

**Environmental Assessment/
Habitat Conservation Plan for
Issuance of an Endangered Species Section
10(a)(1)(B) Permit for the Incidental Take of the
Golden-cheeked Warbler (*Dendroica chrysoparia*)
during Construction of a Single Family Residence on
10.117 acres (Tax parcel ID 013427)
on City Park Road, Travis County, Texas**

**U.S. Fish and Wildlife Service
Ecological Services
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Austin, Texas 78758**

February 19, 1998

COVER SHEET

Title for Proposed Action: Issuance of Endangered Species Act section 10(a)(1)(B) permit allowing incidental take of the endangered golden-cheeked warbler (*Dendroica chrysoparia*) during construction of a single family residence on 0.75 acre of the 10.117 acres (Tax parcel ID 013427) on City Park Road, Travis County, Texas.

Unit of U.S. Fish and Wildlife Service Proposing Action: Regional Director - Region 2, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Legal Mandate for Proposed Action: Endangered Species Act of 1973, as amended, section 10(a)(1)(B), as implemented by 50 CFR 17.22.

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1.0 INTRODUCTION

Mark and Brenda Hogan (Applicants) propose to construct a single family residence on 0.75 acre of the 10.117 acres (Tax parcel ID 013427) on City Park Road, Travis County, Texas (Figure 1). In accordance with the Endangered Species Act (Act) of 1973 as amended, provided by 50 CFR 17.22, the Hogan's have filed an application for a Section 10(a)(1)(B) permit. The permit would allow the incidental take of the GCW associated with the otherwise lawful construction, operation, and occupation of a single family residence. A habitat conservation plan has been included in the preferred development that would avoid, minimize, and mitigate the potential impacts to the GCW to the greatest extent practicable (Section 6.0).

2.0 PURPOSE AND NEED FOR ACTION

The purpose of this Environmental Assessment/Habitat Conservation Plan (EA/HCP) is to evaluate environmental impacts of the issuance of a section 10(a)(1)(B) permit for the preferred alternative and the other alternative that was considered. The permit would authorize the development of portions of the Hogan Tract and allow for the incidental take of the federally listed GCW. This EA/HCP will establish the conditions under which the Applicants will meet the requirements for a section 10(a)(1)(B) permit under the Endangered Species Act. The need for the permit is so that otherwise lawful development may proceed.

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 VEGETATION

Woodlands in western Travis County are generally dominated by Ashe juniper (*Juniperus ashei*), plateau live oak (*Quercus fusiformis*), Texas oak (*Quercus buckleyi*), cedar elm (*Ulmus crassifolia*), and hackberry (*Celtis laevigata*). Other frequent to occasional species include bumelia (*Bumelia lanuginosa*), Texas persimmon (*Diospyros texana*), elbowbush (*Forestiera pubescens*), yaupon (*Ilex vomitoria*), redbud (*Cercis canadensis*), rough-leaf dogwood (*Cornus drummondii*), and Texas mountain laurel (*Sophora secundiflora*).

At least one of three general woodland communities (plateaus, canyons, and ecotonal areas) exist in the project area. The plateau areas, which comprise a majority of the site, tend to be generally xeric in nature due to various geologic and surface drainage characteristics. The plateau community is typically dominated by Ashe juniper with occasional plateau live oak and shin oak (*Quercus sinuata* var. *breviloba*).

Canyon areas tend to be mesic and support a greater diversity and stature of woodland species. Ashe juniper is again usually dominant canopy species. Texas oak with mixtures of live oak, cedar elm, hackberry, Arizona walnut (*Juglans major*) and escarpment black cherry (*Prunus serotina* var. *eximia*) are also common.

Figure 1: Project Location

Ecotonal zones between upper plateaus and canyons contain a mixture of plateau and canyon communities with Ashe juniper being dominant and occasional live oak, Texas oak, and shin oak. Grasslands in the area are vegetated predominantly with silver bluestem (*Bothriochloa saccharoides*), little bluestem (*Schizachyrium scoparium*), threeawn (*Aristida* sp.), buffalograss (*Buchloe dactyloides*), and miscellaneous herbs and forbs.

3.2 WILDLIFE

Wildlife of generally wooded areas is typified by common woodland species of central Texas. Common bird species include northern mockingbird (*Mimus polyglottos*), northern cardinal (*Cardinalis cardinalis*), Carolina chickadee (*Parus carolinensis*), hermit thrush (*Hylocichla guttata*), tufted titmouse (*Parus bicolor*), black and white warbler (*Mniotilta varia*), and other common woodland bird species. Common mammals include white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphus virginiana*), fox squirrel (*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), and nine-banded armadillo (*Dasypus novemcinctus*). Herpetofauna include aquatic and terrestrial reptile and amphibian species. Common reptiles include Texas rat snake (*Elaphe obsoleta*), patch-nosed snake (*Salvadora grahamiae*), northern fence lizard (*Sceloporus undulatus*), and ground skink (*Scincella lateralis*).

