# United States Department of the Interior

FISH AND WILDLIFE SERVICE
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In Reply Refer To:
02ETAR00-2014-F-0070

July 10, 2014

Mr. Stephen L. Brooks
Chief, Regulatory Division
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Brooks:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Army Corps of Engineers (Corps) issuance of a Section 404 Clean Water Act permit for Sunoco Pipeline, LP's (SPLP) proposed pipeline from Colorado City to Corsicana in Callahan, Eastland, Erath, Hill, Hood, Johnson, Jones, Mitchell, Navarro, Nolan, Scurry, Shackelford, Somervell, and Taylor Counties, Texas, and its effects on the endangered black-capped vireo (*Vireo atricapilla*)(BCVI) and golden-cheeked warbler (*Dendroica chrysoparia*)(GCWA). You also determined that the proposed action "may affect, but is not likely to adversely affect" the whooping crane (*Grus americana*) and would have "no effect" on the piping plover (*Charadrius melodus*) or Texas poppy-mallow (*Callirhoe scabriuscula*) which we address below. Your letter dated March 7, 2014, requesting formal consultation on the proposed action was received at this office on March 24, 2014.

This biological opinion has been prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act), and is based on the Biological Assessment (BA) included as part of the consultation package, information provided by the Corps, and other sources of information. A complete administrative record of this consultation is on file at the Arlington, Texas, Ecological Services Field Office.

**Consultation History**

January 8, 2014 – Meeting at the Service's Arlington Field Office with the Corps, Tetra Tech, Inc. and SPLP to introduce project and discuss consultation process and timelines.

January 8, 2014 – Arlington Field Office provided official species list via email to Tetra Tech, SPLP, and Corps.

February 10, 2014 – Received first draft of Biological Assessment from Tetra Tech for review.

February 13, 2014 – Arlington Field Office provided comments on draft BA to Corps, SPLP, and Tetra Tech.

March 24, 2014 – Received letter from Corps requesting formal consultation based on final BA.

June 10, 2014 – Draft biological opinion sent to Corps for review.

## BIOLOGICAL OPINION

### I. Description of Proposed Action

SPLP is seeking a Nationwide Permit 12 from the Corps under Section 404 of the Clean Water Act (CWA) for dredge and fill activities for each single and complete crossing of Waters of the United States associated with the construction and operation of a new crude oil pipeline. Under the CWA, the Corps is currently the permitting authority for dredge and fill activities in Waters of the United States in the state of Texas.

**Pipeline and Facilities**

The project will involve the construction and operation of an approximately 278.6-mile-long, 24-inch-diameter, intrastate pipeline designed to carry 200,000 barrels of crude oil per day from the existing Colorado City Station in Scurry County, Texas, to the existing Corsicana Station in Navarro County, Texas (Figure 1). The majority (69.9%) of the proposed pipeline will parallel an existing SPLP crude oil pipeline system. The proposed project would require a 90-ft right-of-way (ROW) composed of a 40-ft temporary ROW and a permanent 50-ft ROW. Isolation block valves will be constructed along the pipeline route at all major creek and lake crossings (e.g., greater than 100-feet wide between ordinary high water marks), and at recommended intervals to reduce distance between valves.

Appurtenant facilities associated with the proposed action will also be constructed and include:

- pipeline interconnect facilities at the existing Colorado City Station, including:
    - two new mainline pumps with available turndown capacity;
    - new custody transfer metering;
    - new positive displacement sphere prover;
    - one new 24-inch diameter pig launcher;
    - one new drag reduction agent skid; and
    - electrical facilities, including a power distribution building (including motor control center and two variable frequency drives, a volt transformer, and electrical substation.
- the new Eastland Station to function as a midpoint pig trap station (located approximately 140 miles east of Colorado City Station, in Eastland County), including the following facilities:

  - one new 24-inch diameter pig receiver;
  - one new 24-inch diameter pig launcher; and
  - associated appurtenant facilities.
- pipeline interconnection facilities at the existing Corsicana Station, including:
  - one new 24-inch diameter pig receiver;
  - new custody transfer metering;
  - new positive displacement sphere prover;
  - new associated piping to interconnect to existing facility tank suction line and tank fill line; and
  - associated appurtenant facilities.

Measurement and regulation stations will be located where the proposed pipeline ties-in with existing transmission lines for transport to other markets.

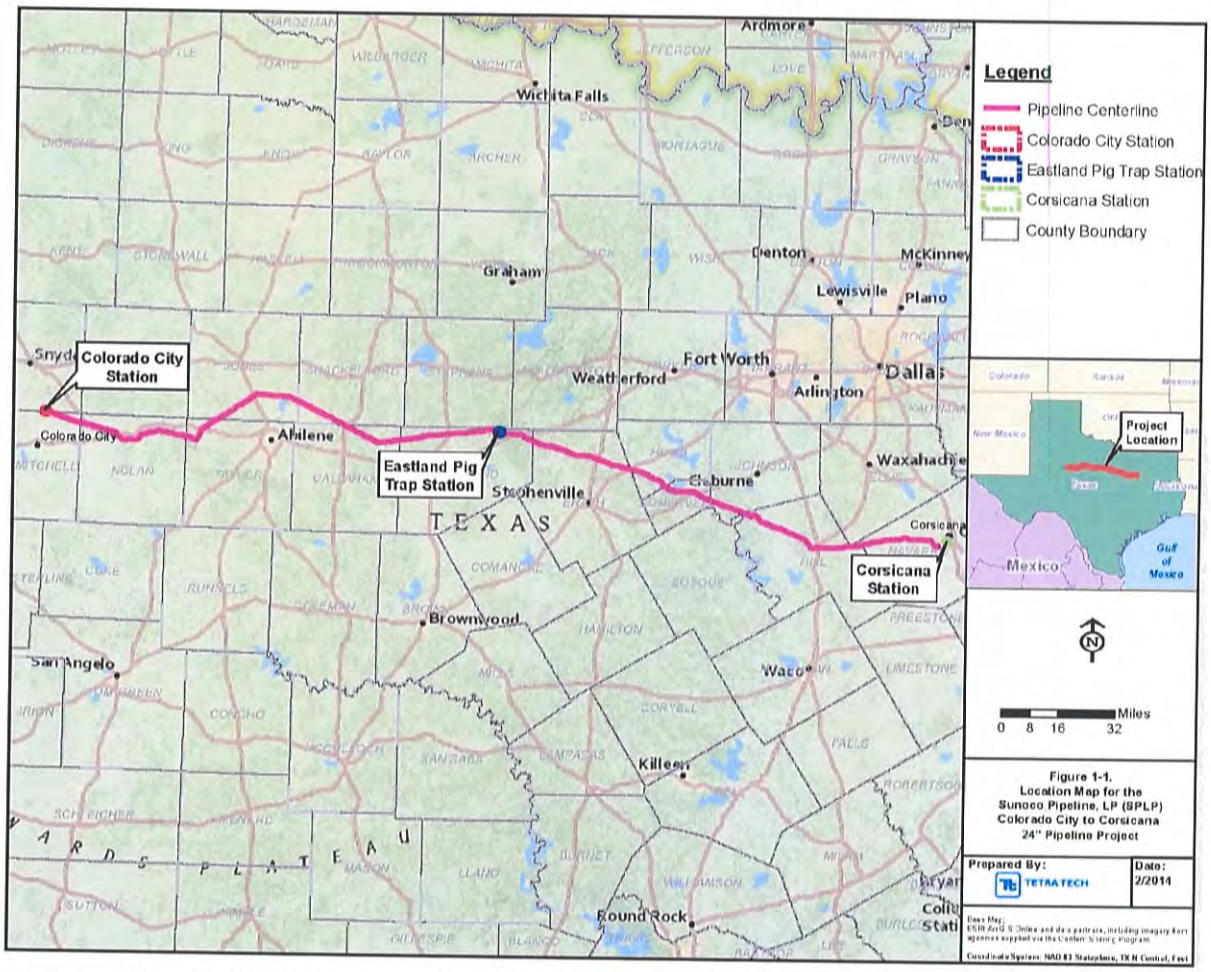


Figure 1. Map showing approximate route of proposed Sunoco Pipeline from Colorado City to Corsicana.

**Temporary Work Space and Storage Areas**

Temporary work space locations are those areas of additional workspace (i.e., in addition to the standard temporary ROW width) that are needed to safely construct the project facilities. Temporary work space will be needed at locations requiring additional excavation, soil placement requirements, or staging of additional equipment and/or materials. Examples include:

- areas for mobilization and demobilization at each end of each construction spread;
- for pipe stringing truck turnaround areas;
- on both sides of roads and railroad crossings;
- on both sides of wetland and waterbody crossings;
- areas with steep slopes (> 25%) and side hills to allow for grading to level the working ROW;
- areas requiring topsoil segregation;
- areas with potential trench slumping;
- equipment turnarounds and spread move-arounds;
- hydrotest fill and dewatering locations and test locations;
- pipeline crossovers where the pipeline crosses under buried features such as foreign pipelines, utility lines, drain tiles, irrigation systems, etc.; and
- equipment and material staging areas.

