

PMComanchePeakPEm Resource

From: Donald.Woodlan@luminant.com
Sent: Wednesday, February 18, 2009 11:21 AM
To: Willingham, Michael
Cc: Monarque, Stephen; John.Only@luminant.com; Robert.Reible@luminant.com
Subject: 2009-02-18 Compressed version of Warbler Report
Attachments: 2009-02-06 Compressed, GCW FinalReport08.pdf

Mike,

Here is the Golden Cheeked Warbler Bird Survey Report which was enclosed in TXNB-09003.

D. R. Woodlan

Donald R. Woodlan

Luminant

bus 254-897-6887, cell 214-542-7761, fax 254-897-6890

Donald.Woodlan@luminant.com

Confidentiality Notice: This email message, including any attachments, contains or may contain confidential information intended only for the addressee. If you are not an intended recipient of this message, be advised that any reading, dissemination, forwarding, printing, copying or other use of this message or its attachments is strictly prohibited. If you have received this message in error, please notify the sender immediately by reply message and delete this email message and any attachments from your system.

Hearing Identifier: ComanchePeak_COL_Public
Email Number: 465

Mail Envelope Properties (4C66789B9B144E42B3FBCAD7B9C908A70153F126)

Subject: 2009-02-18 Compressed version of Warbler Report
Sent Date: 2/18/2009 11:20:44 AM
Received Date: 2/18/2009 11:22:16 AM
From: Donald.Woodlan@luminant.com

Created By: Donald.Woodlan@luminant.com

Recipients:

"Monarque, Stephen" <Stephen.Monarque@nrc.gov>
Tracking Status: None
"John.Only@luminant.com" <John.Only@luminant.com>
Tracking Status: None
"Robert.Reible@luminant.com" <Robert.Reible@luminant.com>
Tracking Status: None
"Willingham, Michael" <Michael.Willingham@nrc.gov>
Tracking Status: None

Post Office: MDCTXUEXCL01N1.corptxu.txu.com

Files	Size	Date & Time
MESSAGE	820	2/18/2009 11:22:16 AM
2009-02-06 Compressed, GCW FinalReport08.pdf		2905073

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

PBS&J Job No. 100001737

**GOLDEN-CHEEKED WARBLER
BIRD SURVEY REPORT
LUMINANT POWER**

**COMANCHE PEAK POWER PLANT
SOMERVELL COUNTY, TEXAS**

Prepared for:
Luminant Power
1601 Bryan Street
Dallas, Texas 75201

Prepared by:
PBS&J
18383 Preston Road, Suite 110
Dallas, Texas 75252

May 2008

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
LIST OF FIGURES	iii
1.0 INTRODUCTION	1
2.0 BIOLOGY OF THE GOLDEN-CHEEKED WARBLER	1
3.0 VEGETATION	6
4.0 METHODOLOGY	6
5.0 SURVEY RESULTS	7
6.0 SUMMARY AND RECOMMENDATIONS	7
7.0 REFERENCES	8

LIST OF FIGURES

Figure		Page
1	Project Vicinity Map	2
2	Project Location Map	3
3	Project Aerial Map	4
4	Geographic Distribution of the Golden-Cheeked Warbler	5
5	U.S. Fish and Wildlife County Distribution Map	5

LIST OF TABLES

Table	Page	
1	Summarization of Data Sheets for Comanche Peak Power Plant	7

1.0 INTRODUCTION

This document presents the findings of a Golden-cheeked warbler (*Dendroica chrysoparia*) presence/absence survey conducted for Luminant Power (Luminant). PBS&J Biologists conducted a field investigation at the Comanche Peak Power Plants newly proposed expansion area. The survey location was near Glen Rose, Texas in Somervell County (see **Figures 1, 2, and 3**). The surveys were conducted according to U.S. Fish and Wildlife Service (USFWS) protocol (see **Appendix A**) during the established breeding season to determine whether or not Golden-cheeked warblers and/or their habitat were present.