3.3 LISTED, PROPOSED AND CANDIDATE SPECIES

Nine animal species that occur in western Travis County are listed as endangered by the U.S. Fish and Wildlife Service (Service). These species include: two birds, the black-capped vireo (*Vireo atricapillus*) and GCW; six cave-dwelling invertebrates: the Tooth Cave pseudoscorpion (*Tartarocreagris texana*), Tooth Cave spider (*Neoleptoneta myopica*), Tooth Cave ground beetle (*Rhadine persephone*), Kretschmarr Cave mold beetle (*Texamaurops reddelli*), Bee Creek Cave harvestman (*Texella reddelli*), and Bone Cave harvestman (*Texella reyesi*); and one amphibian, the Barton Springs salamander (*Eurycea sosorum*). Of these nine species, only the GCW is known to occur on the Hogan Tract.

The golden-cheeked warbler breeds only in the mixed Ashe juniper-deciduous woodlands of the central Texas Hill Country west and north of the Balcones Fault Line and winters in the highland pine-oak woodlands of southern Mexico and northern Central America. The GCW requires the shredding bark of mature Ashe junipers for nesting material and forages for insects in various deciduous tree species, especially Texas oak (*Quercus buckleyi*). The males arrive in central Texas around March 1 and begin to establish breeding territories which they defend against other males by singing from visible perches within their territories. The females arrive a few days later but are more difficult to detect in the dense woodland habitat. Eggs are generally incubated in April and, unless there is a second nesting attempt, fledgling occurs in May to early June. By early August, the GCW begin their migration south.

The GCW was listed as endangered on December 27, 1990, because of the imminent and ongoing destruction of habitat. The greatest threats to the continued existence of the GCW is loss of habitat and urban encroachment. Human agricultural activities have eliminated much GCW habitat within the central and northern parts of the GCW's range. The estimated population size of the GCW as of 1990 was 13,800 territories. However, this was a crude estimation based on Landsat and aerial photography rather than actual survey data. Recent surveys suggest that the rate of habitat loss is accelerating as suburban developments spread into prime GCW habitat along the Balcones Escarpment, especially in the growth corridor from Austin to San Antonio.

Research (Rodriguez, in review) of declining neotropical migratory passerines (which includes the GCW) indicates that the common factor in all species declines is habitat degradation and/or destruction in core breeding areas. Other literature (i.e. Robinson *in* Hagan & Johnston 1992, Donovan et al, 1995a & b) also indicate that declining populations of neotropical migrants in marginal, outlying habitats may be due to declining productivity in central populations that would normally emigrate to the less productive areas. Research on golden-cheeked warblers indicate that occupancy and productivity are considerably lower in "small" patches of habitat than in larger ones (C. Coldren, 1998; Maas-Barleigh, 1997; D. Keddy-Hector, Austin Community College, pers. comm.) The GCW has been extirpated from Kerrville State Park (517.2 acres), and the population has been declining over the last 25 years at Meridian State Park which supports less than 250 acres of habitat (F. Gelbach, Baylor University, pers. comm.).

Based on 1979 and 1997 satellite imagery data, Travis County is one of the counties with the greatest amounts of habitat in large, contiguous blocks, and it lies at the center of the species' range. There is little connectivity between the large habitat blocks in Travis County and other large blocks in adjacent recovery regions. Currently there are only three significant populations receiving some degree of protection: those at the Balcones Canyonlands Preserve (BCP) [a regional 10(a)(1)(B) HCP], the nearby Balcones Canyonlands National Wildlife Refuge (BCNWR), and Ft. Hood Military Reservation in Coryell and Bell Counties. Although Ft. Hood contains large contiguous blocks of habitat, data indicate the population is not truly self-sustaining and depends on immigration and gene flow from Travis County populations. Outside of the BCP and the BCNWR in western Travis County, little habitat exists in adjacent areas of southern Travis, Williamson, Hays, and Burnet Counties.

Populations of golden-cheeked warblers and other neotropical migrants also appear to be less stable in small habitat patches surrounded by urbanization (C. Coldren, 1998; Engels, 1995; Arnold et al, 1996; Bolger et al, 1997; Moses, 1996). GCW populations are declining in suitable habitat in the rapidly urbanizing area east of Loop 360 in Travis County. For example, GCW that formerly occupied 450 acres of habitat at Wild Basin Preserve, which is now surrounded by urban development, no longer occur there on a regular basis despite proximity to a large habitat block. Some studies indicate that the abundance of several bird species, including the GCW, is reduced within 200-500 m (656-1640 ft.) of an urban edge (Engels 1995, Arnold et al. 1996, Bolger et al. 1997, C. Coldren, 1998). Coldren reported that GCW occupancy declined with increasing residential development and roadway width (abstract, North American Ornithological Conference, 1998). Additional information on the status of the species can be found in the Golden-cheeked Warbler Recovery Plan (USFWS, 1992).