The size and configuration of these features is dependent upon their purpose as well as the existing site conditions (e.g., available and/or accessible space, nearby resources) at each proposed work location.

**Access Roads**

Construction of the proposed project would use existing public and private access roads for temporary access to the construction ROW. Existing roads will be used as is with no improvements (i.e., vegetation clearing, tree cutting, fill/grade, widening, etc.) and will be restored to pre-construction conditions as necessary.

**Construction Process**

Construction of the proposed action is planned to begin September 1, 2014 and activities will proceed as continuous/sequenced construction through mid-May 2015. This schedule includes all phases of construction from initial mobilization through cleanup, restoration, and revegetation.

The pipeline will be constructed in compliance with applicable Federal regulations and guidelines and the specific requirements of any applicable permits and approvals. Construction methods will be consistent with industry-recognized practices, company policies, and best management practices (BMPs). SPLP will implement practices that are consistent with guidelines and recommendations from the Corps, the United States Department of Agriculture, Natural Resources Conservation Service, the Texas Commission on Environmental Quality, and certain practices adopted from the Federal Energy Regulatory Commission's (FERC) *Upland*

*Erosion Control, Revegetation, and Maintenance Plan* (May 2013 version) and FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (May 2013 version).

For areas in which waterbody crossings will occur via Horizontal Directional Drilling (HDD), SPLP will implement their HDD Monitoring and Contingency Plan (as described in the BA, Appendix D) in the event of an inadvertent frac-out during HDD construction. A frac-out is the escape of drilling mud into the environment as a result of a spill, tunnel collapse, or the rupture of mud to the surface. The risk of a frac-out during construction will be minimized through proper geotechnical assessments prior to drilling. In the event that an inadvertent frac-out occurs, potential impacts will be minimized through the HDD Monitoring and Contingency Plan, which includes provisions for HDD monitoring, staging appropriate response equipment, and response plans to minimize and contain an inadvertent frac-out.

SPLP will implement dust control measures during construction as necessary. Dust control measures will primarily involve use of water trucks to dampen the ROW under dry dusty conditions. Additionally, SPLP will implement preventative and response procedures to minimize the potential for and impact of uncontrolled releases of petroleum products and other hazardous materials to the environment.

Pipeline construction is typically performed with the use of numerous crews working together along the ROW. In general, the crews will perform tasks in an assembly line fashion following relatively close behind the preceding crew to minimize the size of the active construction zone and complete restoration as soon as practicable.

Typical operations (in sequence) of pipeline construction include the following activities:

- mobilize and set up pipe storage/contractor yard, including installation of erosion/sedimentation controls, road entrance pads, and proper hazardous material storage;
- survey and mark the route and approved workspace areas;
- clear the temporary ROW;
- install erosion and sediment controls;
- grade the temporary ROW, including topsoil segregation in active agriculture (cultivated and pasture), residential, and unsaturated wetland areas;
- excavate a new trench to proper depth for the new pipeline;
- place the new pipe joints along the trench line within the ROW;
- bend the new pipe joints, as needed, to follow the pipeline route and contours of the terrain;
- weld the pipe together;
- visually and radiographically inspect and test the weld area to verify the integrity of the weld;
- coat the weld area with an approved coating to provide corrosion protection;
- place the new pipe section in the trench, tie into previously laid section(s), and backfill;
- restore the grade of the work area to previous contours;
- hydrostatic or nitrogen test the pipeline segments to ensure no leaks are

present; and

- conduct final cleanup, restoration, and revegetation of the ROW.

Surveys and field staking/flagging will be completed to locate the proposed pipeline centerline, access roads, staging areas, exterior temporary ROW limits, and temporary workspace areas. In addition to centerline and limit surveys, other resources will be flagged and signed along the route. These will include any environmental and archaeological resources, geologic and topographic features, land types and uses, other utility crossings (e.g., pipelines, power lines, railroads, and other wires/cables), waterbodies, drainages, and roads.

In areas where conventional methodology (trenching) is used, the pipeline temporary ROW will be cleared of vegetation. Heavy equipment will be used to remove large trees (if present), heavy brush, and small trees. Removal of woody vegetation in areas identified as potential BCVI and GCWA habitat will not occur during the combined breeding season for these species (March 1 – August 31 of each year, Campbell 2003). Ground cover (e.g., herbaceous plants) might remain until grading is required. Grading creates a safe working platform to construct project facilities. Marketable timber cleared will be managed in accordance with the landowners' agreements and other timber might be given back to the landowner or properly disposed of as construction debris (e.g., stacked off the edge of the limits of disturbance, chipped, or hauled to an approved disposal site). Displaced soils are normally stockpiled along the temporary ROW to minimize the need and potential impact of additional haul vehicles. However, in locations where the temporary ROW is restricted, these soils might be stockpiled at a different location within the action area. In areas where topsoil segregation requirements exist, topsoil will be segregated and stockpiled in such a manner that it is conserved and can be returned to the temporary ROW.

To manage stormwater surface flow, regular breaks (gaps) in wind-rowed spoil piles and diversion structures will be used to manage cross-drainage needs. Gaps in wind-rowed spoil and topsoil piles will allow surface water to migrate across the temporary ROW in such a way as to minimize up-gradient flooding and downstream sedimentation. Gaps will be located at regular intervals and/or where appropriate due to site conditions (e.g., depressions in terrain where water would likely concentrate).

**Erosion and Sediment Controls**

In tandem with or immediately following ground-disturbing activities (e.g., clearing activities), temporary environmental controls (e.g., erosion and sediment controls) will be installed where necessary and in accordance with an approved construction stormwater permit. Temporary environmental controls primarily consist of installing barriers (e.g., silt fencing, hay bale structures) or diversion structures (e.g., temporary slope breakers) to prevent sediment-laden waters from migrating off approved work areas. Once installed, these controls will be monitored and maintained so they function as intended until the area has been stabilized or permanent environmental controls are installed.

**Trenching**

Trenching will be accomplished with backhoes and/or mechanical trenching machines. Trench width will vary based on site conditions (e.g., soil types, bedrock, and presence of groundwater). The pipeline will be buried in the trench typically with 36 inches of cover. In areas where shallow bedrock and/or large boulders are present, specialized construction techniques (e.g., blasting) to remove the rock might be necessary.

Similar to grading activities, considerations for cross-drainage will be made while trenching and where stormwater or existing runoff flows are a concern. Flume pipe (e.g., appropriately sized polyvinyl chloride or steel piping) or diversion berms/ditches might be used where needed to direct stormwater across the trench and away from the temporary ROW. Inlet and outlet structures might also be necessary to prevent erosion and scouring. Additionally, on sloping terrain, a combination of trench plugs might be used to prevent water from scouring the bottom of the trench line. Earthen material trench plugs can be characterized as soft or hard. Soft plugs have been excavated and the spoil re-compacted in the trench. Hard plugs have not been excavated. Foam trench plugs can also be used. Foam plugs are typically mechanically blown in, and are environmentally compatible.

**Pipe Installation**

Welded pipe sections typically will be placed into the trench with pipe slings and side-boom tractors. Once the pipe is lowered-in, trench breakers will be installed on sloping terrain and/or at sensitive environmental crossings to prevent the subsurface piping of water, which could create void space and subsidence or drain environmental features. Clean fill (e.g., soil, sand) will be used where needed as padding material to provide protection to the pipe and coating. The material used for padding will be selected in accordance with permit conditions and project engineering specifications, and under no circumstances shall topsoil be used as padding or backfill material. The trench will then be rough backfilled using backfilling equipment (e.g., bulldozers, track hoes) to protect the pipe until final restoration can be completed. No foreign materials (e.g., construction debris) will be permitted to be used as backfill material. If allowed by permit conditions and landowner agreements, excess rock might be buried onsite within the temporary ROW. Excess rock and/or woody debris (e.g., stumps and brush) can be wind-rowed along the edge of the temporary ROW. Otherwise, these materials will be properly disposed of off-site as construction debris.

