



United States Department of the Interior



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Consultation No. 02ETAU00-2014-F-0228

Dear Mr. Verwers:

In accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.), and the implementing regulations (50 CFR 402), this transmits the U.S. Fish and Wildlife Service's (Service) biological opinion for the U.S. Army Corps of Engineers (USACE) proposed real estate easement to the City of Georgetown (City) for a new wastewater pipeline (project) near Lake Georgetown, Williamson County, Texas. The City proposes to construct a new 2,168-foot wastewater line and the proposed alignment would include dedicating permanent and temporary right-of-way (ROW) on USACE property.

The USACE has determined this project may affect and is likely to adversely affect three listed endangered species: (1) Bone Cave harvestman (*Texella reyesi*) (BCH), (2) Coffin Cave mold beetle (*Batrisodes texanus*)(CCMB), and (3) golden-cheeked warbler (*Dendroica [=Setophaga] chrysoparia*)(GCWA).

The USACE has determined that the project may affect, but is not likely to adversely affect the federally listed threatened Georgetown salamander (*Eurycea naufragia*). The USACE has also determined that the project may affect but is not likely to adversely affect proposed critical habitat for the Georgetown salamander. The basis for the USACE's determination for the Georgetown salamander and its proposed critical habitat is that the likelihood of adverse effects is small enough to be considered discountable. The Service concurs that the potential effect of the action on the Georgetown salamander and critical habitat may affect, but are not likely to adversely affect the Georgetown salamander.

The USACE is the Federal agency whose authorization is required for the City's wastewater pipeline project to be implemented. The USACE has provided the Service with a draft and revised biological assessment (BA). The City proposes to address effects of the project on the listed karst invertebrate species by contributing funds to and participating in the Williamson



County Regional Habitat Conservation Plan (RHCP)(Permit No. TE-181840-0). The USACE initiated formal consultation in February 2015.

The findings and recommendations in this consultation are based on: (1) electronic mail correspondence, meetings, and telephone conversations between USACE, the City of Georgetown consultant, and Service; (2) the November 2015 revised BA (ACI 2014); and (3) other sources of information available to the Service.

Consultation History

<i>June 30, 2014</i>	Service receives Endangered Species Survey and Endangered Species Habitat Assessment from CDM Smith
<i>July 31, 2014</i>	Service visits proposed sewer line alignment on USACE property adjacent to Godwin Ranch Karst Preserve
<i>September 11, 2014</i>	Service receives Biological Assessment
<i>October 21, 2014</i>	Service provides USACE comments on BA
<i>October 27, 2014</i>	Service hosts meeting with consultant and Robert Adams (call in) of USACE
<i>December 1, 2014</i>	Service receives a revised Biological Assessment
<i>January 23, 2015</i>	Service meets with USACE, City, and consultants
<i>February 19, 2015</i>	USACE sends letter initiating formal consultation

BIOLOGICAL OPINION

1. Description of the Action

The USACE proposes to authorize the City to use Federal property including a 25-foot wide temporary easement and a 30-foot wide permanent easement at the USACE's Lake Georgetown. Lake Georgetown is a reservoir formed by the North San Gabriel Dam and is a Federal water supply and flood control project.

The City is requesting the easement from the USACE to build a wastewater pipeline to connect the City of Georgetown Public Safety Training Center (GPSTC) to existing wastewater infrastructure. The proposed 8-inch diameter wastewater pipeline will service the GPSTC from a location about 180 feet east of D.B. Wood Road to an existing wastewater pipe located about 2,100 feet to the southeast at the northern end of Sabine Drive.

About 1,680 feet of the proposed wastewater pipeline will be installed in an open trench. The trench dimensions are 20 to 32 inches wide with a depth ranging from 5 to 10 feet below grade to maintain the appropriate slope for a gravity flow line. About 496 feet of the wastewater pipeline occurring on private property will be installed using conventional boring techniques. The bored section of sewer pipeline will be encased in 20 inch diameter steel pipe that is ½ inch thick.

