



## **CAC & BAT RECOMMENDATION FOR SEP-HCP COVERED ACTIVITIES**

*(Note: language based on draft proposal presented to CAC by R. Heilbrun, BAT Chair, and adopted with revisions by CAC on June 7, 2010)*

The Plan Area is experiencing rapid growth. Infrastructure improvements, public and private development and construction projects, and other development activities are expected to continue as the population increases. The landscape of the Plan Area will continue to change as new development activities are carried out. Primary impacts will be disturbance, alteration, or removal of occupied and potentially occupied habitat. Direct impacts to covered species may occur if activities results in destruction of habitat. Species may also be indirectly impacted by negative changes in habitat quality, which may occur due to removal of existing vegetation, alteration of drainage patterns, increased habitat fragmentation, increased populations of predatory or competitive species, and other indirect effects of proximity to development activities.

The Permit issued in conjunction with the SEP-HCP will authorize incidental take of the covered species that is associated with otherwise lawful activities. These activities include, but are not limited to:

- The construction, use, and/or maintenance of public or private land development projects, including but not limited to single- and multi-family homes, residential subdivisions, farm and ranch improvements, commercial or industrial projects, government offices, and park infrastructure;
- The construction, maintenance, and/or improvement of roads, bridges, and other transportation infrastructure;
- The installation and/or maintenance of utility infrastructure, including but not limited to transmission or distribution lines and facilities related to electric, telecommunication, water, wastewater, petroleum or natural gas, and other utility products or services;
- The construction, use, maintenance, and/or expansion of schools, hospitals, corrections or justice facilities, and community service development or improvement projects;
- The construction, use, or maintenance of other public infrastructure and improvement projects (e.g., projects by municipalities, counties, school districts);
- Any management activities that are necessary to manage potential habitat for the covered species within the RHCP system that could temporarily result in incidental take; and
- The construction, use, maintenance and/or expansion of quarries, gravel mining, or other similar extraction projects.

## **CAC ACTION ON AQUATIC SPECIES – JUNE 7, 2010**

MOTION (Susan Wright): Accept the BAT recommendation to include three freshwater mussel species as Category 3 (voluntarily conserved species) in the SEP-HCP and all other aquatic species considered as Category 5 species (considered but not included). SECOND (Bebe Fenstermaker). VOTE: Motion carried by voice vote without opposition.

**PROVISIONAL LIST OF SPECIES TO BE ADDRESSED IN THE SEP-HCP**

(list provisionally approved by BAT on February 22, 2010 and updated on May 28, 2010; CAC approved the addition of 3 mussels and the treatment of other aquatic species as Category 5 on June 7, 2010)

**1) COVERED SPECIES (5 species)**

Species for which incidental take authorization will be obtained upon permit issuance.

| <b>Common Name</b>               | <b>Scientific Name</b>       | <b>Taxa</b> | <b>Status</b>                           | <b>Basic Habitat Type</b>                                                          |
|----------------------------------|------------------------------|-------------|-----------------------------------------|------------------------------------------------------------------------------------|
| Golden-cheeked Warbler           | <i>Dendroica chrysoparia</i> | Bird        | Federally Endangered & State Endangered | mature, dense juniper-oak woodland                                                 |
| Black-capped Vireo               | <i>Vireo atricapilla</i>     | Bird        | Federally Endangered & State Endangered | patchy, dense, deciduous shrubs                                                    |
| Madla Cave Meshweaver            | <i>Cicurina madla</i>        | Arachnid    | Federally Endangered                    | terrestrial karst habitats; currently known from several locations in Bexar County |
| a ground beetle (no common name) | <i>Rhadine exilis</i>        | Insect      | Federally Endangered                    | terrestrial karst-habitats; currently known from 45 to 50 caves in Bexar County    |
| a ground beetle (no common name) | <i>Rhadine infernalis</i>    | Insect      | Federally Endangered                    | terrestrial karst habitats; currently known from 36 to 39 caves in Bexar County    |

**2) FUTURE COVERED SPECIES (6 species)**

Species that will be addressed in the SEP-HCP as if they were a Covered Species in anticipation of future listings or non-jeopardy determinations, but for which incidental take authorization may not be immediately available. (Anticipates the future use of a minor permit amendment to authorize incidental take for these species.)

| <b>Common Name</b>                    | <b>Scientific Name</b>  | <b>Taxa</b> | <b>Status</b>        | <b>Basic Habitat Type</b>                                                                   |
|---------------------------------------|-------------------------|-------------|----------------------|---------------------------------------------------------------------------------------------|
| Robber Baron Cave Meshweaver          | <i>Cicurina baronia</i> | Arachnid    | Federally Endangered | terrestrial karst-habitats; currently known from 1 cave in Bexar County                     |
| Bracken Bat Cave Meshweaver           | <i>Cicurina venii</i>   | Arachnid    | Federally Endangered | terrestrial karst-habitats; currently known from 1 specimen found in 1 cave in Bexar County |
| Government Canyon Bat Cave Meshweaver | <i>Cicurina vespera</i> | Arachnid    | Federally Endangered | terrestrial karst-habitats; currently known from 1 cave in Bexar County                     |

| <b>Common Name</b>                | <b>Scientific Name</b>       | <b>Taxa</b> | <b>Status</b>        | <b>Basic Habitat Type</b>                                                                          |
|-----------------------------------|------------------------------|-------------|----------------------|----------------------------------------------------------------------------------------------------|
| Government Canyon Bat Cave Spider | <i>Neoleptoneta microps</i>  | Arachnid    | Federally Endangered | terrestrial karst-habitats; currently known from two caves in Government Canyon State Natural Area |
| Cokendolpher Cave Harvestman      | <i>Texella cokendolpheri</i> | Arachnid    | Federally Endangered | terrestrial karst-habitats; currently known from 1 cave in Bexar County                            |
| Helotes Mold Beetle               | <i>Batrisesodes venyivi</i>  | Insect      | Federally Endangered | terrestrial karst-habitats; currently known from 8 caves in Bexar County                           |

