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Subject: Preliminary Comments of Draft SEP-HCP

Greetings,

Following are some comments on the first draft version (04/01/2011) of the Southern Edwards Plateau Habitat Conservation Plan. These are comments we felt the BAT and CAC, particularly with the upcoming CAC workshop, would benefit from seeing. These are not comprehensive comments on this first draft. We recommend a future meeting between Bexar County and their consultants to go over the other comments we have on this draft.

General comments:

Throughout the document there are references to exceptions being approved by the Service. To avoid constant and/or excessive appeals to the Service, we request that it be made clear throughout the document that exceptions are rare and could likely result in an individual pursuing their own HCP rather than participating in the SEP HCP.

All references to biological surveys and habitat assessments should note that they will be in accordance with current 10(a)(1)(A) Service protocols and/or Service recommendations for that species.

Covered activities should be clear that they cover only non-Federal activities and that while Federal activities may be allowed to mitigate through the plan, they will require their own section 7 consultation with the Service prior to that mitigation (this is stated clearly in some places, but not all).

When issuing participation certificates, all species present must be mitigated for prior to beginning construction, regardless of whether they fully participated for all species under the SEP or covered one or more species under the SEP and covered the remaining under an individual permit.

Karst Invertebrates:

The Service is concerned with the lack of reference to the surface and subsurface drainage basins, rather a 345 foot buffer is used instead.

Surface and subsurface drainage basins should be part of the application process and should be included within the assessed impact zone.

There are five karst zones in Bexar County.

Eligibility, downlisting criteria not yet achieved (Table 9) – should note that recovery will still be achievable without the cave(s) being requested for take coverage. This table should also clearly indicate that this eligibility criteria is for each species, not per cave.

Karst preserves in lieu of fees – 1) High or medium quality karst preserves in lieu of fees should include those species for which incidental take is being requested, not contain “any of the listed karst invertebrates.” 2) Additionally, those preserves should be protected

within the same karst region until downlisting criteria for that species has been met. 3) Under what conditions would exceptions be granted? This needs to be more specific.

Abbreviated surveys should be replaced with surveys according to current 10(a)(1)(A) Service procedures.

Eight and half acres (a 345 foot radius around a cave entrance) does not avoid precluding recovery. This size does not avoid impacts to occupied mesocaverns.

Mitigation for species must be in place prior to authorizing take, not just participation fees paid. Otherwise what assurance is there that the preservation of caves (mitigation) will actually occur?

Minimum size standards: High quality karst preserves will include at least 90 acres surrounding the: 1) cave footprint, 2) the approximate extent of the surface and subsurface drainage basins of the cave, and 3) the cave cricket foraging area. Same edits to Medium Quality karst preserves. Low Quality karst preserves should be defined as less than 40 acres but at least 18 acres, including at least 500 feet surrounding cave footprint.

We will need to put more thought into how to “cover” the six rare karst invertebrates and what process participants must follow if they hit a feature with one of these species, particularly since no mitigation is actually proposed for any of these species (section 10 issuance criteria).

Karst scenarios that will need further thought: Participant receives coverage for one species, but during construction discovers a feature: 1) with that species in it, but downlisting criteria across the range hasn't been met; 2) with a species not mitigated for under the plan; and/or 3) with a rare species where mitigation is not available.

Birds:

Mitigation for the BCVI should be the same as for the GCWA. However, we understand there are not habitat qualities, it is either BCVI habitat or it isn't. Therefore, the highest ratio applied to the GCWA should then be used for the BCVI.

Any use of GCWA or BCVI preserves should avoid, not just minimize, impacts to the species. Our preference is to have no uses until such activities are scientifically proven to not have an effect and that the Permittee is the one who requests such uses.

Mitigation should occur within the same general area that take is occurring; until and unless permanently protected preserves within the area being impacted are sustainable in the long-term for that species, thus allowing mitigation to occur in other areas. For example, sufficient lands within Bexar County are permanently protected (either through fee simple purchase or conservation easement) for the benefit of the GCWA and/or BCVI such that those areas will continue to contribute to the long-term survival and recovery of those species. At such time, mitigation may be authorized outside of Bexar County.

If you have any questions or need clarification on any of these, please don't hesitate to ask. I will be at both scoping meetings and the CAC workshop this week, so we can talk further at those, if preferred.

Christina

Christina Williams
Fish and Wildlife Biologist
U.S. Fish & Wildlife Service

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FIRST DRAFT VERSION 4/1/2011

LOOMIS PROJECT NO. 080801

LC/HR?

How many Acres PORTED
Between
1980-2011

In area of Bexar Co?

With the FOR MAPS — ?

SOUTHERN EDWARDS PLATEAU

HABITAT CONSERVATION PLAN

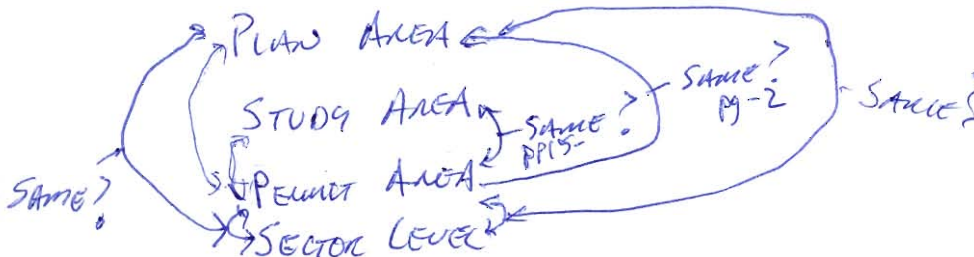
PREPARED FOR

COUNTY OF BEXAR

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10.1	ANNUAL REPORTING AND COORDINATION	119
10.2	NO SURPRISES POLICY	121
10.2.1	CHANGED CIRCUMSTANCES	121
10.2.2	CHANGED CIRCUMSTANCES NOT PROVIDED FOR IN THE PLAN.....	128
10.2.3	UNFORESEEN CIRCUMSTANCES	128
10.3	PERMIT AMENDMENTS	129
10.4	TERMINATION AND RENEWAL OF PLAN AND PERMIT	130
11.0	ALTERNATIVES ANALYSIS	131
11.1	DESCRIPTION OF ALTERNATIVES.....	131
11.1.1	NO ACTION ALTERNATIVE	136
11.1.2	BEXAR COUNTY PLAN AREA ALTERNATIVE.....	137
11.1.3	CATEGORY 1 KARST COVERAGE ALTERNATIVE.....	138
11.1.4	COMPLETE COVERAGE ALTERNATIVE	139
11.2	ANALYSIS AND CONCLUSIONS.....	140
11.2.1	NO ACTION ALTERNATIVE	140
11.2.2	BEXAR COUNTY PLAN AREA ALTERNATIVE.....	141
11.2.3	CATEGORY 1 KARST COVERAGE ALTERNATIVE.....	141
11.2.4	COMPLETE COVERAGE ALTERNATIVE	142
12.0	COMPLIANCE WITH PERMIT ISSUANCE CRITERIA	144
13.0	REFERENCES.....	145
14.0	GLOSSARY OF TERMS.....	147

LIST OF FIGURES

Figure 1.	SEP-HCP Plan Area, Permit Area, and Initial Participation Area.
Figure 2.	SEP-HCP Sector Boundaries.
Figure 3.	Karst Zones, CHUs, and KFR Groups.
Figure 4.	Potential GCW Habitat in the SEP-HCP Plan Area.

LIST OF TABLES

Table 1.	Federal and state-listed threatened, endangered, and candidate species within the SEP-HCP Plan Area.
Table 2.	Estimated Population for the SEP-HCP Plan Area Between 2010 and 2040.
Table 3.	General Land Uses within the SEP-HCP Plan Area in 2009 (acres).
Table 4.	Projected Distribution of General Land Uses in 2040 (acres).

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Table 5.	Projected Acres of New Development (2010 - 2040).
Table 6.	SEP-HCP Mitigation Ratios for GCW and BCV Habitat Impacts.
Table 7.	Configuration of Karst Preserves Recommended for Downlisting Each Listed Karst Invertebrate.
Table 8.	Karst Conservation Levels to Determine Eligibility for Participation.
Table 9.	Activities Eligible for Karst Coverage at Different Conservation Levels.
Table 10.	Initial Karst Participation Fee Levels.
Table 11.	County-level Summaries for Estimated GCW and BCV Habitat Losses Within the Plan Area Over 30 Years.
Table 12.	GCW and BCV Available Habitat, Projected Habitat Loss, and Requested Incidental Take.
Table 13.	Requested GCW and BCV Take Compared to Available Habitat.
Table 14.	Estimated GCW Regional Recovery Potential.
Table 15.	Projected Impacts to Potential Habitat for the Listed Karst Invertebrates from Land Development within Bexar County Karst Zones Over the Plan Duration.
Table 16.	Requested Level of Incidental Take for the Listed Karst Invertebrates Summarized by KFR Group.
Table 17.	Estimated Number of Species-occupied Caves Impacted by Future Development Over 30 Years.
Table 18.	Currently Known Karst Species Distribution by KFR Group.
Table 19.	Estimated Distribution of Listed Karst Species in Predicted Species-occupied Caves by KFR Group.
Table 20.	Summary of Estimated SEP-HCP Implementation Costs.
Table 21.	Preserve Acquisition Assumptions.
Table 22.	Summary of Estimated SEP-HCP Revenue.
Table 23.	Summary of Regional Habitat Conservation Plan Alternatives Considered.

LIST OF APPENDICES

Appendix A.	SEP-HCP Project Team, Advisory Committees, and Project Timeline.
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1.0 INTRODUCTION AND BACKGROUND

The Southern Edwards Plateau Habitat Conservation Plan ("SEP-HCP") is an effort by Bexar County, Texas and the City of San Antonio (the Project Sponsors) to address endangered species issues that are threatening the economic growth of the region and to promote the conservation of these species and related natural resources.

The SEP-HCP is a Habitat Conservation Plan that will ^{PROVIDE} implement conservation actions benefiting ^{COVERED} endangered species within seven counties in south-central Texas. As shown in Figure 1, the SEP-HCP "Plan Area" includes Bexar, Medina, Bandera, Kerr, Kendall, Blanco, and Comal counties.

The SEP-HCP will also ^{PROVIDE} provide a voluntary option for achieving compliance with the federal Endangered Species Act ("ESA") with respect to 11 ^{FEDERALLY LISTED} endangered species (i.e., the SEP-HCP "Covered Species"). The Covered Species include the following: ^(+ THREATENED?)

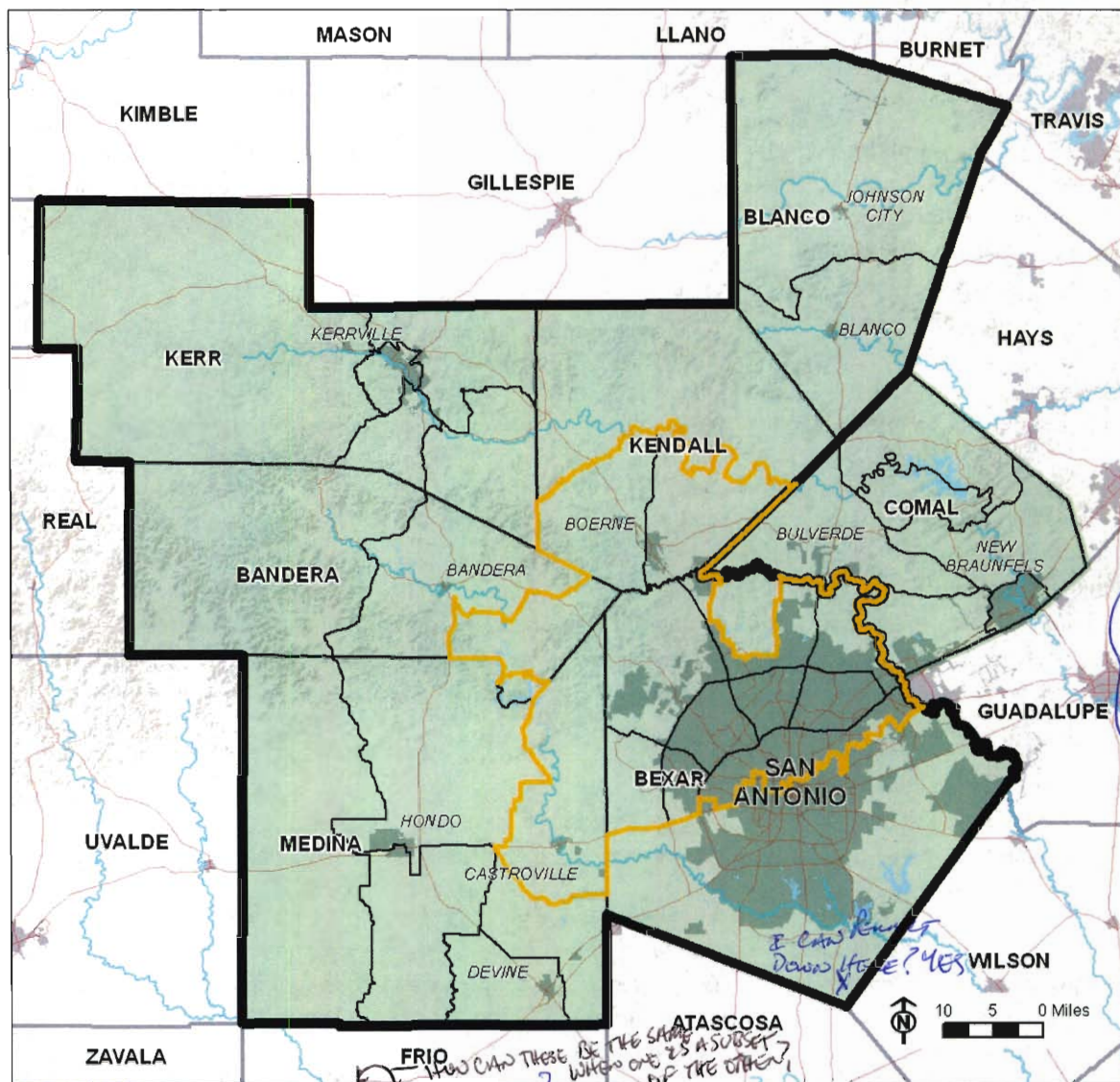
- Golden-cheeked warbler – *Dendroica chrysoparia*, "GCW"
- Black-capped vireo – *Vireo atricapilla*, "BCV"
- Listed Karst Invertebrates:
 - Government Canyon Bat Cave Spider (*Neoleptoneta microps*)
 - Robber Baron Cave Meshweaver (*Cicurina baronia*)
 - Madla Cave Meshweaver (*Cicurina madla*)
 - Bracken Cave Meshweaver (*Cicurina venii*)
 - Government Canyon Bat Cave Meshweaver (*Cicurina vespera*)
 - *Rhadine exilis* (no common name)
 - *Rhadine infernalis* (no common name)
 - Helotes Mold Beetle (*Batrisodes ventyivi*)
 - Cokendolpher Cave Harvestman (*Texella cokendolpheri*)

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FIGURE 1. SEP-HCP Plan Area, Permit Area, and Initial Participation Area.



1.1 NEED AND PURPOSE FOR THE PLAN

The greater San Antonio area is positioned at the southeastern edge of the Edwards Plateau ecoregion in Texas. This ecoregion supports several federally threatened or endangered species that occupy a variety of habitats, including mature woodlands, early-growth shrublands, and subterranean caves and voids. The human population of communities in and around San Antonio nearly doubled over

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the past 30 years. The vibrant economy of the San Antonio metropolitan area is expected to continue drawing people to the region, with a projected population increase of more than 60 percent over the next 30 years.

Land development activities that accompany and support the expanding human population of the greater San Antonio area have caused the loss of habitats for federally threatened or endangered species at the southeastern edge of the Edwards Plateau. The U.S. Fish and Wildlife Service ("USFWS" or the "Service") identifies habitat loss and degradation as the primary factors threatening the survival and recovery of these species.

Activities that result in habitat loss may cause the incidental "taking" of species listed as threatened or endangered, as defined by the ESA. Such taking of a listed species is prohibited by the ESA without authorization from the Service. Non-federal entities may obtain such authorization from the Service by applying for an Incidental Take Permit and implementing a Habitat Conservation Plan.

The Interagency Task Force on Economic Growth and Endangered Species, established by Senate Bill 2534 passed by the 81st Texas Legislature, identified Habitat Conservation Plans as an innovative and important conservation tool for endangered species (Interagency Task Force on Economic Growth and Endangered Species 2010).

The process for obtaining an Incidental Take Permit from the Service is often lengthy and expensive, with little certainty regarding the type of conservation measures that the Service may require from an applicant to obtain the permit. The cumbersome permitting process and lack of certainty often discourage individuals from seeking ESA compliance for activities that may cause incidental take of listed species. This lack of compliance creates a situation where habitat for listed species is lost or degraded without the benefits of the corresponding conservation measures that would otherwise be implemented as required by the ESA.

As a result, few conservation actions have been taken specifically for the benefit of the region's threatened or endangered species. Most of the recent publicly sponsored conservation initiatives in the greater San Antonio area, which have protected tens of thousands of acres from the threat of future development, do not specifically provide for the protection or management of endangered species habitats. Without specific habitat protections and on-going management, the conservation value of these lands may be limited with respect to the protection of endangered species. Other previous conservation actions have specifically targeted protection and management of the region's endangered species, but are relatively small and scattered efforts that may not be able to accommodate the self-sustaining ecosystem processes that naturally maintain endangered species habitats.

Therefore, the purposes and objectives of the SEP-HCP are:

- 1) REGIONAL CONSERVATION: To design and implement a regional conservation program focusing on habitat protection for the covered species and that supports the conservation of other regionally important natural resources.
 - a) Protect and manage native habitats for the golden-cheeked warbler, black-capped vireo, and other native species that depend on these habitats.

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- b) Protect and manage karst habitat, surface and subsurface drainage basins, and surface vegetative communities for sensitive karst organisms.
 - c) Contribute to recovery of the region's threatened or endangered species.
 - d) Contribute to the protection of other important ecosystem functions, such as water quality and quantity in the Edward's Aquifer system.
- 2) SUPPORT FOR CAMP BULLIS: To support the military training mission at Camp Bullis by helping to alleviate local and regional endangered species issues.
- a) Facilitate and promote ESA compliance on private lands in the vicinity of Camp Bullis.
 - b) Prioritize opportunities to protect and manage endangered species habitats in the vicinity of Camp Bullis.
- 3) STAKEHOLDER INVOLVEMENT: To seek input from and achieve support from a wide spectrum of stakeholders during development and implementation of the SEP-HCP.
- a) Include a broad spectrum of stakeholder interests on advisory committees and teams.
 - b) Convene advisory groups after permit issuance to provide feedback on plan implementation.
 - c) Enable and encourage formal, but flexible, partnerships with other jurisdictions to cooperate on plan administration and implementation in regionally appropriate ways.
 - d) Share research results, monitoring data, and other planning information with the public to the extent practicable without compromising sensitive biological, personal, or property information.
- 4) STREAMLINE PERMITTING: To facilitate ESA compliance for non-federal entities by streamlining the process for obtaining an incidental take permit.
- a) Establish a voluntary and regionally or locally administered option for obtaining incidental take authorization for projects that is clear, certain, timely, and cost-effective.
 - b) Ensure that mitigation ratios and participation fees are based on sound biological rationale and are consistent with the level of impact to the species. *AND MANAGEMENT OF HABITAT AREAS?*
 - c) Provide guidance to potential plan participants on avoiding or minimizing impacts to threatened or endangered species to reduce mitigation obligations where practicable and appropriate.
- 5) LOCALLY APPROPRIATE AND COST-EFFECTIVE IMPLEMENTATION: To achieve regional conservation of threatened or endangered species using locally appropriate and cost-effective tools and approaches.
- a) Understand local community and landowner concerns regarding endangered species habitat protection, and prioritize the use of compatible land protection tools.

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- b) Seek voluntary, willing conservation partners for endangered species habitat protection and management. *FEASIBILITY TESTED*
 - c) Provide opportunities to review progress and adapt the conservation program to changing needs and circumstances over time.
 - d) Minimize administrative costs associated with plan implementation through the use of efficient and effective practices. *COVERED THREATENED*
- 6) **LEVERAGE RESOURCES:** To coordinate conservation planning for endangered species on a regional scale to take best advantage of available conservation opportunities.
- a) Pool available conservation resources from multiple sources as available to achieve biologically significant, regional conservation of *COVERED* endangered species.
 - b) Leverage available conservation resources with other programs active in the region to maximize the benefits of past, present, and future conservation efforts or opportunities.
 - c) Complement other conservation efforts in the region (such as aquifer protection initiatives, scenic and cultural preservation, and parkland acquisition programs) and avoid competition with complementary programs for conservation resources.

The purpose and objectives described above reflect the benefits that the Project Sponsors and the larger stakeholder community expect to achieve as a result of implementing the SEP-HCP.

1.2 PROJECT HISTORY

Recognizing the need to address *THREATENED AND* endangered species issues in the greater San Antonio region, Bexar County and the City of San Antonio jointly applied for a Habitat Conservation Planning Assistance grant in August 2008. These grants are made available by the Service to fund projects conserving threatened and endangered species through the Cooperative Endangered Species Conservation Fund authorized under Section 6 of the ESA. State wildlife agencies, such as the Texas Parks and Wildlife Department ("TPWD"), administer these grants by identifying suitable projects and tracking the status of funded projects.

The SEP-HCP grant application requested approximately \$1.8 million in federal grant funds. The Service and TPWD awarded partial funding to the project in June 2009 in the amount of approximately \$1.3 million. The grant required the commitment of local matching funds at 25 percent of the total project cost. Bexar County and the City of San Antonio signed an Interlocal Agreement in November 2009 to equally provide this local match at approximately \$223,000 each. The grant funds were officially released to the project upon execution of an Interlocal Agreement between Bexar County and TPWD which was approved in December 2009.

The interlocal agreement between Bexar County and the City of San Antonio assigns Bexar County as the lead agency developing the SEP-HCP. Accordingly, Bexar County hired a team of environmental, financial, real estate, and legal consultants to help prepare the Plan. Bexar County also convened two advisory groups to provide input on the direction and content of the SEP-HCP. The Citizen's Advisory Committee ("CAC") was composed of 21 individuals representing a variety of

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stakeholder groups, including rural landowners, conservation interests, business/real estate interests, and government/utility provider interests. The Biological Advisory Team ("BAT") provided guidance on scientific aspects of the Plan, and was composed of professional biologists with expertise ranging from species biology to general land management. An Agency Oversight Group ("AOG") was also created to facilitate coordination between the Project Sponsors and the regulatory agencies. Project team members, advisory committee members, and committee charges are listed in [Appendix A](#).

Work on crafting the SEP-HCP began in earnest in December 2009 with the launch of the SEP-HCP website (www.sephcp.com) and the initial meetings of the advisory committees. A summary of committee deliberations and other SEP-HCP events are included in [Appendix A](#). Bexar County released the first draft of the Plan in ~~XXXX~~ 2011 for informal review and comment by the advisory committees, agencies, and the public. Bexar County formally sought input on the draft Plan from the general public during advertised meetings held on ~~XXXXX~~ and ~~XXXXX~~. The final version of the Plan was completed on ~~XXXXXX~~ and approved by Bexar County Commissioners' Court on ~~XXXXX~~.

1.3 NATURAL ENVIRONMENT

The SEP-HCP addresses a Plan Area that includes seven south-central Texas counties including: Bexar, Medina, Bandera, Kerr, Kendall, Blanco, and Comal counties. This Plan Area covers approximately 4,126,000 acres. See [Section 2.2](#) for more information about the SEP-HCP Plan Area.

1.3.1 ECOLOGICAL REGIONS AND VEGETATION COMMUNITIES

The SEP-HCP Plan Area crosses parts of six different ecological subregions, as described by the U.S. Environmental Protection Agency ([Griffith et al. 2004](#)). These six distinct ecological subregions include the following communities:

- **Balcones Canyonlands** – This ecological subregion represents approximately 54 percent of the SEP-HCP Plan Area. The Balcones Canyonlands has rugged topography with steep-sided canyons formed by the erosion and solution of the underlying limestone bedrock by the numerous springs, streams, and rivers that flow above and below the surface. The Balcones Canyonlands subregion supports a number of endemic plant and wildlife species that are not commonly found elsewhere on the Edwards Plateau. This is the region where most of the habitat for the Covered Species occurs.
- **Edwards Plateau Woodland** – The Edwards Plateau Woodlands represent the central part of the Edwards Plateau (and the northern part of the SEP-HCP Plan Area). Edwards Plateau Woodland is characterized by a savanna of grasslands with scattered oak, juniper, and mesquite trees. Some woodlands or shrublands in this region provide habitat for the GCW or BCV.
- **Northern Blackland Prairie** – The Northern Blackland Prairie region represents the relatively flat southeastern end of the Plan Area. Habitat for the GCW and BCV generally does not occur in this area; although, some portions of this ecological subregion are underlain by karst geology.