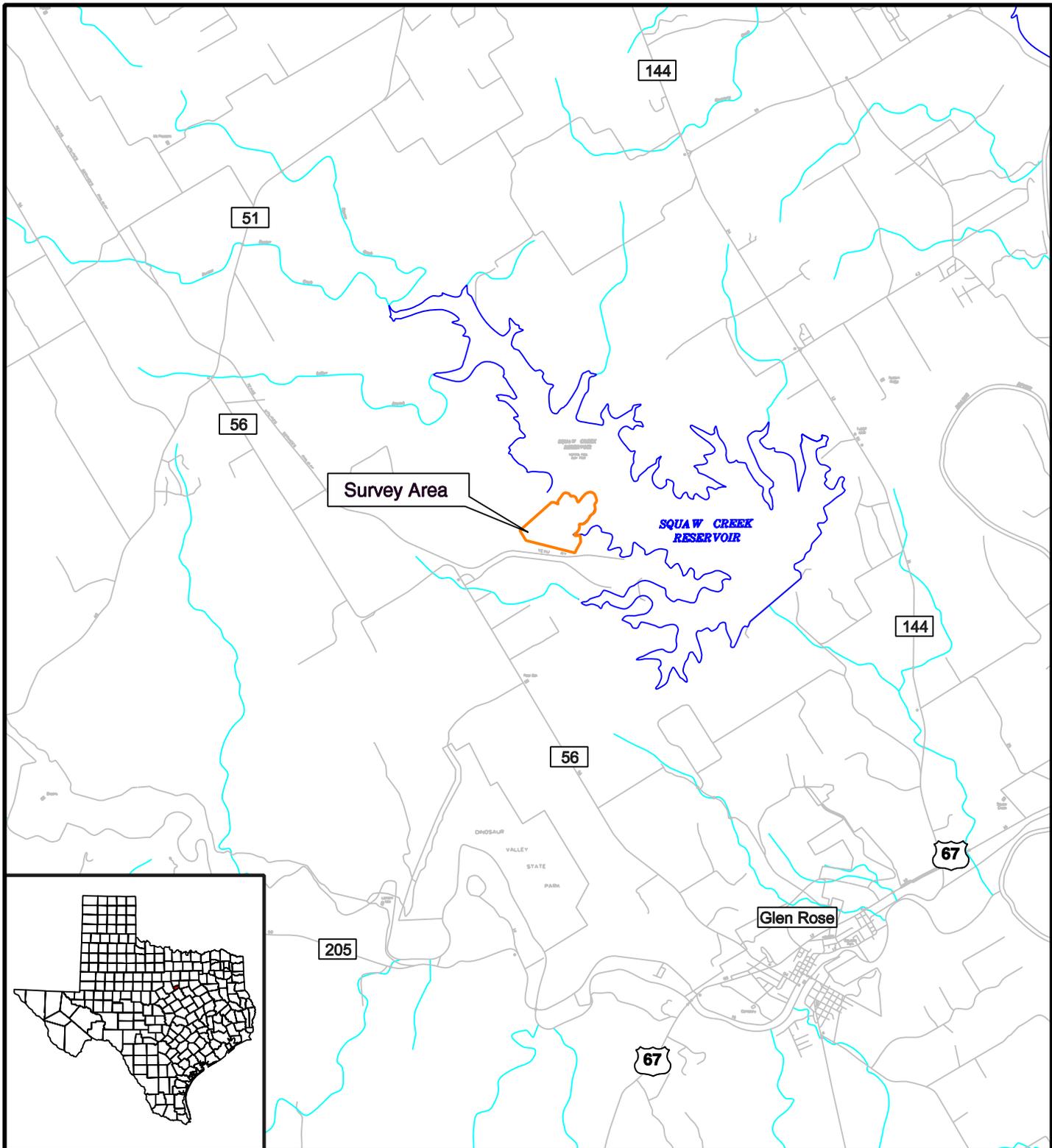
This report encompasses the procedures and findings for the spring 2008 Golden-cheeked warbler survey within the proposed project area. The Golden-cheeked warbler is listed as endangered with both U.S. Fish and Wildlife and Texas Parks and Wildlife. (USFW, 1991 and TPWD, 2007).

2.0 BIOLOGY OF THE GOLDEN-CHEEKED WARBLER

The Golden-cheeked warbler (GCW) is an insectivorous songbird, with a life span of five to six years, and is about 4.5 inches in size (TPWD, 2007). The adult male has a jet black back, throat, neck, upper breast, and sides. The wings, except for two white bars, and the tail are principally black. The lower breast and belly are white. The cheeks and the line over the eyes and sides of the neck are golden yellow; hence the bird's name. Immature males resemble the females, their backs being predominantly olive green and their cheeks less conspicuously colored than those of the adult male. Females also have thin black streaks on their body (Pulich 1976).

GCWs usually occur in small groups. Pair bonds are established when females arrive on the nesting grounds. Females do all the nest building and incubation of the three to four eggs. The nest is usually camouflaged to blend with the bark of the trees. Nests are commonly found at heights of fifteen feet, although they have been recorded as low as five feet and as high as thirty-two feet. The male spends his time singing his distinct song and defending his territory. The male assists the female in feeding and caring for the young. The young leave the nest in eight or nine days, and remain in the vicinity as a rather loose family group cared for by both parents (Pulich 1976).

The GCW nesting range is restricted to Texas (see **Figures 4 and 5**), and from early March until mid-July, this beautiful warbler is found nowhere else in the world. It inhabits the wooded slopes and canyons of the Edwards Plateau and the adjacent area to the north in places typically covered with Ashe juniper (*Juniperus ashei*). Although this avian species formerly occupied forty-one of the 254 Texas counties, today its known nesting range covers only thirty-three. The GCW ranges from the Austin area southwest along the Balcones Escarpment almost to San Antonio and west across the Edwards Plateau to the western portion of the Nueces River drainage in Kinney County. From there, its range extends northeast to about Junction in Kimble County, skips Mason County, and goes eastward to Llano County and northward to Palo Pinto County. The bird is not found in Brown, Comanche, or Mills County. On the east side of the Brazos River, the species is limited to small portions of Hood and Johnson counties. From its eastern boundary, the range extends southward from Somervell County through parts of Bosque, Coryell, Bell, and Williamson counties. Concho and Tom Green Counties may have also once been a part of this warbler's range (Pulich 1976).