Construction is planned to begin on USACE property and eventually cross private property. The tailings of the boring will be collected and hauled away across USACE property and disposed off-site.

The BA describes wastewater pipeline construction temporary best management practices (BMPs) that, in accordance with Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Rules (30 Texas Administrative Code 213) and City of Georgetown ordinances, will minimize erosion, suspended sediment in stormwater, and water quality degradation. The City will inspect and test the integrity of the wastewater main and manholes prior to operating the wastewater pipeline, and will inspect the pipeline with video photography every five years.

Site preparation will involve the removal of 65 trees with a diameter of six inches or more in the permanent and temporary easements. The project is projected to permanently destroy 2.5 acres of karst habitat in karst zone 1 for the BCH and CCMB, and directly impact about 2.5 acres of GCWA habitat.

Conservation Measures

The City will provide for the conservation and recovery of the affected species, in part, by minimizing the number of mature trees removed, minimizing the footprint of construction, and supporting establishment of regional habitat conservation preserves.

For the GCWA, the City proposes to minimize the number of trees removed in the temporary easement and contribute \$4,500 to the Williamson County Conservation Foundation (WCCF) to contribute to the acquisition and management of permanent GCWA preserves. The WCCF supports GCWA conservation by ensuring permanent protection of GCWA in Service-approved habitat conservation banks.

For the endangered karst invertebrates (BCH and CCMB), the City proposes to acquire participation certificates from the Williamson County Regional Habitat Conservation Plan (RHCP).

Action Area

The regulations implementing section 7(a)(2) of the Act define the action area as all areas affected directly or indirectly by the Federal action and not merely the immediate area affected by the project (50 CFR § 402.02).

The project occurs just northeast of Lake Georgetown in Williamson County, Texas. For the purposes of this biological opinion, the action area is the portion of Williamson County that includes: (1) the permanent and temporary right-of-way for the project, (2) the karst terrain within and near the pipeline alignment, and (3) the oak-juniper woodland within 300 feet of the wastewater pipeline alignment. The action area is about 43 acres and is larger than the action

area presented in the BA as it includes the karst and woodland area within 300 ft of the pipeline alignment.

2. Status of the Species

Bone Cave Harvestman

Species Description and Life History

The federally listed endangered BCH (*Texella reyesi*) is a troglobitic harvestman restricted in range to parts of Travis and Williamson counties, Texas (Ubick and Briggs 1992, 2004). Troglobites are dependent on environmental conditions present only in caves and certain subterranean habitats. They cannot survive on the surface.

Ubick and Briggs (1992) described the species when it was taxonomically separated from another species, the Bee Creek Cave harvestman (*Texella reddelli*). The Bee Creek Cave harvestman was placed on the endangered species list September 16, 1988 (53 FR 36029), and with the subsequent taxonomic revision, BCH was listed on August 18, 1993 (58 FR 43818).

At maturity, the BCH is pale orange with a total body length ranging from 0.06 to 0.11 inches. Retinas are absent and corneal development varies from well-developed to absent (Ubick and Briggs 1992). BCH likely feed on microarthropods, such as springtails (*Collembola* spp.) (Rudolph 1979). Ubick and Briggs (1992) also state that most specimens of BCH have been observed in the deep cave environment, past the twilight zone. However, a cave in Williamson County was recently surveyed and a BCH was found on the edge of the dark zone near the twilight zone (White 2014) indicating that BCH may be found in dark habitats near the twilight zone and not exclusively in deep cave recesses.

Population Dynamics, Status, and Distribution

No population size estimates are available for caves supporting BCH and virtually nothing is known about reproductive rates or age-specific survival within populations.