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- **Northern Nueces Alluvial Plains** – The Northern Nueces Alluvial Plains are part of the South Texas Plains ecoregion and occurs at the southern edge of the SEP-HCP Plan Area. Alluvial geology and deep soils support parkland vegetation dominated by mesquite and live oak. This region does not generally support habitat for the Covered Species.
- **Southern Post Oak Savanna** – The far southeastern edge of the SEP-HCP Plan Area is included within the Southern Post Oak Savanna ecological subregion. This area is a mosaic of post oak savanna, improved pasture, and rangeland. This region does not support habitat for the Covered Species.
- **Llano Uplift** – A very small area at the northern end of the Plan Area occurs within the Llano Uplift, which is unique because of its granite outcrops and acidic soils. This region may contain some areas of habitat for the GCW or BCV.

More information about the ecological regions within the SEP-HCP Plan Area is included in the [General Vegetation Communities assessment in Appendix B](#).

The Texas Parks and Wildlife Department identified nearly 70 percent of the vegetation communities in the SEP-HCP Plan Area as some combination of oak and juniper woodlands or parklands (McMahan et al. 1984). Similarly, the National Land Cover Dataset also mapped approximately 70 percent of the Plan Area as woodland or shrubland (Homer et al. 2004). Land cover changes during the 1990's indicate that the conversion of forest/woodland cover to another land cover type (most commonly grassland/shrub vegetation) was the most common land cover change in the Plan Area and resulted in a net loss of approximately 127,447 acres of forest cover (approximately 8 percent of the total) during that decade. Urban land cover types increased by approximately 12 percent during the 1990's, and were mostly frequently created from areas that were previously forested.

A detailed summary of the land cover changes in the Plan Area between 1992 and 2001 is included in the [General Vegetation Communities assessment in Appendix B](#).

1.3.2 GEOLOGY AND AQUIFERS

The terrain of the SEP-HCP Plan Area is highly variable as the Gulf Coastal Plains found at the southeast end of the Plan Area transition to the Blackland Prairie and the Edwards Plateau to the west. This transition occurs along the Balcones Escarpment (also called the Balcones Fault Zone), which is a major geologic feature of this region. The regions to the southeast of the Balcones Escarpment are characterized by rolling hills and subtle terrain that are characteristic of the weathering of younger, less-lithified rocks and unconsolidated sediments. Northwest of the Balcones Escarpment, the terrain and soils change dramatically as the topography transitions to the region known as the "Texas Hill Country", part of the Edwards Plateau ecological region. The Hill Country is characterized by high topographic relief associated with incised valleys. Increased erosion associated with tectonic uplift has weathered away all but a few cap-rock sections of the younger limestone, leaving only the underlying older carbonate rocks.

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The geology of the SEP-HCP Plan Area includes Cretaceous limestones and Quaternary alluvial terrace deposits, including limestones of the Edwards Aquifer (i.e., the Edwards Group and Georgetown Formation) and confining geological units above and below these primary water bearing units. Other significant aquifer units in the SEP-HCP region include the Trinity Aquifer (consisting of older Cretaceous limestone primarily in the Glen Rose Formation) and to a lesser extent some usable groundwater is found in the Austin Chalk (mostly in rocks younger than the Edwards Group). In areas with significant surface water streams, alluvial terrace and associated sediments provide a thin cover over the limestone.

More information about the geology and aquifers of the SEP-HCP Plan Area is attached in [Appendix B \(see the *Terrains, Soils and Geology, Groundwater and Aquifers* assessment\)](#).

1.3.3 SURFACE WATER RESOURCES

The SEP-HCP Plan Area is crossed by several rivers including the Guadalupe River, Medina River, San Antonio River, and Pedernales River. Two major impoundments created by man-made dams also occur within the Plan Area: Medina Lake and Canyon Lake. These major water features, and the numerous streams, creeks, and springs that feed them, are valuable surface water resources for the Plan Area and support wildlife, riparian habitat, recreational uses, and scenic vistas. Several river and stream segments in the SEP-HCP Plan Area are designated as “ecologically significant” under Texas Water Code.

Additional detailed information about the river basins, waterways, dams and lakes, springs, general water quality, and use of the water resources within the SEP-HCP Plan Area is included in the [Surface Water assessment in Appendix B](#).

1.3.4 WILDLIFE COMMUNITIES

Wildlife communities associated with these ecological subregions are as diverse as the ecological subregions themselves. Approximately 520 species of amphibians, reptiles, mammals, and birds make up the various wildlife communities within the Plan Area (Dixon 2000, Schmidly 1994, Lockwood and Freeman 2004). Wildlife communities within the Balcones Canyonlands subregion are the most diverse, with approximately 95 percent of the total wildlife species within the Plan Area occurring in this region.

The 2005 Texas Wildlife Action Plan prepared by the Texas Parks and Wildlife Department identified ~~xxx~~ native wildlife species of conservation concern that may occur in the SEP-HCP Plan Area, including 301 species occurring within the Edwards Plateau ecoregion. These lists identify species with low or declining populations that are important to the health and diversity of the State's wildlife resources.

Additional detailed information about the general wildlife communities within the SEP-HCP Plan Area is included in the [General Wildlife Communities assessment in Appendix B](#).

Several species in the SEP-HCP Plan Area are officially listed by the Service or by the Texas Parks and Wildlife Department as threatened or endangered, or have been identified as candidates for

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Table 1. Federal and State Listed Threatened and Endangered Species within the SEP-HCP Plan Area.

Common Name	Scientific Name	Federal Status ¹	State Status ¹	Counties of Potential Occurrence ²
Bald Eagle	<i>Haliaeetus leucocephalus</i>	DL	T	Blanco Comal Kendall Kerr
Black-capped Vireo	<i>Vireo atricapilla</i>	LE	E	Bexar Bandera Blanco Comal Kendall Kerr Medina
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	LE	E	Bexar Bandera Blanco Comal Kendall Kerr Medina
Interior Least Tern	<i>Sterna antillarum athalassos</i>	LE	E	Bexar Bandera Kendall Kerr Medina
Mountain Plover	<i>Charadrius montanus</i>	PT		Bexar Blanco Comal Kendall Kerr Medina
Peregrine Falcon	<i>Falco peregrinus</i>	DL	T	Bexar Bandera Blanco Comal Kendall Kerr Medina

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Table 1. Federal and State Listed Threatened and Endangered Species within the SEP-HCP Plan Area.

Common Name	Scientific Name	Federal Status ¹	State Status ¹	Counties of Potential Occurrence ²
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Listing: DL - Delisted

2: Texas Parks and Wildlife Department (TPWD), Wildlife Division, Diversity and Habitat Assessment Programs. County Lists of Texas' Special Species. Bandera, Bexar, Blanco, Comal, Kendall, Kerr, and Medina Counties; Last Revised February 28, 2011.

Additional information about most of these listed species and other species of global conservation concern is provided in [Appendix B](#) for each species group. Detailed information about the biology of the SEP-HCP's "Covered Species" is included in [Appendix C](#).

1.3.5 EXISTING CONSERVATION LANDS

Approximately 134,800 acres of the SEP-HCP Plan Area are currently under some degree of conservation, including lands owned by public entities or conservation organizations and private lands under conservation easements. The degree of protection for endangered species on these tracts varies, but all are at least partially protected from future land development and some specifically target conservation of native wildlife and habitats (including endangered species).

Approximately 50,000 acres of potential GCW habitat may occur within these existing conservation lands, and at least some of these currently conserved properties contain known populations of the BCV.

Potential habitat for the listed karst invertebrates occurs on 77 of the existing conservation parcels, and these properties include approximately 22,600 acres over Karst Zone habitat (zones 1 through 4). In addition, eight of the Critical Habitat Units (CHUs) identified by the Service for these species occur entirely or partially on existing conservation lands.

More information about the existing conservation lands in the SEP-HCP Plan Area is attached in [Appendix B](#) (see the [Existing Conservation Lands](#) assessment).

1.4 HUMAN ENVIRONMENT

Current and projected population and land use estimates for the SEP-HCP Plan Area were analyzed at the level of individual "sectors". SEP-HCP sectors are geographic areas comprised of one or more adjacent Census 2000 census tracts. [Figure 2](#) shows the 35 sectors within the SEP-HCP Plan Area. Only the portion of Bexar County relevant to the assessment of impacts for the Covered Species is included in a SEP-HCP sector.

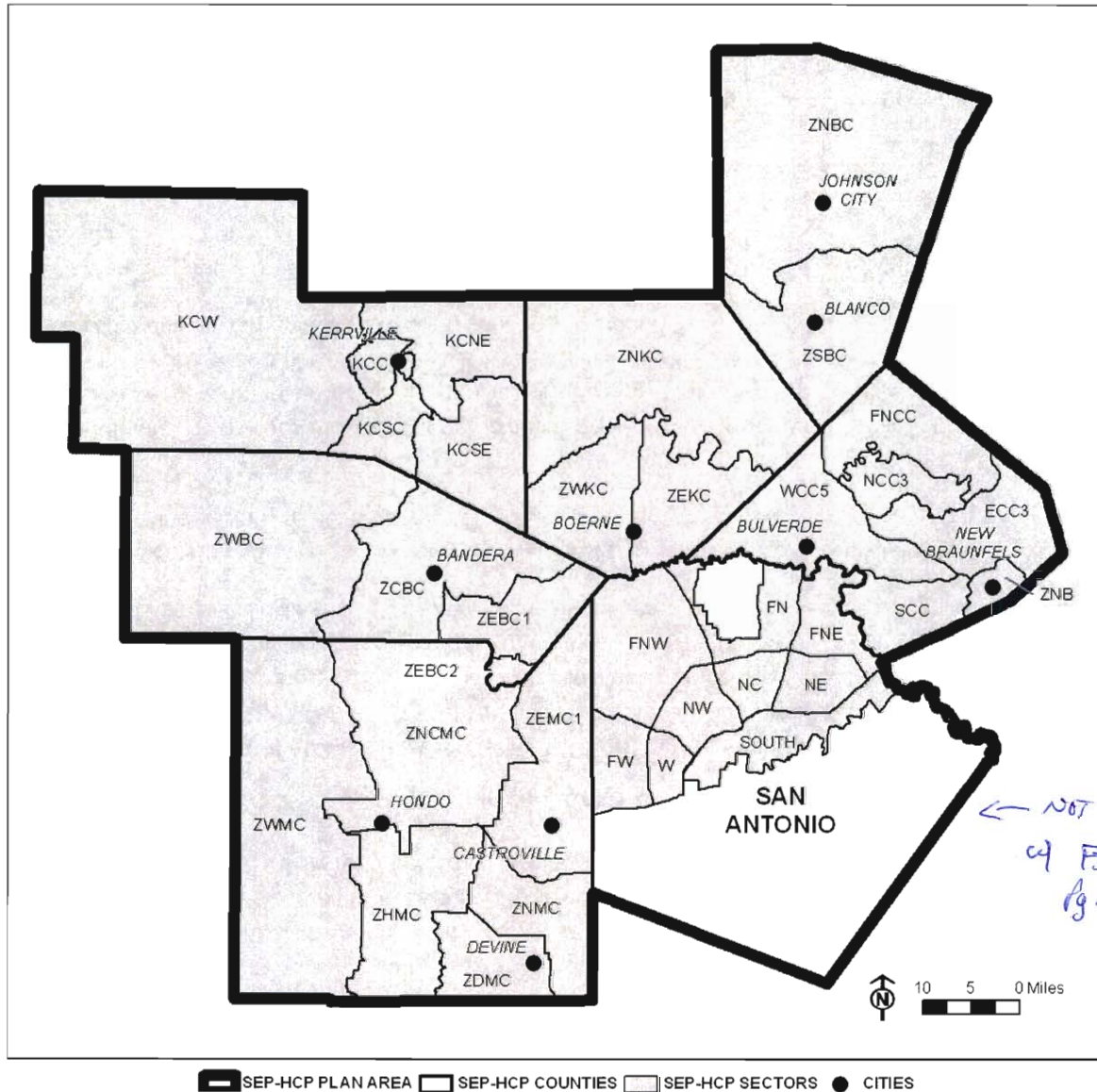
↓
f Summary of Counties?

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FIGURE 2. SEP-HCP Sector Boundaries.



1.4.1 POPULATION

The 2000 Census reported a population of approximately 1.6 million within the entire SEP-HCP Plan Area. The 2010 population of the Plan Area was estimated at approximately 1.95 million people, with approximately 86 percent of the estimated population occurring in Bexar County (ESRI Business Solutions (ESRI BIS) 2009) (Table 2). The U.S. Census Bureau estimated a 2010 population of approximately 1.98 million within the Plan Area (U.S. Census Bureau 2010).

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The population of the Plan Area experienced an approximate 22 percent increase in total population between 2000 and 2010, with individual county population growth rates of between 11 percent and 54 percent. During this period, Comal and Kendall Counties showed the fastest population growth with increases of 54 percent and 50 percent, respectively. The populations of Kerr County and Blanco County grew the slowest, with population changes of 11 percent and 14 percent, respectively. The population of Bexar County, the most populous county in the Plan Area, grew at a rate of approximately 20 percent between 2000 and 2010. The population of the Plan Area is expected to increase from approximately 1.95 million in 2010 to approximately 3.2 million by 2040. This population change represents an increase of approximately 64 percent over 30 years (Table 2). Most of the new population (approximately 86 percent of the total increase) will be added to Bexar and Comal counties. Blanco and Bandera counties are expected to have the smallest increase in population during this time period. Medina County is projected to experience the largest percent increase in population of the seven Plan Area counties. Table 2 summarizes the projected county-level population changes.

TABLE 2. Estimated Population for the SEP-HCP Plan Area Between 2010 and 2040.

Area	Year 2010	Year 2020	Year 2030	Year 2040	Population Change 2010 – 2040	% Population Change 2010 – 2040
State of Texas*	25,268,853	29,640,698	34,029,392	38,418,087	13,149,234	52%
7-County Plan Area	1,957,797	2,318,780	2,722,881	3,205,229	1,247,432	64%
Bexar County*	1,672,187	1,955,272	2,242,923	2,530,873	858,686	51%
Medina County	46,719	53,381	78,343	143,303	96,584	207%
Bandera County	22,141	26,406	30,205	34,004	11,863	54%
Kerr County	49,533	56,374	61,447	80,059	30,526	62%
Kendall County	36,081	47,516	60,099	71,442	35,361	98%
Blanco County	9,881	11,423	12,700	14,028	4,147	42%
Comal County	121,255	168,408	237,164	331,520	210,265	173%

SOURCE: ESRI BIS 2009 and Wendell Davis and Associates 2010a.

*ESRI BIS projections are used for the State of Texas and Bexar County as a whole, since the WDA projections do not completely address these geographic areas.

More information about the current and projected future population in the SEP-HCP Plan Area is attached in [Appendix D \(see the Population Estimates and Projections assessment\)](#).

1.4.2 LAND USES

Land uses within the Plan Area were estimated from county appraisal district data from circa 2009. The land use analysis was limited to a study area that included only the SEP-HCP sectors. The land use analysis study area excluded Camp Bullis. This analysis also excluded the SOUTH sector (see [Figure 2](#)), which was added later to address potential karst impacts. Therefore, this study area covered all of Medina, Bandera, Kerr, Kendall, Blanco, and Comal counties, but only included the northwest half of Bexar County that is generally coincident with potential habitat for the Covered Species.

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Developed land uses were present across approximately 429,000 acres (12 percent) of the study area. At a county level, Bexar and Comal counties were the most developed of the Plan Area counties, with approximately 45 percent of Bexar County (limited to the land use study area) and 24 percent of Comal County occupied by developed land uses. Developed land uses in the other Plan Area counties were generally less than 10 percent of the total area of the county.

Single-family residential use was the most common form of development, which represented approximately 59 percent of all developed uses.

The land use analysis also identifies "available" lands, which include lands designated as vacant platted lots, unoccupied residential lots in builder inventory, agricultural lands, and lands with farm and ranch-related improvements. These lands were assumed to be potentially available for future development. Approximately 2.25 million acres of "available" lands occurred in the Plan Area in 2009. The portion of Bexar County included in the land use study area had approximately 109,000 acres of land that could be available for future development activities.

Table 3 summarizes the current distribution of classified land uses in the SEP-HCP Plan Area.

TABLE 3. General Land Uses within the SEP-HCP Plan Area in 2009 (acres).

County	Single-Family Res.	Non-Single-Family Res.	Comm. and Industrial	Exempt	Transp. and Utility ROW	Available Lands	Other and Unclass. Uses
Bandera County	20,546	3,436	3,377	5,479	4,473	266,750	206,254
Bexar County*	74,740	5,937	28,050	1,329	23,936	108,933	57,174
Blanco County	3,231	266	335	732	579	303,880	147,563
Comal County	50,318	6,451	12,553	11,570	13,188	142,192	148,435
Kendall County	20,910	5,246	2,160	2,894	4,284	353,760	35,034
Kerr County	14,742	3,353	2,087	10,883	4,441	499,289	174,042
Medina County	68,314	4,794	1,434	2,281	11,146	578,979	186,936
7-COUNTY							
PLAN AREA*	252,802	29,483	49,996	35,169	62,046	2,253,782	955,439

Source: Wendell Davis and Associates 2010b.

*Includes only portions of Bexar County and the Plan Area that are within a SEP-HCP sector. SOUTH sector and Camp Bullis were not included in this analysis.

Projected land use and development changes within the Plan Area through 2040 are based on population projections, housing characteristics and trends, land use data, and other market factors. Changes in single-family residential development were projected using population projections, household sizes, and target densities and historic trends to predict the extent of new single-family development. As the dominant developed land use, single-family residential uses were also used as a benchmark for projecting new development for multi-family residential, commercial/industrial, and exempt uses. Table 4 summarizes the projected distribution of land uses within the SEP-HCP Plan Area in 2040. Additional information about the projected land uses, including an analysis at the sector level, is included in Appendix D (see the Land Use Summary and Trends assessment).

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TABLE 4. Projected Distribution of General Land Uses in 2040 (acres).

County	Single-Family Res.	Non-Single-Family Res.	Comm. and Industrial	Exempt	Transp. and Utility ROW	Available Lands	Other and Unclass. Uses
Bandera County	24,836	4,276	4,168	7,371	5,687	257,795	206,184
Bexar County*	124,014	7,873	40,646	2,124	54,219	23,672	47,551
Blanco County	4,173	313	481	742	1,080	302,486	147,312
Comal County	94,469	7,521	20,641	18,604	35,846	68,945	138,681
Kendall County	30,827	6,127	4,236	6,202	6,787	335,180	34,929
Kerr County	20,781	3,968	2,947	12,747	8,778	487,215	172,401
Medina County	88,725	9,970	4,891	7,781	19,049	537,337	186,131
7-COUNTY PLAN AREA*	387,824	40,049	78,009	55,571	131,445	2,012,629	933,190

Source: Wendell Davis and Associates 2010b.

*Includes only portions of Bexar County and the Plan Area that are within a SEP-HCP sector. SOUTH sector and Camp Bullis were not included in this analysis.

Table 5 summarizes the projected level of new development for the SEP-HCP Plan Area between 2010 and 2040, based on the land use analysis. The land use projections estimate that approximately 241,000 acres of available undeveloped land will be converted to developed land uses between 2010 and 2040, at an average pace of approximately 7,800 acres per year. Bexar County is projected to experience the most new development during this period (approximately 85,000 acres); although, Comal County and Medina County are also projected to experience a high degree of new development (approximately 73,000 acres and 42,000 acres, respectively).

TABLE 5. Projected Acres of New Development (2010 - 2040).

County	Acres of New Developed Land Uses (2010 - 2040)	Average Annual Acre Increase in New Development (2010 - 2040)
Bandera County	8,955	289
Bexar County*	85,260	2,750
Blanco County	1,395	45
Comal County	73,247	2,363
Kendall County	18,580	599
Kerr County	12,074	389
Medina County	41,642	1,343
7-COUNTY PLAN AREA*	241,152	7,779

Source: Wendell Davis and Associates 2010b.

*Includes only portions of Bexar County and the Plan Area that are within a SEP-HCP sector. SOUTH sector and Camp Bullis were not included in this analysis.

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Additional information about the projected acres of new development, including analysis at the sector level for the SEP-HCP Plan Area, is included in [Appendix D \(see the Land Use Summary and Trends assessment\)](#).

1.5 REGULATORY FRAMEWORK

The development of Habitat Conservation Plans and the issuance of Incidental Take Permits are governed by the provisions of the ESA and related Service policy. The ESA specifies the required content of a Habitat Conservation Plan and the criteria for issuance of an Incidental Take Permit. Other legal requirements for the issuance of an Incidental Take Permit are related to the National Environmental Policy Act ("NEPA"), which requires a broader analysis of the environmental impacts resulting from the activities covered by an ESA Incidental Take Permit. Both laws require opportunities for public involvement and comment in the development of a Habitat Conservation Plan, particularly regional plans.

In addition to the ESA and NEPA, Texas state law contains several procedural and substantive requirements that are applicable to the development of regional habitat conservation plans by local governments. However, the issuance of an Incidental Take Permit by the Service is not contingent upon state law.

1.5.1 ENDANGERED SPECIES ACT AND RELATED POLICY

Section 9 of the ESA prohibits "take" of any federally endangered wildlife species (16 USC § 1538(a)). As defined by the ESA, "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC § 1532(19)).

"Harm" is further defined by Service regulations as "an act which actually kills or injures wildlife and may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding or sheltering." "Harass" in the definition of take is defined by Service regulations as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering" (50 CFR § 17.3).

Section 10(a)(1)(B) of the ESA (16 USC § 1539(a)(1)(B)), authorizes the Service to issue a permit allowing take of federally endangered species providing that the taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

Section 10(a)(2)(A) of the ESA provides that the Service must issue an Incidental Take Permit if the applicant meets several substantive criteria, including that the applicant submit a conservation plan that: (1) describes the impact that will likely result from the taking; (2) identifies the steps the applicant will take to minimize and mitigate the impacts and the funding available to implement those steps; (3) describes what alternative actions to taking were considered and the reasons the alternatives were not chosen; and (4) includes other measures that the Service may require as necessary or appropriate for purposes of the conservation plan (16 USC § 1539(a)(2)(A)). The Service's *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* ("HCP Handbook") also provides guidance

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application for the permit, whichever is later. Acquisition of all habitat preserves identified in a regional Habitat Conservation Plan must be completed no later than the sixth anniversary of the date the Incidental Take Permit was issued (Texas Parks and Wildlife Code § 83.018(c)).

Finally, state law imposes a requirement that before adopting a regional Habitat Conservation Plan, plan amendment, ordinance, budget, fee schedule, rule, regulation, or order with respect to a regional Habitat Conservation Plan, the governmental entities must hold a public hearing and publish notice of such hearing in the newspaper of largest general circulation in the county in which the participant proposes the action. Such notice must include a brief description of the proposed action and the time and place of a public hearing on the proposed action. The governmental entities must publish notice in accordance with the foregoing requirements, and must do so not later than the thirtieth day prior to the public hearing (Texas Parks and Wildlife Code § 83.019).

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2.0 BASIC PLAN COMPONENTS

2.1 ADMINISTRATIVE ENTITIES

2.1.1 PERMIT APPLICANT / PERMITTEE

The County of Bexar, Texas is the entity applying to the Service for an Incidental Take Permit under Section 10(a)(1)(B) of the ESA. As the permittee of the Incidental Take Permit, Bexar County will be responsible to the Service for complying with the terms and conditions of the Incidental Take Permit. ~~Bexar County will also be responsible for overseeing the implementation of the SEP-HCP.~~ **AND**

2.1.2 SEP-HCP ADMINISTRATOR

Implementation and administration of the SEP-HCP will require a variety of tasks, including (but not limited to) enrolling participants, acquiring preserves, managing preserves, monitoring species and habitats, conducting public outreach, monitoring compliance with the terms and conditions of permits and other agreements, and reporting to and coordinating with the Service.

As the permittee of the Incidental Take Permit, Bexar County will be responsible for overseeing the implementation of the SEP-HCP. Bexar County may, at the County's discretion, act as the administrative entity that implements the SEP-HCP or Bexar County may delegate aspects of SEP-HCP implementation to other entities. For example, Bexar County may share such duties with other SEP-HCP Partners, such as the City of San Antonio, or an independent entity, such as a non-profit organization or foundation.

Any delegation of responsibility by Bexar County for implementing the SEP-HCP will be documented in a legally binding agreement, such as an interlocal agreement or an implementing agreement, and Bexar County will remain responsible for overseeing implementation of all aspects of the SEP-HCP.

For simplicity, this document assigns administrative responsibilities for SEP-HCP implementation to the "SEP-HCP Administrator". As described above, this entity may be Bexar County, an interlocal partnership, and/or another entity that is assigned some or all responsibility for SEP-HCP implementation by Bexar County.

2.1.3 SEP-HCP PARTNERS

Bexar County may enter into formal partnerships with other governmental or quasi-governmental entities to facilitate implementation of the SEP-HCP, expand opportunities for participation in the SEP-HCP, generally build support for achieving the purpose and goals of the SEP-HCP, and other purposes deemed beneficial by Bexar County. Partnerships will be established through interlocal agreements and may be negotiated at any time during the duration of the SEP-HCP. The creation of any such formal partnerships will be at the discretion of Bexar County and the potential partner. Bexar County will not require or ~~compel~~ any other entity to become a partner in the SEP-HCP.

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As negotiated on a case-by-case basis, SEP-HCP Partners may receive the ability to use the SEP-HCP to obtain incidental take authorization for their activities and/or allow private entities within their jurisdictions to obtain incidental take authorization from the SEP-HCP. Formal partnerships may also prioritize targeted conservation efforts within a SEP-HCP Partner's jurisdiction. In return, Bexar County may ask SEP-HCP Partners to contribute funding or other resources to help implement the SEP-HCP.