8000 0 4000 8000

SCALE IN FEET

LEGEND

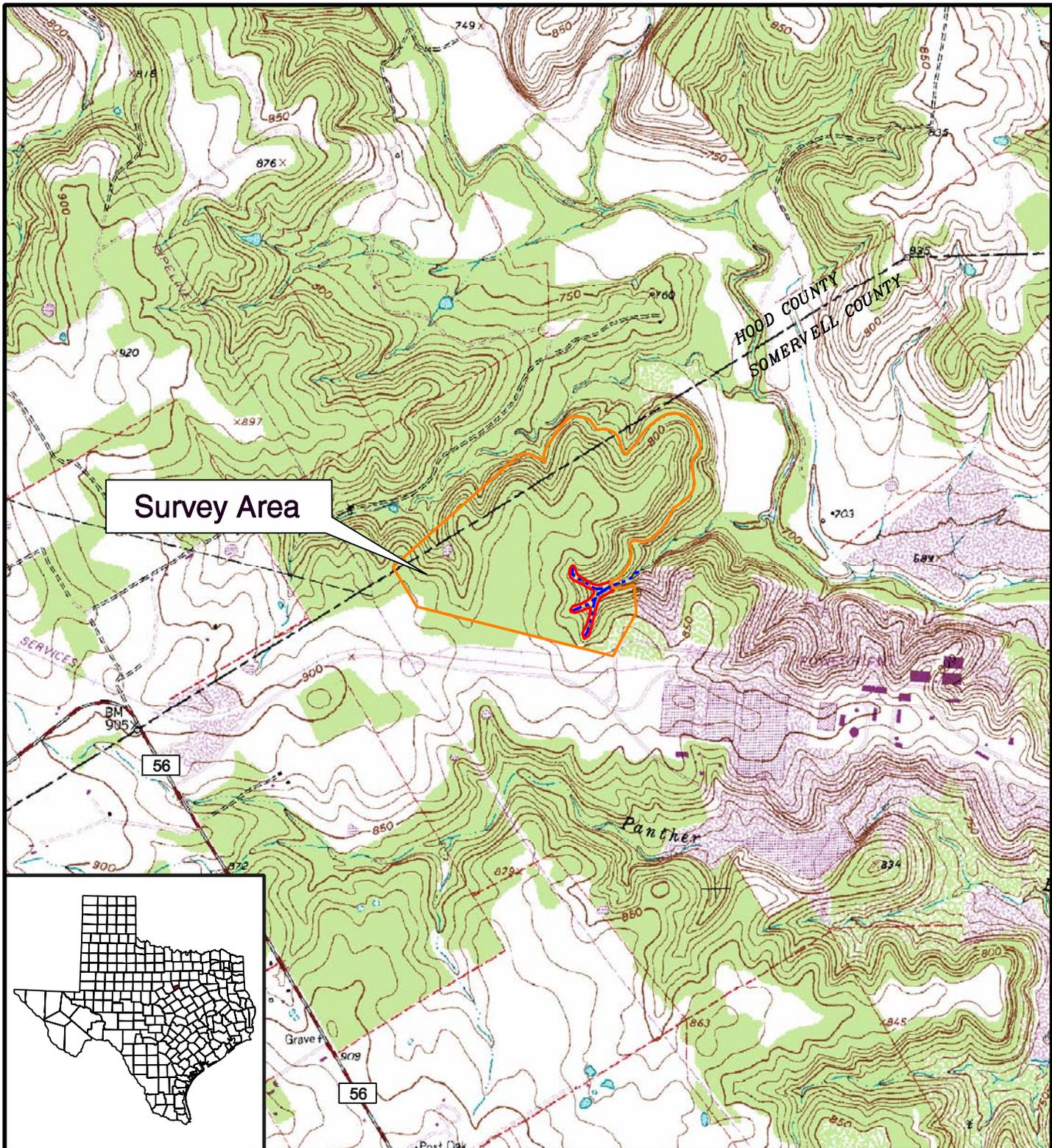
— SURVEY AREA



- Engineering
- Environmental Consulting
- Survey

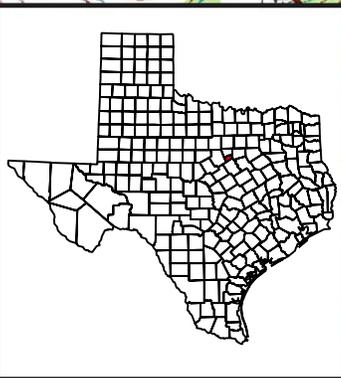
FIGURE 1

**PROJECT VICINITY MAP
GOLDEN-CHEEKED WARBLER
COMANCHE PEAK POWER PLANT
LUMINANT POWER
SOMERVELL COUNTY, TEXAS**



Survey Area

HOOD COUNTY
SOMERVELL COUNTY



SCALE IN FEET
BASE MAP: USGS 7.5' QUADRANGLE; HILL CITY, TEXAS

LEGEND

-  SURVEY AREA
-  STREAM
-  EXHIBITS GCW NESTING CHARACTERISTICS



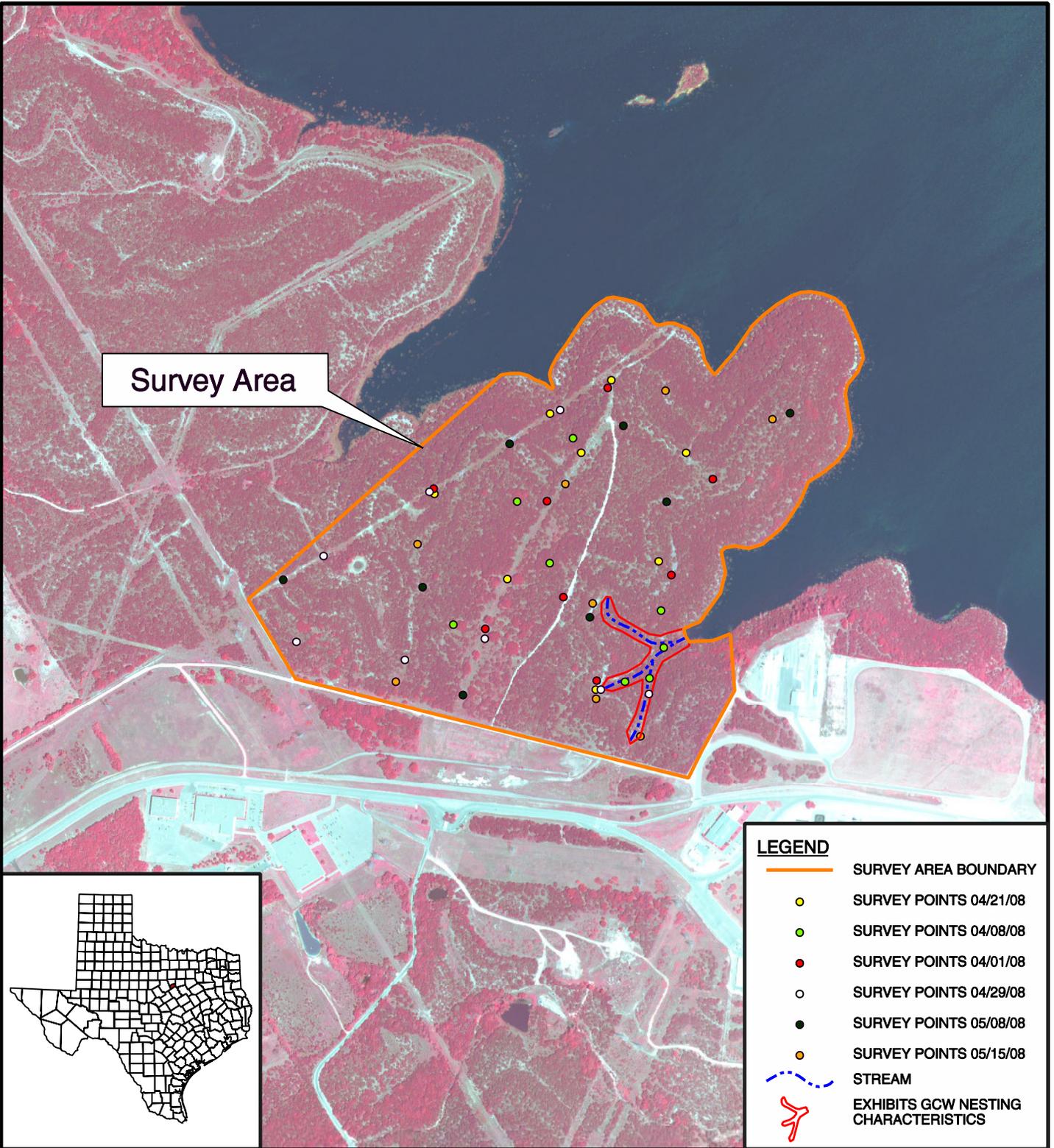