The BCH has a wider distribution than other species in the genus *Texella*. As of 2009, BCH is known from the five Karst Fauna Regions (KFRs) all north of the Colorado River in Texas. BCH has been found in about 170 caves throughout its range across portions of Williamson and Travis counties, of which 140 caves are in Williamson County (Ubick and Briggs 1992, 2004, ACI Consulting 2015). Since 2009, there have been collections from an unknown number of caves in Williamson County, not all of which have been publicly reported (Service 2009a). In 2007, George Veni updated the karst zone maps to reflect newly discovered caves occupied by the BCH. More caves have been located since the last revision to the karst zone maps.

Karst Fauna Regions are areas delineated based on geologic continuity, hydrology and the distribution of rare obligate cave-dwelling species. Four KFRs are located in Williamson County: North Williamson County, Georgetown, McNeil - Round Rock, and Cedar Park.

The recovery plan for this species (Service 1994) calls for the protection of at least three Karst Fauna Areas (KFAs) within each KFR and for the Service to consider changing the status of the species to threatened or to delist it entirely. Since 2009, the Priscilla's Well KFA, Twin Springs KFA, Tooth Cave KFA, and Cobbs Cavern KFA have been established. Other karst conservation areas have been established in Williamson and Travis counties although they may not be considered KFAs. At present, 18 existing karst conservation areas that protect the BCH are located in Williamson County. Eleven of these conservation areas (five within the North Williamson County KFR, three in the Georgetown KFR, and three in the McNeil-Round Rock KFR) appear to be suitable for designation as KFAs for the protection of the Bone Cave harvestman.

Reasons for Decline and Threats to Survival

The Service's Five Year Review (Service 2009a) listed the following threats to BCH: (1) habitat loss to development; (2) cave collapse or filling; (3) alteration of drainage patterns; (4) alteration of surface plant and animal communities, (5) contamination of the habitat, including groundwater, from nearby agricultural disturbance, pesticides, and fertilizers; (6) leakages and spills of hazardous materials from vehicles, tanks, pipelines, and other urban or industrial runoff; and (7) human visitation, vandalism, and dumping; mining, quarrying (limestone), or blasting above or in caves (Service 2009b). Alteration of surface plant and animal communities can include the invasion of exotic plants and predators, changes in competition for limited resources and resulting nutrient depletion, and the loss of native vegetative cover leading to changes in surface microclimates and erosion. Currently, BCH faces the same threats that it did at the time it was listed.

Coffin Cave Mold Beetle

Species Description and Life History

The genus *Batrisodes* lies within the family of mold beetles or ant-like litter beetles. As of 2001, eight other genera of mold beetles were known to occur in Texas, including *Texamaurops* (Chandler and Reddell 2001). The federally listed endangered Coffin Cave mold beetle (CCMB), *Batrisodes texanus*, was first described as a new species by Chandler (1992), when it was separated from Kretschmarr Cave mold beetle (*Texamaurops reddelli*).

Kretschmarr Cave mold beetle was placed on the Federal endangered species list on September 16, 1988, (53 FR 36029-36033), and with the subsequent taxonomic revision, CCMB was listed as an endangered species on August 18, 1993 (58 FR 43818).

Mature CCMB are 0.10 to 0.11 inches in length. This species lacks eyes (Chandler 1992). The CCMB is considered to be troglotic because most individuals have been observed past the twilight zone in total darkness. This predatory species eats other invertebrates including mites (Service 1994).

Population Dynamics, Status and Distribution

No population size or trend data are available for the CCMB. The CCMB is known to inhabit at least 23 caves in Williamson County. Nineteen of the caves are in the North Williamson County KFR, and three are within the Georgetown KFR (Chandler and Reddell 2001; D.S. Chandler, email to K. White, 2006). CCMB is not known from either the Cedar Park KFR or McNeil-Round Rock KFR.

The recovery plan for the CCMB (Service 1994) calls for the protection of at least three KFAs within each occupied KFR in order to achieve recovery of the species. At present, nine existing and proposed karst conservation areas that protect the Coffin Cave mold beetle are located within the North Williamson County KFR.