### 3) VOLUNTARILY CONSERVED SPECIES (7 species)

Species for which incidental take coverage will not be sought, but for which conservation measures would be implemented to ensure a non-jeopardy determination or beneficial NEPA analysis (particularly for currently listed species that are not included as a "Covered Species").

| <b>Common Name</b>      | <b>Scientific Name</b>                         | <b>Taxa</b> | <b>Status</b>                                     | <b>Basic Habitat Type</b>                                                                                                           |
|-------------------------|------------------------------------------------|-------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Whooping Crane          | <i>Grus americana</i>                          | Bird        | Federally Endangered & State Endangered           | potential migrant through the Plan Area; winters in Texas coastal marshes                                                           |
| Big red sage            | <i>Salvia penstemonoides</i>                   | Plant       | Petitioned for Federal Listing                    | associated with seeps and creeks within steep limestone canyons; occasionally on clayey to silty soils of creek banks and terraces  |
| Tobusch fishhook cactus | <i>Sclerocactus brevihamatus ssp tobuschii</i> | Plant       | Federally Endangered & State Endangered           | open areas within a mosaic of oak-juniper woodlands; sites are usually open with only herbaceous cover                              |
| Bracted twistflower     | <i>Streptanthus bracteatus</i>                 | Plant       | Non-listed                                        | oak juniper woodlands over limestone and associated openings; on steep to moderate slopes and in canyon bottoms                     |
| Golden orb              | <i>Quadrula aurea</i>                          | Mollusk     | State Threatened & Petitioned for Federal Listing | Flowing waters of moderate-sized streams and rivers of the San Antonio, Guadalupe, Colorado, Brazos, Nueces, and Frio River systems |

| Common Name      | Scientific Name            | Taxa    | Status                                            | Basic Habitat Type                                                                                                                                                           |
|------------------|----------------------------|---------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Texas pimpleback | <i>Quadrula petrina</i>    | Mollusk | State Threatened & Petitioned for Federal Listing | Flowing water of moderate-sized streams and small rivers; historically known from the San Antonio and Guadalupe River systems; not currently known to occur in the Plan Area |
| Texas fatmucket  | <i>Lampsilis bracteata</i> | Mollusk | State Threatened & Petitioned for Federal Listing | Flowing water of moderate-sized streams and small rivers in the San Antonio, Guadalupe, and Colorado River systems                                                           |

#### 4) ADDITIONAL SPECIES (10 species)

The list of other species that would benefit from the conservation actions implemented for species in categories 1, 2, and 3, but for which no specific conservation measures would be included.

| Common Name                 | Scientific Name              | Taxa   | Status     | Basic Habitat Type                                                                                                                                                                                                                 |
|-----------------------------|------------------------------|--------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cave myotis bat             | <i>Myotis velifer</i>        | Mammal | Non-listed | roosts in clusters of up to thousands of individuals in a variety of natural and man-made structures; winters in limestone caves                                                                                                   |
| Longstalk heimia            | <i>Nesaea longipes</i>       | Plant  | Non-listed | moist alkaline or gypsiferous clayey soils along unshaded margins of wetlands; moderately alkaline clay soils along perennial streams and in subirrigated wetlands; sparingly found on terraces of spring-fed streams in grassland |
| Correll's false dragon-head | <i>Physostegia correllii</i> | Plant  | Non-listed | wet, silty clay loams on streambanks, in creek beds, irrigation channels and roadside drainage ditches                                                                                                                             |

| <b>Common Name</b>         | <b>Scientific Name</b>               | <b>Taxa</b> | <b>Status</b>    | <b>Basic Habitat Type</b>                                                                                                                                                                    |
|----------------------------|--------------------------------------|-------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Canyon rattlesnake-root    | <i>Prenanthes carrii</i>             | Plant       | Non-listed       | rich humus soils over limestone in upper woodland canyon drainages; typically near springs in deep soils around the springs and on limestone shelves or honeycomb rock                       |
| Indigo snake               | <i>Drymarchon corais</i>             | Reptile     | State Threatened | thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; requires moist microhabitats, such as rodent burrows, for shelter                                      |
| Texas tortoise             | <i>Gopherus berlandieri</i>          | Reptile     | State Threatened | open brush with a grass understory; when inactive occupies shallow depressions at base of bush or cactus                                                                                     |
| Cagle's map turtle         | <i>Graptemys caglei</i>              | Reptile     | State Threatened | Guadalupe River System; short stretches of shallow water with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate and a silt or mud bottom |
| Spot-tailed earless lizard | <i>Holbrookia lacerata</i>           | Reptile     | Non-listed       | moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas                                                                     |
| Texas horned lizard        | <i>Phrynosoma cornutum</i>           | Reptile     | State Threatened | open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees                                                                           |
| Texas garter snake         | <i>Thamnophis sirtalis annectens</i> | Reptile     | Non-listed       | wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them                                                                                |

**5) SPECIES CONSIDERED BUT NOT INCLUDED (112 species)**

Species considered by the BAT and CAC, but not recommended for inclusion in the SEP-HCP. Reasons for not addressing these species in the plan may include one or more of the following considerations: known range does not include the Plan Area; lack of habitat within the Plan Area; only incidental or occasional occurrence in the Plan Area; utilizes habitats not likely to be targets of conservation efforts for the covered species; insufficient existing information on the biology, habitat, threats, or conservation measures for the species; currently unlisted and/or no current listing petitions under consideration; out of scope for the current project; and other reasons.