- Engineering
- Environmental Consulting
- Survey

FIGURE 2

**PROJECT LOCATION MAP
GOLDEN-CHEEKED WARBLER
COMANCHE PEAK POWER PLANT
LUMINANT POWER
SOMERVELL COUNTY, TEXAS**

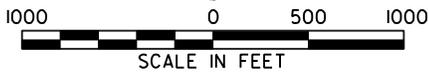
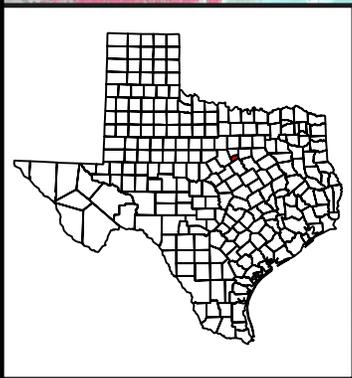
100001737

MAY 2008



LEGEND

-  SURVEY AREA BOUNDARY
-  SURVEY POINTS 04/21/08
-  SURVEY POINTS 04/08/08
-  SURVEY POINTS 04/01/08
-  SURVEY POINTS 04/29/08
-  SURVEY POINTS 05/08/08
-  SURVEY POINTS 05/15/08
-  STREAM
-  EXHIBITS GCW NESTING CHARACTERISTICS