As troglobites, both the BCH and the CCMB require environmental conditions present only in caves. These conditions include stable temperatures close to the mean surface temperature, constant near-saturation humidity, low evaporation rates, and the absence of photosynthetic nutrient production (Barr 1968, Culver 1982). Cave ecosystems rely on nutrient input from the surface. Nutrients are introduced into the subsurface in the form of plant detritus washed in by surface waters, micro- and macro-organisms that enter caves under their own power, and the eggs and waste of troglone species such as cave crickets (*Ceuthophilus* spp.). Troglones are species that have adapted to the cave environment sufficiently that they complete part of their life cycle in caves, but must return to the surface to feed and thus retain adaptations for surface life. Cave cricket eggs, feces, and dead bodies provide a source of nutrient input to the cave ecosystem on which troglone species depend (Service 2003).

Taylor et al. (2005) studied cave cricket foraging distances from a cave in central Texas, and determined that the majority of cave crickets (99 percent) are located within 333 feet of the entrance. This cricket foraging distance is assumed to be an important factor in determining the amount of above-ground habitat required for maintaining the nutrient base in the below-ground cave environment (Taylor et al. 2005, Service 2011).

Reasons for Decline and Threats to Survival

The threats to *Batrissodes texanus* are the same as those for the described above for the BCH. At present, CCMB is known from 23 caves in Williamson County, Texas, and faces the same threats it did at the time it was listed.

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. For more information regarding the biology of the golden-cheeked warbler, please see the 1992 Golden-cheeked Warbler Recovery Plan.

The GCWA is a small, insectivorous songbird, 4.5 to 5 inches long with a wingspan of about 8 inches (Pulich 1976, Oberholser 1974). Golden-cheeked warblers breed exclusively in the mixed Ashe juniper/deciduous woodlands of the central Texas Hill Country west and north of the Balcones Fault (Pulich 1976). Golden-cheeked warblers require the shredding bark produced by mature Ashe junipers for nest material. Breeding and nesting GCWA feed primarily on insects, spiders, and other arthropods found in Ashe junipers and deciduous tree species (Pulich 1976).

Male GCWAs arrive annually in central Texas in early March 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 southward migration (Chapman 1907, Pulich 1976, Rappole et al. 2000). Golden-cheeked warblers winter in the highland pine-oak woodlands of southern Mexico and northern Central America (Kroll 1980, Vidal et al. 1994, Rappole et al. 1999, King et al. 2012).

Historic and Current Distribution

The GCWA's entire breeding range occurs on the Edwards Plateau and Lampasas Cut Plain of central Texas. Golden-cheeked warblers have been confirmed in 39 counties: Bandera, Bell, Bexar, Blanco, Bosque, Burnet, Comal, Coryell, Dallas, Eastland, Edwards, Erath, Gillespie, Hamilton, Hays, Hill, Hood, Jack, Johnson, Kendall, Kerr, Kimble, Kinney, Lampasas, Llano, Mason, McLennan, Medina, Menard, Palo Pinto, Real, San Saba, Somervell, Stephens, Tom Green, Travis, Uvalde, Williamson, and Young. 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, Diamond 2007). Duarte et al. (2013) estimated that the amount of GCWA breeding habitat range-wide in 2010-2011 was about 3,900,017 acres. Much of this habitat occurs on private lands. As a result, the population status for the GCWA on private lands remains mostly undocumented throughout major portions of the breeding range.

Reasons for Decline and Threats to Survival

Before 1990, the primary reason for GCWA habitat loss was juniper clearing for agricultural purposes. Since then, habitat loss has occurred as suburban developments spread into GCWA habitat. Groce et al. (2010) summarized the rates of expected human population growth within the range of the GCWA and found by 2030 the growth rate ranges from 17 percent around the Dallas-Fort Worth area to over 164 percent around San Antonio. As the human population continues to increase, so do associated roads, residences, and infrastructure, resulting in further habitat destruction, fragmentation, and increased edge effects (Groce et al. 2010).