| <b>Common Name</b>                 | <b>Scientific Name</b>               | <b>Taxa</b> | <b>Status</b>                                     |
|------------------------------------|--------------------------------------|-------------|---------------------------------------------------|
| Cascade Caverns salamander         | <i>Eurycea latitans complex</i>      | Amphibian   | State Threatened                                  |
| San Marcos salamander              | <i>Eurycea nana</i>                  | Amphibian   | Federally Threatened & State Threatened           |
| Texas salamander                   | <i>Eurycea neotenes</i>              | Amphibian   | Petitioned for Federal Listing                    |
| Blanco River springs salamander    | <i>Eurycea pterophila</i>            | Amphibian   | Non-listed                                        |
| Blanco River springs salamander    | <i>Eurycea pterophila</i>            | Amphibian   | Non-listed                                        |
| Blanco blind salamander            | <i>Eurycea robusta</i>               | Amphibian   | State Threatened                                  |
| Edwards Plateau spring salamanders | <i>Eurycea sp 7</i>                  | Amphibian   | Non-listed                                        |
| Edwards Plateau spring salamanders | <i>Eurycea sp 7</i>                  | Amphibian   | Non-listed                                        |
| Comal Springs salamander           | <i>Eurycea sp 8</i>                  | Amphibian   | Non-listed                                        |
| Comal blind salamander             | <i>Eurycea tridentifera</i>          | Amphibian   | State Threatened & Petitioned for Federal Listing |
| Valdina Farms sinkhole salamander  | <i>Eurycea troglodytes complex</i>   | Amphibian   | Non-listed                                        |
| Bandit Cave spider                 | <i>Cicurina bandida</i>              | Arachnid    | Non-listed                                        |
| Baird's Sparrow                    | <i>Ammodramus bairdii</i>            | Bird        | Non-listed                                        |
| Western Burrowing Owl              | <i>Athene cunicularia hypugaea</i>   | Bird        | Non-listed                                        |
| Zone-tailed Hawk                   | <i>Buteo albonotatus</i>             | Bird        | State Threatened                                  |
| Mountain Plover                    | <i>Charadrius montanus</i>           | Bird        | Non-listed                                        |
| Montezuma Quail                    | <i>Cyrtonyx montezumae</i>           | Bird        | Non-listed                                        |
| Peregrine Falcon                   | <i>Falco peregrinus</i>              | Bird        | Federally De-listed & State Threatened            |
| American Peregrine Falcon          | <i>Falco peregrinus anatum</i>       | Bird        | Federally De-listed & State Threatened            |
| Arctic Peregrine Falcon            | <i>Falco peregrinus tundrius</i>     | Bird        | Federally De-listed & State Threatened            |
| Bald Eagle                         | <i>Haliaeetus leucocephalus</i>      | Bird        | Federally De-listed & State Threatened            |
| Mexican Hooded Oriole              | <i>Icterus cucullatus cucullatus</i> | Bird        | Non-listed                                        |
| Sennett's Hooded Oriole            | <i>Icterus cucullatus sennetti</i>   | Bird        | Non-listed                                        |



| Common Name                      | Scientific Name                           | Taxa       | Status                                            |
|----------------------------------|-------------------------------------------|------------|---------------------------------------------------|
| Wood Stork                       | <i>Mycteria americana</i>                 | Bird       | State Threatened                                  |
| Interior Least Tern              | <i>Sterna antillarum athalassos</i>       | Bird       | Federally Endangered & State Endangered           |
| A cave obligate crustaeon        | <i>Monodella texana</i>                   | Crustacean | Non-listed                                        |
| Cascade Cave amphipod            | <i>Stygobromus dejectus</i>               | Crustacean | Non-listed                                        |
| Ezell's cave amphipod            | <i>Stygobromus flagellatus</i>            | Crustacean | Non-listed                                        |
| Long-legged cave amphipod        | <i>Stygobromus longipes</i>               | Crustacean | Non-listed                                        |
| Peck's cave amphipod             | <i>Stygobromus pecki</i>                  | Crustacean | Federally Endangered & State Endangered           |
| Edwards Plateau shiner           | <i>Cyprinella lepida</i>                  | Fish       | Petitioned for Federal Listing                    |
| Nueces roundnose minnow          | <i>Dionda serena</i>                      | Fish       | Non-listed                                        |
| Fountain darter                  | <i>Etheostoma fonticola</i>               | Fish       | Federally Endangered & State Endangered           |
| Headwater catfish                | <i>Ictalurus lupus</i>                    | Fish       | Non-listed                                        |
| Guadalupe bass                   | <i>Micropterus treculii</i>               | Fish       | Non-listed                                        |
| Guadalupe darter                 | <i>Percina sciera apristis</i>            | Fish       | Non-listed                                        |
| Widemouth blindcat               | <i>Satan eurystomus</i>                   | Fish       | State Threatened & Petitioned for Federal Listing |
| Toothless blindcat               | <i>Trogloglanis pattersoni</i>            | Fish       | State Threatened & Petitioned for Federal Listing |
| Coahuila giant skipper           | <i>Agathymus remingtoni valverdiensis</i> | Insect     | Non-listed                                        |
| A mayfly                         | <i>Allenhyphes michaeli</i>               | Insect     | Non-listed                                        |
| Leonora's dancer damselfly       | <i>Argia leonorae</i>                     | Insect     | Non-listed                                        |
| Texas austroinodes caddisfly     | <i>Austroinodes texensis</i>              | Insect     | Non-listed                                        |
| A mayfly                         | <i>Baetodes alleni</i>                    | Insect     | Non-listed                                        |
| Rawson's metalmark               | <i>Calephelis rawsoni</i>                 | Insect     | Non-listed                                        |
| Flint's net-spinning caddisfly   | <i>Cheumatopsyche flinti</i>              | Insect     | Non-listed                                        |
| Comal Springs diving beetle      | <i>Comaldessus stygius</i>                | Insect     | Non-listed                                        |
| Edwards Aquifer diving beetle    | <i>Haideoporus texanus</i>                | Insect     | Petitioned for Federal Listing                    |
| Disjunct crawling water beetle   | <i>Haliphus nitens</i>                    | Insect     | Non-listed                                        |
| Comal Springs riffle beetle      | <i>Heterelmis comalensis</i>              | Insect     | Federally Endangered                              |
| A mayfly                         | <i>Plauditus futilis</i>                  | Insect     | Non-listed                                        |
| A mayfly                         | <i>Plauditus futilis</i>                  | Insect     | Non-listed                                        |
| A mayfly                         | <i>Procloeon distinctum</i>               | Insect     | Non-listed                                        |
| San Marcos saddle-case caddisfly | <i>Protoptila arca</i>                    | Insect     | Non-listed                                        |
| A mayfly                         | <i>Pseudocentropiloides morihari</i>      | Insect     | Non-listed                                        |