BASE MAP: DIGITAL QUARTER QUADRANGLES; HILL CITY NE-SE, TEXAS



- Engineering
- Environmental Consulting
- Survey

FIGURE 3

**AERIAL LOCATION MAP
GOLDEN-CHEEKED WARBLER
COMANCHE PEAK POWER PLANT
LUMINANT POWER
SOMERVELL COUNTY, TEXAS**

100001737

MAY 2008

Texas Parks and Wildlife, 2007
Geographic Distribution of the Golden-Cheeked Warbler

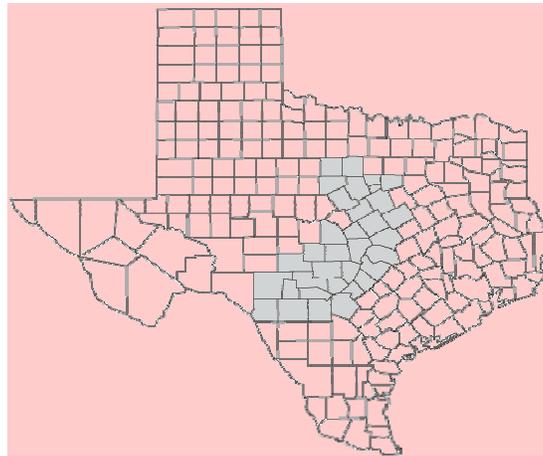


FIGURE 5

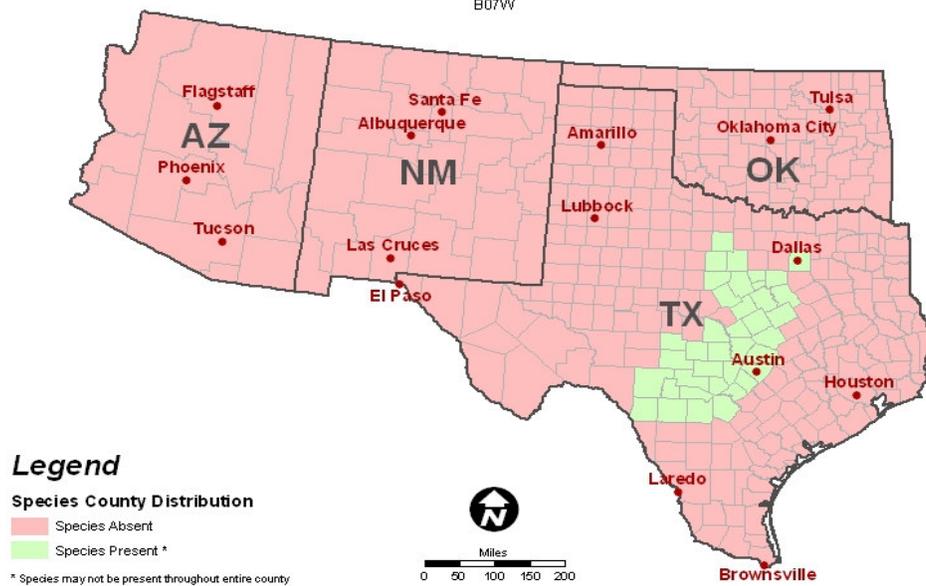
U.S. Fish and Wildlife, 2007

County Distribution Map

golden-cheeked warbler (=wood)

Dendroica chrysoparia

B07W



3.0 VEGETATION

Somervell County, Texas is located within the Cross Timbers and Prairies ecoregion. The Cross Timbers and Prairies ecoregion has four different sub-regions. Somervell County is entirely within the Lampasas Cut Plain sub-region. The vegetation of the Lampasas Cut Plain sub-region consists of post oak (*Quercus stellata*), shin oak (*Quercus sinuata*), live oak (*Quercus virginiana*), Texas ash (*Fraxinus texensis*), mesquite (*Prosopis glandulosa*), bur oak (*Quercus macrocarpa*), Ashe juniper, and cedar elm (*Ulmus crassifolia*) (TPWD, 2006).

U.S. Fish and Wildlife Service describes habitat as woodlands with mature ashe juniper in a natural mix with oaks, elms, and other hardwoods, in relatively moist areas such as steep canyons and slopes, and adjacent uplands are considered habitat types that are highly likely to be used by warblers. Mature ashe junipers are trees that are at least 15 feet in height with a trunk diameter of about five inches at four feet above ground (dbh). These areas generally have a nearly continuous canopy cover of trees with 50-100 percent canopy closure and an overall woodland canopy height of 20 feet or more. Other areas that may support GCWs during the breeding season include:

-Stands of mature ashe juniper over 15 feet in height and dbh of about five inches, with scattered live oaks (at least 10 percent canopy cover) where the total canopy cover of all trees exceeds 35 percent and overall woodland canopy height is at least 20 feet.

-Bottomlands along creeks and drainages which support at least a 35 percent canopy cover of deciduous trees with mature ashe juniper growing either in the bottom or on nearby slopes.

-Mixed stands of post oak and/or blackjack oak (10-30 percent canopy cover), with scattered mature ashe juniper where the total canopy cover of trees exceeds 35 percent and overall woodland canopy height is 20 feet.