Fragmentation is the reduction of large blocks of a species' habitat into smaller patches. While GCWA have been found to be reproductively successful in small patches of habitat (less than 50

acres), there is an increased likelihood of occupancy and abundance as patch size increases (Coldren 1998, Butcher et al. 2010, DeBoer and Diamond 2006). Increases in pairing and territory success are also correlated with increasing patch size (Arnold et al. 1996, Coldren 1998, Butcher et al. 2010). In addition, while some studies have suggested that small patches that occur close to larger patches are likely to be occupied by GCWA, the long-term survival and recovery of the GCWA is dependent on maintaining the larger patches (Coldren 1998, Peterson 2001, Texas Nature Conservancy 2002).

As GCWA habitat fragmentation increases, edges are created where two or more different vegetation types meet. For the GCWA, an edge is where woodland becomes shrubland, grassland, a subdivision, etc., and depending on the type of edge, it can act as a barrier for dispersal; act as a territory boundary; favor certain predators; increase nest predation; and/or reduce reproductive output (Johnston 2006, Arnold et al. 1996). Canopy breaks (the distance between tree top foliage) of as little as 36 feet have been shown to be barriers to GCWA movement (Coldren 1998). Territory boundaries have not only been shown to stop at edges, but GCWA will often avoid nesting near habitat edges (Beardmore 1994, DeBoer and Diamond 2006, Sperry 2007).

Other threats to GCWA include the clearing of deciduous oaks upon which the GCWA forage, oak wilt infection in trees, 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). Human activities have reduced GCWA habitat throughout the species' range, particularly areas associated with the I-35 corridor between the Austin and San Antonio metropolitan areas.

Range-wide Survival and Recovery Needs

The recovery strategy 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 viable population in each unit. These recovery units were delineated based primarily on watershed, vegetation, and geologic boundaries (Service 1992).

According to the Golden-cheeked Warbler Population and Habitat Viability Assessment Report (Service 1996) and Alldredge et al. (2002), a viable GCWA population needs to consist of more than 3,000 breeding pairs. This and other 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 one viable population will need a minimum of 32,500 acres of unfragmented habitat to reduce the possibility of extinction of that population to less than five percent over 100 years (Service 1996). This estimate increases as the quality of the habitat decreases.

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. Current and future efforts to create new and protect existing habitat will enhance the GCWA's ability to expand in distribution and numbers. Efforts to protect 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.

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 (Service 1992). Currently there are four GCWA populations receiving some degree of protection: those at the Balcones Canyonlands Preserve in Travis County; the nearby Balcones Canyonlands National Wildlife Refuge in Travis, Burnet, and Williamson counties; Joint Base San Antonio - Camp Bullis Military Installation in Bexar County; and the Fort Hood Military Reservation in Coryell and Bell counties. There are also conservation banks whose goal is to protect GCWA habitat including the nearby Hickory Pass Conservation Bank (2,892 acres) in Burnet County.

3. Environmental Baseline

Bone Cave Harvestman and Coffin Cave Mold Beetle

Status of BCH and CCMB in the Action Area

The action area includes about 43 acres of karst zone 1 and the project is expected to directly adversely affect about 2.5 acres of karst zone 1. The action area occurs entirely in the North Williamson County KFR. There are no known caves supporting BCH or CCMB in the action area. However, there are at least five caves within 500 meters of the sewer pipeline alignment and four of these caves are confirmed habitat for the BCH.

Factors Affecting Species Environment in the Action Area

Factors affecting BCH and the CCMB in the action area would be the same as those affecting the species range-wide.