| Common Name                   | Scientific Name                               | Taxa    | Status                                               |
|-------------------------------|-----------------------------------------------|---------|------------------------------------------------------|
| A ground beetle               | <i>Rhadine exilis</i>                         | Insect  | Federally Endangered                                 |
| A ground beetle               | <i>Rhadine infernalis</i>                     | Insect  | Federally Endangered                                 |
| Sage sphinx                   | <i>Sphinx eremitoides</i>                     | Insect  | Non-listed                                           |
| Sage sphinx                   | <i>Sphinx eremitoides</i>                     | Insect  | Non-listed                                           |
| Manfreda giant-skipper        | <i>Stallingsia maculosus</i>                  | Insect  | Non-listed                                           |
| Manfreda giant-skipper        | <i>Stallingsia maculosus</i>                  | Insect  | Non-listed                                           |
| Comal Springs dryopid beetle  | <i>Stygoparnus comalensis</i>                 | Insect  | Federally Endangered                                 |
| Gray wolf                     | <i>Canis lupus</i>                            | Mammal  | Federally Endangered &<br>State Endangered           |
| Red wolf                      | <i>Canis rufus</i>                            | Mammal  | Federally Endangered &<br>State Endangered           |
| Pale Townsend's big-eared bat | <i>Corynorhinus townsendii<br/>pallescens</i> | Mammal  | Non-listed                                           |
| Black-tailed prairie dog      | <i>Cynomys ludovicianus</i>                   | Mammal  | Non-listed                                           |
| Greater western mastiff bat   | <i>Eumops perotis<br/>californicus</i>        | Mammal  | Non-listed                                           |
| Texas pocket gopher           | <i>Geomys personatus fuscus</i>               | Mammal  | Non-listed                                           |
| Frio pocket gopher            | <i>Geomys texensis bakeri</i>                 | Mammal  | Non-listed                                           |
| Llano pocket gopher           | <i>Geomys texensis texensis</i>               | Mammal  | Non-listed                                           |
| Jaguarundi                    | <i>Herpailurus yaguarondi</i>                 | Mammal  | Federally Endangered &<br>State Endangered           |
| Ocelot                        | <i>Leopardus pardalis</i>                     | Mammal  | Federally Endangered &<br>State Endangered           |
| Ghost-faced bat               | <i>Mormoops megalophylla</i>                  | Mammal  | Non-listed                                           |
| Yuma myotis bat               | <i>Myotis yumanensis</i>                      | Mammal  | Non-listed                                           |
| White-nosed coati             | <i>Nasua narica</i>                           | Mammal  | State Threatened                                     |
| Plains spotted skunk          | <i>Spilogale putorius<br/>interrupta</i>      | Mammal  | Non-listed                                           |
| Black bear                    | <i>Ursus americanus</i>                       | Mammal  | State Threatened                                     |
| Rock pocketbook               | <i>Arcidens confragosus</i>                   | Mollusk | Non-listed                                           |
| Horseshoe liptooth snail      | <i>Daedalochila hippocrepis</i>               | Mollusk | Non-listed                                           |
| Texas fatmucket               | <i>Lampsilis bracteata</i>                    | Mollusk | State Threatened &<br>Petitioned for Federal Listing |
| Mimic cavesnail               | <i>Phreatodrobia imitata</i>                  | Mollusk | Petitioned for Federal Listing                       |
| Golden orb                    | <i>Quadrula aurea</i>                         | Mollusk | State Threatened &<br>Petitioned for Federal Listing |
| Smooth pimpleback             | <i>Quadrula houstonensis</i>                  | Mollusk | State Threatened &<br>Petitioned for Federal Listing |
| Texas pimpleback              | <i>Quadrula petrina</i>                       | Mollusk | State Threatened &<br>Petitioned for Federal Listing |

| Common Name                  | Scientific Name                         | Taxa    | Status                                            |
|------------------------------|-----------------------------------------|---------|---------------------------------------------------|
| False spike mussel           | <i>Quincuncina mitchelli</i>            | Mollusk | State Threatened & Petitioned for Federal Listing |
| Creepers (squawfoot)         | <i>Strophitus undulatus</i>             | Mollusk | Non-listed                                        |
| Pistolgrip                   | <i>Tritogonia verrucosa</i>             | Mollusk | Non-listed                                        |
| Texas fawnsfoot              | <i>Truncilla macrodon</i>               | Mollusk | State Threatened & Petitioned for Federal Listing |
| Texas trumpets               | <i>Acleisanthes crassifolia</i>         | Plant   | Non-listed                                        |
| Elmendorf's onion            | <i>Allium elmendorffii</i>              | Plant   | Non-listed                                        |
| Hill Country wild-mercury    | <i>Argythamnia aphoroides</i>           | Plant   | Non-listed                                        |
| Silvery wild-mercury         | <i>Argythamnia argyraea</i>             | Plant   | Non-listed                                        |
| Basin bellflower             | <i>Campanula reverchonii</i>            | Plant   | Non-listed                                        |
| Texas largeseed bittercress  | <i>Cardamine macrocarpa var texana</i>  | Plant   | Non-listed                                        |
| Comal snakewood              | <i>Colubrina stricta</i>                | Plant   | Non-listed                                        |
| Sabinal prairie-clover       | <i>Dalea sabinalis</i>                  | Plant   | Non-listed                                        |
| Don Richard's spring moss    | <i>Donrichardsia macroneuron</i>        | Plant   | Non-listed                                        |
| Small-headed pipewort        | <i>Eriocaulon koernickianum</i>         | Plant   | Non-listed                                        |
| Texas greasebush             | <i>Glossopetalon texense</i>            | Plant   | Non-listed                                        |
| Warnock's coral-root         | <i>Hexalectris warnockii</i>            | Plant   | Non-listed                                        |
| Sandhill woollywhite         | <i>Hymenopappus carrizoanus</i>         | Plant   | Non-listed                                        |
| Rock quillwort               | <i>Isoetes lithophila</i>               | Plant   | Non-listed                                        |
| Canyon mock-orange           | <i>Philadelphus ernestii</i>            | Plant   | Non-listed                                        |
| Texas mock-orange            | <i>Philadelphus texensis</i>            | Plant   | Non-listed                                        |
| Parks' jointweed             | <i>Polygonella parksii</i>              | Plant   | Non-listed                                        |
| Broadpod rushpea             | <i>Pomaria brachycarpa</i>              | Plant   | Non-listed                                        |
| Springrun whitehead          | <i>Shinnersia rivularis</i>             | Plant   | Non-listed                                        |
| Texas snowbells              | <i>Styrax platanifolius ssp texanus</i> | Plant   | Federally Endangered & State Endangered           |
| Granite spiderwort           | <i>Tradescantia pedicellata</i>         | Plant   | Non-listed                                        |
| Edwards Plateau cornsalad    | <i>Valerianella texana</i>              | Plant   | Non-listed                                        |
| Texas wild-rice              | <i>Zizania texana</i>                   | Plant   | Federally Endangered & State Endangered           |
| Timber/Canebrake rattlesnake | <i>Crotalus horridus</i>                | Reptile | State Threatened                                  |
| Reticulate collared lizard   | <i>Crotaphytus reticulatus</i>          | Reptile | State Threatened                                  |