-Mixed stands of shin oak with scattered mature ashe juniper, where the total canopy cover of trees exceeds 35 percent and overall woodland canopy height is 20 feet.

Survey Area

The survey area consists of a large perimeter survey boundary which encompasses the primary survey area that is associated with three connected stream channels. Although the vegetation within the large perimeter survey boundary doesn't meet habitat requirements, it was surveyed to ensure that no outlying occurrences existed. The primary survey area contains three connected stream channels; of which, two contain water. The vegetation within the survey area consists of juniper, cedar elm, black willow (*Salix nigra*), cottonwood (*Populus deltoides*), live oak (*Quercus virginiana*), Texas oak (*Quercus texana*), and American elm (*Ulmus americana*). The presence of mature juniper and mixed hardwoods is located sporadically along the stream channels. The stream channels lack extended habitat characteristics beyond the vegetation surrounding them, and they are not connected to any areas further designated as habitat. The area outside of these channels is dominated by dense juniper with little, to no hardwood species. The survey area was a rolling landscape with little to no understory.

METHODOLOGY

PBS&J biologist conducted six visits to the proposed project area during the 2008 breeding season. Visits entailed multiple biologists spending at least four hours within the survey area to determine the presence/absence of the GCW within potential habitat. All of the GCW presence/absence surveys were

performed between March 15th and May 15th, 2008 between sunrise and 1:00pm. During the surveys, weather conditions were suitable, being performed on non-rain days with wind speeds being less than 12 miles per hour. Tapes were used during the final survey to help verify the presence/absence within the potential habitat.

The methodology and minimum procedures in which PBS&J biologist used to determine the presence/absence of GCW followed the USFWS minimum procedures for presence and absence surveys for the GCW. The USFWS noted survey season for GCW is from March 15th to May 15th, from 30 minutes before sunrise to 1:00pm, during optimal weather conditions, with a minimum of four hours per 100 acres of habitat per visit.

5.0 SURVEY RESULTS

A presence/absence survey was conducted in Somervell County, Texas for the GCW. The project area was visited six times during USFWS's noted breeding season during optimal times to determine GCW occurrence. Although the primary survey area located along the creek channels exhibit marginal GCW nesting characteristics, it is PBS&J's opinion that they are not feasible for use as breeding/nesting habitat. These areas are lacking in extended habitat characteristics (canopy cover, hardwood diversity, and structural characteristics) beyond the vegetation surrounding the stream channel perimeter, and are therefore isolated from any nearby populations. The sum of the primary survey area acreage is 3.7 acres, and is spread out across three thin corridors; this area is considered to be highly fragmented and too small in size to support favorable nesting conditions.

The results of the presence/absence survey for GCW's showed no visual or audio confirmation of GCW presence within the primary survey area, or the surrounding large perimeter survey area. The table below summarizes each of the survey visits. Species heard or seen during the surveys are listed on data collection forms in **Appendix B**.

TABLE 1

Summarization of Data Sheets for Comanche Peak Power Plant

Date:	Start/End Time	Wind Speed & Direction	Temperature & Precipitation	Tapes Used	Target Species
04/01/08	7:35am-12:15pm	5-10 mph N	57° F - None	No	GCW
04/08/08	7:00am-11:45am	0-10 mph SSE	74° F - None	No	GCW
04/21/08	7:15am-11:50am	0-5 mph SSE	75° F - None	No	GCW
04/29/08	7:15am-12:05pm	0-10 mph SSE	65° F - None	No	GCW

05/08/08	7:05am-11:45am	0-5 mph NNW	68° F - None	No	GCW
05/15/08	7:10am-12:00pm	5-10 mph NNW	62° F - None	Yes	GCW

6.0 SUMMARY AND RECOMMENDATIONS

During the presence/absence surveys conducted by PBS&J biologist, no GCW's were observed within the project survey area. No adverse affects are anticipated to occur during construction of the new facility. Vegetation removal should occur outside of the breeding season to ensure that no take of the species occurs. Although PBS&J has determined that no further surveys should be necessary (due to the lack of sufficient breeding/nesting habitat), a letter needs to be sent to the USFWS and TPWD for confirmation, as they are the overruling authority.

7.0 REFERENCES

Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Hatch, S.L., and Bezanson, D., 2004, Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:2,500,000).

Pulich, W.M. 1976. The golden-cheeked warbler: a bioecological study. Texas Parks and Wildlife Dept., Austin, Texas. 172 pp.

U.S. Fish and Wildlife Service, Southwest Region, *Endangered Species List*, viewed 19 May 2008, <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>.

Texas Parks and Wildlife Services, *Endangered Species List*, viewed 19 May 2008, <http://gis.tpwd.state.tx.us/TpwEndangeredSpecies/DesktopDefault.aspx?tabindex=0&tabid=9&type=county&parm=Somervell>.

Texas Parks and Wildlife Services, *the golden-cheeked warbler*, viewed 19 May 2008, <http://www.tpwd.state.tx.us/huntwild/wild/species/gcw/>.

Texas Parks and Wildlife Services, *the golden-cheeked warbler*, viewed 19 May 2008, http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_golden_cheeked_warbler.pdf.