Spring breeding surveys for GCW's were conducted on adjacent properties that contain suitable habitat in 1990 by Chuck Sexton, 1993 by Espey-Huston, 1996 by the City of Austin Parks and Recreational Department, and in 1998 by the Texas Department of Transportation.. Horizon Environmental Services, Inc. conducted an on-site vegetational analysis in 1997 after GCW season was over. It was determined that the majority of the property was similar to surrounding known GCW habitat and was itself considered suitable habitat for GCWs. Due to high site fidelity, the alteration of less than 1 acre of golden-cheeked warbler habitat will adversely affect

essential GCW breeding and feeding behavior for a portion of the territory required by one pair of GCW.

The black-capped vireo was listed in November 1987. No black-capped vireos were observed on the Hogan Tract during surveys in recent years. Vegetation on or adjacent to the property differs significantly in tree species composition and structure from areas regularly occupied by black-capped vireos.

The six species of endangered cave invertebrates are believed to be restricted to a karst geologic region known generally as the Edwards geologic formation in Travis and Williamson Counties. The Edwards Formation does not occur on the Hogan Tract. The property is underlain by the Glen Rose formation, which typically does not form the caves and subsurface voids known to support the listed cave invertebrates. No caves are known to occur on or immediately adjacent to the Hogan Tract and the property lies outside of areas identified as potential habitat for any of the federally listed cave invertebrates (Balcones Canyonlands Preserve; Butler/EH&A Team 1992).

The Barton Springs salamander is known only from four springs located in a city park in Austin approximately 9.5 miles southeast of the property. These springs are fed by flow from a portion of the southern Edwards Aquifer known as the Barton Springs segment. The recharge zone for this portion of the aquifer consists of the surface outcrop of the Edwards limestone south of the Colorado River in Travis County as well as some of the Edwards outcrop in northern Hays counties. Additional recharge is received from a contributing zone formed by watersheds of creeks that lie up-gradient of the recharge zone. The Hogan Tract lies within the Lake Austin watershed and outside of the recharge and contributing zones of the southern Edwards aquifer (Slade et al. 1986). Therefore, surface water runoff from the property does not have the potential to adversely impact the Barton Springs salamander.

Two plants, the canyon mock-orange (*Philadelphus ernestii*) and Texabama croton (*Croton alabamensis texensis*), are considered to be rare in Travis County and protection for these species is provided for in the Balcones Canyonlands Preserve (BCP), a regional habitat conservation plan for western Travis County.

Canyon mock-orange typically grows on large boulders or steep rock faces within canyons. This species is not known to occur on the property; the nearest known occurrence is roughly 2.6 miles to the east.

In Travis County, Texabama croton is known from only a small number of scattered localities, most of which are in the Post Oak Ridge area well north of the property. The nearest known occurrence of this plant to the Hogan Tract is in Cypress Creek County Park, on the north side of the Colorado River, approximately 7.9 miles north of the property. This species is considered unlikely to occur on the property due to its restricted range.

3.4 WETLANDS

Areas subject to jurisdiction under section 404 of the Clean Water Act include those areas that fall at or below the "plane of ordinary high water" of these waterways as defined by 33 CFR 323.2. No areas of the subject tract defined as wetlands by the criteria established in the 1987 Corps of Engineers Wetland Delineation Manual have been identified on the subject tract.

3.5 GEOLOGY/SOILS

The Hogan Tract is located near the eastern end of the Edwards Plateau on a gently sloping plateau dissected by canyons that open out to Lake Austin (Colorado River). Surface geology of the property consists of the upper unit of the Glen Rose Formation. This Lower Cretaceous formation consists of limestones, dolomites, and marls. The upper unit is generally not conducive to the formation of karst features.

The soils on the Hogan Tract are classified within the Brackett Association. These soils are typically shallow, gravelly, calcareous, and loamy (Soil Conservation Service 1974). Two soil series occur on the property: 1) Brackett soils, rolling and 2) Brackett soils and rock outcrop, steep

Brackett soils, rolling, occur on ridgetop and plateau areas. Soils typically consist of gravelly clay loams and broken limestone fragments.

Brackett soils and rock outcrop, steep, occur on the slopes of drainages along the north, south and west of the property.