NOTES:

- Basic habitat notes from TPWD County Lists of Rare Species (downloaded December 2009 / January 2010).
- USFWS may provide additional guidance on their ability to authorize take for some species, based on the currently available status information.

## Guidance For Incidental Take Permit Duration

### USFWS HCP Handbook, pg 6-25:

The Conference Report for the 1982 Section 10 amendments states, "The Secretary is vested with broad discretion in carrying out the conservation plan provision to determine the appropriate length of any section 10(a) permit issued pursuant to this provision in light of all of the facts and circumstances of each individual case" (H.R. Rep. No. 97-835, 97th Congress, Second Session).

Thus, the allowable duration of a permit is flexible but an expiration date must be specified (for FWS, in block 7 of the permit Form 3-201). The duration of planned activities, the potential positive effects to listed species provided under the permit, and the potential negative effects to the species that may result from premature permit expiration should be considered in determining permit length. Also, local government agencies may wish to tie the permit expiration date to local land use plans. Development or land use activities and the conservation program proposed in the HCP may require years to implement. The Services must assure the applicant that authorizations under the permit will be available for the life of the project, and the public that conservation measures under the permit will remain in effect for as long as necessary to implement the conservation program.

### 50 Code of Federal Regulations 17.22:

Duration of permits. The duration of permits issued under this paragraph shall be sufficient to provide adequate assurances to the permittee to commit funding necessary for the activities authorized by the permit, including conservation activities and land use restrictions. In determining the duration of a permit, the Director shall consider the duration of the planned activities, as well as the possible positive and negative effects associated with permits of the proposed duration on listed species, including the extent to which the conservation plan will enhance the habitat of listed species and increase the long-term survivability of such species.

### Factors to consider:

- Human population projections
- Construction and housing forecasts
- Regional transportation plans and other long-range planning horizons
- Adequacy of existing biological information

### Examples from Texas RHCPs:

All Texas RHCPs in place or under development have a permit duration of 30 years.

# GENERAL CONSERVATION / MITIGATION STRATEGY GUIDANCE

## OVERVIEW

**Purpose** of the SEP-HCP is two-fold: 1) facilitate compliance with the Endangered Species Act; and 2) conserve the Covered Species.

**Conservation Strategy** – composed of several parts:

*Note: some or all of the components of the conservation strategy may be different for different species*

1. Biological Goals – what does the plan aspire to accomplish? What is the expected outcome?
2. Specific Biological Objectives – what are the measurable targets designed to achieve goals
  - a. Total acres of habitat to be protected
  - b. Types of habitat to be protected
  - c. General distribution of preserves (*caution: avoid “green-lining”!!!*)
  - d. Management targets / desired conditions
  - e. Others...
3. Implementation Measures – specific conservation commitments / actionable plan to meet objectives
  - a. Preserve acquisitions
    - i. Available conservation tools: fee simple ownership, conservation easements, regulations (?)
    - ii. General approach for acquisitions (up-front preservation, phased acquisitions, “pay as you go”, rolling/term acquisitions, mitigation banking; mitigation funds, etc...)
  - b. Management plan
    - i. General species and habitat management
    - ii. Dealing with threats
    - iii. Managing other uses of preserve land: agriculture, public uses, infrastructure corridors, hunting, etc...
  - c. Monitoring and reporting program – track progress towards meeting commitments and achieving goals and objectives; monitor status of covered species in preserves
4. Participation Process – how to determine mitigation needs for RHCP participants
  - a. Application process
  - b. Habitat determinations
  - c. Mitigation assessments
  - d. Fees and other forms of acceptable mitigation

## GENERAL REGULATORY GUIDANCE and POLICY on MITIGATION

### Endangered Species Act Section 10(a)(2)(B):

If the Secretary finds, after opportunity for public comment, with respect to a permit application and the related conservation plan that –

- i. the taking will be incidental;
- ii. the applicant will, **to the maximum extent practicable, minimize and mitigate the impacts of such taking;**
- iii. the applicant will ensure that adequate funding for the plan will be provided;

- iv. ***the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild***; and
- v. the measures, if any required under subparagraph (a)(iv) will be met;

and he has received such other assurances as he may require that the plan will be implemented, the Secretary shall issue the permit. [*emphasis added*]

