden-cheeked warbler: a status review. United States Fish and Wildlife Service, Ecological Services, Fort Worth, Texas, USA.

APPENDIX A

MAPS

Figure 1. Locations of GCWAs by survey date.

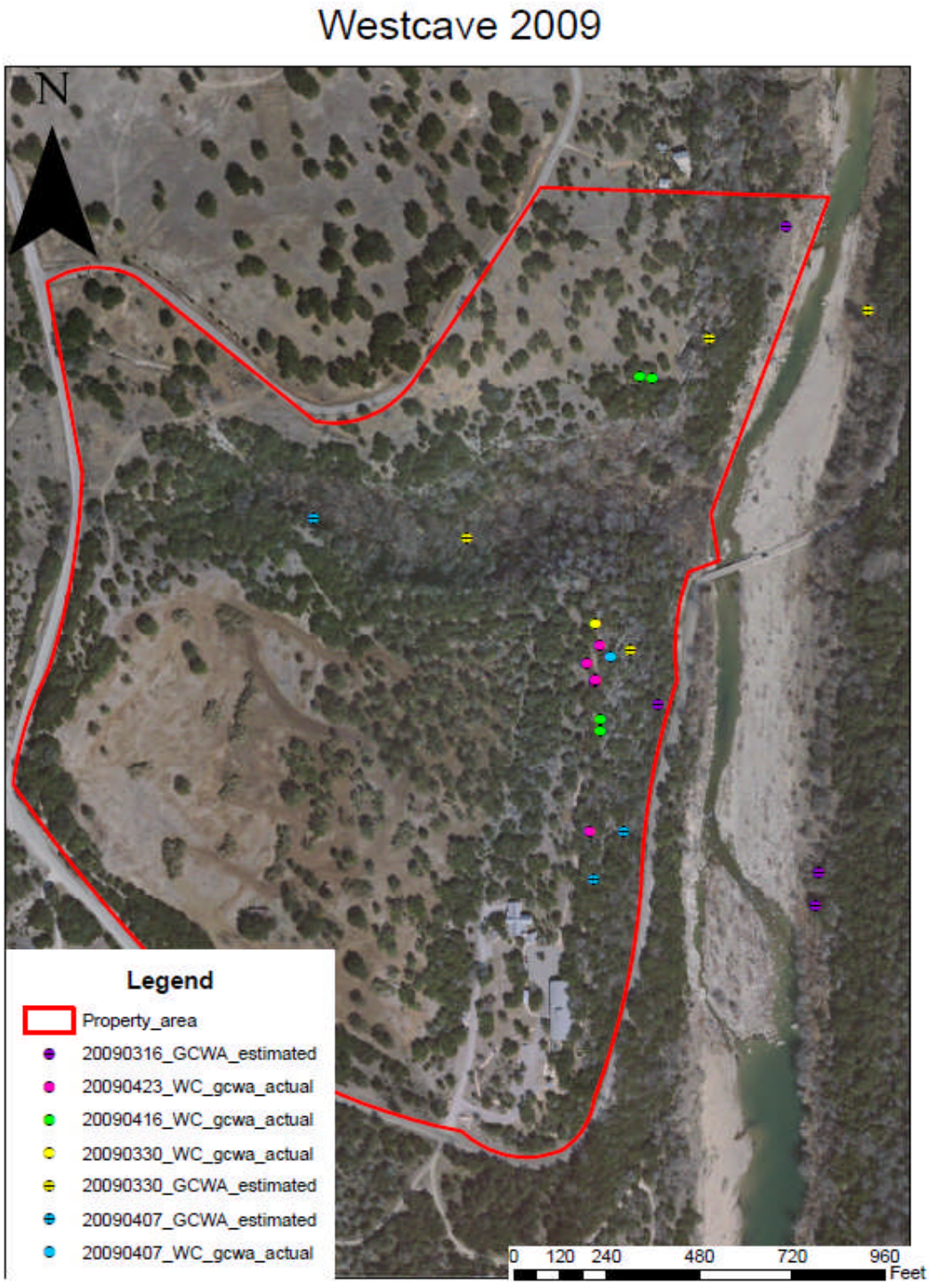
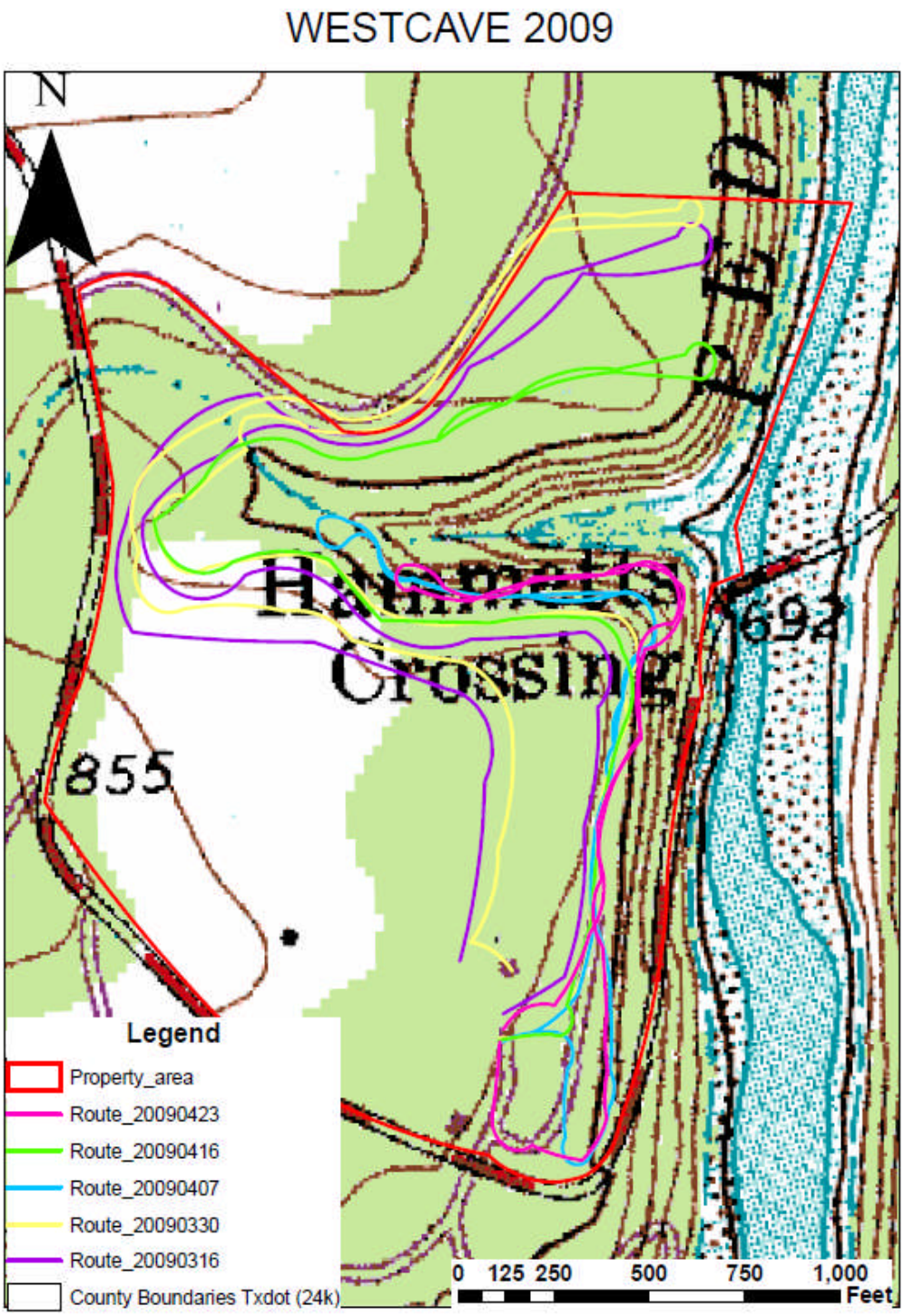