3.6 LAND USE

The Hogan Tract is bordered by mature oak/juniper forested canyons to the north, south and east, and is located within proposed preserve acquisition boundaries of the Balcones Canyonlands Preserve. The subject tract is located in Central Travis County, and is within an area that has been experiencing urban development for the past 15 to 20 years. The Applicant's property is bordered to the west by City Park Road, to the south by Emma Long Park and to the north and east by undeveloped private property. It is located within the North Lake Austin macrosite for GCW conservation (Figure 2).

3.7 WATER RESOURCES

The Hogan Tract lies to the north of Lake Austin. There are no springs or intermittent tributaries on the property. All portions of the property lie within the Lake Austin watershed.

3.8 AIR QUALITY

Travis County and the Austin metropolitan area are currently full attainment areas for all air quality criteria pollutants of the Environmental Protection Agency (EPA) and Texas Natural Resource

Conservation Commission (TNRCC). Changes in attainment standards could affect future attainment status.

3.9 WATER QUALITY

Water quality on the proposed development site is presently estimated to be good because it is an undeveloped lot with no current commercial or residential use.

All streams in the vicinity are listed as compliance streams suitable for contact recreation by TNRCC.

3.10 CULTURAL RESOURCES

There are no properties or archeological sites listed on the National Register of Historic Places or the Texas Historical Commission (THC) for the Hogan Tract.

4.0 ALTERNATIVES INCLUDING THE PREFERRED ACTION

This section presents details of the preferred alternative and the reasonably practicable alternatives that have been considered. Alternatives include: 1) preferred alternative, 2) alternate project design, and 3) no action. Environmental consequences of these various alternatives are presented in section 5.0.

4.1 ALTERNATIVE 1 - PREFERRED ACTION

Issuance of the permit under section 10(a)(1)(B) of the Act would authorize the potential incidental take of endangered GCW's, directly or indirectly, on 0.75 acre of the 10.117-acre property during development, construction and occupation of a single family residence with associated yard and driveway. This development plan was designed in coordination with the USFWS.

Figure 2: Golden-cheeked Warbler Macrosites

Anticipated onsite and offsite impacts of the proposed action are addressed in section 5.1.

A HCP has been developed as part of the preferred alternative as mitigation for the potential incidental taking of the GCW associated with development, construction, and occupation of the Hogan Tract. The conservation plan is fully addressed under Section 6.0 of the HCP.

This alternative was selected as the preferred action as it will allow development of the property and the conservation plan minimizes and offsets potential impacts to GCW by providing for offsite conservation measures which will be utilized to better manage recovery of the species.

4.2 ALTERNATIVE 2 - ALTERNATE PROJECT DESIGN

The Hogan tract is only suitable for building on the western portion of the tract, therefore, any alteration in project design would have the same direct and indirect impacts on GCWs as discussed under Section 4.1, the preferred alternative.

4.3 ALTERNATIVE 3 - NO ACTION

This alternative assumes that all proposed development does not occur and that no application for incidental take is processed.

5.0 ENVIRONMENTAL CONSEQUENCES

5.1 ALTERNATIVE 1- PREFERRED ALTERNATIVE

5.1.1 On-site Impacts

5.1.1.1 Vegetation

The proposed action of permit issuance for the homesite, driveway and surrounding yard will result in surface and/or vegetational alteration of less than three quarters (0.75) of an acre (Figure 4). Most vegetative resources associated with construction of a single family residence will be altered.

5.1.1.2 Wildlife

Wildlife within those areas planned for development would largely be displaced to adjacent areas during the construction process. Following construction, landscape vegetation and preserved trees would provide habitat for those species tolerant of suburban development. Significant portions of the property, specifically canyon slopes and bottoms that support vegetation with the greatest wildlife value on the tract, would remain relatively undisturbed and continue to provide habitat for the wildlife species that currently utilize the area. Direct and indirect effects of development on the plateau areas may result in slightly negative or positive impacts to the populations of some species on the canyon slopes and bottoms.

Figure 3: Project Design

5.1.1.3 Listed, Proposed, and Candidate Species

The only listed species known or considered likely to occur in the project area is the GCW. Several Spring breeding surveys have been conducted on adjacent property over the years. In 1990 Dr. Chuck Sexton with the City of Austin, 1993 Espey-Huston, 1996 the City of Austin Parks and Recreational Department, and in 1998 the Texas Department of Transportation, and in 1997 Horizon Environmental Services, Inc. conducted an on-site vegetational analysis and determined that the majority of the property is similar suitable GCW habitat consistent with surrounding property.

Little direct modification of GCW habitat is expected to occur as a result of development of the Hogan Tract because habitat is limited to the relatively steep slopes outside of developable areas. Viability of parts of the habitat are expected to be eliminated due to factors associated with urbanization of the property.