**Water Crossings**

Construction of the pipeline across Corps jurisdictional wetlands or waterbodies will be performed in accordance with the SPLP's BMPs and applicable permit conditions, unless more stringent regulatory requirements apply. Trenchless construction techniques, such as HDD or conventional bore, will be used where feasible for wetland and waterbody crossings to avoid impacts to these areas. Trenchless methods allow the installation of the pipeline with minimal to no impacts or disturbance to surficial features. HDD might be used when re-routing alternatives are limited and other trenching and trenchless techniques are not feasible. SPLP plans to cross

most major waterbodies using the HDD method as listed in Table 1.

**Table 1. List of Waterbodies to be Traversed by the HDD Construction Method.[1]**

| Waterway Name | County | Approximate Milepost | Flow regime[2] |
|---|---|---|---|
| Cottonwood Creek | Nolan | 14.20 | Ephemeral |
| Clear Fork | Jones | 65.45 | Perennial |
| Clear Fork | Jones | 75.00 | Perennial |
| Deadman Creek | Jones | 78.30 | Perennial |
| Battle Creek | Eastland | 111.80 | Perennial |
| Russell Creek | Eastland | 142.30 | Intermittent |
| South Fork Palo Pinto Creek | Eastland | 149.20 | Intermittent |
| North Paluxy River | Erath | 173.00 | Perennial |
| Brazos River | Somervell | 200.90 | Perennial |
| Ham Creek | Johnson | 213.20 | Perennial |
| Nolan River | Hill | 219.40 | Perennial |
| White Rock Creek | Hill | 245.50 | Perennial |

[1] All crossings listed here are as of January 18, 2014. More HDD crossing might be added at a later date.
[2] *Ephemeral* - An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
*Intermittent* - An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams might not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
*Perennial* - A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

## Restoration

Cleanup of project activities includes removing construction debris (e.g., un-used and surplus materials), temporary construction structures, and equipment. Restoration consists of returning areas disturbed by construction activities to pre-existing contours and hydraulic regimes. Final restoration occurs within 10 to 20 days of rough backfilling, conditions permitting. Restoration will also include allowing vegetation to naturally restore to preconstruction conditions.

Permanent erosion and sediment controls (e.g., permanent underground trench breakers, permanent aboveground slope breakers, soil erosion prevention materials, and permanent seeding) will be installed and the temporary ROW will be re-seeded and/or mulched per permit requirements and landowner agreements. Pipeline markers will be installed. Soil adjuncts and fertilizers might be added where necessary. Temporary erosion controls will be removed once the area has been stabilized in accordance with project requirements. Following construction, the revegetation will be monitored for successful restoration.

Temporary construction facilities will include staging areas and temporary work spaces. Upon completion of construction activities, areas used for temporary construction facilities will be restored to pre-existing conditions inclusive of removal of construction debris, removal of temporary construction structures/equipment, returning areas to pre-existing contours, and re-seeding and/or mulching per permit requirements and landowner agreements.

**Operation and Maintenance**

The proposed action will be operated and maintained by appropriately-trained and licensed SPLP employees and/or contracted entities, in accordance with regulatory permit conditions and authorizations, engineering design specifications, recommended manufacturer maintenance practices, and SPLP's operating policies and procedures. Periodic clearing of trees and shrubs over the 50-foot-wide permanent ROW will occur as necessary.

**Conservation Measures**

As part of the proposed action, SPLP has included the following conservation measures:

1) All clearing of woody vegetation in areas mapped as potential GCWA and BCVI habitat will not be conducted during the combined GCWA and BCVI breeding seasons of March 1 – August 31.

2) Construction of the pipeline within 300 feet of areas mapped as potential BCVI and GCWA habitat will be initiated between September 1 – February 28. If construction activity must extend beyond February 28 within 300 feet of potential BCVI or GCWA habitat, then SPLP will ensure that the construction activity remains a continuous action in order to minimize the potential for GCWAs or BCVIs to unknowingly begin nesting adjacent to a latent source of disturbance of an unnatural magnitude.

3) Routine clearing of woody vegetation from the pipeline permanent ROW will be part of on-going pipeline maintenance activities. All routine clearing of woody vegetation from the pipeline permanent ROW will not be performed during the combined GCWA and BCVI breeding seasons of March 1 – August 31 to avoid the potential to disturb any GCWAs or BCVIs that might be present adjacent to the permanent ROW.

4) SPLP will provide environmental training to all on-site construction personnel regarding conservation measures/management practices that will be complied with to ensure impacts to GCWA and BCVI are avoided or minimized.

5) *GCWA Proposed Compensation* – SPLP is interested in promoting the conservation and recovery of the GCWA. As a voluntary measure, SPLP is offering to purchase 118 credits from the Service-approved Hickory Pass Ranch Conservation Bank, a GCWA habitat conservation bank. Hickory Pass Ranch Conservation Bank is closest to the proposed pipeline project compared to other GCWA conservation banks and is located in Burnet County in GCWA Recovery Units 4 and 5. The number of credits identified for purchase is based on the number of acres of GCWA habitat expected to be directly impacted by pipeline construction (117.7) rounded to the nearest whole acre. This voluntary compensation would be provided pending Service approval and credits will be purchased prior to habitat impacts.

**Action Area**

The Interagency Cooperation final rule defines the action area as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The Corps' permit area consists of dredge and fill activities for each single and complete crossing of Waters of the United States associated with the pipeline construction. Because no individual segment or portion of the proposed action has independent utility apart from the rest, the Service has determined the entire pipeline route and all areas encompassing potential direct and indirect effects of the action, should be included in the action area. Therefore, the action area includes the 690-ft wide corridor along the 278.6-mile pipeline route and covers an estimated 23,302 acres. This includes the 50-ft permanent ROW, the 40-ft temporary ROW, all temporary work spaces, and a buffer zone of 300 feet on both sides of the ROW along the entire pipeline route. The buffer zone is included to determine the indirect effects of the action to the GCWA and BCVI.

## II. Status of the Species/Critical Habitat

The current list of federally threatened and endangered species that are known to occur in the project counties are presented in Table 2.

**Table 2. Federally listed species in proposed action counties.**

| Species | Status | Counties of Occurrence |
|---|---|---|
| black-capped vireo (*Vireo atricapilla*) | Endangered | Callahan, Eastland, Erath, Hill, Hood, Johnson, Mitchell, Nolan, Shackelford, Somervell, Taylor |
| golden-cheeked warbler (*Dendroica chrysoparia*) | Endangered | Eastland, Erath, Hill, Hood, Johnson, Somervell |
| whooping crane (*Grus americana*) | Endangered | Callahan, Eastland, Erath, Hill, Hood, Johnson, Jones, Navarro, Shackelford, Somervell |
| Texas poppy-mallow (*Callirhoe scabriuscula*) | Endangered | Mitchell |
| Piping plover (*Charadrius melodus*) | Threatened | Jones |

No critical habitat for federally listed species occurs within the project counties.

Whooping cranes could be encountered at suitable stopover sites within the corridor during spring and fall migration. The project area lies within the 200-mile wide corridor extending from Canada to the Texas Coast in which 94% of whooping crane sightings have occurred during their annual migration. Although whooping crane migratory flights are generally at altitudes of between 1,000 and 6,000 feet, they fly at lower altitudes when seeking stop-over habitats such as reservoirs, large ponds, rivers and wetlands. They will often make low flights up to two miles

from a stop-over site to forage late in the day or in early morning. They may also interrupt migration flights to drink and/or forage in agricultural fields or wetlands for brief periods and may be at low altitudes during mid-day. The analysis in the BA concludes that the proposed action is "not likely to adversely affect" the whooping crane, due to the sparse and small size of any available stopover sites, temporary nature of action, and availability of additional stopover sites outside of the action area (complete analysis in BA, pp. 48–51). We concur with this determination, and therefore, this species is not considered further in this biological opinion.

The piping plover is a statewide migrant in Texas and winters along the Gulf Coast. It may be encountered at mud flats and shorelines during migration. The BA indicates a lack of attractive stopover sites in the project area, and thus the action would have no effect on the piping plover. This species will not be considered further in this biological opinion.

The Texas poppy-mallow is known from only three counties Coke, Mitchell, and Runnels. It is endemic to the upper Colorado River watershed on ancient and contemporary mid-slope terraces. Only two populations have more than 100 individuals. Additionally, with the exception of plants occurring on state highway ROW, all populations are on privately owned lands with few formal protection measures in place. The BA included a determination of "no effect" to the Texas poppy-mallow due to a lack of suitable habitat within the action area. Therefore, this species is not considered further in this biological opinion.

The two species that occur within the action area and may be affected by the proposed action are the BCVI and GCWA.

**Black-capped Vireo**

**Species Description and Life History**

The BCVI was federally listed as endangered in 1987 (52 FR 37420-37423). No critical habitat is designated for this species. The recovery plan for the BCVI was finalized in 1991, and a 5-year status review of the species was completed in 2007 (Service 2007).