### USFWS HCP Handbook (Chapter 3, Section B-3 – starting on page 3-19)

- Mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address. (pg. 3-19, 3<sup>rd</sup> paragraph)
- Mitigation actions under HCPs usually take one of the following forms:
  - Avoiding the impact (to the extent practicable);
  - Minimizing the impact;
  - Rectifying the impact;
  - Reducing or eliminating the impact over time; or
  - Compensating for the impact. (pg 3-19, 4<sup>th</sup> paragraph)
- Issuance of a Section 10 permit must not “appreciably reduce” the likelihood of the survival and recovery of the species in the wild. Note that this does not explicitly require an HCP to recover listed species, or contribute to their recovery objectives outlined in a recovery plan. This reflects the fact that HCPs were designed by Congress to authorize incidental take, not to be mandatory recovery tools (pg 3-20, 2<sup>nd</sup> paragraph). However, recovery is nevertheless an important consideration in any HCP effort... Thus, contribution to recovery is often an integral product of an HCP, but it is not an explicit statutory requirement (pg. 3-20, 3<sup>rd</sup> paragraph). [*original emphasis*]
- Re: Habitat Banks/Mitigation Credit Systems –
  - ... considerable promise as a mitigation strategy because:
    - i. It allows owners of endangered species habitat to derive economic value from their land as habitat;
    - ii. It allows parties with mitigation obligations to meet their obligations rapidly (mitigation lands are simply purchased as credits); and
    - iii. The mitigation lands are provided prior to the impact (eliminating uncertainty about whether a permit might fail to fulfill the HCP’s obligations after the impact has occurred). (pg. 3-21, 3<sup>rd</sup> paragraph) [*original emphasis*]
- The type of mitigation habitat and its proximity to the area of impact will need to be considered. Generally the location of replacement habitats should be as close as possible to the area of impact, it must also include similar habitat types and support the same species affected by the HCP. However, there may be good reason to accept mitigation lands that are distant from the impact area -- e.g., if a large habitat block as opposed to fragmented blocks can be protected or if the mitigation lands are obtained through a mitigation fund. (pg 3-21, paragraph 4)
- Potential types of habitat mitigation include, but are not limited to
  - i. Acquisition of existing habitat;
  - ii. Protection of existing habitat through conservation easements or other legal instruments;
  - iii. Enhancement or restoration of disturbed or former habitats;
  - iv. Prescriptive management of habitats to achieve specific biological characteristics; and
  - v. Creation of new habitats. (pg 3-21, 5<sup>th</sup> paragraph)
- When habitat losses permitted under an HCP are permanent, protection of mitigation lands normally should also be permanent. (pg. 3-22, 4<sup>th</sup> paragraph)

## BIOLOGICAL GOALS AND OBJECTIVES

### GUIDANCE FROM USFWS 5-POINT POLICY

- Biological goals are the broad, guiding principles for the operating conservation program of the HCP. They are the rationale behind the minimization and mitigation strategies.
- Biological objectives are the different components needed to achieve the biological goal such as preserving sufficient habitat, managing the habitat to meet certain criteria, or ensuring the persistence of a specific minimum number of individuals.
- ...the biological goals of an individual HCP are not necessarily equivalent to the range-wide recovery goals and conservation of the species. However, if viewed collectively, the biological goals and objectives of HCPs covering the same species should support the recovery goals and conservation of the species.
- The biological goals and objectives of an HCP are commensurate with the specific impacts and duration of the applicant's proposed action.
- ...the permittee's obligation for meeting the biological goals and objectives is proper implementation of the operating conservation program of the HCP.

### CONSIDERATIONS

- Biological goals and objectives should be defined for each of the covered species, and possibly for species included in other categories.
- Consider the scope of the incidental take request.
  - SEP-HCP will be a voluntary mechanism for ESA compliance for non-federal projects located in the Plan Area.
  - The SEP-HCP must only cover the incidental take associated with projects that voluntarily enroll in the plan. However, you can choose to cover more than that, if desired.
  - The amount of take authorized under the SEP-HCP may be less (possibly even much less) than the total amount of habitat loss/species impacts projected to occur across the Plan Area over the permit duration due to participation rates.
    - BCCP estimates that only 10% of projects potentially affecting habitat have actually sought participation in the plan, despite years of reduced participation fees. (*per citation in draft Comal County RHCP dated April 2010*)
    - Williamson County assumes that approximately 20% of anticipated impacts will seek coverage through their RHCP.
    - Hays County assumes that 33% of private sector projects will participate in their plan.
    - Comal County assumes that 50% of impacts will be authorized through their plan.



## POSSIBLE ALTERNATIVES FOR BIOLOGICAL GOALS

1. REGIONAL RECOVERY: Achieve the equivalent of **regional recovery** for a species within the Plan Area.
  - a. Pros:
    - i. Would result in the highest degree of conservation for the species.
    - ii. Committing to regional recovery could allow SEP-HCP to cover all projected impacts to the species in the Plan Area, regardless of formal participation in the SEP-HCP or type of activity.
    - iii. Would alleviate concerns from Camp Bullis regarding endangered species pressures on training missions.
    - iv. Could support a permit duration beyond 30 years.
  - b. Cons:
    - i. Likely to be extremely expensive to achieve and funding needs would likely far outpace the collection of mitigation fees from project participants and require commitments of public funds from permittees and other plan partners.
    - ii. May not be necessary from a regulatory perspective in order to obtain incidental take authorization for a covered species, depending on the amount of incidental take authorization sought.
  
2. ALL ANTICIPATED IMPACTS: Minimize and mitigate to the **maximum extent practicable** at a level sufficient to allow authorization for **all anticipated impacts** to a covered species in the Plan Area over the permit duration. (Might be similar to the recovery goal option, depending on the results of the land development projections.)
  - a. Pros:
    - i. Would result in a high degree of conservation for the species.
    - ii. Committing to mitigate for all anticipated impacts, regardless of the type of activity or plan participation rate, could allow a high level of take authorization on par with the full set of anticipated cumulative impacts to the species across the Plan Area over the duration of the permit.
    - iii. Would alleviate concerns from Camp Bullis regarding endangered species pressures on training missions.
    - iv. Achieves the level of conservation required by regulations to compensate for the level of authorized impacts.
  - b. Cons:
    - i. Likely to be extremely expensive and funding needs would likely far outpace the collection of mitigation fees from project participants and require commitments of public funds from permittees and other plan partners.
  
3. PARTICIPATING PROJECTS: Minimize and mitigate to the **maximum extent practicable** at a level sufficient to allow take authorization **only for projects voluntarily participating** in the Plan over the permit duration.
  - a. Pros:
    - i. Achieves level of conservation required by regulations to compensate for authorized impacts and does not obligate permittees to provide more mitigation than is necessary.