Assessment of Take

Approximately 1 acre of golden-cheeked warbler habitat is expected to be directly modified by the proposed development. Due to potential indirect effects of urbanization, another 4 acres of habitat may be rendered unsuitable for use by GCW following completion of the proposed project. Therefore, a total of approximately 5 acres of golden-cheeked warbler habitat may be adversely affected by Alternative 1, which is expected to result in the take of 1 golden-cheeked warbler territory. No take is anticipated for any other federally listed or proposed species.

As part of the proposed action, a HCP has been developed to mitigate for and minimize the potential adverse modification of habitat described above and assure that this action does not reduce the potential for survival and recovery of the GCW in the wild, as mandated by requirements of 50 CFR Part 17.22(b)(1)(iii). The HCP is detailed in Section 6.0.

5.1.1.4 Wetlands

Areas subject to section 404 of the Clean Water Act jurisdiction are limited to existing surface creek channels and is not proposed for development. Runoff into this area is to be treated according to local regulations and EPA standards for nonpoint-source pollution and sedimentation prevention. No impacts are expected.

5.1.1.5 Geology/Soils

No significant geologic alterations are anticipated from the proposed project. Some surface soil alterations will result from proposed development.

5.1.1.6 Land Use

The subject property will be converted from undeveloped land to developed with a single-family residence and driveway leading to the homesite. The preferred alternative is fully comparable and compatible with current land uses in the area. Development of the Hogan Tract would not significantly increase the overall level of development in the area beyond those currently existing or planned.

5.1.1.7 Water Resources

Subsurface groundwater resources will be slightly altered by construction of impervious cover in the form of a homesite and driveway. Water that would have seeped into geologic strata will become surface runoff. There could be slight increases in sediment loading and other pollutants in surface water runoff, however, these increases are not believed to be significant.

5.1.1.8 Air Quality

Development of the property would contribute to local traffic noise and exhaust emissions by increasing the number of people operating vehicles in the area. A reduction in the number of trees on the property may slightly reduce local air filtering capabilities, although this reduction may be offset by future landscaping. A temporary increase in noise and dust levels is expected during the construction process. None of these impacts are expected to have a significant effect on local or regional air quality.

5.1.1.9 Water Quality

No significant impacts are expected to occur from runoff of developed areas. All City of Austin and Travis County Land Development Codes are expected to be complied with during all aspects of development.

5.1.1.10 Cultural Resources

There are no properties or archeological sites listed on the National Register of Historic Places or the Texas Historical Commission (THC) for the Hogan Tract. No impacts are expected to occur to any significant sites of historical value.

5.1.2 **Off-site Impacts**

5.1.2.1 Vegetation

No off-site impacts to vegetation are expected to occur.

5.1.2.2 Wildlife

There is likely to be an unknown effect from the displacement of wildlife to adjacent areas resulting from increased competition, exposure to predation, an increase in species both native and non-native that benefit from urbanization and other impacts.

5.1.2.3 Listed, Proposed, and Candidate Species

Off-site impacts pertaining to endangered species may ultimately include displacement of GCW that have been documented to utilize areas adjacent to the subject site. Negative impacts include increased competition due to habitat loss. Habitat fragmentation may increase nest parasitism and predation by brown-headed cowbirds, blue jays, cats, fire ants and raccoons. Vegetation alterations may result due to introduction of exotic species. These actions may result in negative impacts to golden-cheeked warblers that inhabit surrounding preserve lands.

Implementation of conservation measures described in section 6.0 illustrate methods to be utilized to minimize and mitigate potential on-site impacts. Actions described for conservation/mitigation measures would address any offsite impacts that may result due to proposed development.

5.1.2.4 Wetlands

No off-site impacts to wetlands are expected as a result of off-site impacts associated with the proposed action.

5.1.2.5 Geology/Soils

No significant offsite impacts to geology or soils are expected to occur as a result of the proposed action. All off-site construction would comply with applicable construction codes for erosion and sedimentation control.

5.1.2.6 Land Use

No off-site impacts to land use are expected as a result of the proposed action. The proposed action is fully comparative and comparable to current land use in the area.

5.1.2.7 Water Resources

Offsite surface and groundwater resources are not expected to be impacted by this activity. Natural water volumes exiting from the site are expected to remain consistent with normal weather patterns, with slight increases in surface water runoff due to increases in impervious cover due to development.

5.1.2.8 Air Quality

Vehicle emissions and noise levels, as well as emissions from fireplaces, are expected to increase locally due to an increase in numbers of vehicles and residences in the area. This local increase may have minor effects on regional air quality conditions.

5.1.2.9 Water Quality

Construction of the proposed off-site road would adhere to all applicable construction codes for erosion and sedimentation control. No significant impacts to local water quality are expected as a result of off-site impacts.