The BCVI is a 4.5 inch (11.4 centimeter) long, insectivorous songbird. Mature males are olive green above and white below with faint greenish-yellow flanks. The crown and upper half of the head are black with a conspicuous white eye-ring. The iris is brownish-red and the beak is black. The mature females are generally duller in color than the males, and have a dark slate gray head (Service 1991).

Although BCVI habitat throughout Texas is quite variable with respect to plant species, soils, and rainfall, habitat types generally have a similar overall appearance. Black-capped vireos typically inhabit patchy shrublands and open woodlands with a distinctive patchy structure. The shrub vegetation generally extends from the ground to about six feet (1.8 meters) above ground and covers about 30 to 60 percent of the total area. In the Edwards Plateau, common plants in BCVI habitat include Texas oak, shin oak (*Q. sinuata*), live oak, mountain laurel (*Sophora secundiflora*), sumac (*Rhus*. sp), redbud (*Cercis canadensis* var. *texana*), Texas persimmon

(*Diospyros texana*), mesquite (*Prosopis glandulosa*), and agarita (*Mahonia trifoliata*). Densities of Ashe juniper are usually low. In the Edwards Plateau, suitable habitat for the BCVI is early successional scrub/shrub created by fire or woodland clearing. Black-capped vireos are opportunistic foragers, however, they prefer insect larvae and seeds (Grzybowski 1995).

Male BCVI arrive in central Texas in late March and begin to establish breeding territories, which they defend against other males by singing within their territories. The females arrive a few days later, but are more difficult to detect in the dense brushy habitat. Three to four eggs are generally incubated in April, and unless there is a second nesting attempt, nestlings fledge in May to early June. In Mid-July, BCVIs begin their migration south, beginning with females and young and followed by adult males (Campbell 2003, Graber 1961, Oberholser 1974). Typically, BCVI are gone from Texas by mid-September.

**Historical and Current Distribution**

Black-capped vireos breed from Oklahoma south through central Texas to the Edwards Plateau, then south and west to central Coahuila, Nuevo Leon, and southwestern Tamaulipas, Mexico and winter on the Pacific slope of Mexico. Populations have been extirpated in Kansas, and have been reduced in Oklahoma, suggesting habitat loss and parasitism may be particularly prevalent in this part of the species' range (Grzybowski 1995, Wilkins et al. 2006).

Wilkins et al. 2006, estimates that in 2005, the known U.S. population of BCVIs was approximately 6,000 males, a marked increase since survey efforts for BCVIs have intensified since listing. It is unknown whether population numbers have increased due to increased survey efforts or increased habitat due to habitat management efforts since listing, or some combination of both.

Current efforts to monitor BCVI populations in Texas occur on properties owned and/or managed by the Department of the Defense's Camp Bullis and Ft. Hood, Travis County and the City of Austin's Balcones Canyonlands Preserve, the Service's Balcones Canyonlands National Wildlife Refuge (BCNWR), Texas Parks and Wildlife Department's Kerr Wildlife Management Area (Kerr WMA), and properties owned and/or managed by the The Nature Conservancy Texas. Approximately 75 percent of the known population is located on the Kerr WMA and Ft. Hood (both in Texas), and on the Wichita Mountains NWR and Ft. Sill (both in Oklahoma) (Wilkins et al. 2006). Many efforts are underway to assist landowners in determining BCVI status on their property and to educate landowners on the implementation of management strategies beneficial to the BCVI. Fully understanding the current distribution of the BCVI in Texas largely depends on the data collected through these various efforts.

**Reasons for Decline and Threats to Survival**

Threats to the BCVI include habitat loss and degradation due to development, vegetational succession, poor grazing practices, and brown-headed cowbird (*Molothrus ater*) parasitism. A complete summary of the threats to the species can be found in Federal Register 52: 37420-37423 and the Service's 5-year review (Service 2007).

**Range-wide Survival and Recovery Needs**

The Black-capped Vireo Recovery Plan includes the downlisting criterion of one viable BCVI population in four of the six Texas regions delineated therein, and one each in Oklahoma and Mexico (Service 1991). Recently, the Service revised the six regions in Texas to four for the purpose of recovery populations (Service 2013).

Based on the Black-capped Vireo Recovery Plan, protection and management of occupied habitat and minimization of further degradation, development, or environmental modification of unoccupied habitat are necessary to provide for the survival of the species. Habitat protection must include elements of both breeding and non-breeding habitat, i.e., associated uplands and migration corridors. Efforts to create new, and protect existing habitat will enhance the BCVI's ability to expand in distribution and numbers. Efforts to increase numbers of existing viable populations are critical to the survival and recovery of this species, particularly when rapidly expanding urbanization continues to result in the loss of prime breeding habitat. Due to the nature of early successional shrub growth preferred by BCVIs, fire should be used to manage, enhance, and create BCVI breeding habitat, as appropriate.

**Golden-cheeked Warbler**

**Species Description and Life History**

The GCWA was emergency listed as endangered on May 4, 1990, (55 FR 18844). The final rule listing the species was published on December 27, 1990, (55 FR 53160). No critical habitat is designated for this species. The GCWA is a small, insectivorous songbird, 4.5 to 5 inches long with a wingspan of approximately 8 inches. Average breeding weight is 0.36 ounces for adult males and 0.33 ounces for adult females. Wings are black with two distinct white wing-bars. Males have a black back, throat, and cap, and yellow cheeks with a black eye strip. Females are similar, but duller overall in color (Oberholser 1974, Pulich 1976).

GCWA breed exclusively in the mixed Ashe juniper/deciduous woodlands of the central Texas Hill Country west and north of the Balcones Fault (Pulich 1976). GCWA require the shredding bark produced by mature Ashe junipers for nest material. Typical deciduous woody species include Texas oak (*Quercus buckleyi*), Lacey oak (*Q. glaucoides*), live oak (*Q. fusiformis*), Texas ash (*Fraxinus texensis*), cedar elm (*Ulmus crassifolia*), hackberry (*Celtis occidentalis*), bigtooth maple (*Acer grandidentatum*), sycamore (*Platanus occidentalis*), Arizona walnut (*Juglans major*), and pecan (*Carya illinoinensis*) (Pulich 1976, Wahl et al. 1990). Breeding and nesting GCWA feed primarily on insects, spiders, and other arthropods found in Ashe junipers and associated deciduous tree species (Pulich 1976).

Male GCWA arrive in central Texas around March 1st and begin to establish breeding territories, which they defend against other males by singing from visible perches within their territories. Females arrive a few days later, but are more difficult to detect in the dense woodland habitat

(Pulich 1976). Three to five eggs are generally incubated in April, and unless there is a second nesting attempt, nestlings fledge in May to early June (Pulich 1976). If there is a second nesting attempt, it is typically in mid-May with nestlings fledging in late June to early July (Pulich 1976). By late July, GCWA begin their migration south (Chapman 1907, Simmons 1924). GCWA winter in the highland pine-oak woodlands of southern Mexico and northern Central America (Kroll 1980).

**Historical and Current Distribution**

The GCWA's entire breeding range occurs on the Edwards Plateau and Lampasas Cut Plain of central Texas. However, many of the counties where it is known to occur, now or in the past, have only small amounts of suitable habitat (Pulich 1976, Service 1996, Lasley et al. 1997). For the most recent estimate and comparison to previous estimates of GCWA habitat availability range wide, see Morrison et al. (2010).

Several state and federally owned lands occur within the breeding range of the GCWA, but the overriding majority of the species' breeding range occurs on private lands that have been either occasionally or never surveyed (Service 1992). As a result, the population status for GCWA on private lands remains undocumented throughout major portions of the breeding range. Diamond (2007) estimated that the amount of suitable GCWA habitat across the species' range was approximately 1.7 million acres, with much of this habitat occurring on private lands.

Travis County contains the greatest amount of GCWA habitat in large, contiguous blocks and lies at the center of the species' range (Service 1992). Bexar County also contains GCWA habitat, but the only remaining large blocks are associated with Government Canyon State Natural Area, Camp Bullis, and Indian Springs/Cibolo Canyon preserves. Other smaller areas in Bexar County that provide habitat include land owned and managed by the City of San Antonio Parks and Recreation Department, including Friedrich Wilderness Park, Crownridge, and Ironhorse.

Currently there are only four large GCWA populations receiving some degree of protection: Those at the Balcones Canyonlands Preserve in Travis County; the nearby Balcones Canyonlands NWR in Travis, Burnet, and Williamson counties; Camp Bullis Military Installation in Bexar County, and the Fort Hood Military Reservation in Coryell and Bell counties.