Golden-cheeked Warbler

Status of Species in Action Area

Woodlands with tree canopy cover exceeding 35 percent containing a mix of Ashe juniper, oaks, and other hardwoods are considered potential GCWA habitat. As described in the Service's 1992 Golden-cheeked Warbler Recovery Plan, the breeding range of the GCWA in Texas is divided into eight recovery units and Lake Georgetown is located in the northeastern part of GCWA recovery unit 5. Relatively large blocks of interconnected GCWA habitat occur around Lake Georgetown and the action area is in one of these blocks. One study estimated that there

were 48,254 acres of woodlands in recovery unit 5 in 2010 and 2011 (Duarte et al. 2013). That estimate was based on images taken prior to the severe drought experienced in 2011 which affected woodlands in central Texas. The action area constitutes a small fraction of recovery unit 5.

The Service has issued 60 formal section 7 consultations authorizing over 100,000 acres of golden-cheeked warbler habitat to be impacted and 133 incidental take permits associated with HCPs for the golden-cheeked warbler that cover a permit area of more than 70.1 million acres. Several large section 7 consultations account for over 95% of the total impacts authorized: 1) over 37,900 acres were associated with Department of Defense (DOD) activities on Fort Hood; 2) over 51,500 acres were associated with Natural Resources Conservation Service brush control projects throughout the GCWA's 35 county range; and 3) 5,000 acres were associated with DOD activities on Camp Bullis, less than 15 percent of which was considered occupied. The result of these consultations is over 67,800 acres of golden-cheeked warbler habitat maintained on DOD land for the benefit of the GCWA.

Recent large scale 10(a)(1)(B) incidental take permits issued that include golden-cheeked warbler as a covered species include the Oncor HCP, Hays County HCP, Lower Colorado River Authority Competitive Renewable Energy Zone HCP, and the Comal County HCP. In total these four HCPs authorize about 18,363 acres of impacts to golden-cheeked warbler habitat and at full performance would preserve 22,988 acres of golden-cheeked warbler habitat.

Six previous section 7 consultations that include take of the golden-cheeked warbler have been completed for actions within Williamson County resulting in the loss of about 440 acres and the preservation of about 407 acres of golden-cheeked warbler habitat. Seven previous HCPs that include take of golden-cheeked warbler have been completed for actions within Williamson County:

1. Six smaller scale HCPs authorized removal of about 478 acres of golden-cheeked warbler habitat and preservation of about 516 acres of golden-cheeked warbler habitat; and,
2. The Williamson County regional habitat conservation plan (TE-181840) authorized removal of 6,000 acres of golden-cheeked warbler habitat and preservation of 6,000 acres of golden-cheeked warbler habitat (if a 1:1 offset ratio is assumed) either within Williamson County or within a Service approved conservation bank.

4. Effects of the Proposed Action

BCH and CCMB

It is anticipated that 2.5 acres of karst zone 1 will be directly affected by open trenching and directional drilling. It is not known whether the trenching or drilling will intersect any occupied

karst features. If occupied karst features are affected, they may be occupied by BCH and/or CCMB. The City's participation in the RHCP will support the protection and maintenance of BCH and CCMB occupied karst features. These karst species will benefit as RHCP acquires and manages karst preserves in perpetuity. The preserves, funded by RHCP participation, will be in the Georgetown KFR, which will help protect habitat of BCH and CCMB.

GCWA

It is anticipated that up to 2.5 acres of golden-cheeked warbler habitat will be directly destroyed or degraded due to the proposed pipeline construction and its maintenance based on the BA and our review of the pipeline right-of-way and GCWA habitat. The BA estimates that 2.5 acres will be directly impacted.

Using habitat as a surrogate to estimate incidental take of individual golden-cheeked warblers is consistent with the previous consultations and incidental take permits. Butcher et al. (2010) estimated the minimum patch size (of oak-juniper woodlands) for reproductive success in the GCWA is between 37 and 50 acres. Based on a 50 acre territory size, the area affected by the pipeline is estimated to support one breeding territory. The project is not expected to eliminate an entire breeding territory but would affect the number of mature trees used by GCWA in the pipeline easement. The trees would (if not removed) provide habitat for feeding, sheltering, and potentially nesting. A 2.5 acre loss of woody vegetation in a linear configuration will increase the size of an open corridor through of the woodland block. The corridor may be used increasingly by birds that have negative effects on GCWA, such as brown-headed cowbirds and blue jays. The overall habitat loss may decrease feeding and breeding opportunities for one pair of GCWA and we estimate the project will result in the take of one breeding pair of GCWA.