WOULD PARTNERS
NOT BE REQUIRED
TO THE NEW
AGREEMENT
WITH THE
ENTITY?

The City of San Antonio is currently a formal SEP-HCP Partner and has entered into an interlocal agreement with Bexar County to help fund the development of the SEP-HCP. Bexar County anticipates additional interlocal agreements with San Antonio to expand their involvement in the SEP-HCP.

2.1.4 ADVISORY COMMITTEES

Bexar County may, at its discretion, convene advisory committees to provide input for the on-going implementation of the SEP-HCP. For example, such committees may include biological/technical groups to assist with the formulation of adaptive management plans or citizens/stakeholder groups to assist with setting priorities for preserve acquisitions. Other types of committees are possible and needs may change over time. Advisory committees may be standing appointments or may be convened periodically for a specific purpose or task.

While the use of advisory committees is encouraged, Bexar County will not be required to convene advisory committees or to implement the recommendations of its advisory committees. As the permittee, Bexar County will be ultimately responsible for directing the implementation of the SEP-HCP.

2.2 PLAN AREA

Figure 1 (see page X) illustrates the locations and boundaries of the SEP-HCP Plan Area, Permit Area, Participation Area, and Conservation Area, as further described below.

2.2.1 PLAN AREA - NOT CONSISTENT W/ FIGURE 1 ON Pg. 15

Implementation of the SEP-HCP will occur within and be limited to the geographic extent of the seven Texas counties: Bexar County, Bandera County, Blanco County, Comal County, Kendall County, Kerr County, and Medina County. These seven counties define the Plan Area for the SEP-HCP. The Plan Area is the area within which the SEP-HCP's incidental take authorization may be applied and/or the area where conservation measures will be implemented. However, the SEP-HCP establishes certain administrative conditions pertaining to some SEP-HCP activities.

LIMITED TO THE GEOGRAPHIC EXTENT OF THE SEVEN COUNTIES

FOR PROPOSED LAND ACTIVITIES WHO PARTICIPATE IN THE VOLUNTARY PERMIT

The geographic extent of the Plan Area represents the union of the SEP-HCP's Permit Area, Participation Area, and Conservation Area.

2.2.2 PERMIT AREA

The SEP-HCP Incidental Take Permit will authorize a certain amount of incidental take associated with Covered Activities that may occur anywhere within the SEP-HCP Plan Area, except for Comal County (i.e., the "Permit Area"). Comal County is excluded from the SEP-HCP's Permit Area

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because Comal County is pursuing its own regional Habitat Conservation Plan that addresses incidental take within the boundaries of that county. Therefore, the Permit Area for the Incidental Take Permit is the geographic extent of six Texas counties: Bexar County, Bandera County, Blanco County, Kendall County, Kerr County, and Medina County.

2.2.3 PARTICIPATION AREA

While the Permit Area defines where the SEP-HCP's incidental take authorization may legally be used for the purposes of the Incidental Take Permit, the SEP-HCP establishes additional administrative conditions on where it will use its incidental take authorization. These administrative limits are intended to be responsive to the desires and concerns of other communities within the Plan Area for partnering with Bexar County in this regional plan. These administrative limits initially restrict the use of the SEP-HCP's incidental take authorization to:

- The geographic extent of Bexar County;
- The geographic extent of SEP-HCP sectors within the Permit Area that are adjacent to Bexar County; and
- The geographic extent of individual activities anywhere within the Permit Area that the Bexar County or the City of San Antonio (as a significant SEP-HCP Partner) deem beneficial on a case-by-case basis. (OUTSIDE OF THE TWO LISTED ABOVE?)

The SEP-HCP Administrator may change the boundaries of the Participation Area to accommodate the jurisdictions of potential future SEP-HCP Partners, but only at the request of the future Partner. However, the Participation Area will not exceed the geographic extent of the Permit Area. Service approval of administrative changes to the Participation Area is not required, since the SEP-HCP's Incidental Take Permit will apply to the entire Permit Area.

2.2.4 CONSERVATION AREA

Conservation measures associated with the SEP-HCP may occur anywhere within the seven-county Plan Area, including Comal County. The SEP-HCP Administrator may engage in conservation activities, including voluntary preserve acquisitions from willing landowners, within the Conservation Area even if the action is located outside of the Permit Area or Participation Area. However, all conservation actions for the SEP-HCP will be implemented within the boundaries of the seven-county Plan Area.

2.3 PERMIT AND PLAN DURATION

Bexar County is seeking an Incidental Take Permit from the Service with a term of 30 years from the date of issuance. The planning horizon for the SEP-HCP is based on this duration. For simplicity and in recognition of data limitations, the projections of future conditions presented in this document (such as population changes, habitat losses, and budgets) are estimated for the period between 2010/2012 and 2040/2042.

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3.2 PARTICIPATION PROCESS AND ELIGIBILITY

The participation process explains (1) which types of covered activities may be eligible for participation in the Plan, (2) how participating covered activities will be evaluated for impacts to the Covered Species, and (3) the measures that participants must take to complete enrollment in the Plan and receive authorization for incidental take.

Exceptions to these administrative conditions may be authorized by the Service on a case-by-case basis.

3.2.1 ADMINISTRATION AND OVERVIEW

"Participation" in the SEP-HCP means voluntarily enrolling in the Plan for the purpose of obtaining authorization for the incidental taking of a Covered Species. Any non-federal entity conducting an activity that would cause incidental take of a Covered Species within the Permit Area may seek to participate in the SEP-HCP by submitting an application to the SEP-HCP Administrator. The SEP-HCP Administrator will be responsible for evaluating applications and enrolling participants.

Bexar County will not require or otherwise compel any landowner, developer, local government entity, or any other party to participate in the SEP-HCP.

Each individual landowner, developer, organization, or other non-federal government entity has the responsibility to decide whether or not to seek incidental take authorization for a listed species. The SEP-HCP will be only one option for achieving compliance with the ESA and project proponents may choose which option best suits their needs and circumstances. Other options include implementing activities in such as way as to avoid taking a listed species or seeking individual authorization from the Service.

Potential SEP-HCP participants begin the enrollment process by voluntarily submitting an application to the SEP-HCP Administrator. These applications will include project information and site-specific biological information for the Covered Species. The SEP-HCP Administrator will review this information, confirm whether or not the activity is eligible to participate in the Plan, and determine the level of mitigation that is needed to offset impacts to the Covered Species.

If the SEP-HCP Administrator and the potential participant mutually agree to complete the enrollment process, the potential participant will provide the required mitigation to the SEP-HCP Administrator and sign a Participation Agreement with Bexar County. In some cases, approval from the Service will also be needed to address any exceptions to the standard participation process or mitigation requirements.

The Participation Agreement will describe the terms and conditions of participation, including any required measures to minimize impacts to the Covered Species or other special conditions for implementing the covered activity. With a fully executed Participation Agreement, the SEP-HCP Administrator will then complete the enrollment process by issuing a Certificate of Participation to the participant that extends the SEP-HCP's incidental take authorization to the enrolled project.

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In some cases, project areas will contain habitat for more than one of the Covered Species. Just as potential participants have the discretion to decide whether or not to use the SEP-HCP at all, potential participants will decide which Covered Species they would like to receive incidental take authorization for. For example, a potential participant may decide to use the SEP-HCP to obtain incidental take authorization for impacts to the GCW, but decide not to obtain such authorization for the listed karst species.

However, all potential participants will be required to submit biological information for all of the Covered Species that may occur within a project area. In some cases, the SEP-HCP may not be able to authorize incidental take of GCWs or BCVs in areas where such actions could directly affect a cave occupied by listed karst species. Further, the SEP-HCP Administrator will notify the Service of all participation activity in the SEP-HCP and the Service may determine that a SEP-HCP participant has not obtained all of the necessary authorizations for a project.

3.2.2 APPLICATIONS

Potential participants seeking to participate in the SEP-HCP will submit an application to the SEP-HCP Administrator.

The application must include the following information:

- Applicant and property owner contact information;
- Detailed Project Area location and boundary information, including maps, legal descriptions, and/or digital GIS or CAD data;
- Biological information that identifies and delineates the area of all potentially suitable GCW and BCV habitat within and within 300 feet of the Project Area;
- Biological information that identifies and delineates potential karst habitat or any caves or voids occupied by one or more of the listed karst invertebrates within ^{AND?} within 300 feet of the Project Area; *(see pg. 33)*
- Authorization for representatives of the SEP-HCP to enter the Project Area for an on-site property inspection to verify the habitat assessment;
- An application fee, if required by the SEP-HCP Administrator.

3.2.2.1 ELIGIBILITY

Any non-federal entity may seek to participate in the SEP-HCP and obtain incidental take authorization for the Covered Species. Federal entities may not use the SEP-HCP for incidental take authorization; although, federal entities may independently purchase conservation credits from the SEP-HCP or contribute preserve land to the SEP-HCP to offset impacts to the Covered Species.

Additional administrative restrictions on the types of activities that may be covered for incidental take with respect to the listed karst invertebrates are described in [Section 3.2.3.2](#). These additional restrictions are based on the level of conservation that has been achieved for a given karst species in a

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given Karst Fauna Region (KFR) and are intended to prevent participating Covered Activities from precluding the recovery of the listed karst invertebrates.

The SEP-HCP will not cover GCW or BCV habitat loss within "Occupied Cave Zones" or area of designated critical habitat for the listed karst invertebrates unless the participant has obtained take authorization for activities affecting karst species in these areas.

3.2.2.2 PROJECT AREA

Each application will be specific to a defined "Project Area" that is identified by the potential participant. The Project Area will delineate the area where participating Covered Activities may occur, subject to any additional administrative restrictions and special conditions.

Any incidental take of the Covered Species associated with eligible activities conducted within the Project Area would be authorized by the SEP-HCP, even if such take occurs outside of the Project Area (i.e., off-site impacts).

Potential participants are encouraged to include within the Project Area the extent of all activities connected to a single and complete project, as would be shown on a recorded plat or sealed site plan. Activities that are conducted outside of an enrolled Project Area would not be covered for incidental take.

3.2.2.3 BIOLOGICAL INFORMATION

Potential participants must submit all of the applicable biological information for the Covered Species with an application, even if the potential participant does not intend to use the SEP-HCP for incidental take authorization for a given species.

For example, potential participants with Project Areas occurring over Karst Zone 1 (which ^{ARE} ~~area~~ areas known to contain listed karst invertebrates) and within the range of the GCW must submit both karst survey results and a GCW habitat assessment with the application. If a potential participant does not obtain incidental take authorization for all of the Covered Species occurring within the Project Area, the survey information will be used to help demonstrate to the Service that incidental take of the unaddressed species is avoided or that the participant may have not completely fulfilled their obligations under the ESA and additional consultation with the Service may be warranted.

GCW AND BCV BIOLOGICAL INFORMATION

Potential participants with Project Areas occurring within the range of the GCW or BCV must submit a habitat assessment for these species with their application. The habitat assessment must cover all areas within the Project Area ~~and~~ the area within 300 feet of the boundary of the Project Area. Potential participants are responsible for obtaining this information for their Project Area. To assist potential participants, the SEP-HCP Administrator will maintain and distribute a list of qualified biologists that are able to perform the habitat assessment.

GCW and BCV habitat assessments supporting an application for SEP-HCP participation must meet the following criteria:

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345?
The karst surveys must cover the area up to 300 feet outside of a Project Area boundary, to the extent that access to these adjacent areas is attainable.

The pre-application karst surveys must be conducted in accordance with the Service's current requirements for presence/absence surveys for endangered karst invertebrates in Central Texas. The current survey protocols are dated March 8, 2006, but the Service may update these protocols at any time. Generally, karst surveys include the following four steps:

- **Step 1:** Conduct an initial karst feature surface survey for the presence of caves, voids, or other karst features. If no karst features are found within the Project Area, then no further investigation is needed.
- **Step 2:** If karst features are identified within the Project Area, then assess each feature for the characteristics of suitable karst invertebrate habitat. This step may require some excavation to determine if a feature has the potential to lead to a void with suitable habitat. If none of the karst features has the characteristics of suitable karst invertebrate habitat, then no further investigation is needed.
- **Step 3:** If features with suitable habitat are identified, then a Service-permitted karst invertebrate biologist must conduct a presence/absence survey of each potentially occupied feature to determine whether or not the feature is occupied by one or more of the listed karst invertebrates. If none of the listed karst invertebrates is found in the surveyed features, then no further investigation is needed.
- **Step 4:** For karst features that are found to contain one or more of the listed karst invertebrates, a Service-permitted karst biologist must, to the extent practicable, map the humanly accessible footprint of the cave.

Potential participants will also be required to note if their Project Area contains any part of a Service-designated Critical Habitat Unit (CHU) for one or more the listed karst invertebrates. CHUs were defined by the Service in 2003 after public notice and comment. Critical habitat designations are officially published in the Federal Register. Currently, 22 CHUs are defined within Bexar County for seven of the nine listed karst invertebrates. The current CHU designations include approximately 1,062 acres distributed among the 22 individual units. However, the Service recently issued a proposed rule to expand the CHU designations for these species to include 6,906 acres across 35 units for all nine of the listed species (USFWS 2011). Figure 3 shows the locations of the current CHU designations. The SEP-HCP Administrator will make available to potential participants maps of any officially designated critical habitat for the Covered Species.

Potential applicants must provide the SEP-HCP Administrator the results of each applicable survey step and describe the methods used to collect and evaluate the survey information. Information that must be submitted with the application will include, as applicable:

- A map of the Karst Zones within and adjacent to the Project Area and the area of each zone within or within 300 feet of the Project Area boundary;

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- A map of karst features identified within the surveyed area and a description of each feature that supports a determination of "suitable habitat" or "not suitable habitat;"
- Identification of any listed karst invertebrates found within suitable habitat on the Project Area;
- A map showing the footprint, a 150-foot buffer, and a 345-foot buffer around each species-occupied feature (i.e., "Occupied Cave Zones").
- A map showing the boundaries of any CHUs that occur within or within 300 feet of the Project Area.

ADD? 345? OUTSIDE?

Participants may also submit maps of the approximate surface and subsurface drainage basins of the feature, with a description of the methods used to delineate these areas; although, drainage basin information is not required. Participants may elect to use the boundaries of a feature's surface drainage basin instead of the 150-foot buffer and the feature's subsurface drainage basin instead of the 345-foot buffer. If a participant elects to use the drainage basins are used in place of the designated buffer distances, these drainage basin boundaries will delineate the Occupied Cave Zones for that feature.

Therefore, at the time of application, potential participants and the SEP-HCP Administrator should know if a Project Area:

- Occurs over potential karst habitat (Karst Zones 1 through 4);
- Contains any part of an area officially designated by the Service as critical habitat for one or more of the listed karst invertebrates; and
- Contains any other identified caves or voids that are occupied by one or more of the listed karst invertebrates.

The information required to support an application is intended to identify, to the maximum extent practicable, all caves within a Project Area that are known to be occupied by one or more of the listed karst invertebrates. However, some caves or voids may not have surface expression within a Project Area and their presence might not be detected during the pre-application karst surveys. A participant who has already completed the participation process and obtained a Participation Certificate authorizing take might encounter such a feature while engaging in surface grading or subsurface drilling, trenching, or other similar activities. The possibility of accidentally discovering a species-occupied feature during construction activities is substantially higher over Karst Zones 1 and 2 than it is over Karst Zones 3 and 4. Measures addressing the discovery of such features are addressed as special conditions of SEP-HCP Participation Agreements (see [Section 3.2.4.4](#)).

3.2.2.4 VERIFICATION OF BIOLOGICAL INFORMATION

The SEP-HCP Administrator will review all submitted biological information to ensure it meets the standards listed above. If submitted biological information does not meet the minimum standards, then the SEP-HCP Administrator will notify the potential participant of any deficiencies and request a

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revision. The SEP-HCP Administrator will not process an application for participation without a complete application.

The SEP-HCP Administrator will also require that potential participants provide access to the Project Area for the SEP-HCP Administrator to conduct at least one site visit to visually confirm habitat conditions; although, the SEP-HCP Administrator is not obligated to conduct a site visit.

3.2.3 EVALUATING APPLICATIONS

3.2.3.1 GCW AND BCV PARTICIPATION

The SEP-HCP Administrator will determine the level of mitigation that a potential participant must provide to obtain incidental take authorization for impacts to the GCW and BCV through the SEP-HCP. The level of mitigation will be based on (1) the amount of potentially suitable habitat for the GCW and BCV that is present within a Project Area and up to 300 feet outside of a Project Area and (2) defined mitigation ratios for on-site and off-site impacts for each species.

HABITAT IMPACT ASSESSMENTS

To streamline and simplify participation in the SEP-HCP, the SEP-HCP Administrator will typically determine the acres of GCW and BCV habitat that would be affected by a covered activity in the following manner:

1. All acres of suitable GCW and BCV habitat within a Project Area are assumed to be directly impacted by the covered activity ("On-site Habitat Impacts"). Portions of a Project Area within an Occupied Cave Zone or within critical habitat for a listed karst invertebrate will be excluded from the assessment of direct impacts if karst participation for these zones is not obtained.
2. All acres of suitable GCW and BCV habitat within 300 feet outside of a Project Area are assumed to be indirectly impacted by a covered activity ("Off-site Habitat Impacts"). Any area within an Occupied Cave Zone or within critical habitat for a listed karst invertebrate that is excluded from the assessment of direct impacts will be considered indirectly impacted.

The number of habitat acres that are assumed to be directly or indirectly impacted by a covered activity are established by the biological information submitted with the application, but may be refined with additional species survey information.

To potentially reduce the number of habitat acres that are assumed to be affected by a covered activity, a potential participant may optionally submit species survey information collected in accordance with the Service's presence/absence protocols with their application. The SEP-HCP Administrator will exclude patches of GCW and BCV habitat from the habitat impact assessment that are shown by such surveys to not be occupied by the species. For the purpose of the SEP-HCP, individual "patches" of GCW and BCV habitat are discrete areas of suitable habitat separated from other such patches by at least 50 feet. A single year of surveys conducted no more than three years prior to the date of application will be sufficient to refine the impact assessment for participation in the SEP-HCP.

No more than 4 years?
Confusers w/ 6.2.01?

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MITIGATION RATIOS

The SEP-HCP Administrator will apply the mitigation ratios shown in Table 6 to the number of acres of GCW and BCV habitat that are assumed to be impacted by a covered activity.

TABLE 6. SEP-HCP Mitigation Ratios for GCW and BCV Habitat Impacts.

	GCW	BCV
On-site Impacts (Directly Taken Habitat)	2 : 1 (2 acres of protected GCW habitat as mitigation for each acre of directly taken habitat) <i>1:1 (within 5 mi of Permit Area)</i> <i>3:1 (outside 5 mi of Permit Area)</i>	1 : 1 (1 acre of protected BCV habitat as mitigation for each acre of directly taken habitat) <i>5:1</i>
Off-site Impacts and Other Indirectly Taken Habitat	0.5 : 1 (0.5 acre of protected GCW habitat as mitigation for each acre of indirectly taken habitat)	0.5 : 1 (0.5 acre of protected BCV habitat as mitigation for each acre of indirectly taken habitat)

*REL SECTION 6.2.1.2
+
OBJECTIVE 4
pg 82*

These mitigation ratios determine how much preserve land for each species must be permanently protected and managed as mitigation for incidental take associated with a participating Covered Activity.

3.2.3.2 KARST PARTICIPATION

CATEGORIES OF COVERED ACTIVITIES

It is possible that any disturbance of natural surface vegetation, alteration of natural drainage patterns, filling or collapsing caves, surface or subsurface construction-related activities, or introduction of chemicals or pollutants over any of the karst habitat zones, among other types of actions, could have the potential to impact habitat for the listed karst invertebrates. If such impacts could result in incidental take, then compliance with the ESA would be necessary.

For the listed karst invertebrates, the SEP-HCP offers incidental take authorization for activities within a Project Area based on (1) the location of the activity in relation to the mapped Karst Zones, Service-designated CHUs, and Occupied Cave Zones and (2) level of conservation that has been achieved for a given listed species in a given KFR.

As described above, the boundaries of Karst Zones 1 through 4 and the boundaries of Critical Habitat Units are established by the Service. Maps of these areas will be made available to potential participants.

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For the purpose of evaluating participation in the SEP-HCP, an "Occupied Cave Zone" will be established around each of the species-occupied caves found within or adjacent to a Project Area during the pre-application surveys. The Occupied Cave Zone will extend 345 feet from the mapped footprint of the cave or may optionally be delineated as the extent of the surface and subsurface drainage basins of a cave. The defined distance buffer approximates the currently known foraging area of cave crickets, which are an important component of the cave ecosystem.

Therefore, SEP-HCP participants may encounter the following types of situations over Karst Zones 1 through 4:

- Project Area contains all or part of a Service-designated CHU for one or more of the listed karst invertebrates;
- Project Area contains all or part of an Occupied Cave Zone surrounding a known species-occupied cave that was identified during pre-application karst surveys;
- Project Area does not contain any known species-occupied caves, but an occupied cave or void is accidentally discovered during construction activities; and/or
- Project Area does not contain any known species-occupied caves nor are any occupied caves or voids accidentally discovered during construction.

For Covered Activities conducted under each one of the situations described above, some level of impact to karst habitat may occur and could result in incidental take. However, the level of impact to the species, including the probability of even causing incidental take, is variable. In most cases, the potential effects of the covered activity would likely become progressively less intense and the likelihood of causing take would become less demonstrable under each of the situations listed above.

KARST CONSERVATION LEVELS

The biological goals and objectives of the karst conservation program are to achieve a level of conservation that is likely to secure the survival and recovery of the listed karst invertebrates by meeting or exceeding the downlisting criteria described in the 2008 Bexar County Karst Invertebrates Draft Recovery Plan ("Draft Karst Recovery Plan;" USFWS 2008) (see [Section 5.2.2](#)). These criteria prescribe a certain number, type, and distribution of cave preserves that should be permanently protected and managed for each of the listed karst species.

The draft downlisting criteria specify that a minimum of six preserves be established across the range of each karst species, and that one high quality preserve and at least three total high or medium quality preserves be established in each of the KFRs that a species is known to occur in. For example, a species that is known to occur in five of the six KFRs would require a total of 15 high or medium quality cave preserves, with at least one high quality and two medium quality preserves located in each KFR. Whereas for a species only known to occur in one KFR, a total of six cave preserves in that single KFR, including at least three high quality preserves, would be necessary.

The standards for high and medium quality cave preserves are described in the Draft Karst Recovery Plan. But in general, a high quality cave preserve includes approximately 90 acres of natural

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vegetation around the cave entrance and a medium quality cave preserve includes approximately 40 acres of natural vegetation around the cave entrance.

Table 7 shows the number, type, and distribution of cave preserves that would be needed to achieve the draft downlisting criteria for each of the listed karst invertebrates. In practice, the total number of cave preserves needed to achieve the draft downlisting criteria may be lower than the sum of the preserves for each species shown in Table 7, since some caves may contain more than one of the listed species.

TABLE 7. Configuration of Karst Preserves Recommended for Downlisting Each Listed Karst Invertebrate.

Species	Number of KFRs Where Species Is Known To Occur	Configuration of Preserves in Each KFR ¹					Total Number of Preserves		
		KFR #1	KFR #2	KFR #3	KFR #4	KFR #5	High Quality	Medium Quality	Total
<i>Rhadine exilis</i>	4	1H +2M	1H +2M	1H +2M	1H +2M		4	8	12
<i>Rhadine infernalis</i>	5	1H + 2M	1H + 2M	1H + 2M	1H + 2M	1H + 2M	5	10	15
<i>Batrises ventyvi</i>	3	1H + 2M	1H + 2M	1H + 3M			3	7	10
<i>Texella cokendolpheri</i>	1	3H + 3M					3	3	6
<i>Neoleptoneta microps</i>	1	3H + 3M					3	3	6
<i>Cicurina baronia</i>	1	3H + 3M					3	3	6
<i>Cicurina madla</i>	4	1H + 2M	1H + 2M	1H + 2M	1H + 2M		4	8	12
<i>Cicurina venii</i>	1	3H + 3M					3	3	6
<i>Cicurina vespera</i>	1	3H + 3M					3	3	6

¹ H = High Quality Preserve; M = Medium Quality Preserve

** - Preserve Table 17*

The Service will determine whether or not a species-occupied cave is adequately protected as a high or medium quality karst preserve that contributes to the recovery of the listed karst invertebrates.

Progress towards achieving these draft downlisting criteria will determine what types of activities the SEP-HCP may cover with respect to listed karst invertebrates. The karst conservation levels, and the actions that will be undertaken through the SEP-HCP to help achieve each level, are described in Table 8. These levels apply independently to each species in each KFR. Therefore, a

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species may be at Conservation Level 1 in KFR "A" and at Conservation Level 2 in KFR "B". Similarly, different species in the same KFR may be at different conservation levels.

TABLE 8. Karst Conservation Levels to Determine Eligibility for Participation.