**Reasons for Decline and Threats to Survival**

Before 1990, primary reasons for GCWA habitat loss were juniper clearing to improve conditions for livestock grazing and urbanization (Pulich 1976). Since then, habitat loss has occurred as suburban developments spread into prime GCWA habitat along the Balcones Escarpment. GCWA populations are limited primarily by the amount and configuration of available habitat. Pulich (1976) estimated that approximately 130,000 acres of potential habitat, or 35 percent, were lost from 1962-1990 and nesting territories declined approximately 25 percent during that same period. Human activities have eliminated habitat within the central and

northern parts of their range, particularly areas associated with the Austin and San Antonio metropolitan areas.

Other threats to the GCWA include the clearing of deciduous oaks upon which the GCWA forage, oak wilt, nest parasitism by brown-headed cowbirds (Engels and Sexton 1994), drought, fire, stress associated with migration, competition with other avian species, and particularly loss of habitat from urbanization (Ladd and Gass 1999). Populations of GCWA and other neotropical migrants are less stable in small habitat patches surrounded by urbanization (Coldren 1998, Engels 1995, Arnold et al. 1996). Some studies indicate that the abundance of several bird species, including GCWA, is reduced within 656-1640 feet of an urban edge (Engels 1995, Arnold et al. 1996, Coldren 1998). Coldren (1998) reported that GCWA occupancy declined with increasing residential development and roadway width.

**Range-wide Survival and Recovery Needs**

The recovery strategy outlined in the *Golden-cheeked Warbler Recovery Plan* (Service 1992) divides the breeding range of the GCWA into eight regions, or units, and calls for the protection of sufficient habitat to support at least one self-sustaining population in each unit. These recovery units were delineated based primarily on watershed, vegetation, and geologic boundaries (Service 1992).

Based on the *Golden-cheeked Warbler Recovery Plan* (Service 1992), protection and management of occupied habitat and minimization of degradation, development, or environmental modification of unoccupied habitat necessary for buffering nesting habitat are necessary to provide for the survival of the species. Habitat protection must include elements of both breeding and non-breeding habitat, i.e., associated uplands and migration corridors. Efforts to create new and protect existing habitat will enhance the GCWA's ability to expand its distribution and numbers. Efforts to increase numbers of existing viable populations is critical to the survival and recovery of this species, particularly when rapidly expanding urbanization continues to result in the loss of prime breeding habitat.

Catastrophic fires within occupied habitats could result in the loss of significant portions of habitat and/or entire existing populations within each recovery unit. Efforts to control accidental fires should continue to be a priority to minimize the chance of significant loss of breeding GCWAs and the habitat necessary to allow for the expansion of distribution and number of individuals.

According to the *Golden-cheeked Warbler Population and Habitat Viability Assessment Report* (Service 1996)(Golden-cheeked warbler PHVA) only a few counties (e.g., Bexar, Travis, Bell, Coryell) have been intensively studied in a manner that produces confident assessments. To better assess the status of the GCWA, formal surveys need to be conducted across its range. However, access to private lands to conduct formal surveys continues to be difficult to obtain. GCWA are known to occur in more than 26 counties and may occur in 12 more counties. These 12 counties, and possibly others within the species' range, require study. The range is expanding westward.

The recovery strategy for the GCWA calls for the preservation of sufficient breeding habitat to ensure the continued existence of at least one self-sustaining, viable population of GCWA in each of eight recovery regions (Service 1992). Population viability assessments on GCWA have indicated the most sensitive factors affecting their continued existence are population size per patch, fecundity (productivity or number of young per adult), and fledgling survival (Service 1996, Alldredge et al. 2002). These assessments estimated a minimum of 10,637 acres of prime, sufficiently unfragmented habitat to support one viable population and reduce the possibility of extinction of that viable population within the next 100 years to less than five percent (Service 1996). This acreage is estimated to provide the carrying capacity for 1,000 breeding pairs. If the habitat was of a poorer quality or was fragmented, 3,000 breeding pairs, occupying about 32,500 acres, would be necessary to conserve one viable population.

## III. Environmental Baseline

### Description of the action area

The action area for the proposed project includes the entire 278.6 mile length of the pipeline, including the 50-ft permanent ROW, the 40-ft temporary ROW, all temporary work spaces, and a buffer zone of 300 feet on both sides of the ROW along the entire pipeline route to account for potential indirect effects. The types and area of habitat/land use affected by the proposed action are provided in Table 3.

On October 2 – November 4, 2013; November 21 – 22, 2013; December 3 – December 20, 2013, and January 2 – February 21, 2014, field survey work was conducted on the approximately 278.6-mile-long pipeline corridor, Colorado City Station, Eastland Station, and Corsicana Station. The pipeline survey area included a 400-foot wide corridor encompassing all potential construction workspace.

**Table 3. Acres of Habitat/Land Use Types Affected[1] by the SPLP Colorado City to Corsicana 24-inch Pipeline Project.**

| Habitat/Land Use Type | Description | Permanent Impact | | Temporary Impact | | Total Impact | |
|---|---|---|---|---|---|---|---|
| | | Acreage[2] | Percentage | Acreage[3] | Percentage | Acreage | Percentage |
| Pastureland | Land used for grazing livestock. | 651.6 | 38.4 | 619.7 | 43.8 | 1271.3 | 40.9 |
| Agriculture | Fields used annually for crop growing. Most are very large areas with no medians or boundaries, except for intersecting roads. | 433.0 | 25.5 | 367.8 | 26.0 | 800.8 | 25.7 |
| Scrub Upland | Upland areas with a canopy primarily composed of shrubs or saplings. Vegetation ranges from being open to moderately thick. | 264.7 | 15.6 | 262.5 | 18.5 | 527.2 | 16.9 |
| Easement | Maintained ROW including pre-existing linear features (e.g., pipelines, overhead power lines). | 170.1 | 10.0 | 3.3 | 0.2 | 173.4 | 5.6 |
| Herbaceous Upland | Upland areas primarily devoid of woody vegetation (or with minimal woody vegetation). Vegetation typically dominated by grasses and forbs. | 70.5 | 4.2 | 62.8 | 4.4 | 133.3 | 4.3 |
| Forested Upland | Upland areas with a canopy primarily composed of trees; woody vegetation is typically thick. | 61.7 | 3.6 | 63.2 | 4.5 | 124.9 | 4.0 |
| Roadway | Existing roads, including highways, county roads, and dirt roads. | 23.2 | 1.4 | 20.1 | 1.4 | 43.3 | 1.4 |
| Industrial | Commercial areas highly modified and with little natural vegetation. | 8.0 | 0.5 | 2.1 | 0.1 | 10.1 | 0.3 |
| Residential | Land used for households (single or neighborhoods). | 6.9 | 0.4 | 8.0 | 0.6 | 14.9 | 0.5 |
| Waterway | Streams, rivers, and creeks crossed by the pipeline. | 3.9 | 0.2 | 2.6 | 0.2 | 6.5 | 0.2 |
| Waterbody | Ponds – natural and manmade – crossed by the pipeline. | 1.3 | 0.1 | 2.0 | 0.1 | 3.3 | 0.1 |
| Railroads | Existing railroad tracks. | 0.9 | 0.1 | 0.7 | 0.1 | 1.6 | 0.1 |
| Herbaceous Wetland | Wetlands characterized with primarily herbaceous vegetation | 0.6 | <0.1 | 0.4 | <0.1 | 1.0 | <0.1 |
| | **Total** | **1696.4** | **100.0** | **1415.2** | **100.0** | **3111.6** | **100.0** |

[1] If conventional trench installation method is used. Acreages do not take into account impact reduction associated with horizontal directional drilling which will be used at select locations to traverse larger streams and rivers (e.g., Brazos River).

[2] Permanent impact acreage includes those areas located within the project permanent operational area of the pipeline permanent ROW.

[3] Temporary acreage includes those areas temporarily used during project construction of the pipeline (e.g., temporary ROW and temporary workspace), that will be returned to pre-construction habitat/land use.

A brief description of the habitat/land use categories in the action area is provided below.

Pastureland – Pasturelands are used to feed and raise livestock including cattle, sheep, goats, and horses. This land use type most often resembles scrub upland and/or herbaceous upland. Common dominant plants in the sapling/shrub stratum include: Ashe juniper (*Juniperus ashei*), Engelmann's pricklypear (*Opuntia engelmannii*), and honey mesquite (*Prosopis glandulosa*). Common dominant plants in the herbaceous stratum include: broom snakeweed (*Gutierrezia sarothrae*), oldfield threeawn (*Aristida oligantha*), plains lovegrass (*Eragrostis intermedia*), sideoats grama (*Bouteloua curtipendula*), and switchgrass (*Panicum virgatum*).