5.1.2.10 Cultural Resources

No offsite impacts to cultural resources are expected.

5.1.3 **Cumulative Impacts Analysis**

This section considers the past, present, and future projects, authorized or under review, that are considered to contribute to the cumulative loss of species of concern.

5.1.3.1 Vegetation

As proposed actions would result in disturbance of less than one acre of vegetation, primarily juniper-live oak woodland, it would cumulatively contribute to disturbance of this vegetation type in Travis County resulting from development, road construction, and other land use projects.

5.1.3.2 Wildlife

The preferred alternative will contribute to a cumulative reduction of habitat for some wildlife species when added to impacts resulting from other development, road construction, and other land use projects in Travis County. Wildlife species associated with urban and suburban settings would likely increase while species intolerant of development would locally decrease.

5.1.3.3 Listed, Proposed and Candidate Species

The golden-cheeked warbler is a species which prefers large blocks of habitat with minimal urban disturbance. The preferred alternative will reduce the size of the habitat block and increase habitat fragmentation of the habitat. This alternative will contribute to the total take of GCWs and/or their habitat in the region when added to other section 10(a)(1)(B) incidental take permits that have been or will be issued by the Service. To date, 96 incidental take permits for the GCW have been issued in the Austin area. These permits cover approximately 9,872 acres, some of which are also within the area covered by the BCCP regional 10(a)(1)(B) permit. A portion of these areas included GCW habitat. There are currently 20 active incidental take permit applications being considered by the Service in the Austin area. These applications or pre-application consultations cover in excess of 9,257 acres, of which a portion is suitable GCW habitat. The level of impacts resulting from projects for which permits are currently being considered is dependent on the amount of take resulting from the actual number of these permits issued by the Service. Cumulatively, the anticipated take could significantly reduce the probability of survival of the GCW and each application is being evaluated with respect to its impact on the GCW population in Recovery Unit 5 (delineated in the GCW Recovery Plan, 1992).

5.1.3.4 Wetlands

There are no impacts to wetlands as a result of the preferred alternative. Therefore, no cumulative impacts are anticipated.

5.1.3.5 Geology and Soils

No significant cumulative impacts to geology and soils would occur as a result of the preferred alternative.

5.1.3.6 Land Use

The preferred alternative contributes to the ongoing conversion of undeveloped land to developed land in the Austin area. Past, present, and future developments must comply with all development codes. Austin is a rapidly growing city and development pressure is intense.

5.1.3.7 Water Resources

The construction of this single family residence is not likely to significantly affect water resources.

5.1.3.8 Air Quality

The preferred alternative will contribute to degradation of air quality in the Austin area, primarily through an increase in automobile emissions. The significance of the impact will depend upon air quality requirements for construction activities and automobiles. The continued development of the area could result in a significant cumulative impact on air quality.

5.1.3.9 Water Quality

Although the project plans to limit impervious cover and comply with all applicable regulations, it is expected that some water quality degradation will unavoidably occur from pesticide and fertilizer use and runoff from roads.

5.1.3.10 Cultural Resources

This project, because of its limited scope and nature of land disturbance, will not result in cumulative impacts to sites eligible for the National Register of Historic Places.

5.2 ALTERNATIVE 2 - ALTERNATE PROJECT DESIGN

The Hogan tract is only suitable for building on the western portion of the tract, therefore, any alteration in project design would have the same direct and indirect impacts on GCWs as discussed under Section 5.1, the preferred alternative.

5.3 ALTERNATIVE 3 - NO ACTION

Under this alternative, the Applicants would not develop the Hogan Tract and there would be no take of GCWs. This alternative was rejected because abandonment of the proposed project would result in the loss of significant monies invested in the property and project planning, and cause significant economic loss to the Applicants. In addition, the property would have no active management for endangered species and no contribution of land or money would be made to the BCP, which provides the most viable strategy for preserving and recovering the GCW in Travis County.

6.0 HABITAT CONSERVATION PLAN

This section contains the Applicants' specific conservation proposals for the proposed project.

The goal of this HCP is to minimize and/or avoid adverse impacts to the GCW resulting from construction and operation of the Hogan Tract development and to contribute to the long term survival and recovery of the species..

The following measures are proposed to mitigate for impacts to golden-cheeked warbler habitat on the Hogan Tract:

ON-SITE

LAND MANAGEMENT AND MITIGATION

Development Areas

- Clearing of vegetation in, or within 300 feet of, GCW habitat will be done only during the time of the year when warblers are not breeding (August 1 through March 1 of each year) unless breeding season surveys performed by a USFWS-permitted biologist indicate that no warblers are present within 300 feet of the desired activity. Construction activities in or within 300 feet of warbler habitat may be initiated during the time of year when warblers are present so long as such construction follows permitted clearing in a prompt and expeditious manner indicating a continuous activity.
- Clearing and construction by the Applicant within the proposed development areas shall be consistent with the current practices recommended by the Texas Forest Service to prevent the spread of oak wilt.
- The use of herbicides and pesticides by the Applicant will comply with the label guidelines for application.
- Deed restrictions will prohibit the use of deer feeders or bird seed feeders in residential yards and in preserve areas.