Conservation Level	Standards
Conservation Level 1	The number and/or type of established cave preserves do not yet meet the draft downlisting criteria. However, the SEP-HCP is contributing to the management of unprotected or under-protected caves and is actively seeking opportunities to establish new high or medium quality cave preserves. The SEP-HCP Administrator also actively manages any cave preserves that have been acquired through the Plan.
Conservation Level 2	The number and type of established cave preserves meet the draft downlisting criteria. The SEP-HCP Administrator continues to actively manage all cave preserves acquired through the Plan. The SEP-HCP also continues to actively seek opportunities to establish additional high or medium quality cave preserves.
Conservation Level 3	The number and type of established cave preserves represent twice the level specified by the draft downlisting criteria. The SEP-HCP Administrator continues to actively manage all cave preserves acquired through the Plan.

What is this?

ACTIVITIES ELIGIBLE FOR KARST COVERAGE

The SEP-HCP may offer incidental take authorization for different categories of Covered Activities depending on the level of conservation that has been achieved for the listed karst invertebrates. A higher level of conservation must be achieved before Covered Activities with potentially more intense impacts may be authorized through the Plan. For the purpose of determining which categories of activities may be covered for incidental take, the level of conservation will be evaluated with respect to all conservation actions that have been implemented for the species, regardless of the purpose or sponsor of the conservation action. So, karst preserves established by entities other than the SEP-HCP will contribute to the overall conservation level for a species.

Table 9 summarizes the activities that may be covered for take authorization at each conservation level.

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during pre-application surveys or were accidentally discovered during implementation of a covered activity.

The Service may allow exceptions to these eligibility criteria on a case-by-case basis.

3.2.4 COMPLETING ENROLLMENT

3.2.4.1 FORMS OF MITIGATION FOR GCW AND BCV

The SEP-HCP Administrator will offer potential participants two ways of providing the necessary mitigation for their project: (1) the purchase of conservation credits from the SEP-HCP conservation bank, if sufficient credits are available, or (2) the provision of suitable preserve land in lieu of credit purchases. A combination of these forms of mitigation may also be acceptable.

PURCHASE OF CONSERVATION CREDITS

GCW and BCV preserve land that meets the minimum standards described in [Section 6.2.1](#) will generate conservation credits for the SEP-HCP conservation bank. A "conservation credit" is generally equivalent to an acre of GCW or BCV habitat that is permanently protected and managed for the benefit of the respective species. Therefore, credits will be generated in proportion to the number of acres of GCW and BCV habitat and habitat buffers contained within the preserve. The SEP-HCP Administrator will "bank" these conservation credits and offer them to potential participants as mitigation for Covered Activities.

Potential participants wishing to complete the enrollment of a project in the SEP-HCP may purchase the appropriate number of conservation credits from the SEP-HCP Administrator. The number of conservation credits that must be purchased to complete enrollment are determined by the SEP-HCP Administrator as described in [Section 3.2.3.1 – Mitigation Ratios](#).

The purchase fees for each GCW and BCV conservation credit are set at the discretion of the SEP-HCP Administrator and may change over time. The SEP-HCP Administrator will publically advertize the current fee amounts on a program website, with printed program brochures, or other through similar methods of communication. Initially, the SEP-HCP Administrator will set the per credit fees at the following levels:

- GCW Conservation Credit -- \$5,000 per credit
- BCV Conservation Credit -- \$5,000 per credit

At these levels, potential participants would be charged \$10,000 per acre of directly taken GCW habitat, \$5,000 per acre of directly taken BCV habitat, and \$2,500 per acre of indirectly taken GCW or BCV habitat.

The credit fees collected from participants are intended to fully or partially offset the costs of SEP-HCP implementation pertaining to the GCW and BCV conservation program, including preserve acquisitions and management, other proposed conservation measures, and program administration.

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TABLE 10. Initial Karst Participation Fee Levels.

Fee Zone	Applicability	Initial Amount
Karst Zone 1 and 2	Portions of a Project Area over Karst Zones 1 or 2, but outside of an Occupied Cave Zone or Critical Habitat Unit.	\$500 per acre
Occupied Cave Zone "B"	Portions of a Project Area that are between 150 feet and 345 feet of a species-occupied cave or optionally within the subsurface drainage basin of a cave. Assessed for any physical incursion within this zone. Zone "B" fee is waived if Zone "A" fee is paid for a feature.	\$40,000 per cave
Occupied Cave Zone "A"	Portions of a Project Area that are within 150 feet of a species-occupied cave or optionally within the surface drainage basin of a cave. Assessed for any physical incursion within this zone.	\$400,000 per cave

REGARDLESS OF ACQUISITION

(I.E., DRAFT DOWNSIDE PLATEAU - AS DETERMINED BY ?)
WHAT ABOUT CONSERVATION LEVELS 1 & 2?
SEE PG. 42

If Conservation Level 3 is achieved, karst participation fees within CHUs will be assessed in accordance with the fee zones described above. (NO FLOW PERMIT?)

If a Covered Activity occurs within the Occupied Cave Zone of more than one species-occupied cave, then participation fees will be assessed for each affected feature.

Payment of participation fees allows the participant to be covered for any incidental take of the listed karst invertebrates associated with activities conducted in the authorized zones. The karst participation fees collected from participants are intended to help offset the costs of SEP-HCP implementation pertaining to the karst conservation program, including preserve acquisitions and management, other proposed conservation measures, and program administration.

KARST PRESERVES IN LIEU OF FEES

In lieu of paying karst participation fees to the SEP-HCP Administrator, a potential participant may offer new karst preserves as mitigation for incidental take. The SEP-HCP Administrator will have the discretion to accept or reject all offers of preserve land in lieu of paying karst participation fees on a case-by-case basis.

In general, the following standards will apply to offers of karst preserve land in lieu of participation fees:

- A low quality karst preserve (defined for this purpose as the area within 500 feet of the footprint of a species-occupied cave) that is established within the same KFR as the Project Area may be accepted in lieu of the per acre Karst Zone participation fees.
- One high or medium quality karst preserve for each of the listed karst invertebrates within an Occupied Cave Zone may be accepted in lieu of participation fees after

CONSERVATION LEVEL ONLY?

IN ADDITION TO TABLE 7?

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Conservation Level 2 has been achieved. The karst preserve does not need to be located in the same KFR as the Project Area and may contain any of the listed karst invertebrates.

- One high quality karst preserve or two medium quality karst preserves for each of the listed species within an Occupied Cave Zone may be accepted in lieu of participation fees before Conservation Level 2 has been achieved. The karst preserves must be located in the same KFR as the Project Area. Acceptable offers of this nature may allow coverage of activities within an Occupied Cave Zone before Conservation Level 2 has been achieved for those species in that KFR.

Is Addition
to TABLE 7?

WHAT ABOUT
CATEGORY 3?

All accepted offers of preserve land will also require the approval of the Service to be used as mitigation for the impacts of incidental take. Exceptions to these general standards may also be accepted by the SEP-HCP Administrator, with approval of the Service.

By accepting an offer of in-lieu preserve land, the SEP-HCP Administrator commits to protect and manage the offered preserve land in perpetuity, in the same way as other SEP-HCP preserves.

3.2.4.3 DETERMINATION LETTERS

For each complete application submitted by a potential participant, the SEP-HCP Administrator will complete the following tasks:

1. For GCW and BCV:

- a. Determine the acres of GCW and BCV habitat associated with the Project Area that would be directly or indirectly taken;
- b. Calculate the number of GCW and BCV conservation credits that would be needed to mitigate for the direct and indirect take, based on the established mitigation ratios; and
- c. Determine whether sufficient credits are currently available for purchase from the SEP-HCP conservation bank to cover the mitigation needs for the Project Area.

2. For Listed Karst Invertebrates:

- a. Determine what portions of the Project Area may be covered for incidental take of listed karst species based on current conservation levels (i.e., Critical Habitat Units, Occupied Cave Zones, and/or Karst Zones);
- b. Determine the acres of the Project Area that would be subject to per acre Karst Zone participation fees; and
- c. Calculate the total participation fees that would be needed to complete enrollment in the Plan, based on the established fee structure;

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within their Project Area. Potential participants may also elect at any time to not complete the participation process.

Potential participants who elect to complete the process and provide the required mitigation will enter into a "Participation Agreement" with Bexar County. By entering into the Participation Agreement, the potential participant agrees to be bound by and comply with the terms of the agreement and all applicable terms of the SEP-HCP's Incidental Take Permit. In return for this commitment, the potential participant may benefit from the incidental take authorization and other assurances granted by the Permit.

➔ SPECIAL CONDITIONS FOR GCW AND BCV

Seasonal Clearing and Construction Restrictions

Participation Agreements will require SEP-HCP participants to minimize impacts to the GCW and BCV during their respective breeding seasons by imposing seasonal clearing and construction restrictions. These seasonal clearing restrictions will only apply to voluntary SEP-HCP participants on Project Areas enrolled in the SEP-HCP. Bexar County will not impose these restrictions on non-participants or lands not enrolled in the SEP-HCP.

The seasonal clearing and construction restrictions will be in effect between March 1 through July 31 for activities affecting GCW habitat and between March 15 through August 31 for activities affecting BCV habitat.

No clearing or other removal of woody vegetation that would cause the loss or degradation of suitable habitat for the GCW or BCV may occur during these periods. Other construction-related activities that do not involve the removal of vegetation may occur during these periods that (1) the construction activities are part of a continuous set of clearing and/or construction activities that began during the non-breeding season; (2) are performed in a reasonably prompt and expeditious manner; and (3) the disturbance activity is mitigated appropriately for all direct and indirect effects on and off of the project site (i.e., the participant is complying with all of the terms and conditions of the Participation Agreement).

The SEP-HCP Administrator may grant exceptions to these restrictions if a GCW or BCV survey conducted during that species' breeding season indicates that the species is not present within 300 feet of the planned activity. An applicable species survey must be conducted in the same year as the start of the planned clearing or construction activity. The dates for seasonal restrictions are supported by the breeding phenologies presented in Ladd and Gass (1999) and Grzybowski (1995) (see the GCW and BCV assessments in Appendix C).

➔ Check
Time for
nesting

The SEP-HCP Administrator will have the right to inspect enrolled Project Areas for compliance with the terms of the Participation Agreements, including those terms related to seasonal clearing and construction restrictions. The SEP-HCP Administrator may suspend or revoke the rights of any SEP-HCP participant that is not in compliance with the terms of its Participation Agreement.

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Oak Wilt Prevention

Participation Agreements will require SEP-HCP participants to minimize potential impacts to GCW habitat from oak wilt by requiring that all participants follow the Texas Forest Service or professional arborist's guidelines for the prevention of oak wilt when clearing or trimming trees within Project Areas. These oak wilt prevention measures will only apply to voluntary SEP-HCP participants on Project Areas enrolled in the SEP-HCP. Bexar County will not impose implementation of these measures on non-participants or lands not enrolled in the SEP-HCP.

The Texas Forest Service recommends eliminating diseased red oaks, handling firewood properly, and painting wounds on healthy oaks to prevent the spread of oak wilt. According to the Texas Forest Service, all wounding of oaks (including trimming, limbing, and pruning) should be avoided from February through June. The least hazardous periods for trimming are during the coldest days in midwinter and extended hot periods in mid- to late summer. Regardless of season, all trimming cuts or other wounds to oak trees, including freshly-cut stumps and damaged surface roots, should be treated immediately with a wound or latex paint to prevent exposure to contaminated insect vectors.

The SEP-HCP Administrator will have the right to inspect enrolled Project Areas for compliance with the terms of the Participation Agreements, including those terms related to oak wilt prevention. The SEP-HCP Administrator may suspend or revoke the rights of any SEP-HCP participant that is not in compliance with the terms of its Participation Agreement.

SPECIAL CONDITIONS FOR KARST INVERTEBRATES

Participation Agreements for SEP-HCP participants will contain special conditions relating to the listed karst invertebrates. These special conditions are intended to minimize impacts to the listed karst invertebrates and ensure that participants do not unintentionally jeopardize the survival and recovery of these species.

In general, three of the listed karst invertebrates are relatively common: *Rhadine exilis*, currently known from 51 sites across four KFRs; *Rhadine infernalis*, currently known from 40 sites across five KFRs; and *Cicurina madla*, currently known from 20 sites across four KFRs (USFWS 2011). Given the relatively high number of known sites for these species and their distribution across several KFRs, these three "Category 1" species may be less sensitive on a species level to the impacts from the requested incidental take than the other six listed karst invertebrates.

The other six listed karst species are known from many fewer sites and KFRs, and three of these rare species (*Texella cokendolpheri*, *Cicurina venii*, and *Cicurina vespera*) are currently only known from a single locality (USFWS 2011). The impacts of authorized incidental take could have a proportionately stronger impact on these ~~six rare~~ "Category 2" karst invertebrate species than on the more common Category 1 karst species. *Very?*

Special conditions related to the listed karst invertebrates will include measures requiring the investigation of accidentally discovered voids for the presence of listed species, additional consultation with the Service if the ~~very rare~~ Category 2 karst species are encountered, and implementation of best practices to minimize impacts to species-occupied caves.

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Investigation of Accidentally Discovered Voids

The SEP-HCP may cover activities that occur over Karst Zones 1 and 2 before the draft downlisting criteria have been achieved, but participants will be required to investigate accidentally discovered voids encountered during implementation of the Covered Activity for the presence/absence of Category 2 karst species. The requirements for investigating accidentally discovered voids will be lifted within a KFR once Conservation Level 2 has been achieved for all species known to occur in that KFR.

When a previously unknown void is encountered within Karst Zones 1 and 2, the participant must:

1. Immediately stop all construction-related activities within 345 feet of the void, cover the void with a tarp or similar temporary covering to help prevent contamination, and notify the SEP-HCP Administrator within 24 hours of discovery that a previously unknown feature has been encountered;
2. Within 48 hours of discovery, have a Service-permitted karst biologist assess the feature for the presence of suitable habitat characteristics; and
3. If the feature is determined to have suitable karst invertebrate habitat, have a Service-permitted karst biologist conduct a karst invertebrate presence/absence survey.

Participants may utilize an abbreviated survey protocol when evaluating accidentally discovered voids. This abbreviated protocol involves a shortened survey period requiring five survey visits in one week versus the standard protocol requiring three visits over three weeks. The abbreviated survey protocol need not adhere to the Service's recommended suitable sampling conditions, but consistency with these recommendations is encouraged. However, all other standard survey protocols should be followed, including sampling thoroughness, specimen collection and preservation, baiting, and reporting.

Participants must report the findings of the karst habitat assessment and any presence/absence surveys to the SEP-HCP Administrator. The following conditions apply with respect to accidentally discovered voids:

- **No Habitat or No Listed Species** - If an accidentally discovered void is found to not represent suitable habitat for karst invertebrates or the feature is not found to be occupied by any of the listed karst invertebrates, then the participant may resume Covered Activities after reporting the findings to the SEP-HCP Administrator.
- **Category 1 Karst Species Only** - If an accidentally discovered void is found to contain only Category 1 karst species (i.e., the three relatively common listed karst invertebrates), the participant may resume Covered Activities after reporting the findings to the SEP-HCP Administrator. Participants may rely on the assurances of their Participation Agreement that incidental take of the Category 1 species under this circumstance is authorized. However, the participant will be required to implement best practices to minimize impacts of the activity on the affected karst habitat.

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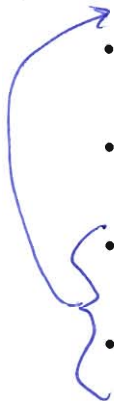
- **Category 2 Karst Species** - If one or more of the very rare Category 2 karst species are discovered in the void, then the participant must suspend all construction-related activities and consult with the Service regarding appropriate case-by-case measures to avoid jeopardizing the survival and recovery of these very rare species. The participant may resume Covered Activities within 345 feet of the void only after obtaining authorization from the Service to proceed and notifying the SEP-HCP Administrator that such authorization has been granted.

— Protected
From Damage?

• CATEGORY 3 KARST SPECIES? Best Practices to Minimize Impacts to Species-occupied Caves

Participation Agreements will require participants to implement all applicable and appropriate “best practices” within Project Areas to minimize impacts to species-occupied caves, including accidentally discovered features.

The following best practices will be required within all enrolled Project Areas over Karst Zones 1 through 4:

- 
- Install fencing around Occupied Cave Zones and CHUs, unless covered activities have been authorized in these areas;
 - Install sedimentation controls, such as silt fences, around Occupied Cave Zones, unless covered activities have been authorized in these areas;
 - Install flagging or other signage around accidentally encountered voids until covered activities are authorized to proceed; and
 - Divert surface runoff away from accidentally encountered voids using berms, filtration socks, or similar techniques until covered activities are authorized to proceed.

Participants will be encouraged to implement other best practices that may reduce impacts to karst habitat within a Project Area, such as:

- Limit vegetation clearing and other surface or subsurface disturbances to those areas essential to the Covered Activity;
- Revegetate disturbed areas with native plants and manage open spaces in a manner that maintains the characteristics of a natural woodland or savanna plant community;
- Install semi-pervious surfaces in place of impervious surfaces; and
- During active construction within a Project Area:
 - use non-permeable drip collectors under construction equipment when the equipment is idle;
 - inspect equipment daily for leaks and immediately repair all leaks or remove the leaking equipment from the Project Area;

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participating covered activities or conservation actions. Therefore, take and mitigation in this document are not characterized by a precise count of individuals, but by the loss or preservation of habitat for the Covered Species.

→ 4.2 TYPES OF IMPACTS FROM COVERED ACTIVITIES

The SEP-HCP covers incidental take associated with participating activities that involve the loss or degradation of habitat for the Covered Species. Removal of habitat both reduces the absolute area of habitat available to the species and may fragment remaining areas of habitat. Habitat fragmentation exposes previously "core" areas of habitat to more intensive external influences that may degrade the suitability or quality of the remaining habitat.

The ESA defines "take" of a listed species "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (see 15 USC §1532[19]).

The covered activities may result in incidental take by: (1) directly killing or wounding individuals; (2) harming individuals by way of significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding or sheltering; or (3) harassing individuals by creating the likelihood of injury by annoying it to such an extent as to significantly disrupt normal behavioral patterns. *Definition of Individual?*

These forms of incidental take may occur either as a direct consequence of the covered activity or as an indirect consequence of the covered activity. In 50 CFR Part 402.02 (revised in 2008), the Service defines "direct effects" as the immediate effects of the action (in this case, the habitat loss or degradation associated with the participating Covered Activity) that are not dependent on the occurrence of any additional intervening actions for the impacts to species or critical habitat to occur. The Service states that "indirect effects" are those for which the proposed action is an essential cause, and that are later in time, but still are reasonably certain to occur. The Service goes on to explain in 50 CFR Part 402.02 that if an effect will occur whether or not the action takes place, the action is not an essential cause of the indirect effect.

4.2.1 POTENTIAL DIRECT EFFECTS

For the SEP-HCP, the authorization of incidental take associated with participating Covered Activities (i.e., habitat loss and degradation) may directly affect individuals of the Covered Species that utilize areas of habitat that would be removed or degraded within enrolled Project Areas. Killing, wounding, or injuring individuals of a Covered Species by manipulating habitats would be an immediate effect of the activity. The exposure of previously core areas of habitat to new edge effects can degrade these habitats and also directly harm individuals that are using these adjacent areas.

With respect to the listed karst species, direct effects are most likely to occur in relation to Covered Activities that substantially alter the surface or subsurface components of karst habitat within Occupied Cave Zones. Covered activities within this zone have a reasonable likelihood of directly and measurably killing, wounding, injuring, and/or harming individual invertebrates. Direct effects to karst invertebrate habitat or individuals may also be possible if a species-occupied cave is accidentally opened during construction activities.

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However, the likelihood of a participating Covered Activity directly killing, wounding, or injuring an individual GCW or BCV is substantially reduced by the seasonal clearing restrictions imposed on SEP-HCP participants as a special condition of their Participation Agreements. For the listed karst species, the likelihood of directly killing, wounding, or injuring an individual invertebrate is reduced by the extensive pre-application biological investigations, by restrictions on conducting activities within Occupied Cave Zones and CHUs, and by the best practices required as a condition of SEP-HCP Participation Agreements.

4.2.2 POTENTIAL INDIRECT EFFECTS

The authorization of incidental take (measured in terms of habitat that is removed or degraded) through the SEP-HCP may also have indirect effects on the Covered Species.

For example, individual GCWs or BCVs that return to an enrolled Project Area where habitat has previously been removed or degraded may be harmed by having to move to alternate habitat areas for breeding, feeding, or sheltering. The authorized habitat loss would be an essential cause of this reasonably certain to occur effect on these returning individuals, but would typically occur after the habitat removal was completed.

Other types of indirect effects associated with participating Covered Activities may be associated with interrelated or interdependent construction activities or other land use practices conducted within an enrolled Project Area after the authorized habitat loss/degradation has occurred. Construction activities and other types of human land uses that cause noise or other disturbances can harass neighboring GCWs or BCVs. Human activities within enrolled Project Areas can also cause changes to local populations of predator or competitor species, thereby degrading the adjacent habitat and harming adjacent individuals of the Covered Species. Again, these types of effects are reasonably certain to occur as a result of interrelated or interdependent actions of the authorized habitat loss and occur after the authorized habitat loss is completed.

For the listed karst invertebrates, indirect effects may occur as a result of changes to the surface plant and animal communities outside of Occupied Cave Zones. Land use changes that reduce the extent or composition of native communities within an enrolled Project Area could diminish the long-term viability of such communities and, over time, could affect the quality or quantity of water and nutrients feeding subterranean karst environments. While the covered activities would be an essential cause of these types of land use changes within enrolled Project Areas, the reasonable certainty to which these types of impacts might occur is less clearly established.

4.2.3 POTENTIAL CUMULATIVE EFFECTS

Section 7 of the ESA requires an analysis of the cumulative effects of a proposed federal action, in this case the authorization of incidental take associated with loss or degradation of habitat for the Covered Species. Under the ESA, cumulative effects are defined as the effects of future, non-federal actions that are reasonably certain to occur within an action area. This cumulative effects analysis is used to help the Service determine whether the proposed action is likely to result in jeopardy for a federally listed species or in the destruction or adverse modification of designated critical habitat (USFWS and NMFS 1996).

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When analyzing cumulative effects, the Service determines whether the aggregate effects of the factors analyzed under the environmental baseline, the effects of the proposed action, and the cumulative effects within the action area (when viewed against the status of the species or critical habitat) are likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of critical habitat.

A regional Habitat Conservation Plan, such as the SEP-HCP, would not constitute a new federal program authorizing new activities with potential impacts to the human environment. Rather, it would provide a voluntary, alternative means of compliance with the ESA for non-federal entities. This means that project proponents in the SEP-HCP Permit Area would retain the ability to use their property and remain in compliance with the ESA through means other than the SEP-HCP (i.e., through avoidance, individual HCPs, or ESA Section 7 consultations). Project proponents might also determine that compliance with the ESA is not necessary for their project and develop their property without coordination with the Service (in some cases possibly risking violation of Section 9 of the ESA). Therefore, protected future land development activities are not interrelated or interdependent to the SEP-HCP.

← From those who OOT right - 2/25.

When an agency action such as Service approval of the SEP-HCP and issuance of the related Incidental Take Permit merely helps to facilitate an effect, it is not necessarily an essential cause of the effect. The SEP-HCP is not an essential cause of the habitat losses that are projected to occur across the Plan Area, since this habitat loss and the resulting effects to the Covered Species would happen anyway under other ESA compliance options or without ESA compliance. If an effect will occur whether or not the action takes place, the action is not an essential cause effect. Instead, the projected habitat losses from future development should be considered in the context of cumulative impacts on the Covered Species.

Indicators of future, non-federal activities that are reasonably certain to occur may include, but are not limited to, those that have been approved by state or local agencies or governments, activities where such approval is imminent, activities where project proponents have made commitments or assurances that the activity will proceed (including the obligation of funds or venture capital), or the initiation of contracts for the activity. However, the "reasonably certain to occur" standard does not require that the action will occur. Cumulative effects analyses under Section 7 of the ESA do not address the potential impacts of speculative, non-federal actions that may never be implemented, nor do they address the effects of past or present activities in the action area (USFWS and NMFS 1996).

The SEP-HCP land development projections consider and account for a much larger set of possible future land development activities than would meet the Service's definition of "reasonably certain to occur." Therefore, the cumulative impacts analysis does not rely on a detailed accounting of the land development, transportation, and utility service projects that have been or will soon be approved, or for which commitments or assurances have been made that the activity will proceed.

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4.3 GCW AND BCV TAKE AND IMPACTS

4.3.1 ESTIMATED HABITAT LOSS AND DEGRADATION

The extent of possible future GCW and BCV habitat losses within the SEP-HCP Plan Area were estimated by comparing the amount of available habitat for these species to the amount of projected new land development in the region.

Estimates of available GCW and BCV habitat within the Plan Area are described in [Appendix C](#). [Figure 4](#) shows the general distribution of GCW habitat across the Plan Area. Regional maps of BCV habitat are not available. [Section 1.4](#) includes a review of the land development projections for the SEP-HCP and more detail about the land development projections is included in [Appendix D](#).

This analysis assumes that projected new land development will affect potential GCW and BCV habitat in proportion to the availability of such habitat within a SEP-HCP sector. For example, if 25 percent of the area of a sector is identified as potential habitat, then it is assumed that 25 percent of the new development projected for that area will result in habitat loss.