Agriculture – This land use is characterized by agricultural croplands. Common crops within the action area include cotton and sorghum. This land use is highly modified and frequently disturbed with planting and harvesting various crops.

Scrub Upland – This habitat type is characterized by woody vegetation with a prominent sapling/shrub stratum. Trees can be found in this habitat type, but are not as prominent as those found in the forested upland habitat type. Scrub uplands also contain small to large patches of herbaceous growth. Dominant woody plants that characterize this habitat type (some reaching tree size) include: Ashe juniper, blackjack oak (*Quercus marilandica*), cedar elm (*Ulmus crassifolia*), eastern redcedar (*Juniperus virginiana*), Engelmann's pricklypear, honey mesquite, live oak (*Quercus virginiana*), and Texas pricklypear (*Opuntia engelmannii* var. *lindheimeri*). Woody vines are occasionally found in this habitat type and include poison ivy (*Toxicodendron radicans*) and saw greenbrier (*Smilax bona-nox*). The common dominant plants found in the herbaceous layer include: Bermuda grass (*Cynodon dactylon*), broom snakeweed, cheat grass (*Bromus tectorum*), common ragweed (*Ambrosia artemisiifolia*), Johnson grass (*Sorghum halepense*), King Ranch bluestem (*Bothriochloa ischaemum*), little bluestem (*Schizachyrium scoparium*), oldfield threeawn, and silver beardgrass (*Bothriochloa laguroides*).

Easement – This land use describes maintained ROWs of pre-existing linear features (e.g., pipelines, electric lines). Easements can be found in almost any of the other habitat types (e.g., forested upland, scrub upland) or other land uses (e.g., pastureland).

Herbaceous Upland – This habitat type is characterized by a prominent herbaceous stratum. Shrubs, saplings, and even trees can be found in this habitat type, but these woody plants are isolated and infrequent. Common dominant herbaceous plants include: coastal sandbur (*Cenchrus spinifex*), common ragweed, cotton-batting plant (*Pseudognaphalium stramineum*), Engelmann's pricklypear, oldfield threeawn, sideoats grama, and silverleaf nightshade (*Solanum elaeagnifolium*). Honey mesquite is the most common woody plant encountered in herbaceous uplands traversed by the project route.

Forested Upland – This habitat type is characterized by woody vegetation with a prominent tree stratum. Forested uplands encountered in the action area are dominated by the following woody plants in the tree and sapling/shrub layer: American elm (*Ulmus americana*), Ashe juniper, black oak (*Quercus velutina*), blackjack oak, cedar elm, eastern redcedar, and post oak (*Quercus*

*stellata*). Dominant woody vines include common greenbrier (*Smilax rotundifolia*) and saw greenbrier.

Roadway – This land use includes roads encountered in the action area, including interstate highways, intrastate highways, farm-to-market roads, and county roads. This land use also includes grassy areas (shoulders, medians) associated with the roadways.

Industrial – This land use is primarily found in commercial areas (e.g., oil and gas tank farms). These areas are highly modified and typically have sparse vegetation. Invasive plants are commonly found in this land use.

Residential – This land use includes land associated with personal residences. This includes isolated houses as well as neighborhoods/subdivisions.

Waterway – This habitat type includes all streams, rivers, and creeks in the action area. These features range from ephemeral (most common), intermittent, and perennial flow regimes (least common). Waterways typically have vegetation along the banks rather than within the bed. Common dominant vegetation found near waterways is the same or similar as the common dominant vegetation in which the waterway is located (e.g., pastureland, scrub upland, herbaceous upland, and forested upland).

Waterbody – This habitat type includes all ponds, both natural and manmade. The vast majority of ponds within the action area are manmade perennial and manmade ephemeral ponds.

Railroads – This land use describes tracks currently or previously used by trains for transport of commercial goods.

Herbaceous Wetland – This habitat type includes all wetlands with a prominent herbaceous stratum. Shrubs, and even trees, are occasionally present in or around this habitat type, but they do not comprise the most prominent strata. Dominant herbaceous species encountered in this habitat type include: blunt spikerush (*Eleocharis obtusa*), cattail (*Typha latifolia*), Pennsylvania smartweed (*Persicaria pensylvanica*), pond flatsedge (*Cyperus ochraceus*), purplehead sneezeweed (*Helenium flexuosum*), sand spikerush (*Eleocharis montevidensis*), silverleaf nightshade, and swamp smartweed (*Persicaria hydropiperoides*). Honey mesquite, netleaf hackberry (*Celtis reticulata*), and salt cedar (*Tamarix ramosissima*) are present at some of these wetlands, but do not comprise the vegetation in the most dominant stratum.

**Status of the species within the action area**

**Black-capped Vireo**

Suitable and occupied habitat for the BCVI occurs in the North and Central Recovery Units in five counties that include the action area. The potential occurrence of the BCVI was assessed using aerial photography and inspection by helicopter and on-the-ground field surveys. All visual inspections were conducted outside of the BCVI's breeding season. Habitat that met the

definition of BCVI habitat within the ROW and adjacent 300-ft on each side of the ROW was delineated on maps (See BA Appendix C). A complete description of the methodology is included in the BA. The acreages of habitat identified and known populations of BCVI are given in Table 4.

Table 4. Known population of male BCVI[1] in the proposed project counties, potential habitat area within the action area, and associated BCVI Recovery Units.

| County | Known population (males) | Potential habitat in action area (acres) | Estimated habitat loss from action | BCVI Recovery Unit |
|---|---|---|---|---|
| Callahan | 0 | 0 | 0 | Central |
| Eastland | 10 | 72.8 | 8.7 | North |
| Erath | 65 | 6.8 | 0 | North |
| Hill | 0 | 0 | 0 | North |
| Hood | 0 | 0 | 0 | North |
| Johnson | 0 | 0 | 0 | North |
| Jones | N/A | N/A | N/A | N/A |
| Mitchell | 0 | 0 | 0 | Central |
| Navarro | N/A | N/A | N/A | N/A |
| Nolan | 4 | 23.9 | 2.2 | Central |
| Scurry | N/A | N/A | N/A | N/A |
| Shackelford | 0 | 0 | 0 | Central |
| Somervell | 9 | 0 | 0 | North |
| Taylor | 111 | 0 | 0 | Central |

The action area occurs in the Central and North Recovery Units of the BCVI. The known populations in the Central and North Units at the time of 2007 5-year review were 290 and 2,104, respectively (Wilkins et al. 2006). Current information from reports submitted from 2007 to 2013, total 1,791 known males from the North Unit and 583 known males from the Central Unit (Service unpublished data).

**Golden-cheeked Warbler**

Suitable and occupied habitat for the GCWA occurs in Recovery Units in 1 and 2 in six counties that include the action area. The potential occurrence of the GCWA was assessed using aerial photography and inspection by helicopter and on-the-ground field surveys. All visual inspections were conducted outside of the GCWA's breeding season. Habitat that met the definition of GCWA habitat within the ROW and adjacent 300-ft on each side of the ROW, was delineated on maps (see BA Appendix C) and quantified in Table 5. A complete description of the methodology is included in the BA.

[1] Known population is based on the Service's unpublished data on observed males reported from 2007 to 2013. Counties not currently in the Section 7 range of the BCVI are indicated by N/A.

**Table 5. Potential GCWA habitat within the proposed project counties, potential habitat area within the action area, and associated GCWA Recovery Units.**

| County | Potential habitat in action area (acres) | Estimated habitat loss from action | Potential GCWA in County (acres)(Diamond 2007) | GCWA Recovery Unit |
|---|---|---|---|---|
| Callahan | N/A | N/A | N/A | N/A |
| Eastland | 331.2 | 46.4 | 55,696 | Unit 1 |
| Erath | 138.7 | 15.2 | 73,250 | Unit 2 (partial 1) |
| Hill | 55.1 | 6.3 | 18,507 | Unit 2 |
| Hood | 89.5 | 17.5 | 43,448 | Unit 2 |
| Johnson | 196.2 | 24.1 | 22,518 | Unit 2 |
| Jones | N/A | N/A | N/A | N/A |
| Mitchell | N/A | N/A | N/A | N/A |
| Navarro | N/A | N/A | N/A | N/A |
| Nolan | N/A | N/A | N/A | N/A |
| Scurry | N/A | N/A | N/A | N/A |
| Shackelford | N/A | N/A | N/A | N/A |
| Somervell | 77.8 | 8.2 | 38,561 | Unit 2 |
| Taylor | N/A | N/A | N/A | N/A |

It should be noted that potential habitat in each county is based on a model using remotely-sensed data (Diamond 2007). It does not represent actual habitat for the species or predict habitat that is occupied by the species.