The City will support the permanent preservation of GCWA habitat through a \$4,500 contribution to the WCCF. The WCCF will use these funds for GCWA conservation by additions to the GCWA preserve system in and near Williamson County. Woodland clearing associated with projects will not occur between March 1 and July 31, which will likely avoid direct take of individual birds. If breeding season GCWA surveys are done per the Service's protocol (in 2015 or 2016) and no GCWA are present in the action area, pipeline construction may proceed.

5. Cumulative Effects

Cumulative effects include the effects of future State, 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.

Future land use changes in and near the action area on private lands are not expected because the area is already developed. The potential cumulative effects include : (1) ongoing impacts from urban land use; (2) use of pesticides on and near karst and oak-juniper woodland habitat; (3) contaminated runoff; and, (4) predation by feral animals and pets.

6. Conclusion

After reviewing the current status of the BCH, CCMB, and the GCWA, 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 pipeline project is not likely to jeopardize the continued existence of the BCH, CCMB, or GCWA. This is based on: (1) the limited areal extent of the proposed pipeline impacts relative to the overall habitats occupied by BCH, CCMB, and GCWA, and (2) support for the conservation of these species through permanent preserves administered by the RHCP or a Service-approved habitat conservation bank. We also anticipate that participation in the RHCP will support protection of caves supporting BCH and CCMB. The Service anticipates that the GCWA habitat protected in conservation banks will be of equal or higher quality than that which is cleared by the pipeline project.

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 by the Service as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding and sheltering (50 CFR §17.3). Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns, including breeding, feeding, and sheltering. Incidental take is defined by the Service 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 this Incidental Take Statement.

The measures described below are nondiscretionary and must be implemented by the City so that they become binding conditions of any authorization issued to implement a project covered by this programmatic opinion, as appropriate, in order for the exemption in section 7(o)(2) to apply. The USACE has a continuing duty to regulate the activity covered by this incidental take statement. If USACE (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the authorizations, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of

section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USACE 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

The Service is uncertain as to the number of BCH and CCMB that will be taken by the project. The pipeline may intersect and destroy multiple karst features. Alternatively, although the project will trench in karst zone 1, it may not encounter any karst features. It is not feasible to estimate the number of individuals taken. Local population sizes of BCH and/or CCMB are not known even in caves that have been surveyed multiple times. 2.5 acres of potential BCH and CCMB habitat (karst zone 1 with an unknown number of karst features) will be affected. We are unable to estimate the number of individuals of BCH or CCMB that may be taken by the project. We have a potential habitat metric (area of karst zone 1) that is measurable, and through the RHCP incidental take permit real habitat in the form of occupied caves will be protected.

The Service estimates 2.5 acres of GCWA habitat will be directly lost due to the project and anticipates incidental take of golden-cheeked warblers will occur as a result of the proposed project in the form of decreased foraging and nesting habitat in a woodland patch presumed to be occupied. The Service anticipates the following amount of incidental take from the water pipeline construction:

1. Williamson County karst invertebrates: an unknown number of individuals of BCH and CCMB will be taken by the project. No more than 2.5 acres of karst zone 1 may be permanently destroyed over a five year period beginning on the date of this biological opinion.
2. Golden-cheeked warblers: No more than one breeding pair may be taken by the project. No more than three acres of golden-cheeked warbler habitat may be permanently destroyed over a five year period beginning on the date of this biological opinion.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the BCH, CCMB, or GCWA because of the relatively small amount of disturbance and due to the long-term beneficial effects associated with the proposed mitigation strategy and the commitment to participate in the RHCP. Participation agreements will be secured prior to the initiation of clearing activities. No critical habitat has been designated for these three endangered species, therefore, none will be affected.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of BCH, CCMB, and GCWA:

1. Minimize habitat impacts to karst features potentially supporting BCH and CCMB by minimizing to the maximum extent practicable the area affected by construction.
2. Minimize harassment and harm of GCWA during activities associated with project actions (e.g., clearing of woody vegetation); and,
3. Conservation measures in the form of participation in the RHCP and funding to the WCCF will occur prior to project-related adverse effects to habitat.