Estimated future habitat losses for the GCW and BCV within the SEP-HCP Plan Area resulting from projected levels of new land development over the next 30 years are summarized in [Table 11](#). More detailed calculations for estimated habitat losses at the sector level are attached in [Appendix E](#).

← Although
75% is outside
habitat +
degradable.

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TABLE 14. Estimated GCW Regional Recovery Potential.

	7-county Plan Area ¹	Bexar/Kendall/Comal Counties ²
Estimated Habitat Availability for Future GCW Conservation Actions		
Habitat Acres Not Currently Protected	625,377 ac	232,479 ac
Projected Future Habitat Loss Over 30 Years ⁶	51,150 ac	41,459 ac
Remaining Habitat Available for Conservation Actions ⁷	574,227 ac	191,020 ac
Currently Available GCW Habitat In Excess of the Amount Needed to Achieve Recovery and Accommodate Projected Habitat Loss	472,909 ac	139,025 ac

1 Assumes that the 7-county Plan Area represents the equivalent of two GCW recovery units.

2 Assumes that Bexar, Kendall, and Comal counties represent the equivalent of one relatively high priority GCW recovery unit. Consistent with the analysis presented in Groce et al. (2010).

3 Recovery standard targets are based on the recommendations of the 1992 GCW Recovery Plan and the 1995 GCW Population and Habitat Viability Workshop. Estimates of the amount of protected habitat needed to support a viable population are based on an average density of 4 GCW pairs per 100 acres (the approximate long-term density of GCWs found on Camp Bullis).

4 Includes the entire geographic extent of the 7-county Plan Area, including Comal County and Camp Bullis.

5 See analysis in the Existing Conservation Lands resource assessment in Appendix C, limited to Model C2010 Ranks 3 and 4.

6 See habitat loss projections described in [Section 43.1](#), including the SEP-HCP incidental take request.

7 Calculated as Habitat Acres Not Currently Protected minus Projected Future Habitat Loss. Represents the acres of habitat that are not currently protected or expected to be lost to development over 30 years.

With respect to the GCW, participants at the "Population and Habitat Viability Workshop" held in August 1995 recommended the protection and management of sufficient habitat to support 3,000 breeding pairs in each GCW recovery region (USFWS 1996). The SEP-HCP Plan Area encompasses an area roughly equivalent to one or two GCW recovery units. Therefore, achieving the equivalence of GCW recovery for the Plan Area could require the protection and management of enough GCW habitat to support approximately 3,000 to 6,000 breeding pairs. At an average density of approximately four GCW pairs per 100 acres of suitable habitat, which is the long-term average density of singing males recorded on Camp Bullis ([see the Golden-cheeked Warbler assessment in Appendix C](#)), approximately 75,000 to 150,000 acres of protected GCW habitat may be needed to achieve the equivalent of GCW recovery for the Plan Area.

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Therefore, prior conservation actions in the SEP-HCP Plan Area are already contributing to approximately 42 to 84 percent of the regional recovery standard for the BCV, which is in excess of the Plan Area's relative geographic representation within the Southeast Edwards Plateau BCV Recovery Region.

It is unlikely given the estimated amount of potential BCV habitat thought to occur within the Plan Area (more than 181,000 acres) and the relative contribution of existing conservation efforts to BCV recovery in the region that the level of incidental take requested by the SEP-HCP would preclude the opportunity to achieve recovery of this species.

4.3.6 CUMULATIVE GCW AND BCV IMPACTS

Summarize prior actions and habitat losses

Summarize present actions and current habitat availability

Identify subset of reasonably certain to occur activities....

Describe whether or not jeopardy likely to occur

4.4 LISTED KARST INVERTEBRATE TAKE AND IMPACTS

4.4.1 KARST HABITAT LOSS AND DEGRADATION

Potential habitat for the listed karst invertebrates may occur within the mapped Bexar County Karst Zones 1 through 4, as delineated by Veni (1994, 2002). Impacts to this habitat may arise from future land development activities or other types of construction activities that occur over the Bexar County Karst Zones. Unlike habitat losses for the GCW and BCV, which typically occur only on previously undeveloped lands, re-development activities over karst zones could create additional impacts to karst habitat that might result in incidental take. For example, the replacement of overhead utility lines with underground lines in an existing developed neighborhood could encounter subsurface voids occupied by listed karst invertebrates that were not previously known. Therefore, karst habitat impacts will be measured in terms of the acres of Karst Zone potential habitat that may be impacted by the Covered Activities, including re-development over previously developed lands.

It is important to note that not all of these impacts will represent the complete loss of karst habitat. Depending on the circumstances, the impacts of the Covered Activity might only degrade habitat for the listed karst invertebrates and result in only negligible or no measurable impact on the listed karst species.

For the purpose of estimating the extent of possible future karst habitat impacts within the Permit Area, it is assumed that impacts to potential karst habitat (i.e., areas identified as Karst Zones 1 through 4) from future development and construction activities would occur in proportion to the extent of each Karst Zone in a given geographic area. For example, if 25 percent of a SEP-HCP sector was mapped as potential karst habitat, then 25 percent of the extent of future development in that sector would be assumed to impact potential karst habitat.

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←
If this
Assessment
Re-develop
Area, this
much of
87,000 ac
to B.C. as
Recovery?

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35
Figure 3 (see page 35) shows the boundaries of the Bexar County Karst Zones in relation to the SEP-HCP sectors and the general representation of each sector with respect to the KFRs described in the Draft Karst Recovery Plan. Since the boundaries of the KFRs are not explicitly defined and do not encompass the entire area of potential karst habitat, each SEP-HCP sector was assigned to a "KFR Group" representing one or more KFRs.

Table 15 summarizes the estimated extent of future Karst Zone habitat impacts for each applicable SEP-HCP sector over the next 30 years. Additional information supporting this analysis is attached in Appendix E.

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minimized by the administrative limits and the participation fee structure set by the karst participation process until a certain level of conservation is in place (see Section 3.2.3.2 for more details).

Under this approach, the SEP-HCP would not generally cover activities conducted within 345 feet of a known species-occupied cave until karst preserves are in place at a level consistent with the downlisting criteria described in the 2008 Bexar County Invertebrates Draft Recovery Plan. For example, *Rhadine exilis* is known to occur in four of the six KFRs and the draft downlisting criteria for this species specify that one high quality preserve and two medium quality preserves would be needed in each of the KFRs where this species occurs. Therefore, the SEP-HCP would not cover incidental take of *R. exilis* associated with activities occurring within 345 feet of a cave unless one high quality and two medium quality preserves had been established within that particular KFR.

In this way, the SEP-HCP would minimize most of the direct and highest intensity impacts to listed karst invertebrates by requiring participants to avoid conducting activities close to known species-occupied caves until the draft downlisting criteria for the number and type of karst preserves in a KFR were achieved. Once the necessary number of karst preserves is in place for a particular species in a KFR, then SEP-HCP participants may be authorized to conduct covered activities within 345 feet of a cave occupied by that species, since the regional recovery potential for that species will have been secured. Continuing the previous example, once one high quality and two medium quality cave preserves were established for *R. exilis* in the KFR "A", then SEP-HCP participants with projects in the KFR "A" could obtain incidental take authorization from the SEP-HCP for activities within 345 feet of a cave occupied by *R. exilis*. — occupied?

Even if the regional recovery potential for a listed karst invertebrate has been secured and the SEP-HCP was able to authorize incidental take within 345 feet of a species-occupied cave, the participation fee levels for such coverage are set at a level that continues to encourage minimizing activities close to such caves.

These limits on participation in the karst program will avoid the most severe impacts to species-occupied caves, such as filling or excavating known caves or voids which can directly and permanently destroy the physical karst environment and could even directly kill or wound individuals of the listed species. These limits would remain in place until regional downlisting criteria for one or more of the species have been met.

By encouraging participants to avoid disturbing the surface and subsurface elements of karst habitat within 345 feet of the footprint of an occupied cave, the SEP-HCP will also minimize the potential indirect and/or less severe direct adverse impacts of land development and construction on the listed karst invertebrates. The 345-foot cave buffer is consistent with the known foraging range of cave crickets (*Ceuthophilus* spp.), which are a major component of the cave ecosystem. This buffer would also contain at least 8.5 acres of surface vegetation community and drainage basins associated with the cave. Avoiding disturbance within this zone will minimize the intensity of potential changes to the nutrient, hydrologic/humidity, and temperature regimes of the cave ecosystem that might be associated with Covered Activities conducted outside of the 345-foot zone. This measure will also help minimize the potential for invasion of species-occupied caves by red-imported fire ants (*Solenopsis invicta*) which can alter the surface animal community (potentially disrupting natural nutrient pathways) and prey

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directly on the listed karst invertebrates. Retaining natural vegetation around a cave can also help filter pollutants or other contaminants from surface runoff before it enters a cave.

→ Finally, given the critically endangered status of many of the listed karst invertebrates, the SEP-HCP would administratively limit incidental take authorization for activities conducted within designated critical habitat for these species until sufficient karst preserves were in place to achieve twice the level of habitat protection specified by the draft downlisting criteria. These limits would be applied on an individual species and individual KFR basis. The critical habitat designations for the listed karst species include some or all of the primary constituent elements of viable habitat for these species; although, some special management or protection may be required to maintain these conditions over time. Therefore, the SEP-HCP would effectively avoid authorizing incidental take or adverse impacts to the species or their habitats associated with nearly all of the species-occupied caves that are known to occur at the time of this writing. These limits would remain in place until the level of conservation achieved within the Permit Area makes the critical habitat designations irrelevant to the survival and recovery of one or more of the listed karst species in a given KFR.

Despite strong avoidance and minimization measures for known species-occupied caves, the requested incidental take could result in direct and potentially severe impacts to previously unknown species-occupied caves or voids discovered accidentally during implementation of a Covered Activity. While most species-occupied caves present within a participating Project Area would be discovered during the mandatory pre-application karst studies, some caves or voids may not have detectable surface expression and might be discovered only during subsurface construction activities. In such cases, the act of discovering the feature could result in direct, physical disruption of the karst habitat and, if the feature were occupied, the incidental take of one or more of the listed karst invertebrates.

The SEP-HCP karst program will minimize the potential impacts of any incidental take associated with the discovery of a species-occupied cave or void during implementation of a covered activity (see [Section 3.2.4.4 – Special Conditions for Karst Invertebrates for more details](#)). Until the draft downlisting criteria for all of the listed species in a particular KFR have been achieved, participants will be required to investigate accidentally discovered caves or voids to determine if they are occupied by one or more of the listed species. For accidentally discovered features found to be occupied by one or more of the six rarest listed karst invertebrates (i.e., “Category 2” ^{or 3} karst invertebrates), participants will be required to consult with the Service and implement all reasonable and prudent minimization and mitigation measures at that site. Such measures could include resealing the void and altering the participant’s activities to avoid or minimize additional impacts to the discovered feature.

4.4.4 IMPACTS TO INDIVIDUAL KARST SPECIES

Impacts to species-occupied caves would not be expected to affect the individual listed karst species equally, since some of these species are more common and wide-spread than others. In general, three of the listed karst invertebrates are relatively common: *Rhadine exilis*, currently known from 51 sites across four KFRs; *Rhadine infernalis*, currently known from 40 sites across five KFRs; and *Cicurina madla*, currently known from 20 sites across four KFRs. Given the relatively high number of known sites for these species and their distribution across several KFRs, these three “Category 1”

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5.0 BIOLOGICAL GOALS AND OBJECTIVES

5.1 BIOLOGICAL GOALS

The biological goals and objectives for the SEP-HCP set the overall direction for the conservation programs. The SEP-HCP biological goals are as follows:

1. Minimize and mitigate impacts to the Covered Species to the maximum extent practicable at a level that:
 - a. avoids jeopardy and contributes ~~substantially~~ to the recovery of the Covered Species; and
(+ THEN HABITAT ?)
 - b. is sufficient to obtain incidental take authorization for the Covered Species for those projects voluntarily participating in the SEP-HCP.
2. Contribute to the conservation of the other species addressed in the SEP-HCP to help prevent or minimize possible future declines in the status of these species.
3. Expand the current body of knowledge pertaining to the species addressed in the SEP-HCP to further their conservation and management.

Inconsistent w/ word on pg. 4

5.2 BIOLOGICAL OBJECTIVES

The biological objectives are measurable criteria for evaluating progress towards achieving the broader biological goals listed above. The biological objectives are specific to each set of Covered Species. Where warranted, the rationale behind these objectives is discussed to clarify or highlight important considerations.

5.2.1 GCW AND BCV BIOLOGICAL OBJECTIVES

OBJECTIVE 1: Permanently protect and manage approximately 30,000 acres of GCW habitat in the Plan Area.

One of the stated purposes of the SEP-HCP and a principle biological goal is to contribute to the recovery of the Covered Species in a substantial or meaningful way. ← NOT STATED on pg. 4

The SEP-HCP will contribute to the recovery of the GCW by the acquisition and management of preserve lands. At full implementation of the SEP-HCP, the Plan could contribute approximately 30,000 additional acres to the suite of existing conservation lands containing GCW habitat. On their own, the SEP-HCP's GCW preserves could represent approximately 20 to 40 percent of the acreage needed to achieve the equivalent of regional recovery. When combined with the acres of GCW habitat that are already conserved, the total level of conservation could represent approximately 55 to 113 percent of the acreage thought to be needed for regional recovery.

→ NOT SCIENTIFICALLY ESTABLISHED?

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Further, GCW habitat protected within SEP-HCP preserves will be managed in perpetuity for the benefit of the species. The SEP-HCP will also seek to increase protections and management actions for the GCW on some existing conservation lands, particularly those with large areas of GCW habitat that is not currently being managed for the benefit of the species, and thereby increasing their relevance to recovery.

OBJECTIVE 2: Permanently protect and manage approximately 4,000 acres of BCV habitat in the Plan Area.

The SEP-HCP will also contribute to the recovery of the BCV by acquiring and actively managing habitat for the benefit of the BCV. At full implementation, the SEP-HCP could contribute approximately 4,000 acres of actively managed habitat to the current inventory of lands managed for this species.

The SEP-HCP BCV preserves ^{will} ~~could contribute substantially~~ to the recovery of the species. The 1991 BCV Recovery Plan calls for the protection of 500 to 1,000 breeding pairs in each recovery region. Assuming an overall BCV density of approximately 10 pairs per 100 acres of suitable habitat (which may be a conservative estimate considering that BCV territory size is typically between two and four acres, but one that recognizes that not all suitable habitat may be utilized by the species), the protection and management of 4,000 acres of BCV habitat could support a population of approximately 400 BCV breeding pairs (approximately 40 percent of a viable population for recovery purposes). Therefore, the SEP-HCP could raise the total protected population of BCVs in the Southeast Edwards Plateau BCV Recovery Region to a level that is consistent with the upper end of the range called for in the 1991 BCV Recovery Plan.

OBJECTIVE 3: Create GCW preserves that include at least 500 acres of GCW habitat and prioritize the creation of larger "focal" preserves that contain at least 5,000 acres of GCW habitat.

Researchers have found that larger patches of GCW habitat have been shown ^{of Funnier} ~~more likely to~~ result in higher probabilities of occupancy and better pairing and reproductive success than smaller patches (Coldren 1998, DeBoer and Diamond 2006, Morrison et al. 2010). Patches containing at least 500 acres of GCW habitat have an almost certain probability of occupancy by the species (Morrison et al. 2010). Establishing a 500-acre minimum size for GCW preserves increases the likelihood that the SEP-HCP preserve system will retain long-term conservation value for the species.

While 500 acres may provide a reasonable minimum size for a preserve with long-term conservation value, GCWs populations are likely to be even more secure with larger preserves. Larger preserve units help to buffer protected habitats from threats related to adjacent, potentially incompatible land uses and can help minimize management costs. The SEP-HCP will prioritize the creation of preserves either as new individual preserve units or by building on existing conservation lands that are an order of magnitude larger than the minimum size.

By seeking to achieve these preserve configuration objectives, the SEP-HCP will contribute to the formation of a preserve system that is consistent with the vision of the 1992 GCW Recovery Plan, whereby larger focal preserves are connected by corridors or stepping stones of smaller (but still biologically significant) preserves.

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OBJECTIVE 4: Create BCV preserves that include at least 100 acres of BCV habitat and prioritize the creation of one focal BCV preserve that contains at least 2,000 acres of BCV habitat.

BCVs tend to occur in clusters, with larger clusters (frequently 15 territories or more) typically found in better habitat with older males and higher reproductive success and survivorship (USFWS 1991). Most individual BCV territories tend to include two to four acres (USFWS 1991). Therefore, a preserve size of approximately 100 acres should generally be sufficient to support a large BCV cluster (i.e., 15 BCV territories * 4 acres/territory = 60 acres). The SEP-HCP sets the minimum size for a BCV preserve at 100 acres of managed habitat.

As explained above, larger preserves tend to have advantages for minimizing edge effects and reducing management costs associated with addressing such effects. Recognizing this, the SEP-HCP will also require BCV preserves to be contained within a larger protected area of at least 500 acres, and the plan prioritizes the creation of at least one "focal" BCV preserve that includes 2,000 acres of managed BCV habitat. Given the need for periodic successional setbacks of woody vegetation to create conditions suitable for use by BCVs, this larger focal preserve may also have the advantage of maximizing the likelihood of a large area always being in a suitable condition for BCV occupancy.

used
500 Ac
to preserve
100?

OBJECTIVE 5: Protect 5,000 acres of GCW habitat within Bexar County or within approximately five miles of the Bexar County boundary.

The protection of additional habitat in and adjacent to Bexar County will help conserve the GCW in a rapidly developing part of the species' range. Habitat protection in the vicinity of Bexar County also addresses one of the purposes of the SEP-HCP, which is to help protect the military training mission at Camp Bullis and the economy of the greater San Antonio Area.

OBJECTIVE 6: Prioritize the creation of a focal preserve for the GCW in each of the Plan Area counties.

The SEP-HCP will seek to create a focal conservation area (each composed of several thousand acres) for the GCW in each of the Plan Area counties. Some of these focal areas may be completely new preserve units, while others may be achieved by adding to existing conservation lands. This approach will help ensure that significant preserve units are located across the Plan Area and closer to any participating Covered Activities in those counties.

to create?

OBJECTIVE 7: Prioritize the acquisition of GCW and BCV preserve parcels that expand upon or help connect existing conserved lands and parks within the Plan Area.

Prioritizing future preserve acquisitions around existing protected lands addresses another purpose of the SEP-HCP: to make the most efficient use of conservation resources. Where practicable, building upon existing protected lands will leverage past and present financial resources to achieve biologically significant, regional conservation of the GCW and will complement other conservation efforts in the region, such as aquifer protection.

OBJECTIVE 8: Permanently protect GCW and BCV habitat in the Plan Area at a level that mitigates for the impacts of incidental take from participating projects to the maximum extent practicable.

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To establish an appropriate level of mitigation for the GCW and BCV, Bexar County considered the mitigation requirements specified by the ESA, Service policy for mitigation as expressed in the HCP Handbook, and the mitigation provided under other regional habitat conservation plans for these species.

The ESA requires that "the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking" (see Section 10(a)(2)(B)(ii) of the ESA).

Service policy, articulated in the HCP Handbook (page 3-21), expresses a preference for mitigation that is located near the site of the impact. However, this policy also states that more distant mitigation may be desirable if greater conservation value can be achieved or the mitigation is part of a conservation bank.

Other approved regional habitat conservation plans for the GCW (i.e., the Williamson County, Hays County, and Comal County regional plans) have basic mitigation ratios of 1 acre of protected habitat for each acre of impacted habitat. Service policy also advises that adjacent plans should have similar mitigation requirements (see the Service's HCP Handbook, page 3-23).

For the SEP-HCP, the loss of GCW habitat is expected to be greatest within Bexar County and the "high growth" portions of adjacent counties (see the Section 4.3.3). However, it is anticipated that a substantial portion of the corresponding mitigation may be located outside of this high growth area, where development pressures are less intense and larger preserves may be acquired more cost effectively.

As described in more detail below, the GCW mitigation ratios for SEP-HCP participants will generally be set at the equivalent of 2 acres of protected habitat for each acre of habitat that is impacted. While other regional habitat conservation plans for the GCW only require a 1:1 basic mitigation ratio, the geographic extents of these plans are confined to a single county and ensure that mitigation will be located close to the impacts. For the SEP-HCP, a higher 2:1 mitigation ratio is used to compensate for the wide-ranging distribution of preserves across a seven-county Plan Area. Bexar County believes that this approach provides an appropriate and practicable level of mitigation for the anticipated impacts to the GCW. This approach is consistent with the requirements of the ESA, Service policy, and the purpose, goals, and objectives of the SEP-HCP.

For the BCV, the SEP-HCP will generally use a simple mitigation ratio of 1 acre of protected habitat for each acre of habitat that is impacted. This ratio is consistent with the requirements of the ESA, Service policy, and the purpose, goals, and objectives of the SEP-HCP. Based on information from the Texas Parks and Wildlife Department and the Service, BCVs have not been recorded in high numbers within or in the immediate vicinity of Bexar County. Only a small population of BCVs has been documented on protected lands in Bexar County and there are no recent records of the species from Comal County. Therefore, it may be unnecessary to focus BCV conservation efforts in Bexar County.

→ OBJECTIVE 9: Secure GCW and BCV mitigation for participating projects before authorized take occurs.

As described below, the SEP-HCP will use a conservation banking strategy for the GCW and BCV conservation program. This strategy will ensure that an appropriate level of mitigation is in place

How About
2:1 w/ 5 miles
3:1 outside
of 5 miles
of Preserve
4:1 730 miles
1:1 w/ 10 miles
direct

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before the corresponding incidental take occurs. At no time during the implementation of the Plan will the amount of incidental take associated with participating Covered Activities exceed the amount of mitigation that is in place.

OBJECTIVE 10: Maintain or optionally enhance the conservation value of protected GCW and BCV habitats in perpetuity. *NARRATIVE?*

OBJECTIVE 11: Implement a flexible and adaptive management program that responds to changing conditions and new information. *NARRATIVE?*

OBJECTIVE 12: Prioritize the use of management and monitoring resources for on-the-ground activities that address threats to the conservation value of protected GCW and BCV habitats.

The adaptive management for GCW and BCV preserves will occur via a continuous and cyclical process of assessing needs, forming strategies, implementing actions, and monitoring results. In attainment of these management and monitoring goals, Bexar County will commit to implementing within the preserves such measures as are both necessary and practicable to maintain suitable habitat conditions for the GCW and BCV and address threats to these species. This management approach compliments the flexibility of the conservation banking strategy that forms the basis for the GCW and BCV conservation program.

5.2.2 LISTED KARST INVERTEBRATE BIOLOGICAL OBJECTIVES

OBJECTIVE 1: Permanently protect and manage double the number of karst preserves needed to downlist each of the listed karst invertebrates, as described in the 2008 Bexar County Karst Invertebrates Draft Recovery Plan. *? WHERE - SEE pg. 4*

One of the stated purposes of the SEP-HCP and a principle biological goal is to contribute to the recovery of the Covered Species in a substantial or meaningful way. In the case of the listed karst invertebrates, the SEP-HCP seeks to achieve double the Service's draft downlisting criteria in terms of number and type of preserves in each KFR. The rationale for this objective is based on both the practicality of measuring take and issuing participation permits and also on biological reasons.

Measuring the amount of harm to listed karst invertebrates and determining an appropriate level of mitigation is a complex task. First, the Category 2 karst species occur in so few localities that any direct take of an entire cave may not be permissible by the Service (e.g., there is a potential that jeopardy would occur). Second, there are a wide variety of types of impacts, many of which degrade habitat but do not necessarily cause direct take. *Category 2?* Weighing the myriad potential habitat degradations against specific habitat improvements is not feasible in the scope of a streamlined permitting process, and the balance of specific degradations against specific conservation actions may not be conclusively validated by scientific research. Finally, there is a paucity of information on the long-term effects of the various types of impacts. Therefore a conservative approach to karst conservation may be prudent.

Biological reasons for the level of proposed karst conservation include: (1) substantial uncertainties regarding the taxonomic status of these poorly known species; (2) a lack of knowledge about the persistence of the species within preserves under changed circumstances; and (3) the paucity of basic biological and habitat and range information for these species.

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Karst species are exceptionally difficult to differentiate because of convergent evolution. Similar ancestors invade caves and experience the same selection pressures (i.e., lack of light, near constant temps, high humidity, paucity of food, and periodicity of nutrients) and this tends to make species morphologically indistinguishable. For this reason, it is common for populations that had been previously considered to be a single species to be split into two or more different species as more detailed research is performed. If the species are split, then their range may also be reduced.

There is uncertainty regarding the persistence of karst preserves based on the potential for natural or man-made catastrophic events. To actually reach recovery, the 2008 Bexar County Karst Invertebrates Draft Recovery Plan calls for substantial new research to demonstrate the adequacy of the recovery criteria. Since very little is known about the biology and needs of cave organisms, many of these research objectives include gathering basic information on the efficacy of different preserve sizes, vegetation components, and connectedness with other preserve areas. Because of this uncertainty, the draft recovery plan also calls for monitoring to demonstrate population viability for at least 30 years. Since all of those additional actions will not necessarily be done in the timeframe of the SEP-HCP, the additional preserves in each KFR may serve as a 'buffer' to make up for that lack of information.