Preserve Areas

Approximately 9.6 acres of GCW habitat as delineated by the USFWS will be preserved by being deeded through a conservation easement to a conservation entity. The Applicant will be responsible for the operation and maintenance of the preserve acreage in a manner which will maintain the area as GCW habitat. The following are conditions which the Applicants will follow:

- Cattle or other domestic livestock will not be allowed in the preserve areas.
- The preserve will be managed in coordination with the Balcones Canyonlands Preserve (BCP).
- New trails or clearing will not be allowed within the preserve area.

ADAPTIVE MANAGEMENT

This HCP also includes measures to address potential foreseeable circumstances which may affect the integrity of preserved warbler habitat on the Hogan Tract. These measures, circumstances, and respective adaptive management techniques include:

Monitoring

Annual GCW territorial surveys following USFWS approved protocol will be conducted in the conservation easement area and results reported to the USFWS. The preserve area should be monitored for the occurrence of certain factors, such as an increase in the number of white-tailed deer on the preserve, which could directly impact the GCW or its habitat. Aspects of the habitat that should be monitored may include, but are not limited to, a decline in oak seedling recruitment, indications of increased browsing pressure, a prevalence of fire ant mounds, and the threat of wildfire. Additionally, the tract should be monitored for a relatively high number of potential mammalian predators of GCWs, indications of excessive cowbird parasitism, and for indirect or direct human disturbances.

Problem Animal Control

Some animals have been identified as potential direct or indirect threats to GCWs. The following methods will be implemented, as necessary, to control the impacts of these animals on GCWs and their habitat. Any measures invoked will be in coordination and cooperation with the BCP land management activities.

- **White-tailed Deer:** Deer often occur in greater density adjacent to suburban areas than in undeveloped areas due to greater availability of food and lower predation rates. High densities of deer may have a long-term adverse affect on the abundance and distribution of deciduous tree species in the Hogan preserve areas by increasing browsing pressure on seedlings and saplings. The subsequent decrease in the deciduous tree component of the forested areas would lead to an overall decrease in the habitat value of the area for GCWs. Therefore, if the effects of excessive browsing pressure or a lack of oak seedling recruitment is noticed, the Applicant will coordinate with the USFWS to determine appropriate techniques to control browsing. Such techniques may include fencing, hunting, and/or other deer number reduction programs. Through deed restriction, deer feeders are prohibited because supplemental feeding could contribute to an increased deer population. The preserve area will be available for deer censusing conducted by the state or other agencies interested in assessing deer population levels.
- **Predators:** Some problem mammals which predate songbird eggs and young are domestic and feral cats, raccoons, opossums, and skunks. If homeowners begin to notice an increase in the number of human interactions with raccoons, skunks, or opossums, or other indicative signs, such as an increase in the amount of scat observed, a live-trapping program to reduce the number of mammalian predators should be implemented. Such a program should only be implemented after consultation with the USFWS.

- **Fire Ants:** Imported red fire ants have been recently shown to prey upon the chicks of arboreal nesting birds. If fire ant mounds are encountered during routine monitoring activities, then fire ants may be controlled with an Integrated Pest Management program using approved chemicals and bait formulations. Fire ant control should be designed to minimize impact on native ants and other flora and fauna.
- **Cowbirds:** Brown-headed cowbirds, an open-field species, are well known for parasitism of songbird nests. If the USFWS and the conservation entity determine that cowbird trapping is necessary on the Hogan tract, the Applicants will cooperate with the BCP in the placement and operation of cowbird traps.

Threat of Wildfire

Development of the Hogan tract should not appreciably increase the potential for occurrence of a catastrophic wildfire within the proposed preserve areas. If the presence of fire breaks on the Hogan tract is determined necessary by the USFWS and the Applicant, such fire breaks would normally be created outside of preserve areas to avoid destruction of GCW habitat. However, it is possible that a prolonged drought could occur that would greatly increase the potential for a catastrophic wildfire event. In such a case, the security provided by the creation of fire breaks within preserve areas may outweigh the loss of a small amount of GCW habitat. The Applicants will seek USFWS approval of any fire breaks to be created within preserve areas, prior to construction. In the event of a drought, signs will be placed at prominent locations around the preserve warning of the fire hazard conditions.