Terms and Conditions

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

The following terms and conditions implement reasonable and prudent measure number one:

- A. To the greatest extent practicable, clearing and construction activities will be kept to the minimum area as described in the BA.
- B. If karst features are discovered, the City will follow the protocols of the Texas Commission on Environmental Quality and the protocols for participants in Williamson County Regional Habitat Conservation Plan.

The following terms and conditions implement reasonable and prudent measure number two:

- C. Authorized activities within GCWA habitat should be conducted between August 1 and February 28th. This is the non-nesting period for golden-cheeked warblers. Activities outside the breeding season that impact GCWA habitat may still result in indirect take of GCWA in the form of harassment. Planning for projects should avoid GCWA habitat, when possible and minimize impacts when habitat cannot be avoided. If additional GCWA surveys are done in the action area for the 2015 or the 2016 breeding season per the Service's protocol and no GCWA are detected, construction activities may begin provided the surveys are approved by the Service. If construction has begun and is actively ongoing at the beginning of the GCWA breeding season (March 1), construction may continue.
- D. This biological opinion will expire in five years. All personnel involved in any authorized activity covered by this biological opinion shall be informed of these terms and conditions prior to the construction of the pipeline.

The following terms and conditions implement reasonable and prudent measure number three:

- E. Prior to clearing and construction activities, the City shall obtain a RHCP participation certificate.

Reporting Requirements

The USACE and Austin Ecological Services Field Office shall be notified by letter or email when the Applicant has acquired the RHCP participation certificates, and when construction begins and ends. The Service contact person for this is Patrick Connor, Fish and Wildlife Biologist at (512) 490-0057, ext. 227.

Review Requirements

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effects of incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that no more than 2.5 acres of karst zone 1 and 2.5 acres of golden-cheeked warbler habitat will be permanently lost from the project.

If, during the course of the authorized activities, this level of incidental take is exceeded, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The USACE must provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures. This biological opinion will expire five years from the date of issuance.

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 BCH, CCMB, and GCWA, to help implement recovery plans, or to develop information.

The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibilities for these species.

1. The City should promote surveys when feasible for karst features in Georgetown and if karst features have the appropriate hallmarks, have faunal surveys performed. We encourage the USACE and City to monitor trenching operations and if a biologically significant karst feature is discovered, the Service recommends the karst feature be surveyed by someone permitted by the Service for federally listed karst species of Williamson County and the survey report be provided to the USACE and Service.
2. The City should promote and support surveys for GCWA in Georgetown whenever feasible.

3. The USACE should review the potential its lands to support GCWA, BCH, and CCMB. A series of breeding season presence-absence surveys of suitable GCWA habitat should be done on USACE property. Surveys for caves and other karst features should be done in a minimum for karst zones 1 and 2. Any karst features discovered should be assessed for potential suitability for listed cave fauna.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting BCH, CCMB, GCWA or other listed species, the Service requests notification of the implementation of any conservation recommendations.

Reinitiation Notice

This concludes formal consultation on the easement from the USACE to the City of Georgetown - Utilities. As provided in 50 CFR Sec. 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 consultation; (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 biological 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.

If you have any questions regarding this biological opinion, please contact Tanya Sommer or Patrick Connor at (512) 490-0057, extensions 222 and 227 respectively.

Sincerely,

/ s /

Adam Zerrenner
Field Supervisor

Robert Adams, USACE, Lake Belton, TX
Gary Boyd, WCCF, Georgetown, TX

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