Figure 2. Routes hiked during each survey.



APPENDIX B

SURVEY DATA TABLES

Table 1. Dates and information about surveys.

Date	Sunrise Time	Time			Temperature (degrees F)		Wind Speed (mph)		Cloud Cover (percent)		Surveyors & Observers	Comments
		Start	End	Total hrs.	Start	End	Start	End	Start	End		
03/16/2009	7:40	11:20	13:25	2	58	75	0	0	0	0	WZ/MPS	4 GCWAs observed (2 CSing)
03/30/2009	7:23	7:00	9:00	2	60	61	5-15	10-20	100	100	WZ	5 GCWAs observed
04/07/2009	7:13	7:00	9:00	2	43	51	0	0	0	0	WZ	4 GCWAs observed
04/16/2009	7:03	6:55	8:55	2	61	65	0-5	5-10	100	95	WZ	4 GCWAs observed
04/23/2009	6:55	6:45	8:45	2	61	67	0-5	10-15	50	50	WZ	4 GCWAs observed

Table 2. Bird list of species noted during surveys.

Family	Genus/species	Common name
Phasianidae	*Meleagris gallopavo*	Wild Turkey
Ardeidae	*Ardea herodias*	Great Blue Heron
Cathartidae	*Coragyps atratus*	Black Vulture
	Cathartes aura	Turkey Vulture
Accipitridae	*Accipiter cooperii*	Cooper's Hawk
	Buteo lineatus	Red-shouldered Hawk
	Ictinia mississippiensis	Mississippi Kite
Falconidae	*Caracara cheriway*	Crested caracara
	Falco sparverius	American Kestrel
Laridae	*Larus pipixcan*	Franklin's Gull
Columbidae	*Columbina inca*	Inca Dove
	Zenaida macroura	Mourning Dove
	Zenaida asiatica	White-winged Dove
Cuculidae	*Coccyzus americanus*	Yellow-billed Cuckoo
	Geococcyx californianus	Greater Roadrunner
Apodidae	*Chaetura pelagica*	Chimney Swift
Trochilidae	*Archilochus alexandri*	Black-chinned Hummingbird

Family	Genus/species	Common name
Alcedinidae	*Ceryle alcyon*	Belted Kingfisher
Picidae	*Picoides scalaris*	Ladder-backed Woodpecker
	Sphyrapicus varius	Yellow-bellied Sapsucker
Tyrannidae	*Contopus cooperi*	Olive-sided Flycatcher
	Myiarchus cinerascens	Ash-throated Flycatcher
	Sayornis phoebe	Eastern Phoebe
	Tyrannus forficatus	Scissor-tailed Flycatcher
Vireonidae	*Vireo flavifrons*	Yellow-throated Vireo
	Vireo griseus	White-eyed Vireo
	Vireo olivaceus	Red-eyed Vireo
Corvidae	*Aphelocoma californica*	Western Scrub-Jay
	Corvus corax	Common Raven
Hirundinidae	*Hirundo rustica*	Barn Swallow
	Petrochelidon pyrrhonota	Cliff Swallow
	Progne subis	Purple Martin
Paridae	*Poecile carolinensis*	Carolina Chickadee
	Baeolophus atricristatus	Black-crested Titmouse
Remizidae	*Auriparus flaviceps*	Verdin
Troglodytidae	*Catherpes mexicanus*	Canyon Wren
	Thryomanes bewickii	Bewick's Wren
	Thryothorus ludovicianus	Carolina Wren
Regulidae	*Regulus calendula*	Ruby-crowned Kinglet

Family	Genus/species	Common name
Sylviidae	*Polioptila caerulea*	Blue-grey Gnatcatcher
Turdidae	*Catharus guttatus*	Hermit Thrush
	Sialia sialis	Eastern Bluebird
	Turdus migratorius	American Robin
Mimidae	*Mimus polyglottos*	Northern Mockingbird
	Oreoscoptes montanus	Sage Thrasher
Parulidae	*Dendroica coronata*	Yellow-rumped Warbler
	Dendroica chrysoparia	Golden-cheeked Warbler
	Dendroica petechia	Yellow Warbler
	Mniotilta varia	Black-and-white Warbler
	Seiurus motacilla	Lousiana Waterthrush
	Vermivora celata	Orange-crowned Warbler
	Vermivora ruficapilla	Nashville Warbler
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing
Thraupidae	*Piranga rubra*	Summer Tanager
Emberizidae	*Aimophila ruficeps*	Rufous-crowned Sparrow
	Chondestes grammacus	Lark Sparrow
	Junco hyemalis	Dark-eyed Junco
	Melospiza lincolnii	Lincoln's Sparrow
	Passerculus sandwichensis	Savannah Sparrow
	Pooecetes gramineus	Vesper Sparrow
	Spizella passerina	Chipping Sparrow
	Spizella pusilla	Field Sparrow
	Zonotrichia leucophrys	White-crowned Sparrow

Family	Genus/species	Common name
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal
	Guiraca caerulea	Blue Grosbeak
	Passerina ciris	Painted Bunting
	Passerina cyanea	Indigo Bunting
Icteridae	*Molothrus ater*	Brown-headed Cowbird
	Quiscalus quiscula	Common Grackle
	Icterus spurius	Orchard Oriole
Fringillidae	*Carduelis tristis*	American Goldfinch
	Carduelis psaltria	Lesser Goldfinch