## IV. Effects of the Action

Under section 7(a)(2) "effects of the action" refers to the direct and indirect effects of an action on a species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action. The effects of the proposed action are added to the environmental baseline to determine the future baseline that serves as the basis for the determination in this biological opinion. The impacts discussed below are the Service's evaluation of the direct and indirect effects of the proposed action. Indirect effects are those caused by the proposed action, occur later in time, but are still reasonably certain to occur (50 CFR 402.02).

### Factors to be considered

Issuance of a Nationwide Permit 12 from the Corps under Section 404 of the CWA is required for the construction, maintenance, and operation of this 278 mile pipeline. The proposed action generally consists of two parts that potentially affect the GCWA and BCVI: 1) the construction and installation of the pipeline and associated facilities, and 2) the long term maintenance of the installed facilities. The construction timeline will begin outside of the GCWA/BCVI breeding season and end within the breeding season in 2015. About 69.9% of the proposed pipeline route would parallel existing ROWs and easements, which is expected to reduce adverse effects to the species and their habitats. The Corps in coordination has developed several precautions to ensure some impacts are temporary or habitats damages can be restored. Best management

practices are including in the proposed action to reduce ground disturbance activities and revegetation in the ROW is expected to occur.

**Effects of the action**

**Direct Effects**

The BA estimates that up to 10.9 acres of BCVI and 117.7 acres of GCWA habitat will be cleared for construction of the proposed action. The construction process would remove potential habitat for the GCWA and BCVI outside of the breeding season; i.e., the birds would not be present at the time of the habitat removal. Thus, direct effects to nests are not anticipated and the resulting "take" from habitat lost to ROW would be in the form of harm (50 CFR §17.3).

Both BCVIs and GCWAs are highly territorial and show strong fidelity to breeding sites (Grzybowski 1995, Campbell 2003), that is, birds often return to their previous breeding territory after the winter season. Thus, habitat that is used by these species during the breeding season is still considered occupied when the species is on the wintering grounds. The removal of suitable breeding habitat for these species is a direct effect if the species is seasonally occupying the habitat. Habitat loss is a primary threat to both species. Both species specialize in their respective habitats (see section II), from which woody vegetation provides the shelter, food, and nesting substrate and materials. The removal of woody vegetation from occupied habitats reduces the necessary components to support the species' essential life history needs. Depending on the extent of vegetation removal, such actions would limit the available resources for the species, may result in reduced fitness, and may result in extirpation of the species from the affected area. The ultimate result of adverse effects to individuals may be impossible to calculate, but it is very likely that the effects would result in "take" to individuals in some capacity (e.g., reduced fitness, territory abandonment, increased predation) due to modification and/or degradation of habitat previously utilized by the species. That is, the removal of vegetation or degradation of vegetation essential to the species life history needs is expected to adversely affect the species, to the level of take, depending on the size and duration of the impacts.

**Indirect Effects**

Indirect effects are anticipated in suitable habitats adjacent to cleared ROW, if occupied by BCVI and GCWA. Because the habitat directly affected would be cleared outside of the breeding season, indirect effects may occur upon the returning birds to the affected habitat. These effects include edge effects, habitat fragmentation, and displacement. Edge effects are particularly important to GCWA; increased edge density within GCWA habitat has been shown to result in a decline in nest survival (Peak 2007). The Service considers edge effects from habitat removal to extend 300-ft into adjacent GCWA habitat (Campbell 2003, Arnold et al. 1996). Depending on the size and configuration of the affected habitat patch with respect to the cleared ROW, adjacent habitat patches may be rendered too small to support GCWA or BCVI, or support the species but at reduced densities and/or result in eventual extirpation (Morrison et al. 2010, Tazik 1991, Service 1991). The clearing of areas for pipeline construction will traverse

habitat in a linear 50-ft temporary and 40-ft permanent ROW and would be expected to displace breeding birds that may be using the habitats affected. Depending on the present density of birds and available habitat, returning birds to areas cleared for ROW may be forced to adjacent habitats, if available and unoccupied by other birds, and therefore may suffer the loss of productivity in subsequent breeding seasons. Fragmentation of habitat resulting from the ROW is particularly harmful to the GCWA, which may not cross cleared corridors >10 meters (32 feet) in width (Horne 2000) and may result in reduced productivity in smaller patches (Maas-Burleigh 1998 , Coldren 1998). Plans for revegetation after construction will be monitored to determine restoration success.

It is estimated that approximately 770.8 acres of potential GCWA habitat occur within 300 feet of the edges of the proposed pipeline ROW. Of this, approximately 515.1 acres are contiguous with habitat that will be cleared for pipeline construction. The remaining approximately 255.7 acres are within 300 feet of the pipeline ROW, but opposite existing cleared ROW or other open space. Therefore, the habitat patches comprising the 255.7 acres would not be expected to experience reductions in habitat patch size or be exposed to new habitat edges. In addition, much of the habitat contiguous with woodland to be cleared is already subject to edge effects due to its proximity to pre-existing edges (located within 90 to 300 feet of the edges of ROWs followed by the proposed pipeline corridor).

It is estimated that approximately 92.6 acres of potential BCVI habitat occur within 300 feet of the limits of the proposed pipeline ROW. Of this, approximately 54.6 acres of potential habitat within 300 feet of the pipeline ROW are contiguous with potential habitat that would be cleared for pipeline construction. The remaining 38.0 acres of potential habitat within 300 feet of the pipeline ROW are separated by other utility easements or other non-BCVI habitat. Therefore, the habitat patches within the 38.0 acres are not expected to have a reduced impact due to the new ROW.

Maintenance of the permanent ROW (managing vegetation) would be planned outside of the combined BCVI/GCWA breeding season (see Conservation Measures). As such, effects from this activity to the GCWA and BCVI are not anticipated.

Beneficial indirect effects will also occur outside of the action area as a result of SPLP's voluntary participation in promoting the conservation and recovery of the GCWA with the purchase of 118 credits from the Service-approved Hickory Pass Ranch Conservation Bank, a GCWA habitat conservation bank with permanently protected lands.

## V. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Oil and gas production has recently been on the rise in Texas, especially west Texas, based on the increase in permits and revenue (Science Daily 2013, RRC 2014). Increased oil and gas production includes the possibility of new drilling sites, additional pipelines and pipeline expansions. It is unknown if such facilities would occur directly in the action area; however, new pipeline routing is often directed toward existing ROW (such is the case with the current project), making it more likely that future pipelines would parallel the proposed pipeline route.

Several wind energy generation projects have been constructed in the counties crossed by the proposed pipeline corridor, and it appears reasonable to assume that additional wind projects will be constructed in the future in the counties of the project area. Wind project developers typically keep project plans confidential as the wind energy market is a highly competitive business; as a result, it is unknown if any wind development projects planned for properties crossed by pipeline alignment. The pipeline corridor crosses the Pyron wind energy facility in northeast Mitchell and northwest Nolan Counties, however, it is outside the range of the GCWA. Therefore, if the facility is expanded, the expansion would not result in loss of GCWA habitat.

Urbanization and other land-use continue to expand in north-central Texas including the action area. During aerial photography and field verification reviews, SWCA, Inc. biologists observed some potential GCWA habitat in the process of being lost to quarrying activities and residential developments in the general project region, particularly in Hood and Johnson Counties. It is unknown if these activities are affecting occupied GCWA habitat. The Service has observed such quarry activity in the past occurring in Somervell County in close proximity to known BCVI and GCWA habitat. Based on these observations, GCWA habitat on the eastern end of proposed pipeline corridor, which is closest to the Dallas/Fort Worth Metroplex and thereby influenced by substantial human population, might be subject to losses associated with human activities. However, the Service has not been contacted by entities within this area interested in the application process for a permit for incidental take under section 10 of the Act. Other actions on private lands may include agriculture, groundwater pumping, grazing, recreation and other uses. The extent of these activities and the associated impacts within the action area are unknown.

## VI. Conclusion

After reviewing the current status of the GCWA and BCVI, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the GCWA or BCVI for the following reasons:

1) The total amount of direct habitat removal of BCVI is less 11 acres; which is about 10% of the available habitat delineated within the action area. Indirect effects involving harassment would only be anticipated during the 2015 breeding season which overlaps the construction phase of the pipeline.