Texas Parks and Wildlife Services, *the golden-cheeked warbler*, viewed 19 May 2008, http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_golden_cheeked_warbler_mgmt.pdf.

APPENDIX A

MINIMUM PROCEDURES FOR DETERMINING THE PRESENCE/ABSENCE OF GOLDEN-CHEEKED WARBLERS AND BLACK-CAPPED VIREOS

Last updated 04/3/02

1. Endangered Species Permits must be obtained from FWS - Region 2 Office in Albuquerque (Sarah Rinkevich 505/248-6663 or email FW2_TE_Permits@fws.gov) prior to work in occupied endangered species habitat. Texas Parks and Wildlife Department also requires persons working on endangered species to obtain a permit (512/389-4800). If there is a question about whether a permit is needed for conducting work in endangered species habitat, please call the Arlington U.S. Fish and Wildlife Service Office at (817) 277-1100.
2. The survey seasons are as follows:
 - a. Black-capped vireo - April 10 to July 1* and
 - b. Golden-cheeked warbler - March 15 to May 15.

* A minimum of 50% of the surveys for the BCV must be conducted between April 10 and May 31
3. We recommend survey times start 30 minutes before sunrise. **All** surveys must be completed by one o'clock in the afternoon.
4. A minimum of five visits with no more than 1 visit within any 5-day period.
5. Total survey time should be a minimum of 4 hours per 100 acres of habitat per visit (habitat is defined in the U.S. Department of Interior, Fish and Wildlife Service's "Guidance Concerning Review of Endangered Species Habitat", Revised April 1994).
6. Surveys should be conducted on days when weather conditions are suitable for the detection of bird singing. Robbins (1981) makes recommendations for acceptable limits of weather conditions and optimal conditions for increasing detection. Robbins (1981) recommends a wind speed of 12 mph as a generally acceptable maximum for satisfactory count results.
7. A minimum of 1 hour per visit is need regardless of the size of the site.
8. Taped or play back recordings of BCV or GCW or screech owl calls may be used only after the above methodology (5 visits, 4 hours/visit) have been exhausted and no birds have been located. Tapes must be used judiciously to avoid behavioral impacts. Tapes must be used to verify negative results (absence of target birds).
9. Reports must include date and year, weather (e.g., wind speed, temperature, precipitation), start and end time, number of birds heard or observed (to include absence of birds from a site), site name, whether tapes were used and observers' name(s). Two maps (7.5 min quad maps only) must be included in the report. One map of the site with location of the project area and the survey routes and another map with the bird detections as described by the International Bird Census Committee (Committee) (1970). Descriptions of habitats found on the site must also be included in the report. If available, also include GPS location information. Data collected in lat long (decimal

degrees), NAD 83 is preferred. If collected in an alternate coordinate system, please report the coordinate system and datum the information was collected in. Also, please report the GPS unit model and its accuracy, and if any real time correction or post processing was done.

The above methodology is limited to determining the presence/absence of golden-cheeked warblers and black-capped vireos. It does not provide sufficient data to determine bird densities or territories. The results of surveys must be reported (as described above) to the U.S. Department of Interior, Fish and Wildlife Service in the annual permit report whether or not the survey detected any target species.

If bird densities or territorial mapping is needed then the methodology described by the Committee (1970) should be followed. The following exceptions apply: (1) the entire project area will be censused, not a sample plot; (2) all detections on the edge of the project area will be recorded even if more than half of the territory is off the project area; (3) the survey season is as described above; and (4) the time spent per visit and the number of visits should be sufficient to document the densities of the target species and suspected territories in the project area. Reports should include the information discussed above (for presence/absence reports) as well as the locations of all bird detections (by sex and age if identifiable), nests (if incidentally), contemporaneous detections, etc. registered on 7.5 min quad maps (or larger scale) as established by the Committee. Actual locations should be mapped rather than indicating territories or areas of use. Suspected territories could be mapped in addition to actual locations. Descriptions of habitats found on the site, whether or not birds were located in it, must also be included in the report. If available, you may include this information in the same format described in the first paragraph of this section.

10. Exceptions to this methodology may be allowed only through coordination with and approval of the Arlington U.S. Fish and Wildlife Service Office.

Field Supervisor
U.S. Fish and Wildlife Service
711 Stadium Drive, Suite 252
Arlington, Texas 76011
(817) 277-1100

LITERATURE CITED

- International Bird Census Committee. 1970. An International standard for a mapping method in bird census work recommended by the International Bird Census Committee. Audubon Field Notes. 24(6): 722-726.
- Robbins, C.S. 1981. Bird activity levels related to weather. Pp. 301-310. in C.J. Ralph and J.M. Scott (eds.). Estimating numbers of terrestrial birds. Studies in Avian Biology No. 6. Cooper Ornithological Society. Lawrence, Kansas.