- ii. Does not prohibit permittees from voluntarily implementing additional conservation measures beyond those needed to achieve regulatory compliance.
  - iii. The conservation commitment is scalable with the actual demand for plan participation.
  - iv. Expected revenue from participation fees would be more in line with anticipated expenditures for the conservation program.
- b. Cons:
- i. Commits to achieving only the minimum level of conservation needed to allow for permit issuance.
  - ii. USFWS could require higher mitigation ratios for impacts since the overall conservation benefits could be lower than for other options.
  - iii. Could still require some commitment of public funds or resources to adequately implement the program.

## **EXAMPLES FROM OTHER TEXAS RHCPs**

See attached pages from:

- Draft Comal County RHCP (pages 4-2 through 4-3; final draft plan dated April 2010)
- Draft Hays County RHCP (pages 61-62; final draft plan dated September 28, 2009)
- Final Williamson County RHCP (pages 5-1 through 5-3; final plan dated August 15, 2008)
- BCCP HCP/EIS (March 1996) – biological goals not explicitly stated

## 4.1.1 Biological Goals and Objectives of the RHCP

The HCP Handbook 2000 Addendum defines biological goals as the broad, guiding principles that clarify the purpose and direction of the conservation components of an HCP (65 FR 35241). The biological goals and objectives are designed to address the anticipated impacts of the proposed activities while taking into account the overall conservation needs of the listed species and their habitat. Conservation measures identified in an HCP, including minimization and mitigation strategies, provide the means for achieving these biological goals and objectives.

### 4.1.1.1 Biological Goals

The biological goals of this RHCP are to:

- Contribute to and facilitate the conservation of the federally listed endangered golden-cheeked warbler and black-capped vireo (the Covered Species).
- Help conserve the Evaluation Species. The Evaluation Species include the Cagle's map turtle, one cave-obligate decapod, two cave-obligate amphipods, a cave-obligate beetle, a cave-obligate harvestman, two cave-obligate spiders, and one snail (the nymph trumpet) (see Chapter 1, Section 1.1.1.1 for scientific names).

### 4.1.1.2 Biological Objectives and Conservation Measures

In general, the biological goals will be accomplished 1) by minimizing disturbance to Covered Species and their habitat in Comal County, and 2) by mitigating the impacts of take contemplated by this RHCP by preserving and managing certain known endangered and rare species habitat areas. In addition to these general objectives, the biological goals of the Comal County RHCP will be met by accomplishing the following objectives and conservation measures:

- Minimize disturbance during the nesting season through temporal and spatial restrictions on clearing activities.
- For the golden-cheeked warbler, establish a system of permanent preserves within the County that will serve as mitigation for impacts covered by the RHCP or purchase sufficient mitigation credits from Service-approved conservation banks, the service area of which includes Comal County. The amount of preserve land or mitigation credits needed to mitigate for the requested take is estimated to total 6,548 acres (2,650 hectares) by the end of the 30-year Permit period (see Section 4.3.1.3 for an explanation of the mitigation acreage). The actual preserve acreage will be a function of several unknown factors, including the amount of take eventually authorized through the RHCP (it may be less than the amount requested, depending on participation), the mitigation ratios to be determined on a project-by-project basis, and future opportunities for land acquisition.
- For the black-capped vireo, the County will provide mitigation for any impacts it authorizes in one of the following ways:
- Acquisition of credits from a Service-approved conservation bank for the black-capped vireo, the service area of which includes Comal County, or, in the event the service area

does not include Comal County, if the Service has specifically approved the sale of credits to Comal County.

- Acquisition (in fee title or conservation easement) and operation, management, and monitoring in perpetuity of habitat for the black-capped vireo, including as a component of a preserve also providing habitat for the golden-cheeked warbler.
- Acknowledgment of black-capped vireo conservation bank credits owned by a potential participant, used for the purposes of providing mitigation in exchange for participation in the RHCP, and managed in perpetuity for the benefit of the black-capped vireo.
- In all events, no impacts to the black-capped vireo will be authorized through the RHCP unless and until sufficient black-capped vireo conservation credits have been obtained in one or more of the foregoing manners.
- Manage and monitor in perpetuity all preserved habitat areas in an effort to maintain or enhance habitat quality.
- Provide annual funding of at least \$10,000<sup>18</sup> beginning in Year 3, totaling \$429,309 over the life of the RHCP, for a program of prioritized research on listed and rare species in the County.
- Provide annual funding of at least \$5,000<sup>19</sup> beginning in Year 3,<sup>20</sup> totaling \$214,655 over the life of the RHCP, for a public education/outreach conservation program. This program will be designed to increase public understanding and appreciation of the need to protect the Covered and Evaluation Species and minimize impacts to their habitat.
- Develop and maintain a database on the Covered and Evaluation Species locations and general population numbers within the County and preserve habitat quality indices collected during monitoring efforts. To the fullest extent allowed by State law, the County will attempt to maintain the confidentiality of the database, but allow access as approved by the Service.
- Periodically evaluate the degree to which the RHCP, as it is being implemented, is providing conservation benefits to the Evaluation Species, and, if data indicate that a species is in need of increased management or its status indicates a potentially threatened or endangered existence, identify what additional measures, if any, the County could implement through the RHCP to provide conservation benefits for the species.

## **4.2 RHCP PROGRAM ADMINISTRATION**

Many elements of the RHCP will require consistent administrative procedures and assurances that the program will be sufficiently funded and staffed to implement all aspects of the commitments detailed in this document. Program implementation includes not just a 30-year

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<sup>18</sup> Research and public awareness expenditures are calculated to increase annually at a rate of 3.0 percent.

<sup>19</sup> See preceding footnote.

<sup>20</sup> The funding plan provides funding for public education/outreach conservation program beginning in Year 3, after the RHCP is expected to generate income sufficient for that purpose.

## 6.0 CONSERVATION PROGRAM

The RHCP conservation program is designed to meet the specific regulatory requirements of the ESA with regard to the species covered for incidental take by the Permit (i.e., the golden-cheeked warbler and black-capped vireo). The ESA requires that the conservation program of a habitat conservation plan include measures to minimize and mitigate impacts to the covered species to the maximum extent practicable. The amount of incidental take sought by the Permit would allow impacts to a maximum of 9,000 acres of potential warbler habitat and 1,300 acres of potential vireo habitat in Hays County.