2) Habitat for the GCWA in the action area was estimated to be 885.5 acres, of which 117.7 acres will be directly removed. Based on habitat model analysis (Morrison et al. 2010), this loss represents approximately 0.017% in Recovery Unit 1 and 0.019% in Recovery Unit 2. Indirect effects related to increased edge are expected to be limited to 515.1 acres of adjacent habitat. The effects of increased edge are expected to result in a degradation of habitat (reduced productivity due to increase predation and/or parasitism). The 117.7 acres of habitat will be cleared when the GCWA are the wintering grounds, thus direct killing through loss of occupied nests is not expected. Take would likely occur due to a portion of returning breeding birds loss of productivity due to habitat degradation.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any minimization measures that were incorporated into the project design. No critical habitat has been designated for these species; therefore, none will be affected.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the Corps for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require SPLP to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

### Amount or Extent of Take Anticipated

The Service anticipates incidental take, in the form of harm and harassment, of GCWA and

BCVI, as a result of the proposed project. Take in the form of harm is difficult to quantify and usually cannot be estimated in terms of numbers of individuals. However, because the area of habitat for both species is known within the action area, the maximum amount of incidental take allowed under this biological opinion is given in terms of habitat area. Using habitat as a surrogate to express the extent of anticipated take and to monitor the impacts of take on the species is a practical alternative because effects to habitat are observable and can be readily monitored. Incidental take in the form of harm is estimated to be the amount of habitat for each species directly removed to accommodate the installation and construction of the pipeline. Harassment is calculated as the amount of habitat within 300-ft of cleared habitat, that is not buffered by the existing pipeline ROW.

It is expected that 117.7 acres to GCWA breeding habitat and 10.9 acres of BCVI breeding habitat will be directly affected (vegetation clearing) that will result in take through harm. It is also expected that degradation of surrounding habitat due to take from harassment on 515.1 acres of GCWA and 54.6 acres of BCVI habitat is expected to result in decreased use of the area for breeding, feeding, and sheltering and may reduce reproductive output, although complete abandonment may not occur. Such adverse effects are temporary in nature and are not expected to exceed one breeding season.

**Effect of the take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

## REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of GCWA and BCVI:

1. The Corps will monitor incidental take resulting from the proposed action and report to the Service the findings of that monitoring.

**Terms and conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the Service or its applicant must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. A report will be due to the Service upon completion of the construction and restoration. The report will include a description of the action implemented, including conservation measures. Emergencies and any unanticipated events that may cause take to be exceeded will be reported to this office within 24 hours.

2. The Service will be notified when the GCWA compensatory mitigation is completed.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

**Conservation Recommendations**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The continued loss of habitat for the GCWA and BCVI in north central Texas is ongoing concern to the Service due to the limited availability of habitat (compared to south and western areas) and the lack of mitigation resources in the affected recovery units. Thus, we recommend the Corps investigate the potential for future compensation for impacts to these species in recovery units 1 and 2 for the GCWA and the central unit for the BCVI. This could include partnerships with other Federal, state, non-governmental and private entities to develop solutions for mitigation for such projects. The Service has developed guidance for mitigation lands specifically for the GCWA and BCVI that should be consulted for any mitigation efforts. The guidance may be found at: http://www.fws.gov/southwest/es/AustinTexas/Cons_Banking.html.

**Reinitiation Notice**

This concludes formal consultation on the action outlined in your request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your coordination on this conservation effort. If further assistance or information is required, please contact Mr. Omar Bocanegra, or myself at (817) 277-1100.

Sincerely,

Debra T. Bills

Debra Bills
Field Supervisor

cc: Field Supervisor, FWS, Austin, TX.

**Literature Cited**

Alldredge, M.W., J.S. Hatfield, D.D. Diamond, and C.D. True. 2002. Population viability analysis of the Golden-cheeked warbler. Final report submitted to the U.S. Fish and Wildlife Service.

Arnold, K.A., C.L. Coldren, and M.L. Fink. 1996. The interactions between avian predators and golden-cheeked warblers in Travis County, Texas. Research report 1983-2 for Texas Department of Transportation.

Campbell, L. 2003. Endangered and threatened animals of Texas: their life history and management. Texas Parks and Wildlife Department, Resource Protection Division, Endangered Resources Branch, Austin, Texas, USA. 130 pp.

Chapman, F.M. 1907. The warblers of North America. D. Appleton and Co., New York.

Coldren, C.L., 1998. The effect of habitat fragmentation on the golden-cheeked warbler. Ph.D. Dissertation. Texas A&M University, College Station, Texas.

Diamond, D.D. 2007. Range-wide modeling of golden-cheeked warbler habitat. Project final report. Columbia, Missouri. 204 pp.

Engels, T.M. 1995. The conservation biology of the golden-cheeked warbler. Ph.D. Dissertation. The University of Texas at Austin, Texas.

Engels, T.M. and C. W. Sexton. 1994. Negative correlation of blue jays and golden-cheeked warblers near an urbanizing area. Conservation Biology 8:286-290.

Graber, J. W. 1961. Distribution, habitat requirements, and life history of the black-capped vireo (*Vireo atricapilla*). Ecological Monographs 31:313-336.

Grzybowski, J. A. 1995. Black-capped Vireo (*Vireo atricapillus*). In the Birds of North America, No. 181 (A. Poole, and F. Gill, editors). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D. C. Accessed online (http://bna.birds.cornell.edu).

Horne, J.S. 2000. Effects of open-canopy corridor width on definitions of forest fragmentation and habitat loss for golden-cheeked warblers. Endangered species monitoring and management at Fort Hood, Texas: 1999 annual report. Revised edition. Fort Hood Project, The Nature Conservancy of Texas, Fort Hood, Texas.

Kroll, J.C. 1980. Habitat requirements of the Golden cheeked Warbler: management implications. Journal of Range Management. 33:60-65.

Ladd, C., and L. Gass. 1999. Golden-cheeked warbler (*Dendroica chrysoparia*). *In*: The Birds of North America, No. 420. A. Poole and F. Gill, editors. The Academy of Natural Sciences,

Philadelphia, and The American Ornithologists' Union, Washington, D.C.

Lasley, G.W., C. Sexton, W. Sekula, M. Rockwood, and C. Shackelford. 1997. Texas region, spring migration, Mar. 1 - May 31, 1997. National Audubon Society Field Notes 51:892-897.

Maas-Burleigh, D.S. 1998. Factors influencing demographics of golden-cheeked warblers (*Dendroica chrysoparia*) at Fort Hood Military Reservation, Texas. Thesis, University of Oklahoma, Norman, USA.

Morrison, M.L., R.N. Wilkins, B.A. Collier, J. Groce, H. Mathewson, T. McFarland, A. Snelgrove, T. Snelgrove, and K. Skow. 2010. Golden-cheeked Warbler Population, Distribution and Abundance. Texas A&M Institute of Renewable Natural Resources, College Station.

Oberholser, H. C. 1974. The bird life of Texas Volume 2. University of Texas Press, Austin, Texas, USA. 1069 pp.

Peak, R.G. 2007. Forest edges negatively affect golden-cheeked warbler nest survivial. The Condor 109:628-637.

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

Railroad Commission of Texas (RRC). 2014. Permian Basin Information. Updated March 31, 2014. Accessed online http://www.rrc.state.tx.us/permianbasin/index.php, April 7, 2014.

Science Daily. 2013. Economic impact of oil and natural gas in west Texas. University of Texas at San Antonio. Accessed online http://www.sciencedaily.com/2013/12/131217124023.htm, April 7, 2014.

Simmons, G.F. 1924. Birds of the Austin region. U.T. Press, Austin.

Tazik, D. J. 1991. Proactive management of an endangered species on army lands: the Black-capped Vireo on the land of Fort Hood, Texas. Ph.D. dissertation, University of Illinois, Urbana-Champaign, Illinois, USA.

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

____. 1991. Black-capped vireo (*Vireo atricapillus*) Recovery Plan. USFWS, Albuquerque, New Mexico.

____. 1996. Golden-cheeked Warbler Population and Habitat viability Assessment Report. Compiled and edited by Carol Beardmore, Jeff Hatfield, and Jim Lewis in conjunction with workshop participants. Report of an August 21-24, 1995 workshop arranged by the

U.S. Fish and Wildlife Service in partial fulfillment of U.S. National Biological Service Grant No. 80333-1423. Austin, Texas.

____. 2007. Black-capped vireo (*Vireo atricapilla*) 5-year review: Summary and evaluation. U.S. Fish and Wildlife Service, Arlington, Texas.

____. 2013. Guidelines for the establishment, management, and operations of golden-cheeked warbler and black-capped vireo mitigation lands. U.S. Fish and Wildlife Service, Southwest Region.

Wahl, R., D. D. Diamond, and D. Shaw. 1990. The golden-cheeked warbler: a status review. Unpublished report submitted to Ecological Services, U.S. Fish and Wildlife Service, Fort Worth, Texas.

Wilkins, N., R.A. Powell, A.A.T. Conkey, and A.G. Snelgrove. 2006. Population status and threat analysis for the black-capped vireo. Prepared for the U.S. Fish and Wildlife Service, Region 2. 146 pp.