Most of the species boundaries given in the draft recovery plan are based on a single paper that was authored decades ago, and these papers may have been based on as few as one specimen. In general there is an extreme lack of verification of this information, partially based on a paucity of specimens available and a lack of taxonomists qualified to do the work. In some cases there is evidence for potential habitat barriers within the range of a species, and these barriers may in fact turn out to divide populations that are currently considered to be a single species. In these cases, the draft downlisting criteria could increase from three karst preserves per KFR to six preserves per KFR, and the new downlisting criteria would still be met by the SEP-HCP.

OBJECTIVE 2: Minimize impacts in close range to occupied caves.

The administrative restrictions on karst participation and the karst participation fee structure are designed to deter impacts close to species-occupied caves. These provisions will minimize impacts within the cave cricket foraging area or drainage basins of a species-occupied cave.

OBJECTIVE 3: Perform investigations to discover new localities for rare species

As more karst investigations are performed, more localities for rare species may be discovered. Knowing the full range of a species is one of the first steps toward successful management. The SEP-HCP recognizes the need to discover as many localities for these taxa as possible in order to have solid biological information and the maximum number of options for preserve acquisitions. For this reason, performing exploratory sampling in habitats likely to yield new localities for all species, and in particular Category 2 species, is a high priority. These investigations will focus on large conservation areas with potential for high quality karst preserves.

Five of the nine karst invertebrates are known occur in only one or two localities. Many of the other species have disproportionately more known localities in areas that have been searched compared to areas that have not been searched (or not searched well), indicating that new localities are

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likely to be discovered if the investigations are performed. Because these species are rare and cryptic, a single or even several visits to a site will not necessarily yield a species encounter.

OBJECTIVE 4: Improve management at known localities for rare species.

There are known localities for the listed karst invertebrates that could benefit from additional management and monitoring. Since many species are known from very few localities (and additional localities may or may not be discovered via Objective 3), the options for conservation measures for these species are few. Landowners may not be interested in selling land outright or creating easements for karst preserves. Therefore, the SEP-HCP will seek to increase protections and management actions at 'underprotected' sites. These actions, while not as ideal as outright ownership or easement purchase, may dramatically increase the relevance of individual sites toward species recovery.

What?
↓
Easement
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6.0 GCW AND BCV CONSERVATION PROGRAM

6.1 OVERVIEW AND APPROACH

The SEP-HCP will use a "conservation banking" strategy to achieve the biological goals and objectives for the GCW and BCV. Under this strategy, the SEP-HCP Administrator will permanently protect and manage GCW and BCV habitats within the Plan Area. With each new preserve acquisition, the SEP-HCP will be awarded a number of "conservation credits" for the GCW or BCV based on the number of habitat acres that are protected. The SEP-HCP Administrator will "bank" these conservation credits and then sell them to potential SEP-HCP participants as mitigation for the impacts of their projects.

This conservation banking strategy has several advantages over other types of conservation strategies, since conservation banking ensures that implementation of the SEP-HCP is scalable and flexible with respect to actual participation levels, availability of funds, and conservation opportunities with willing landowners over time. It also ensures that the conservation is always in place *before* the impacts to the species occur.

Participation in the SEP-HCP extends the plan's incidental take authorization to individual landowners, developers, or non-federal government entities for activities that destroy or degrade habitat for the GCW or BCV. In return, participants purchase conservation credits from the SEP-HCP Administrator as mitigation for the impacts of their projects. However, the SEP-HCP Administrator may only allow new participation if an equivalent amount of conservation is already in place. In other words, the SEP-HCP Administrator cannot sell conservation credits that do not yet exist. If there are an insufficient number of conservation credits in the bank, then the SEP-HCP Administrator must acquire a new preserve to create the needed credits.

+ OTHER ACTIVITIES THAT CAUSE UNDESIRABLE DEGRADATION OF A "TAKE"

Unlike conservation strategies with a defined preserve commitment, the conservation banking strategy does not compel the SEP-HCP Administrator to acquire and manage more preserve land than it needs to keep up with the demand for participation. Instead, the conservation banking strategy establishes mitigation ratios that determine how many conservation credits are needed to offset the impacts of each participating project. In this way, the size of the preserve system is scaled to the amount of actual participation in the plan. If the overall demand for participation in the SEP-HCP is less than anticipated, then the SEP-HCP preserve system will also be smaller than anticipated. The amount of incidental take authorization granted to the plan determines the maximum amount of participation that may be allowed. However, the preserve size will always be in line with the established mitigation ratios.

The conservation banking strategy also remains flexible if the SEP-HCP Administrator has insufficient funds to acquire a new preserve or if the SEP-HCP Administrator is unable to find willing landowners with whom to negotiate preserve acquisitions. If the SEP-HCP Administrator is unable to

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acquire new preserves, then new participation in the Plan will be suspended so that authorized impacts do not exceed the level of conservation that was able to be achieved.

6.2 GCW AND BCV PRESERVES

The primary conservation measure for the GCW and the BCV is the acquisition, perpetual protection, and management of habitats within the Plan Area. The SEP-HCP GCW and BCV preserve systems will be assembled over the duration of the Plan at a level or rate that is needed to stay ahead of the demand for participation. With full utilization of the SEP-HCP's incidental take authorization, the Plan would acquire approximately 30,000 acres of preserves for the GCW and approximately 5,000 acres of preserves for the BCV. The biological goals and objectives described in Section 5.0 provide guidance for the preferred location and configuration of these preserve systems.

Preserve acquisitions will generate a number of conservation credits that are equivalent to the acreage of GCW or BCV habitat that is protected by the transaction. These conservation credits may then be sold to plan participants to compensate for the impacts of authorized incidental take of the GCW or BCV.

6.2.1 MINIMUM STANDARDS FOR PRESERVE ACQUISITIONS

6.2.1.1 LEGAL PROTECTION

To be eligible for conservation credits, GCW or BCV habitat must be legally protected in perpetuity from land uses that are not compatible with the conservation of these species. This standard may be accomplished through fee simple property acquisitions or by creating conservation easements held by Bexar County or another SEP-HCP Partner. Other similar legal mechanisms for land protection may also be possible. SEP-HCP preserves must also have legal commitments for perpetual management and monitoring in order to be eligible for generating conservation credits.

6.2.1.2 MINIMUM PROPERTY SIZE

Properties eligible for generating conservation credits must meet the following criteria:

1. The property must include at least 500 acres or contribute to a cluster of adjacent protected properties that includes at least 500 acres, and
2. The property or cluster of adjacent protected properties must contain sufficient GCW or BCV habitat (including any important habitat buffers) to be capable of generating at least 500 GCW conservation credits or 100 BCV conservation credits.

Properties that are smaller than 500 acres may be eligible for generating conservation credits if the property is adjacent to one or more previously protected properties that, if the group was evaluated as a whole, could meet the minimum size criteria. These previously protected properties do not need to be part of the SEP-HCP preserve system, but must have permanent legal protections as described above.

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For the purposes of evaluating whether or not a property meets the minimum size criteria, a "protected" property must be legally protected in perpetuity from land uses that are incompatible with the conservation of the Covered Species. In this context, legal commitments for perpetual management and monitoring of habitats for the Covered Species are not necessary.

The Service may allow conservation credits on a case-by-case basis for properties that do not meet the minimum size criteria, based on a review of site-specific circumstances.

6.2.1.3 OCCUPANCY

To be eligible for conservation credit, the presence of the GCW or BCV (depending on the type of habitat being protected) must be confirmed within the property. Species observations recorded up to three years prior to the request for conservation credit may support this criterion.

The Service may allow conservation credits on a case-by-case basis for properties that do not meet the occupancy criterion, based on a review of site-specific circumstances.

6.2.1.4 LOCATION

Any property located within the boundary of the Plan Area that meets the legal protection, minimum size requirements, and occupancy criteria (or that is otherwise given case-by-case approval by the Service) may be eligible for conservation credits. GCW or BCV habitats that occur outside of the Plan Area will not be eligible for SEP-HCP conservation credit.

Nonetheless, the SEP-HCP biological goals and objectives provide guidance for the preferred distribution of preserves. The SEP-HCP Administrator will give the highest priority to opportunities for preserve acquisitions that contribute to the protection of 5,000 acres of GCW habitat within Bexar County or within five miles of Bexar County. Preference will also be given to properties that help form "focal" preserves for the GCW or BCV.

6.2.2 USES OF PRESERVE LANDS

The legal protections for SEP-HCP preserves will establish that the primary purpose GCW and BCV preserve lands is for the long-term conservation of these species.

However, other uses of preserve lands may be allowed if these uses are: (1) conducted in a manner consistent with the conservation of the GCW and BCV; (2) conducted in accordance with an adaptive management plan that identifies and minimizes potentially related threats to the species; and (3) approved by the Service. By way of example, secondary uses may include, but are not limited to, public or private recreational activities, agricultural activities, low-density residential activities, hunting activities, and utility or infrastructure corridors.

If the Service determines that proposed secondary uses of GCW and BCV preserves have a reasonable likelihood of materially reducing the long-term conservation value of the protected habitat for the GCW or BCV, then the Service may require the expenditure of conservation credits to compensate for the reduction in conservation value and to mitigate for any incidental take resulting from the proposed use.

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6.3 CONSERVATION BANK

The SEP-HCP conservation bank is a ledger of virtual mitigation "credits" and "debits", where credits are created by permanently protecting and managing habitat for the GCW or BCV. Conservation credits are debited from the conservation bank by using them as mitigation for participating projects or otherwise formally extinguishing them. Conservation credits for the GCW and BCV will be tracked separately.

6.3.1 CONSERVATION BANK LEDGER

The SEP-HCP Administrator will maintain a ledger of conservation bank credits and debits for the GCW and BCV. The purpose of the conservation bank ledger is to record all GCW and BCV conservation credit transactions and track the current balance of credits in the bank. Specifically, the conservation bank ledger will separately record the following information for each GCW and BCV conservation credit transaction:

- The date of the addition or debit of conservation credits;
- The number of credits added or debited as a result of the transaction; and
- The source or recipient of the conservation credits.

LEGAL DESCRIPTION OF PROPERTY?

With each conservation credit transaction, the SEP-HCP Administrator will update the current conservation credit balance. Conservation credits for the GCW and BCV will be tracked separately.

The SEP-HCP Administrator may also maintain separate accounts for conservation credits reserved for a particular use. For example, the SEP-HCP Administrator may have an agreement with a SEP-HCP Partner to reserve a certain number and type of conservation credits for that Partner, or a participant may have provided preserve land in lieu of credit purchases as mitigation and have excess credits reserved for its later use. In these cases, the conservation credits in these separate accounts would not be available for use by other participants.

The SEP-HCP Administrator will submit a copy of the complete conservation bank ledger to the Service annually or at other times upon the request of the Service.

6.3.2 CREATION OF NEW CONSERVATION CREDITS

New conservation credits for the GCW and BCV are created by establishing preserves for these species that meet the minimum standards described in [Section 6.2.1](#). The number and type of conservation credits created by a preserve acquisition generally reflects the conservation value of the preserve property for the GCW and BCV. Credits for the GCW and BCV will be approved by the Service in accordance with official Service policy related to conservation banking. Current Service policy for conservation banking is established in a May 2, 2003 memorandum from the Director of the U.S. Fish and Wildlife Service ("Guidance for the Establishment, Use, and Operation of Conservation Banks").

CO'S

WILL ARE WE DOING? AFTER PLANS?

Generally, each acre of GCW or BCV habitat that is included in a SEP-HCP preserve will generate one conservation credit for that species. Non-habitat buffers may receive partial credit per

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acre preserved. Habitats that were partially conserved prior to acquisition as a SEP-HCP preserve may also be awarded partial conservation credit per acre.

For each preserve acquisition, the SEP-HCP Administrator will submit a GCW and BCV habitat assessment to the Service for review. The habitat assessment will document the extent of potentially suitable GCW and BCV habitat contained within the preserve boundary and the extent of any non-habitat buffers that may be suitable for partial credit. These habitat assessments will be prepared in accordance with the following standards:

- Must be prepared by a biologist holding a valid USFWS Threatened and Endangered Species permits for the GCW and BCV;
- Must delineate portions of the preserve property that meet the Service's definition of suitable habitat for GCW and BCV (currently reported in Campbell 2003);
- Must be based on a review of the best available information, and must include a discussion of actual site conditions as determined from a site visit by the preparing biologist no more than three years prior to the date of purchase; and
- Must include a description of the information and methods used to delineate areas of suitable GCW and BCV habitat.

In addition, the SEP-HCP Administrator will demonstrate to the Service that the preserve property meets the minimum standards for a SEP-HCP preserve, as described in Section 6.2.1.

The Service will review the habitat assessment and other documentation that the minimum preserve standards have been satisfied and will determine the number of GCW and BCV conservation credits that may be generated by the preserve acquisition. The SEP-HCP Administrator may request a credit determination from the Service prior to the actual acquisition of a potential preserve property in order to establish the probable number of credits that could be awarded if the acquisition were to be completed. However, the Service will not actually award the conservation credits to the SEP-HCP conservation bank until all of the minimum preserve acquisition standards have been met.

The Service will make all conservation credit awards to the SEP-HCP conservation bank in writing by notice to the SEP-HCP Administrator.

6.3.3 PURCHASE OF EXISTING THIRD-PARTY CONSERVATION CREDITS

SEP-HCP Administrator may purchase conservation bank credits for the GCW or BCV from independent, third-party conservation banks, provided that the credits are created from protected habitats occurring within the Plan Area. The purchased conservation credits may be added to the SEP-HCP conservation bank at a ratio equivalent to the standards for the creation of new conservation credits (i.e., one credit is the equivalent of one acre of suitable habitat permanently protected and managed for the benefit of the species). These third-party conservation credits may be resold to SEP-HCP participants similar to new conservation credits created by SEP-HCP preserves.

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7.0 KARST CONSERVATION PROGRAM

IS THIS THE ACP OF KARST APPROVED BY SERVICE?

7.1 OVERVIEW AND APPROACH

The biological goals and objectives for the karst conservation program described in [Section 5.0](#) seek to achieve recovery of the listed karst invertebrates. Although not yet approved by the Service, the 2008 Bexar County Karst Invertebrates Draft Recovery Plan (USFWS 2008) currently provides the only written guidance for how downlisting and/or recovery of the listed karst invertebrates may be accomplished. Therefore, the conservation measures proposed for the SEP-HCP karst conservation program are based largely on this draft recovery plan, particularly the number, type and distribution of cave preserves suggested for downlisting a species from endangered to threatened and guidance for long-term management of cave preserves.

Due to the extreme rarity of many of the listed karst invertebrates and the limited extent of potential habitat, the SEP-HCP karst conservation program will rely heavily on a strategy of: 1) collecting new information about the distribution of the listed karst invertebrates on public and private lands; 2) avoiding or minimizing incidental take of the listed karst invertebrates on participating Project Areas; 3) administratively limiting the types of activities that may be covered for incidental take until certain levels of conservation have been achieved; and 4) dedicating resources for karst conservation actions that are independent of fees and other mitigation provided by voluntary plan participants.

The Funding Plan anticipates that the karst conservation program will have a funding source independent of participation fees. However, it will still take a robust level of voluntary participation in the Plan to achieve the biological goals and objectives. For instance, measures to avoid or minimize incidental take of listed karst invertebrates will only apply to plan participants; non-participants would not be bound by the terms of the SEP-HCP's Incidental Take Permit or the special conditions of individual Participation Agreements. To encourage robust participation, the Plan will evaluate applications based on the level of conservation achieved for individual species within individual recovery regions or "Karst Fauna Regions (KFRs)". In this way, more opportunities for participation will be available for species in regions where conservation objectives have been met or exceeded, without first requiring full achievement of the biological goals and objectives for all species in all regions. This approach incrementally expands the types of activities that may be covered for incidental take as the recovery potential for individual species become more secure in a KFR.

Mitigation measures for the listed karst invertebrates will include sponsoring studies to search for and document new localities for these species, contributing to the management of unprotected or underprotected localities, and establishing new karst preserves. Studies to identify new species-occupied caves will focus on existing protected lands, as most existing preserves and natural areas in Bexar County have not been fully investigated for the presence of the listed karst invertebrates. The Plan will seek opportunities to work with landowners near currently known localities to enhance the management of these sites, even if full protection of the locality as a karst preserve is not possible. Finally, the Plan will acquire new karst preserves in an attempt to achieve or exceed the draft downlisting criteria to the extent that appropriate opportunities and sufficient resources are available.

← BY A PARTICIPANT OR THE ADMINISTRATION?

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The participation process for obtaining incidental take authorization for karst impacts, including requirements for pre-application karst surveys, the types of activities that may be covered for take under different levels of on-the-ground conservation, and the special conditions of Participation Agreements for karst impacts are described in [Section 3.2](#). The following sections describe the standards for SEP-HCP karst preserves acquired as mitigation for incidental take and the requirements for ongoing management and monitoring of these preserves. Other mitigation measures, such as studies to document new localities and management of unprotected or underprotected sites, are also described below.

7.2 KARST PRESERVES

The primary conservation measure for the listed karst invertebrates is the acquisition, protection, and perpetual management of karst preserves. The SEP-HCP karst conservation program encourages the early acquisition of such preserves by linking the types of activities eligible for participation to the level of conservation that has been achieved. The biological goals and objectives for the karst species are to contribute to the creation of karst preserves sufficient to meet or exceed the downlisting criteria described in the Draft Karst Recovery Plan.

The Draft Karst Recovery Plan describes the minimum standards for karst preserves that may contribute to the recovery of the species (referred to in the Draft Karst Recovery Plan as "Karst Fauna Areas"). For the SEP-HCP, karst preserves acquired as mitigation for the impacts of incidental take will meet the minimum standards described below. However, the Service may allow exceptions to these minimum standards on a case-by-case basis.

7.2.1 MINIMUM STANDARDS FOR PRESERVE ACQUISITIONS

7.2.1.1 LEGAL PROTECTION

Karst preserves acquired as mitigation through the SEP-HCP must be legally protected in perpetuity from land uses that are not compatible with the conservation of the listed karst invertebrates. This standard may be accomplished through fee simple property acquisitions or by creating conservation easements held by Bexar County or another SEP-HCP Partner. Other similar legal mechanisms for land protection may also be possible. SEP-HCP karst preserves must have legal commitments for perpetual management and monitoring in accordance with the adaptive management and monitoring provisions of the karst conservation program.

IF NOT ACQUIRED BY FEE SIMPLE OR THROUGH A CONSERVATION EASEMENT.

7.2.1.2 MINIMUM SIZE

For the purposes of the SEP-HCP, minimum karst preserve sizes are as follows:

- "High quality" karst preserves will include at least 90 acres surrounding the cave footprint and/or the approximate extent of the surface and subsurface drainage basins of the cave, whichever is smaller.
- "Medium quality" karst preserves will include at least 40 acres surrounding the cave footprint and/or the approximate extent of the surface drainage basin of the cave, whichever is smaller.

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- "Low quality" karst preserves will include the area within at least 500 feet surrounding the cave footprint (a minimum of approximately 18 acres).

All SEP-HCP karst preserves must protect a buffer of at least 345 feet from the cave footprint. *AT LEAST 18 ACRES SURROUNDING CAVE FOOTPRINT*
INSIDE OR OUTSIDE?
EXCEPT "LOW QUALITY"
AWAY FROM CAVE

High and medium quality karst preserves may contribute to the recovery of the listed karst species and will be considered when evaluating the current conservation level for a species. High and medium quality karst preserves may also be accepted as mitigation in lieu of the payment of participation fees. Low quality karst preserves may be accepted as mitigation in lieu of the payment of per acre karst zone participation fees, but might not be able to be considered when evaluating the current conservation level for a species without specific approval from the Service.

The Service may allow exceptions to these minimum standards on a case-by-case basis.

7.2.1.3 OCCUPANCY

SEP-HCP karst preserves accepted as mitigation for incidental take must be shown to be occupied by one or more of the listed karst invertebrates no more than three years prior to acquisition.

7.2.1.4 LOCATION

The Draft Karst Recovery Plan specifies the number, type, and distribution of karst preserves that would be needed for the Service to consider downlisting these species from endangered to threatened. These criteria are summarized in Table 7. The biological goals and objectives for the SEP-HCP karst conservation program are consistent with these draft recommendations.

7.2.2 USES OF PRESERVE LANDS

The legal protections for SEP-HCP preserves will establish that the primary purpose of karst preserve lands is for the long-term conservation of the covered karst species.

Other uses of karst preserves may be allowed if these uses are (1) conducted in a manner consistent with the conservation of covered karst species; (2) conducted in accordance with an adaptive management plan that identifies and minimizes potentially related threats to these species; and (3) approved by the Service. Secondary uses may include, but are not limited to, public and private recreational activities, agricultural activities, low-density residential activities, research and/or educational activities, and utility or infrastructure corridors.

For example, the Service has determined that some types of public access and vehicular uses of access roads or trails may be allowed within the surface and subsurface drainage basins of a species-occupied cave without harming the water quality or the environmental integrity of the karst feature (see the description of "Allowed and Prohibited Activities" in Section 3.1 of Appendix B of the September 2007 Texas Commission on Environmental Quality publication RG-348B pertaining to Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer and Related Karst Features that May Be Habitat for Karst Dwelling Invertebrates).

If the Service determines that proposed secondary uses of karst preserves have a reasonable likelihood of materially reducing the long-term conservation value of the protected habitat, then the

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Service may deny that secondary use of the preserve. Secondary uses must be consistent with the primary purpose of karst preserve lands.

7.3 OTHER KARST CONSERVATION MEASURES

In addition to preserve acquisitions, the SEP-HCP will also dedicate funding to other types of karst conservation measures. These other conservation measures are intended to help fill important data gaps, minimize threats to currently known species localities within CHUs and other currently known localities, and engage the community in karst conservation.

new
Acquisition?
No

7.3.1 KARST STUDIES

To help address important gaps in the current knowledge of the true distribution, abundance, and conservation status of the listed karst invertebrates, the SEP-HCP will sponsor studies of existing protected lands and seek partnerships with willing private landowners to help identify new species localities and gain a better understanding of abundance and distribution.

The extent to which existing protected lands contain species-occupied caves is largely unknown, since comprehensive surveys for karst features have not been conducted on most sites and the few known sites have been extensively surveyed for the presence or absence of listed species. Currently, existing protected lands (not including Camp Bullis) are known to contain approximately 25 species-occupied caves. However, extensive karst survey work conducted on Camp Bullis suggests that many more localities could occur within the approximately 23,000 acres of existing public and private conservation land over the Bexar County-area Karst Zones. Further, due to low detection probabilities for many of these listed karst invertebrates, it could take tens or dozens of fauna surveys to detect the presence of some of the rarest species.

The SEP-HCP will dedicate resources to conducting karst habitat surveys and biodiversity surveys on accessible properties over Karst Zones 1 through 4 (with a focus on properties over Zones 1 and 2). These resources may include funding independent studies or by utilizing program staff to conduct studies. The use of these resources will be prioritized for studies on existing public and private protected lands, but may be expanded to other accessible properties as resources and opportunities allow.

The SEP-HCP Administrator will report the results of all karst surveys to the cooperating property owners and to the Service as part of the SEP-HCP Administrator's annual report.

7.3.2 MANAGEMENT OF UNPROTECTED AND UNDER-PROTECTED CAVES

Almost none of the currently known species-occupied caves receive sufficient protection or management to secure the long-term conservation value of the karst habitat. However, it may not be possible for the SEP-HCP to acquire many of these sites as karst preserves. While full protection as a karst preserve may not be possible, some landowners with known species-occupied caves might be willing to accept assistance with the management and monitoring of these sites. Therefore, the SEP-HCP will dedicate resources to management and monitoring actions on unprotected or under-protected

KARST PRESERVES?

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Kaist Preserves?
species-occupied caves. Dedicated resources may be in the form of funding to landowners in return for specific management actions, funding to independent contractors for services, or use of program staff to implement management practices.

Management actions may, as appropriate, include perimeter fencing or cave gating, fire ant control, restoring native vegetation within the drainage basin of a cave, implementing best practices for integrated pest management, improving the quality of runoff draining to a cave, and/or minimizing threats of contamination by other potentially hazardous substances. Other types of management actions may also be appropriate, depending on the circumstances of the site.

The management actions sponsored by the SEP-HCP at a particular site will be negotiated individually with each landowner and may include one-time actions (such as installing fencing or cave gates) or term agreements for repeated or continual activities (such as fire ant treatments or mowing deferments). It is also possible that some landowners would agree to perpetual management agreements.

The SEP-HCP Administrator will report to the Service on all management activities funded or conducted on unprotected or under-protected caves as part of its annual report.

7.3.3 OUTREACH AND EDUCATION

Kaist Preserves?
The SEP-HCP Administrator will distribute information about the SEP-HCP and the species addressed by the Plan (with a focus on the Covered Species). The SEP-HCP Administrator may prepare new materials and/or assemble previously prepared materials for the plan's outreach and education program. Materials may be distributed via websites, printed materials, or presentations to groups. A number of materials were created during the preparation of the SEP-HCP that could be adapted to this purpose, such as habitat maps, program brochures, resource assessments, and website information. The SEP-HCP Administrator will periodically review SEP-HCP outreach and education materials to ensure that they remain current and provide up-to-date information about the SEP-HCP and the species and habitats addressed in the plan.