APPENDIX B

Data Collection Form—Golden-cheeked Warbler/Black-capped Vireo Survey

Date: 04/01/08 Project: Comanche Peak

Target Species: Golden - Cheeked Warbler

Name of Surveyor(s): Eric Cook Mandy Stone Bill Atchison

Location: Approx 5 miles north of Glen Rose, TX in Somervell County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239 ac

Start Time: 7:35 am End Time: 12:15 pm

Wind Speed and

Direction: 5-10 mph N

Temperature: 57° F Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Cardinal (*Cardinalis cardinalis*)

Mourning dove (*Zenaidura macroura*)

turkey vulture (*Cathartes aura*)

Scissor-tailed flycatcher (*Tyrannus forficatus*)

Crow (*Corvus brachyrhynchos*)

Chickadee (*Parus carolinensis*)

Titmouse (*Parus bicolor*)

Bewick's wren (*Thryomanes bewickii*)

Cedar waxwing (*Bombycilla cedrorum*)

Data Collection Form—Golden-cheeked Warbler/Black-capped Vireo Survey

Date: 04/08/08 Project: Comanche Peak

Target Species: Golden-Checked Warbler

Name of Surveyor(s): Clay Russell Bill Atchison

Location: Approx. 5 miles North of Glen Rose, Texas in Somervell County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239 ac

Start Time: 7:00 am End Time: 11:45 am

Wind Speed and

Direction: 0-10 mph SSE

Temperature: 79° Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Cardinal

Blue Jay (*Cyanocitta cristata*)

Mourning dove

Scissor-tailed flycatcher

Titmouse

Turkey Vulture

White-eyed vireo (*Vireo griseus*)

Belted Kingfisher (*Ceryle alcyon*)

Great blue heron (*Ardea herodias*)

Road-runner (*Geococcyx californianus*)

Bewick's wren

Data Collection Form—Golden-cheeked Warbler/Black-capped Vireo Survey

Date: 04/21/08 Project: Comanche Peak

Target Species: Golden-cheeked Warbler

Name of Surveyor(s): Eric Cook Mandy Stone Bill Atchison

Location: Approx. 5 miles North of Glen Rose, Texas in Somervell County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239 ac

Start Time: 7:15 am End Time: 11:50 am

Wind Speed and

Direction: 0-5 mph SSE

Temperature: 75° Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Cardinal
chickadee
sparrow spp.
white-eyed vireo
crow
Belted Kingfisher
Mourning dove
turkey vulture
Bewick's wren
Blue Jay
titmouse
scissor-tailed flycatcher
Carolina wren (*Thryothorus ludovicianus*)
Black vulture (*Coragyps atratus*)

Data Collection Form—Golden-cheeked Warbler/Black-capped Vireo Survey

Date: 04/29/08 Project: Comanche Peak

Target Species: Golden-checked Warbler

Name of Surveyor(s): Eric Cook Bill Atchison

Location: Approx. 5 miles north of Glen Rose Texas in Somervell County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239 ac

Start Time: 7:15 am End Time: 12:05 pm

Wind Speed and

Direction: 0-10 mph SSE

Temperature: 65° Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Cardinal
Bewick's wren
white-eyed vireo
titmouse
Great blue heron
Brown-headed cowbird (*Molothrus ater*)
mourning dove
Crow
Sparrow spp.
Blue-gray gnatcatcher (*Polioptila caerulea*)
Painted bunting (*Passerina ciris*)
Scissor-tailed flycatcher
Cedar waxwing

Data Collection Form—Golden-cheeked Warbler/Black-capped Vireo Survey

Date: 05/08/08 Project: Comanche Peak

Target Species: Golden-Checked Warbler

Name of Surveyor(s): Eric Cook Jared Kaspar Bill AdLisen

Location: Approx 5 miles north of Glen Rose Texas in Somervell County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239cc

Start Time: 7:05 am End Time: 11:45 am

Wind Speed and

Direction: 0-5 mph NNW

Temperature: 68° Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Blue-gray gnatcatcher

Cardinal

Scissor-tailed flycatcher

Bewick's wren

Cedar waxwing

Carolina wren

Mourning dove

Crow

Titmouse

Painted bunting

Blue Jay

Brown-headed cowbird

Turkey vulture

Red-tailed hawk (*Buteo jamaicensis*)

Black vulture

White-eyed vireo

Data Collection Form—Golden-checked Warbler/Black-capped Vireo Survey

Date: 05/15/08 Project: Comanche Peak

Target Species: Golden-Checked Warbler

Name of Surveyor(s): Eric Cook Bill Atchison

Location: Approx 5 miles north of Glen Rose Texas in Somersell
County

USGS Quadrangle

Name(s): Hill City

Size of Area Being Surveyed: 239 ac

Start Time: 7:10 am End Time: 12:00 pm

Wind Speed and

Direction: 5-10 mph NNW

Temperature: 62° Precipitation: No

Tapes Used: Yes No

Observations:

For each observation of the target species, describe in detail the following: 1) number, sex, and age of individual(s); 2) time and location; 3) habitat (vegetation composition/canopy, topography, and land use); 4) behavior of individuals observed; 5) vocalizations (if any); and 6) any banding.

Cardinal

Bewick's wren

Mourning dove

Tit mouse

Grackle (*Quiscalus quiscula*)

Blue-gray gnatcatcher

Chickadee

Great blue heron

Kingbird (*Tyrannus verticalis*)

Crow

Turkey vulture

Pointed bunting

Scissor-tailed flycatcher

Red-bellied woodpecker (*Melanerpes carolinus*)