Public Access

Any activities occurring within preserve areas outside of the GCW breeding season with potential to adversely affect GCW habitat, e.g., clearing of hiking trails, will be coordinated with the USFWS. Motorized vehicles will be prohibited from preserve areas at all times, unless otherwise allowed by the USFWS to facilitate operation and maintenance of preserve areas. Mountain biking and horseback riding in the preserve area will be prohibited.

OFF-SITE

The following is intended to compensate for the proposed impacts to GCW habitat:

- The Applicant will convey to the Balcones Canyonlands Conservation Plan (BCCP), or another conservation entity subject to the reasonable approval of the USFWS, a perpetual conservation easement on the approximately 9.6-acre parcel of the property to be operated and maintained as a preserve for GCWs. This portion of the property is adjacent to City of Austin's Emma Long Park which is known GCW habitat. Therefore, the Hogan Tract will increase the acreage of unfragmented GCW habitat available in perpetuity.
- The Applicant will donate \$1,500 to the Balcones Canyonlands Preserve for the specific purpose of land acquisition/management within golden-cheeked warbler Recovery Unit 5

for conservation of golden-cheeked warblers. Funds are not required at the time of permit application but must be provided prior to any clearing activities or house construction.

Activities implementing the conservation measures will be reported in an annual report to the USFWS. More detailed provisions regarding implementation of the HCP shall be contained in an implementing agreement entered into between the Applicant and the USFWS.

In addition the Service would include the following conditions in any issued permit:

1. Clearing for construction of impervious cover will be minimized to the greatest extent practicable. Areas outside of the platted homesite that are disturbed during construction, but are not occupied by impervious surfaces, will be replanted with native oaks and other native vegetation.
2. The Permittee will inform the Service in writing upon completion of site development and construction which will occur before permit expiration. The report will be submitted by October 1 of each year during construction to the USFWS Field Office, 10711 Burnet, Suite 200, Austin, Texas 78758 and to the USFWS, P.O. Box 1306, 500 Gold Ave. SW, Albuquerque, NM 87102.
3. Upon locating a dead, injured, or sick golden-cheeked warbler, or any other endangered or threatened species, permittee is required to contact the Service's Law Enforcement Office, Austin, Texas, (512)490-0948, for care and disposition instructions. Extreme care should be taken in handling sick or injured individuals to ensure effective and proper treatment. Care should also be taken in handling dead specimens to preserve biological materials in the best possible state for analysis of cause of death. In conjunction with the care of sick or injured endangered/threatened species, or preservation of biological materials from a dead specimen, the Permittee and its contractor/subcontractor have the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.
4. Conditions of this permit shall be binding on and for the benefit of the Permittee and their respective successors and assigns. If the permit requires an amendment because of change of ownership, the Service will process that amendment without the requirement of the applicant preparing any new documents or providing any mitigation over and above that required in the original permit. The construction activities proposed or in progress under an original permit may not be interrupted provided the required special conditions of an issued permit are being followed.
5. If during the tenure of this permit the project design and/or the extent of the habitat impact described in the habitat conservation plan is altered, such that there may be an increase in the anticipated take of the golden-cheeked warbler, the permittee is required to contact the Service and obtain authorization and/or amendment of the permit before commencing any construction or other activities that might result in take beyond that described in the EA/HCP.

6.1 AMENDMENT PROCEDURE

It is necessary to establish a procedure whereby the section 10(a)(1)(B) permit can be amended. However, it is extremely important that the cumulative effect of amendments will not jeopardize any endangered species or other species of concern. Amendments must be evaluated based on their effect on the habitat as a whole. The USFWS must be consulted on all proposed amendments. The types of proposed amendments and the applicable amendment procedures are as follows:

6.2 AMENDMENTS TO THE DEVELOPMENT PLANS

It is acknowledged that upon the written request of Mark and Brenda Hogan, the local agency having land use regulatory jurisdiction, is authorized in accordance with applicable law to approve amendments to development plans for the subject property which do not encroach on any endangered species habitat that is not presently contemplated to be taken as a consequence of the development, and which do not alter the conditions set forth in this HCP.

6.3 MINOR AMENDMENTS TO THE HCP

Minor amendments involve routine administrative revisions or changes to the operation and management program and which do not diminish the level or means of mitigation. Such minor amendments do not alter the terms of the section 10(a)(1)(B) permit.

Upon the written request of Mark and Brenda Hogan, the USFWS is authorized to approve minor amendments to this HCP, if the amendment does not conflict with the primary purpose of this HCP as stated in section 2.0.

6.4 ALL OTHER AMENDMENTS

All other amendments will be considered an amendment to the section 10(a)(1)(B) permit, subject to any other procedural requirements of federal law or regulation which may be applicable to amendment of such a permit.

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