The SEP-HCP Administrator will implement the following outreach and education measures:

1. Promoting participation in the SEP-HCP by landowners, developers, or other non-federal entities.

The SEP-HCP Administrator will prepare and distribute educational materials about the ESA and the SEP-HCP for distribution to persons or entities applying for subdivision or development-related permits or approvals from Bexar County and other SEP-HCP Partners. These materials will briefly describe the responsibilities of private entities under the ESA, the purpose and benefits participation in the SEP-HCP, and information on the SEP-HCP participation process. However, in accordance with Chapter 83 of the Texas Parks and Wildlife Code, neither Bexar County nor any other SEP-HCP Partner will condition approval of subdivision plats, development permits, or other local permits or services on participation in the SEP-HCP or compliance with the ESA.

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2. Encourage willing landowners to become voluntary conservation partners with the SEP-HCP.

The SEP-HCP Administrator will prepare and distribute information about opportunities for voluntary conservation partnerships with willing landowners. Such information may include advertising requests for conservation proposals for new preserves, highlighting conservation successes and partnerships, and creating voluntary "good neighbor" programs for landowners adjacent to SEP-HCP preserves.

3. Inform individuals about ways to avoid harming the Covered Species and other rare or sensitive natural resources.

The SEP-HCP Administrator will prepare and distribute materials that describe the habitat characteristics of the Covered Species to help the public understand where these species might occur. This information may include distribution of "no take" guidelines for the Covered Species, such as those currently published by Texas Parks and Wildlife Department in Campbell (2003) or the Texas Commission on Environmental Quality (2007). The SEP-HCP Administrator may also distribute information about other applicable local, state, and federal regulations pertaining to endangered species or rare or sensitive natural resources.

7.3.4 RESEARCH

The SEP-HCP will contribute to the understanding of the biology, ecology, and conservation of the listed karst invertebrates by providing access on a limited basis to SEP-HCP preserves for research projects. The SEP-HCP Administrator will review requests for such access on a case-by-case basis. Priority will be given for research projects that address research and monitoring needs identified in the recovery plan for the listed karst invertebrates.

*How limited is limited?
Who determines, the
Source?*

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conservation action. Conservation value may be measured or evaluated (at least in relative terms) using measures such as:

- Habitat characteristics – What is the relative condition or state of important habitat elements?
- Use of protected habitats by the target species – Is the protected habitat occupied and at what level? Is the species able to successfully survive and reproduce in the habitat?
- Level of threat to the species – Are there internal or external pressures negatively affecting the species or protected habitats?

Periodically assessing these indicators of conservation value through the preparation of Baseline Preserve Assessments will enable the SEP-HCP Administrator to target appropriate management actions to achieve the preserve management goals.

Within one year of each new preserve acquisition, the SEP-HCP Administrator will perform a Baseline Preserve Assessment of that property to document its current condition and assemble the information needed to create an appropriate management plan. Each Baseline Preserve Assessment will include the following minimum information:

- For GCW and BCV habitats:
 - A description and map of suitable habitat for the GCW and BCV present on the preserve, including an assessment of the relative quality of the GCW and BCV habitats;
 - An estimate of the abundance of GCWs and BCVs occurring on the preserve and the general distribution of these species within the preserve;
- For Karst Invertebrate habitats:
 - A map and description of the cave feature, including the approximate cave footprint (with detailed cave maps and plan/profile views), other passable lengths (with approximate heights and widths), possible inaccessible leads or breakdown areas that could be invertebrate habitat, and the locations of flowing or standing water;
 - A description of the interior environment of the cave feature, including principle formations and their activity, cave floor composition, water feature characteristics, temperature, relative humidity, and air conditions;
 - A description of any excavation or other signs of human activity in the cave;
 - A list of all species observed or collected within the cave, including listed or unlisted troglobites, troglaphiles, troglloxenes, and accidentals, with notes regarding activity, abundance, and microhabitat conditions where they were observed. If applicable, include final taxonomist reports regarding species identifications and collection/curation information;

Does the
SEP-HCP
Admin
Need to
Be a
Central
Branch
in the
Service?
OR
Need to
Have one?

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- A map of the approximate surface and subsurface drainage basins of the cave;
- General Preserve Information:
 - A description and map of other major vegetation communities and special or unique habitats on the parcel that may warrant special management consideration;
 - A description and map of the soils, geology (including any known karst features), and hydrologic resources on the preserve;
 - A description and map of all structures or other property improvements on the parcel, including the size or aerial extent, condition, and use of such improvements. Improvements to be described include, but are not limited to, fences/gates, buildings, roads or trails, utilities, and dams and impoundments;
 - A description and map of all current land uses on the parcel, including areas used for agricultural purposes, public recreational purposes, or easements;
 - A description and assessment of potential threats to the covered species or their habitats within the preserve system, such as information including (but not limited to) deer, feral hogs, cowbirds, fire ants, oak wilt, invasive species, human intrusion, erosion, degraded water quality, or degraded plant or animal communities. Such assessment will also include the potential impacts of land uses (including recreational uses) within or adjacent to the preserve on the GCW and BCW or their habitats, as applicable; and
 - Other information regarding the property that may be relevant to the management of the preserve. (E.g. Bears that may eat cave crickets?)

The SEP-HCP Administrator will update each Baseline Preserve Assessment approximately every 10 years. These assessments may be updated more frequently, if conditions warrant. A slightly longer update period may also be appropriate for some preserve properties. For example, the first update for a preserve property that was established as an addition to a previously acquired preserve might be delayed for a few years to coincide with the update cycle for the original parcel.

A copy of all completed Baseline Preserve Assessments, and subsequent updates, will be provided to the Service for review. WHEN? UPON REQUEST ANNUALLY

8.1.2 MANAGEMENT PLANNING

With the completion of a new Baseline Preserve Assessment, the SEP-HCP Administrator will prepare a Preserve Management Plan that addresses the specific management needs of a particular preserve or cluster of adjacent preserves. A Preserve Management Plan will be completed within one year of the acquisition of a new preserve. The SEP-HCP Administrator is encouraged to seek input from biological experts and the Service when preparing a Preserve Management Plan to ensure that the most up-to-date science regarding management and monitoring practices are considered in the management

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plan. For example, the SEP-HCP Administrator may elect to convene a preserve management advisory committee to assist with the creation and review of Preserve Management Plans.

Preserve Management Plans will, at a minimum, include the following content:

- A description of the management needs for a preserve. Management needs may address general habitat quality issues or they may target specific threats. The Baseline Preserve Assessments will help identify and prioritize the management needs for each preserve property;
- A description of the specific management objectives and/or desired results that would address or alleviate the management needs. Where possible, these objectives should be expressed in terms of measurable criteria or targets;
- Identification and description of practicable management practices or activities that would be expected to achieve the stated objectives or desired outcomes;
- A description of any appropriate monitoring activities for tracking site-specific threats to the Covered Species or their habitats and evaluating the effectiveness of specific management practices. Large-scale and system-wide monitoring activities for basic habitat conditions and species status are addressed separately, as described in the *Monitoring Results* section below; and
- An implementation schedule for preserve management and related monitoring activities for the next 10 years. The implementation schedule should identify the anticipated frequency and/or timing of management and monitoring activities. The schedule may also identify or rank management priorities to assist the SEP-HCP Administrator with allocating available management and monitoring resources.

The SEP-HCP Administrator will implement a comprehensive review of each Preserve Management Plan approximately every 10 years, following the release of the relevant updated Baseline Preserve Assessments. However, the Preserve Management Plans may be revised more frequently, if conditions warrant. Further, if appropriate, the Preserve Management Plans may also include their own short-term adaptive management cycles to improve the effectiveness of specific management practices between the comprehensive updates. The SEP-HCP Administrator is encouraged to seek input from biological experts during this process and may elect to convene an advisory committee to assist with management planning.

The SEP-HCP Administrator will provide the Service an opportunity to review and comment on each new or updated Preserve Management Plan prior to implementation. The SEP-HCP Administrator will submit a copy of each completed Preserve Management Plan to the Service.

How quickly will Service Review?
? would it be considered complete without this submission to the Service?

8.1.3 IMPLEMENTING MANAGEMENT ACTIONS

The SEP-HCP Administrator will implement each Preserve Management Plan, with a focus on addressing the highest priority management needs. The management activities to be implemented on a preserve will be tailored to the specific circumstances and needs of each property.

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management process and will be tailored to the specific circumstances and ongoing needs of an individual preserve tract.

The SEP-HCP Administrator will also not be required to implement management or monitoring activities on lands or for resources that occur outside of the SEP-HCP preserves. For example, the SEP-HCP Administrator will not be required to conduct surveys of GCW or BCV populations outside of the SEP-HCP preserves or manage water quality outside of the SEP-HCP preserves.

Notwithstanding the above, the SEP-HCP Administrator may, at its discretion, elect to implement management or monitoring activities that go beyond the minimum commitment described above. Furthermore, the SEP-HCP Administrator is encouraged to do so and to seek the most effective and efficient methods for achieving the preserve management goals. For example, the SEP-HCP Administrator may elect to work with landowners adjacent to preserves as a way to reduce the impacts from adjacent land uses and more efficiently address threats within the preserves.

The adaptive preserve management described herein represents a process for achieving the identified preserve management goals, but does not rigidly prescribe specific management practices that may become unnecessary, inappropriate, impractical, or out-of-date over time. Instead, preserve management will occur via a continuous and cyclical process of assessing needs, forming strategies, implementing actions, and monitoring results. This management approach also compliments the flexibility of the conservation banking strategy that forms the basis for the GCW and BCV conservation program and uncertainties regarding the biology and conservation of the listed karst invertebrates.

WHAT IF DRAINAGE BASIN AREA IS OUTSIDE OF PRESERVE?
OKAY

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revenue will be used to fund the acquisition of karst preserves. Preserve management and monitoring, as well as program administration, will be supported primarily by public revenue sources since many of these costs will continue in perpetuity.

While the SEP-HCP Administrator contemplates using innovative agreements with willing landowners to reduce preserve acquisition costs, as well as seeking other state, federal, and non-governmental organization grants, these potential sources are considered somewhat more speculative and difficult to quantify. As such, these potential revenue sources have not been used in this illustrative funding plan. Moreover, the mix and scale of the available sources depicted in the funding model is not intended to bind the SEP-HCP Administrator to a particular allocation of these sources, but to demonstrate that the sources are available and, in a variety of combinations, provide a reliable basis for financing of the SEP-HCP.

The SEP-HCP Administrator will annually review the Funding Plan to ensure that adequate funding and program resources are provided to meet obligations under the Permit and establish a budget for other aspects of SEP-HCP implementation. As such, the SEP-HCP Administrator may periodically take steps to adjust Funding Plan components including, but not limited to, increasing or decreasing the annual level of public revenues applied to the SEP-HCP, increasing or decreasing participation fees, suspending or otherwise restricting the use or sale of conservation credits, and utilizing debt instruments to fund preserve acquisitions.

The example scenario modeled in the Funding Plan is attached as [Appendix F](#) and provides the basis for establishing the practicable limits of funding for implementation of the SEP-HCP. Additional assumptions and rationale for various components of the Funding Plan are described in more detail below.

9.2 COST ESTIMATES

The Funding Plan considers costs for preserve acquisitions, administrative tasks, preserve management and monitoring, other conservation measures (such as outreach and education or research programs), and a contingency fund for other occasional or unbudgeted needs. Cost estimates include anticipated labor, equipment, materials, and overhead costs for the range of services and functions that may be required to fully implement the SEP-HCP.

For simplicity, the Funding Plan assumes that most labor is provided by program staff employed by Bexar County or another public entity, with salaries, benefits, and overhead costs estimated accordingly. However, the estimated staffing and overhead costs could also be applied to contracted services at the discretion of the SEP-HCP Administrator. The staffing approach modeled in the funding plan is intended to be illustrative of the approximate costs for labor, but does not bind Bexar County or the SEP-HCP Administrator to using public employees for implementation of the SEP-HCP.

At full implementation, the approximate cost for SEP-HCP implementation may be approximately \$430 million. [Table 20](#) summarizes the estimated SEP-HCP costs over 30 years. Additional detail regarding the assumptions and rationale behind these costs estimates are discussed in

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the sections below and in [Appendix F](#). [Appendix F](#) also shows the estimated annual budget for each program function or task.

Table 20. Summary of Estimated SEP-HCP Implementation Costs¹.

	YR 1 - 10	YR 11 - 20	YR 21 - 30	Total 30-yr Duration	% of Total
<u>Preserve Acquisitions (acres)</u>					
GCW Preserves	10,000	10,000	10,000	30,000	
BCV Preserves	1,670	1,670	1,660	5,000	
Karst Preserves	800	800	800	2,400	
Total Preserve Acquisitions	12,470	12,470	12,460	37,400	
<u>Preserve Acquisition Costs (incl. transaction fees)</u>					
GCW Preserves	\$ 57,911,139	\$ 77,822,471	\$ 104,155,638	\$ 239,889,248	
BCV Preserves	\$ 3,796,821	\$ 5,101,643	\$ 6,809,583	\$ 15,708,047	
Karst Preserves	\$ 30,709,483	\$ 41,270,218	\$ 55,456,874	\$ 127,436,574	
Total Preserve Acquisition Costs	\$ 92,417,442	\$ 124,194,332	\$ 166,422,096	\$ 383,033,870	89%
<u>Plan Administration</u>					
Labor	\$ 548,802	\$2,273,284	\$5,041,829	\$7,863,915	
Overhead	\$ 41,892	\$ 167,861	\$ 376,004	\$ 585,756	
Total Plan Administration Costs	\$ 590,694	\$2,441,144	\$5,417,833	\$8,449,671	2%
<u>Preserve Management and Monitoring</u>					
Labor and Overhead	\$1,279,837	\$5,289,146	\$11,738,639	\$18,307,621	
Serv., Equip., & Materials	\$2,415,280	\$5,805,542	\$9,082,064	\$17,302,885	
Total Mgt. and Monitoring Costs	\$3,695,117	\$11,094,687	\$20,820,702	\$35,610,506	8%
<u>Other Conservation Measures</u>					
Karst Studies and Non-preserve Management					
Contract Services	\$ 182,429	\$ -	\$ -	\$ 182,429	
Labor and Overhead	\$ -	\$ 203,429	\$ 451,486	\$ 654,915	
Outreach and Education					
Labor and Overhead	\$ 98,449	\$ 203,429	\$ 451,486	\$ 753,364	
Non-labor Expenses	\$ 12,091	\$ 16,539	\$ 22,244	\$ 50,874	
Total Other Conservation Costs	\$ 292,969	\$ 423,396	\$ 925,216	\$1,641,582	0.4%
<u>Contingency Fund Costs</u>					
	\$ 216,987	\$ 453,115	\$ 648,066	\$1,318,167	0.3%
Total Estimated Program Costs	\$97,213,209	\$ 138,606,674	\$ 194,233,913	\$ 430,053,796	

¹ All costs are reported in 2011 dollars, assuming 3 percent annual inflation.

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9.2.1 PRESERVE ACQUISITIONS

Assumptions pertaining to preserve acquisitions are summarized in [Table 21](#).

Table 21. Preserve Acquisition Assumptions.

	GCW	BCV	Karst	Total
Incidental Take (acres of habitat loss/impact)	12,000	4,000	16,000	
Basic Mitigation Ratio	2 : 1	1 : 1	n/a	
Preserve Buffers	+25%	+25%	n/a	
Preserve Lands (acres) ¹				
Rural Preserves	25,000	5,000	-	30,000
Suburban Preserves	5,000	-	1,200	6,200
Urban Preserves	-	-	1,200	1,200
Total	30,000	5,000	2,400	37,400
Land Purchase Prices - 2011 (per acre)				
Rural Preserves				\$4,500
Suburban Preserves				\$25,000
Urban Preserves				\$45,000
Conservation Easement Purchase Prices - 2011 (per acre at 33% of Land Purchase Price)				
Rural Preserves				\$1,500
Suburban Preserves				\$8,300
Urban Preserves				\$14,900
Distribution of Land vs. Easement Purchases				
Rural Preserves			10% Land : 90% Easement	
Suburban Preserves			60% Land : 40% Easement	
Urban Preserves			90% Land : 10% Easement	
Real Estate Transaction Fees			3% of Land Purchase Price	

¹ Rural Preserves = preserves outside of Bexar County or Adjacent Sectors; Suburban Preserves = preserves within Bexar County or Adjacent Sectors; Urban Preserves = preserves mostly within developed parts of Bexar County and City of San Antonio

Full implementation of the SEP-HCP would utilize all of the Plan's incidental take authorization, including 12,000 acres of habitat impacts to the GCW, 4,000 acres of impact to the BCV, and approximately 16,000 acres of impact to the listed karst invertebrates (associated with approximately 37 species-occupied caves).

The estimated total size of the GCW and BCV preserve system at full implementation would be approximately 35,000 acres. This estimate is based on the mitigation ratios described in [Section 3.2.3.1](#)

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9.2.2 PROGRAM ADMINISTRATION

Administration of the SEP-HCP will require tasks including but not limited to:

- Identifying opportunities for preserve acquisitions and negotiating real estate transactions with willing landowners;
- Evaluating applications for participation and enrolling new participants;
- Coordinating with preserve landowners and Plan participants to ensure compliance with the terms of conservation easements and Participation Agreements;
- Coordinating program activities with Bexar County, other SEP-HCP Partners, advisory committees, and the Service;
- Record keeping and compiling annual reports and other information for submittal to the Service; and
- Generally managing program budgets and staff.

For the purpose of this Funding Plan, it is assumed that administration of the SEP-HCP will be accomplished by program staff that are employees of Bexar County or another SEP-HCP Partner. Staff salaries, benefits, and overhead costs for office space, equipment, and materials are estimated accordingly (see [Appendix F](#)). However, the SEP-HCP Administrator may choose to hire contracted professionals to provide the necessary labor to implement the SEP-HCP, either in addition to or in place of hiring program staff.

The Funding Plan models staffing needs based on the cumulative amount and types of preserve land acquired through the Plan. The Funding Plan assumes that, over time, the implementation of the Plan will require a staff composed of program managers and senior biologists, staff biologists, part-time wildlife technicians, preserve rangers, and maintenance personnel. By the end of the Plan duration, the Funding Plan assumes a staff of approximately 13 full-time employees and 7 part-time technicians to administer the Plan, manage approximately 37,400 acres of preserve land, and conduct other conservation measures. APPENDIX F shows estimated annual staffing levels in relation to preserve size and type.

The level of staffing modeled in the Funding Plan is similar to staffing for the Balcones Canyonlands Conservation Plan in Travis County (another regional Habitat Conservation Plan for the GCW, BCV, and karst invertebrates with a preserve of approximately 30,000 acres) and is consistent with staffing levels used to manage Government Canyon State Natural Area in Bexar County.

It is assumed that approximately 30 percent of staff labor and overhead costs will be dedicated to the administrative functions described above. The remaining staff labor and overhead costs are assumed to apply to the management and monitoring of preserves and other conservation measures.

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9.2.3 PRESERVE MANAGEMENT AND MONITORING

Preserve management and monitoring will be implemented in accordance with the adaptive management process described in [Section 8.0](#). Each preserve will be periodically evaluated for threats and management needs and detailed land management plans will be developed to maintain conservation value. The specific schedule of management and monitoring activities for a particular preserve may be adjusted annually and will be tailored to the specific circumstances and ongoing needs of an individual preserve tract.

The Funding Plan models the anticipated costs of management activities that are typically required for maintaining habitats for the Covered Species. [Appendix F](#) describes the typical management activities considered in the model and the general schedule for implementation. Line item costs for management activities do not include labor, unless a specific contract service is required. Most of the labor for preserve management is assumed to be covered by program staff. The Funding Plan assumes that approximately 65 percent of the program staffing costs will be dedicated to preserve management and monitoring activities, including implementation of the adaptive management process steps such as assessing baseline conditions, developing management plans, and performing monitoring studies.

Preserve management and monitoring costs are scaled to the cumulative size of the preserve system, the method of acquisition (i.e., conservation easement or fee simple land purchase), and/or the type of habitat being managed. Typical management activities include protecting boundaries, controlling animal predators or competitors, managing vegetation, and maintaining preserve infrastructure. [Appendix F](#) shows how preserve management costs may change over time with preserve size.

The estimated level of intensity and budget for each of the preserve management items was based on the recent experience of the Balcones Canyonlands Preserve staff in Travis County and from various other sources experienced with management activities for the Covered Species.

These cost estimates provide the basis for establishing the practicable limits of funding for the adaptive SEP-HCP preserve management and monitoring program. The Funding Plan estimates that on average the annual preserve management and monitoring costs (including 65 percent of the Plan's staffing and overhead administrative costs) may be approximately \$62 per acre of preserve land.

The Funding Plan does not address preserve management costs associated with any authorized public access to SEP-HCP preserves. If such access is allowed within the preserve system, the SEP-HCP Administrator will be responsible for providing the funds necessary to adequately address such costs.

9.2.4 OTHER CONSERVATION MEASURES

The SEP-HCP conservation program includes a few other conservation measures for the Covered Species, in addition to the acquisition and management of preserves. For the listed karst species, the Plan will dedicate resources to finding new locations of the listed species and to assisting landowners with managing unprotected or under-protected species-occupied caves. Public outreach and education activities are also proposed for both the avian and the karst conservation programs.

ADJUSTMENT
FOR ADDITIONAL
TRAVEL TIME
TO COVER
NEW AREA?

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The level of public funding that may be needed generally addresses costs associated with the acquisition of karst preserves, the management and monitoring of the entire preserve system, the implementation of other conservation measures, the administration of the Plan, and the creation of a non-wasting management endowment for use after the Plan has expired.

As illustrated in the Funding Plan, the combined revenue generated from participation fees and public sources fully fund the implementation of the SEP-HCP in perpetuity.

Additional detail regarding the assumptions and rationale behind these revenue estimates are discussed in the sections below and in [Appendix F](#). [Appendix F](#) also shows the estimated annual collection of revenues from the various sources.

TABLE 22. Summary of Estimated SEP-HCP Revenue.

	YR 1 - 10	YR 11 - 20	YR 21 - 30	Total 30-yr Duration
<u>Participation Fees</u>				
Application Fees	\$84,297	\$103,830	\$129,831	\$317,958
Conservation Credit Sales				
GCW	\$48,648,118	\$65,379,003	\$87,863,913	\$201,891,034
BCV	\$8,148,560	\$10,950,983	\$14,467,197	\$33,566,740
Karst Participation Fees				
Karst Zones 1 - 4	\$1,933,763	\$2,598,815	\$3,492,591	\$8,025,169
Occupied Cave Zones	\$1,234,656	\$1,653,482	\$2,214,584	\$5,102,722
Total Participation Fee Revenue	\$60,049,393	\$80,686,113	\$108,168,116	\$248,903,623
<u>Public Funding</u>				
Bexar County TID	\$15,645,051	\$50,788,899	\$98,019,292	\$164,453,242
COSA TID	\$13,944,285	\$45,267,664	\$87,363,666	\$146,575,616
Other Public Funds	\$27,469,300	\$0	\$0	\$27,469,300
Total Public Revenue	\$57,058,636	\$96,056,563	\$185,382,959	\$338,498,158
Total Estimated Plan Revenues	\$117,108,029	\$176,742,677	\$293,551,075	\$587,401,781
% Participation Fees	51%	46%	37%	42%
% Public Funding	49%	54%	63%	58%

1 Includes Bexar County and San Antonio tax increment diversion (TID) from new development and land acquisition savings from the use of existing open space sales tax revenue and conservation credits created from existing protected lands.

9.3.1 PARTICIPATION FEES

Application fees, sales of GCW and BCV conservation credits, and karst participation fees for SEP-HCP participants seeking incidental take authorization are expected to provide approximately 40 percent of the revenues needed to implement the Plan and fund a management endowment.

Like the schedule for preserve acquisitions, the Funding Plan models revenue from the collection of participation fees based on an even distribution of participation over the Plan duration. For example, the Plan requests 12,000 acres of incidental take for the GCW and requires mitigation

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with it added to assumed 30,000? 61,000 30,000?

generally at a 2:1 ratio. Therefore, the Plan would sell approximately 24,000 GCW conservation credits over the duration of the Plan, with an estimated 800 credits sold each year.

For the purpose of the Funding Plan, application fees are estimated at a rate equivalent to \$5 for every GCW or BCV conservation credit that is sold and \$5 for every acre of Karst Zone participation that is authorized. However, actual application fees will be set at the discretion of the SEP-HCP Administrator at a level necessary to help offset the costs of processing applications and coordinating with potential participants.

The Funding Plan assumes that the SEP-HCP Administrator will sell GCW and BCV conservation credits for \$5,000 per credit and will collect participation fees for karst impacts at the levels shown in Table 10. As with application fees, the actual price for conservation credits or karst participation fees may be adjusted at the discretion of the SEP-HCP Administrator.

With respect to karst participation fees, the funding plan assumes that participants would obtain authorization to conduct activities within the Occupied Cave Zones of one-half of the estimated 37 species-occupied caves that might be affected by requested incidental take. Of these 18 caves, participants would pay participation fees at the rate for Occupied Cave Zone B for 12 caves and would pay fees associated with Occupied Cave Zone A for six caves.

The level of participation fees modeled in this funding plan would be sufficient to address nearly all of the costs associated with the acquisition of GCW and BCV preserves.

9.3.2 PUBLIC REVENUE SOURCES

The funding plan assumes that public revenues will be necessary to balance the SEP-HCP's budget, since participation fees only cover approximately 40 percent of the Plan costs (including funding the management endowment). It is necessary to show that this deficit can be covered by reliable and well accepted funding sources, such as public tax revenue. Other types of public revenue considered in the Funding Plan come from savings obtained by getting some conservation credit from existing protected lands and from endangered species conservation value on lands purchased with existing voter-approved open space sales tax revenue. However, in practice this funding deficit might also be fully or partially offset by various types of non-assured funding sources, such as grants, donations of land or easements (including lands accepted in lieu of participation fees), or volunteer services.

Emphasize that any combination of public funding mechanisms may be used at discretion of SEP-HCP Administrator and Partners. Funding plan simply illustrates one approach in detail.

9.3.3 TAX INCREMENT DIVERSIONS

The primary source of public funding modeled in the Funding Plan is a diversion of a small percentage of the tax revenue created by new development in Bexar County sectors after the SEP-HCP is in place. The Funding Plan assumes that both Bexar County and the City of San Antonio (as the primary SEP-HCP Partner) will contribute funds to the SEP-HCP from this type of tax increment diversion.

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- **Adaptive Preserve Management Planning** – The SEP-HCP Administrator will forward a copy of all completed Baseline Preserve Assessments to the Service for review upon the completion of such documents. The Service may provide comment on the Baseline Preserve Assessments, but Service approval of these documents is not required. The SEP-HCP Administrator will provide the Service an opportunity to review and comment on draft Preserve Management Plans before such documents are finalized and will forward copies of final Preserve Management Plans and updates thereof to the Service upon completion. Service approval of individual Preserve Management Plans is not required. The SEP-HCP Administrator will also provide the Service an opportunity to review and comment on proposed methodologies for conducting system-wide preserve monitoring activities with the Service prior to implementation. However, Service approval of monitoring protocols is not required.

→ MINIMUM
TIME FOR
SERVICE
REVIEW?

Notwithstanding the above, Bexar County, the SEP-HCP Administrator, or the Service may request an opportunity to consult with the other parties regarding implementation of the SEP-HCP or compliance with the terms and conditions of the Incidental Take Permit at any time.

NOTIFICATION TO
OTHER PARTIES?

10.2 NO SURPRISES POLICY

An important incentive for encouraging participation in the SEP-HCP are the assurances provided by the Service's "No Surprises" rule (63 FR 8859, codified at 50 CFR §§ 17.22, 17.32, 222.2). Under the No Surprises Rule, the Service assures incidental take permittees that, so long as an approved habitat conservation plan is being properly implemented, no additional land use restrictions or financial compensation will be required of the permittee with respect to the Covered Species, even if unforeseen circumstances arise after the permit is issued indicating that additional mitigation is needed.

The No Surprises Rule recognizes that the permittee and the Service can reasonably anticipate and plan for some changes in circumstances affecting a species or geographic area covered by a Habitat Conservation Plan (e.g., the listing of additional species as threatened or endangered or a natural catastrophic event in areas prone to such events). To the extent that changed circumstances are provided for in the Habitat Conservation Plan, the permittee must implement the appropriate measures in response to the changed circumstances if and when they occur.

This section describes the changed circumstances anticipated by and provided for in the SEP-HCP and explains the Service's assurances to Bexar County with respect to any unforeseen circumstances.

10.2.1 CHANGED CIRCUMSTANCES

The No Surprises Rule (63 FR 8859) defines "changed circumstances" as "circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for..."

A Habitat Conservation Plan must identify provisions to compensate for negative impacts to covered species from changed circumstances in order to qualify for No Surprises assurances. If

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circumstances change, the permittee must implement any provisions included in the Habitat Conservation Plan and/or Incidental Take Permit that address such circumstances.

Bexar County and the Service recognize that many changes in human conditions and attitudes, development pressures, environmental conditions, and scientific understanding of ecological systems, among other things, could and will occur over the 30-year plan duration. Changed circumstances that can reasonably be anticipated by Bexar County and the Service and that can be planned for are described below.

The responses provided for each changed circumstance represent an opportunity for Bexar County and the Service to reevaluate the effectiveness of the conservation program and adjust priorities, reallocate resources, or otherwise modify how the Plan is implemented (i.e., "stop-gap" measures). The "sideboards" noted in each response indicate the extent to which the Service may require modifications of the SEP-HCP. The responses to changed circumstances protect Bexar County's assurances that additional resources will not be required if the conservation program is being properly implemented.

CHANGED CIRCUMSTANCE 1: Incidental take of the GCW within Bexar County and Adjacent Sectors exceeds the estimated participation rates for those areas.

As described in Section xx, the level of incidental take requested for the GCW (12,000 acres) was estimated as approximately 50 percent of the habitat losses projected within Bexar County and 33 percent of the habitat loss projected in other parts of the Permit Area. The SEP-HCP's incidental take authorization may be used for any eligible project within the Permit Area (i.e., portions of the Plan Area excluding Comal County). However, it is anticipated that most of the need for ESA compliance will come from projects located within Bexar County or within SEP-HCP sectors that are adjacent to Bexar County.

It is possible that the demand for participation within Bexar County and its adjacent sectors could exceed the estimated participation rates, while participation from the rural portions of the Permit Area is lower than expected. In this scenario, the SEP-HCP would still have some remaining take authorization available that could be used to satisfy some of the demand for participation in the higher growth areas.

Bexar County and the Service agree that a changed circumstance will have occurred if the amount of GCW incidental take applied to projects within Bexar County or its adjacent sectors exceeds 10,000 acres and no more than 2,000 acres of take authorization remain unused. The amount of incidental take that has been authorized through the Plan will be calculated as 100 percent of the suitable habitat occurring within participating Project Areas located within Bexar County or an adjacent sector and 50 percent of the suitable habitat occurring up to 300 feet outside of those Project Areas.

If this changed circumstance occurs within the duration of the Plan, the Service may notify Bexar County that it must reserve the remaining incidental take authorization for participating projects that are located outside of Bexar County and its adjacent sectors. After such notification has been made, the remaining allowance of GCW incidental take may not be applied to Project Areas located within Bexar County or an adjacent sector without prior approval from the Service.

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CHANGED CIRCUMSTANCE 2: The Service publishes a new or revised version of a final recovery plan for a Covered Species.

The Service is currently revising the recovery plan for the GCW and its 5-year status review of the BCV indicated that the recovery plan for this species is out-of-date. The Service has also not yet issued a final version of a recovery plan for the listed karst invertebrates. Therefore, it is possible that the Service will publish a new or revised version of a final recovery plan for one or more of the Covered Species over the duration of the Plan. It is also possible that any new versions of a final recovery plan will contain updated recommendations for the recovery of a Covered Species.

Bexar County and the Service agree that a changed circumstance will have occurred if the Service publishes a final recovery plan for a Covered Species that recommends preserve configurations that differ substantially from the standards described in the SEP-HCP.

If this changed circumstance occurs within the duration of the Plan, the Service may notify Bexar County that it must amend the SEP-HCP in such a way that any future preserve acquisitions are consistent with the recovery recommendations. The Service will not require Bexar County to increase the amount of mitigation required by the Permit or change the process for assessing impacts to Covered Species, the GCW or BCV mitigation ratios, or the eligibility criteria for coverage of karst impacts. The Service will also not reduce the number of GCW or BCV conservation credits already generated by preserve acquisitions or reduce the level of conservation achieved for individual karst species in a KFR. Any changes to the preserve acquisition standards required by the Service will apply only to future conservation actions.

CHANGED CIRCUMSTANCE 3: Bexar County has not acquired sufficient karst preserves to balance authorized incidental take.

The SEP-HCP has requested incidental take associated with covered activities conducted across approximately 16,000 acres of Karst Zone potential habitat. These covered activities might adversely impact approximately 37 species-occupied caves. As mitigation for these impacts, the SEP-HCP karst conservation program seeks to acquire approximately 2,400 acres of karst preserves over 30 years.

However, it is possible that the SEP-HCP will not be able to achieve the goal of acquiring 2,400 acres of qualifying karst preserves before the end of the Plan duration. For instance, landowners might not be willing to sell land or easements to the SEP-HCP Administrator for key karst preserves, conditions surrounding a species-occupied cave might not be sufficient to meet the criteria for a high or medium karst preserve, or there might not be enough known localities for a particular species achieve the draft downlisting criteria. It is also possible that participating covered activities might adversely affect more than the projected 37 species-occupied caves.

The karst conservation program substantially limits the types of activities that may be covered for incidental take prior to achieving the draft downlisting criteria for a species on a regional basis. However, given the potential limitations of available conservation opportunities and uncertainty regarding the actual number of species-occupied caves that might be affected by participating covered

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activities, it is possible that potential impacts to species-occupied caves that are authorized through the Plan might outpace the acquisition of karst preserves.

Bexar County and the Service agree that a changed circumstance will have occurred if the number of species-occupied caves that are affected by participating covered activities is 25 percent greater than the number of species-occupied caves that are protected by SEP-HCP karst preserves.

Bexar County and the Service agree to consult regarding the status of incidental take and preserve acquisitions for the listed karst invertebrates at Year 10 and Year 20 of Plan implementation. The status of each listed karst species will be evaluated independently. Species-occupied caves that are affected by participating covered activities will be assumed to include all occupied features known to occur within or within 300 feet of enrolled Project Areas, unless site specific conditions indicate that all impacts were avoided. Species-occupied caves are assumed to be protected if the feature occurs within a high or medium quality SEP-HCP karst preserve or within other SEP-HCP karst preserves that the Service agrees provide long-term conservation value to listed karst invertebrates.

If this changed circumstance occurs for a particular listed karst species, the Service may notify Bexar County that it will require suspension of new coverage of karst impacts associated with that species. The suspension will be lifted when SEP-HCP karst preserves protect a number of caves occupied by that species that is equivalent to at least 80 percent of the number of caves affected by participating covered activities. For example, if the Plan has authorized impacts to ten species-occupied caves, then the Service may require Bexar County to suspend new participation until at least eight species-occupied caves are protected in SEP-HCP preserves. The Service may allow exceptions to this suspension on a case-by-case basis.

CHANGED CIRCUMSTANCE 4: Protected habitat in SEP-HCP preserves is temporarily lost or degraded due to catastrophic events.

Catastrophic natural events such as wild fires, tornadoes, floods, outbreaks of tree diseases (e.g., oak wilt), prolonged periods of severe drought, and similar events could temporarily remove or degrade potential habitat for the Covered Species within the SEP-HCP preserve system. Other types of catastrophic events, such as a hazardous materials spill or large-scale vandalism of protected habitats, have human causes but may also affect SEP-HCP preserves. Many of these acute and catastrophic events are a normal or at least occasional occurrence, particularly at wildland-urban interfaces, and/or may be reasonably foreseen.

Bexar County and the Service agree that a changed circumstance will have occurred if more than 100 acres of protected GCW habitat, more than 25 acres of protected BCV habitat, or one protected species-occupied cave is lost or substantially degraded due to catastrophic events.

Bexar County will notify the Service within 30 days of such an event and will coordinate with the Service to implement measures to minimize damage to the affected habitats within the SEP-HCP preserves to the maximum extent practicable. Bexar County will update the Baseline Preserve Assessment and Land Management Plan for the affected preserves within one year of the event. The updated Land Management Plan will prioritize management activities that seek to regenerate suitable

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- Administrative changes addressing the implementation of the SEP-HCP, such as staff duties, participation procedures, fee structures, reporting requirements, and oversight;
- Minor modifications to management or monitoring methods; and
- Similarly minor alterations to the SEP-HCP and/or Incidental Take Permit that could arise from changed or unforeseen circumstances, adaptive management provisions, or other circumstances.

Minor amendments may be incorporated into the SEP-HCP and/or Incidental Take Permit administratively provided that both Bexar County and the Service agree on the proposed changes, the proposed amendments are documented in written form, and the proposed amendments do not significantly change the net effect of the Covered Activities on the Covered Species or the amount of incidental take requested by the original Plan and Incidental Take Permit.

Major amendments are those that would substantially alter the scope of the SEP-HCP. Major amendments are likely to change the amount of take or impacts authorized by the Incidental Take Permit, and/or have a significant impact on the structure, implementation, or effectiveness of the conservation program. Incorporating major amendments may require completion of a formal amendment procedure similar to the original permit application process. This procedure may include public review through the Federal Register, additional analysis to comply with NEPA requirements, and an internal Service ESA Section 7 consultation (USFWS and NMFS 1996).

10.4 TERMINATION AND RENEWAL OF PLAN AND PERMIT

Describe provisions for terminating and/or renewing the Plan/Permit.

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project. Individual applicants would be responsible for bearing all the costs of preparing the permit application package. Even after a complete application has been submitted to the Service, permit processing can also last many months (and in some cases, years) before the Service issues a permit authorizing incidental take.

11.1.2 BEXAR COUNTY PLAN AREA ALTERNATIVE

The Bexar County Plan Area Alternative would create a regional Habitat Conservation Plan for the GCW, BCV, and listed karst invertebrates that would only allow participation for activities occurring within the limits of Bexar County. The alternative plan would allow GCW and BCV preserve lands to be acquired in sectors outside of, but adjacent to, Bexar County (see Figure 2 for a sector map). This approach would allow mitigation for GCW and BCV impacts to be located no more than approximately 15 miles from the Bexar County boundary. Bexar County would seek an Incidental Take Permit with a Permit/Participation Area limited to the extent of Bexar County and a Conservation Area that included Bexar County and the adjacent sectors.

The reduced geographic scope of the Bexar County Plan Area alternative would reduce the amount of incidental take requested for the GCW and BCV by about 63 percent compared to the proposed SEP-HCP. This alternative would seek authorization for incidental take associated with up to 7,500 acres of GCW habitat impacts and 2,500 acres of BCV habitat impacts in Bexar County. Similar to the SEP-HCP, this level of incidental take authorization would allow participation for up to 50 percent of the total extent of habitat losses projected for these species in Bexar County.

The incidental take request for the listed karst invertebrates would also be slightly lower for this alternative than the level requested for the proposed SEP-HCP (impacts to potential karst habitat in adjacent Medina County would be excluded). Bexar County would seek authorization for incidental take associated with up to 14,800 acres of impact over Karst Zones 1 through 4. It is assumed that the number of species-occupied caves associated with this level of incidental take would be slightly smaller than the estimate predicted for the SEP-HCP (i.e., approximately 34 caves).

The Bexar County Plan Area Alternative would offer the same streamlined participation process, reduced environmental documentation, and reduced permitting times as the proposed SEP-HCP. However, the GCW mitigation ratios for direct impacts under this alternative would be reduced to 1 : 1 since all of the mitigating preserve land would be acquired within or near Bexar County. This approach would be similar to that approved by the Service for other regional plans in central Texas and would help make land acquisition costs more practicable. The mitigation requirements for the BCV and listed karst invertebrates would remain similar to those proposed for the SEP-HCP.

This alternative would result in smaller preserve sizes for the GCW and BCV, but the anticipated size of the karst preserves would remain similar to the proposed SEP-HCP. Approximately 9,300 acres of preserve lands would be acquired for the GCW and approximately 3,100 acres would be acquired for the BCV. The combined size of the GCW and BCV preserves would be reduced from approximately 35,000 acres under the SEP-HCP to approximately 12,500 acres for the Bexar County Plan Area Alternative.

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The overall costs for implementation of this alternative would be approximately \$125 million higher than for the SEP-HCP despite the substantially smaller GCW and BCV preserve size. The increased cost is due to the placement of all the GCW and BCV preserves in areas having relatively high per acre land prices. In this scenario, participation fees collected from voluntary plan participants would address approximately one-third of the cost of the plan. The public revenue strategy described for the SEP-HCP, which would generate approximately \$338.5 million over 30 years, would not create sufficient funds to cover the remaining implementation costs for the Bexar County Plan Area Alternative. At least \$35 million in additional revenue would be needed to fully implement this alternative plan, not including any funds that would be needed to establish a non-wasting endowment for preserve management and monitoring. To fully fund this alternative and establish a management endowment of approximately \$100 million, the tax increment diversion would need to be increased to approximately 9 percent for both jurisdictions. While this strategy would produce a surplus of approximately \$114 million over 30 years, the program would still run annual budget deficits until Year 14 that would need to be addressed with other funding sources or debt financed.

How did
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Account
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Alternative
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11.1.3 CATEGORY 1 KARST COVERAGE ALTERNATIVE

The Category 1 Karst Coverage Alternative involves a regional habitat conservation plan that differs from the proposed SEP-HCP in the list of karst species that would be covered for incidental take and the amount of mitigation that would be provided for karst species. Bexar County would seek incidental take authorization for only the three relatively common and wide-spread "Category 1" karst species: *Rhadine exilis*, *Rhadine infernalis*, and *Cicurina madla*. The relatively rare "Category 2" karst species would not be covered by this plan.

All aspects of the alternative plan related to the GCW or BCV would remain similar to the proposed SEP-HCP.

No Category 1 karst species are known to occur in the Alamo Heights KFR. Therefore, the amount of incidental take requested for karst species would be reduced to approximately 7,700 acres of impact over Karst Zones 1 and 2, since the Alamo Heights KFR would be removed from incidental take consideration. The reduced scale of the incidental take authorization would also lower the expected number of species-occupied caves that might be affected by the plan. Instead of affecting 37 species-occupied caves, this alternative plan would impact only 31 caves. Caves in the Alamo Heights KFR would not be impacted by this plan, nor would caves in other KFRs that contained any of the Category 2 karst invertebrates not covered by this plan.

To ensure that participants avoid incidentally taking any of the Category 2 karst species, the participation process would require participants to conduct karst faunal surveys in all caves and voids encountered on a project area, including features accidentally discovered during construction. Participants would be required to consult directly with the Service if any of the Category 2 karst species were found on their project area. Participants and the Service would determine on a case-by-case basis the most appropriate way to avoid taking Category 2 karst species or initiate a separate permitting action to cover incidental take of those species not covered by the plan.

Since the Category 1 Karst Coverage Alternative would only address the three relatively common listed karst species, the number of karst preserves needed to achieve the draft downlisting

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GIS	Geographic Information System
Habitat Conservation Plan	A plan prepared under the Endangered Species Act by non-federal parties wishing to obtain permits for the incidental taking of threatened and endangered species. A Habitat Conservation Plan is required to obtain an Incidental Take Permit under Section 10(a)(1)(B) of the ESA.
Harass	An intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR § 17.3).
Harm	An act which actually kills or injures wildlife and may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding or sheltering (50 CFR § 17.3).
HCP	Habitat Conservation Plan
HCP Handbook	The Service's <i>Habitat Conservation Planning and Incidental Take Permit Processing Handbook</i> which provides guidance on the elements of a Habitat Conservation Plan.
High Quality Karst Preserve	For the purposes of the SEP-HCP, a "high quality" karst preserve will include at least 90 acres surrounding the cave footprint and/or the approximate extent of the surface and subsurface drainage basins of the cave, whichever is smaller. All SEP-HCP karst preserves must protect a buffer of at least 345 feet from the cave footprint. <i>Except for low quality</i>
Human Environment	A variety of resources such as water, air quality, cultural and historic resources, and socioeconomic resources in which direct, indirect, and cumulative impacts of the action are evaluated.
Incidental Take	Taking of a threatened or endangered species that result from carrying out an otherwise lawful activity.
Incidental Take Permit	A permit issued by the Service under Section 10 of the ESA to non-federal entities authorizing the incidental taking of a threatened or endangered species.
Indirect Effects	Effects for which an action is an essential cause, and that are later in time, but still are reasonably certain to occur.
Interlocal Agreement	An interlocal agreement is a contract between government agencies.

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Jeopardize	Defined by the ESA as “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, number, or distribution of that species” (50 CFR § 402.02)
Karst	A terrain characterized by landforms and subsurface features, such as sinkholes and caves, which are produced by solution of bedrock. Karst areas commonly have few surface streams and most water moves through cavities underground.
Karst Conservation Level	Establishes eligibility for participation in the SEP-HCP with respect to the Listed Karst Invertebrates. Karst conservation levels reflect the progress towards achieving the draft downlisting criteria specified in the 2008 Bexar County Karst Invertebrates Draft Recovery Plan.
Karst Fauna Region “KFR”	KFRs are geographic areas delineated based on discontinuity of karst <u>habitat</u> that may reduce or limit interaction between populations of karst species.
Karst Zones <i>KARST PRESERVE</i>	Geographic areas delineated based on geologic and topographic features that facilitate assessment of the probability of the presence of rare or endemic karst species. Potential karst habitat occurs in Karst Zones 1 through 4.
KFR	Karst Fauna Region
KFR Groups	Groups of SEP-HCP sectors that generally correspond to the region of one or more of the KFRs described in the 2008 Bexar County Listed Karst Invertebrates Draft Recovery Plan.
Listed Karst Invertebrates	A group of nine invertebrates, including five spiders, three beetles, and one harvestman, that were federally listed as endangered on December 26, 2000. These species live entirely underground in the limestone caves and passages of the karst geologic formations that underlie the northern portion of Bexar County and adjacent areas. These karst invertebrates are Covered Species.
Low Quality Karst Preserve	For the purposes of the SEP-HCP, a “low quality” karst preserve includes the area within at least 500 feet surrounding the cave footprint (a minimum of approximately 18 acres).
Medium Quality Karst Preserve	For the purposes of the SEP-HCP, a “medium quality” karst preserve includes at least 40 acres surrounding the cave footprint and/or the approximate extent of the surface drainage basin of the cave, whichever is smaller. All SEP-HCP karst preserves must protect a buffer of at least 345 feet from the cave footprint.

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Participation Agreement	An agreement between the SEP-HCP Administrator and a voluntary participant whereby the participant agrees to be bound by and comply with the applicable terms of the SEP-HCP Incidental Take Permit, and in return benefits from the authorizations granted by the Permit. The Participation Agreement describes the terms and conditions of participation, including any required minimization measures or other special conditions for implementing the Covered Activities. In each Participation Agreement, the Service shall be named as a third-party beneficiary with the right to enforce all terms of the Participation Agreement.
Participation Area	The portion of the Permit Area where the SEP-HCP's incidental take authorization may administratively be applied. The extent of the Participation Area may change over the duration of the SEP-HCP to accommodate potential future SEP-HCP Partners.
Permit Applicant / Permittee	The County of Bexar, Texas is the entity applying to the Service for an Incidental Take Permit under Section 10(a)(1)(B) of the ESA. As the permittee of the Incidental Take Permit, Bexar County will be responsible to the Service for complying with the terms and conditions of the Incidental Take Permit and overseeing the implementation of the SEP-HCP.
Permit Area	The portion of the SEP-HCP Plan Area where the take authorization established by the Incidental Take Permit may legally be applied. Includes 6 Texas counties: Bexar County, Bandera County, Blanco County, Comal County , Kendall County, Kerr County, and Medina County. Comal County is excluded to avoid competition with the proposed Comal County Regional Habitat Conservation Plan. <i>7? Camp Bullis?</i>
Plan Area	The geographic extent representing the union of the SEP-HCP's Permit Area, Participation Area, and Conservation Area. Includes 7 Texas counties: Bexar County, Bandera County, Blanco County, Comal County, Kendall County, Kerr County, and Medina County. <i>7? Camp Bullis?</i>
Project Area	An area defined by a potential SEP-HCP participant that delineates the area where participating Covered Activities may occur, subject to any additional administrative restrictions.
Project Sponsors	Bexar County, Texas and the City of San Antonio as joint applicants and contributors of the local match for the federal grant funding development of the SEP-HCP.
SEP-HCP	Southern Edwards Plateau Habitat Conservation Plan

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SEP-HCP Administrator	Entity or entities responsible for implementing the SEP-HCP. The SEP-HCP Administrator may be Bexar County, an interlocal partnership, and/or another entity that is assigned some or all responsibility for SEP-HCP implementation by Bexar County.
SEP-HCP Partner	A governmental or quasi-governmental entity voluntarily engaged in a formal partnership with Bexar County to facilitate implementation of the SEP-HCP, expand opportunities for participation in the SEP-HCP, generally build support for achieving the purpose and goals of the SEP-HCP, and other purposes deemed beneficial by Bexar County.
SEP-HCP Sectors	Subsections of the SEP-HCP Plan Area used to develop geographically explicit projections of population, housing, and land use changes. Sector boundaries were based on U.S. Census Bureau (2000? 2010?) census tract boundaries and included one or more adjacent census tracts. Only a portion of Bexar County was assigned to a SEP-HCP sector.
Service	U.S. Fish and Wildlife Service
Southern Edwards Plateau Habitat Conservation Plan ("SEP-HCP" or the "Plan")	An effort by Bexar County, Texas and the City of San Antonio (the project sponsors) to address endangered species issues that are threatening the economic growth of the region and promote the conservation of these species and related natural resources. The SEP-HCP supports an Endangered Species Act Section 10(a)(1)(B) Incidental Take Permit from the U.S. Fish and Wildlife Service.
Take	As defined by the Endangered Species Act, "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC § 1532(19)).
TNRIS	Texas Natural Resources Information Service
TPWD	Texas Parks and Wildlife Department
Unforeseen Circumstances	Changes in circumstances affecting a species or geographic area covered by a habitat conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of any covered species.
USC	United States Code (the codification of the general and permanent laws of the United States)
USFWS	U.S. Fish and Wildlife Service