The conservation program described below includes a number of actions that Hays County commits to implement that minimize and mitigate the anticipated impacts of the incidental take that will be permitted through the RHCP to the maximum extent practicable. The stated commitment to implement these conservation actions is not intended to and does not restrict the County's ability to engage in additional conservation actions at its discretion, should additional resources become available.

### 6.1 Goals and Objectives

#### 6.1.1 Community Goals and Objectives

The RHCP may contribute to a number of local community goals, such as: 1) provide a locally-developed method for ESA compliance; 2) maintain open space and quality of life in Hays County; and 3) encourage partnerships with private landowners and local organizations as conservation partners.

The RHCP may simplify compliance with the ESA. It may streamline ESA compliance and reduce uncertainty, time, and costs for the County and other RHCP participants.

The RHCP may compliment the County's initiatives to protect open space and aquifer recharge areas. The RHCP may also compliment County efforts to establish parks and provide water access for county residents.

#### 6.1.2 Biological Goals and Objectives

The biological goals and objectives of the RHCP are to:

1. Create a preserve system within Hays County that effectively mitigates for incidental take of the golden-cheeked warbler and black-capped vireo and coordinates and consolidates mitigation requirements from projects scattered across the county into larger, more biologically significant preserve blocks.

Objectives to accomplish this goal include the establishment of a preserve system that includes between 10,000 and 15,000 acres (which is expected to be sufficient to generate enough mitigation credits to balance the anticipated level of participation in the RHCP).

2. Design the preserve system to provide perpetual conservation value to the golden-cheeked warbler and black-capped vireo.

To help meet this goal, preserve blocks (which may be composed of multiple adjacent parcels) will meet certain design criteria. Preserve blocks will typically contain a minimum of 500 contiguous acres.

3. Encourage compliance with the ESA by providing an efficient means of authorization.

By implementing the RHCP and providing an efficient and reliable mechanism for ESA compliance, the County is hopeful that there will be an increase in ESA compliance across Hays County. Increased compliance with the ESA has long-term benefits for the covered species.

4. Provide for perpetual management and monitoring of preserve lands to maintain, enhance, or create quality habitat for the golden-cheeked warbler and black-capped vireo.

Management of the preserves will include documenting habitat conditions, establishing sound preserve boundaries, limiting (and possibly prohibiting) access to protected habitats, and reducing threats. Required monitoring activities will measure key habitat and population parameters and the results will be used to inform adaptive management decisions.

5. Where possible, maximize the value of the preserve system for multiple rare species in Hays County.

Hays County will consider the conservation benefits to the evaluation and additional species when evaluating potential preserve acquisitions. The County will evaluate acquired preserve lands for the presence of evaluation or additional species to create an inventory of conserved resources within the RHCP preserve system, when resources allow. The County may implement appropriate management practices within the preserve system when these practices are compatible with the management of habitat for the warbler and vireo, and when it is practicable to do so. The RHCP identifies research priorities for evaluation species, and the County will support research projects (as applicable and practicable) to fill knowledge gaps that could assist with the creation or implementation of more focused conservation measures for one or more of these species.

## 6.2 Avoidance and Minimization Measures

Hays County encourages public and private entities whose activities may impact the covered species in Hays County to avoid and minimize impacts to the species included in the RHCP, including the evaluation and additional species. As described in the sections below, the

## CHAPTER 5 – AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

The following sections describe the steps that will be taken to avoid, minimize, and mitigate impacts of the Williamson County RHCP to the four covered species (two invertebrates and two songbirds). These steps may also benefit the additional species.

### 5.1 GOALS AND OBJECTIVES OF THE WILLIAMSON COUNTY RHCP

The RHCP and proposed section 10(a)(1)(B) permit are designed to achieve the following general goals:

- *Reduced burden on individual permit applicants:* The RHCP will reduce time, costs, and logistical burden for individual permit applicants.
- *Responsible economic activities:* The RHCP will facilitate the coordinated and beneficial use of land within Williamson County to promote the local economy of the region.
- *Maintenance of open space and quality of life in Williamson County:* The RHCP will help to ensure that some of the natural character of the County is maintained despite extensive anticipated development.
- *Conservation of natural resources:* The RHCP will promote the long-term conservation and recovery of the covered species.
- *Efficient and effective administration of the Endangered Species Act:* The RHCP will reduce the administrative and logistical burden on the Service of processing individual Endangered Species Act permits and monitoring post-issuance performance of multiple individual permit projects within the County.

The RHCP is designed to meet these goals through a variety of mechanisms and programs, the core features of which include:

- Meeting the biological goals and objectives described below and applying the associated conservation measures.
- Prescribing the conditions necessary for Williamson County to secure Service authorization for take of covered species during land use and development projects.
- Establishing the standards and procedures for extending the RHCP permit take authorization to land use projects undertaken within the County by other non-Federal entities.

#### 5.1.1 Biological Goals and Objectives of the RHCP

The HCP Handbook 2000 Addendum defines biological goals as the broad, guiding principles that clarify the purpose and direction of the conservation components of an HCP (65 FR 35241). The biological goals and objectives are designed to address the anticipated impacts of the proposed activities while taking into account the overall conservation needs of the listed species

and their habitat. Conservation measures identified in an HCP, including minimization and mitigation strategies, provide the means for achieving these biological goals and objectives.

### 5.1.1.1 Biological Goals

The biological goals of this RHCP are to:

- Support recovery efforts for the endangered Bone Cave harvestman, Coffin Cave mold beetle, golden-cheeked warbler, and black-capped vireo.
- Help conserve the 20 additional karst species<sup>53</sup> and four additional salamander species listed in Chapter 1, Section 1.1.1, thereby assisting the Service in precluding the need to list those that are not currently listed (all but the Tooth Cave ground beetle).

### 5.1.1.2 Biological Objectives

In general, the biological goals will be accomplished 1) by minimizing disturbance to endangered and rare species and their habitat occurring in Williamson County, and 2) by mitigating the impacts of take contemplated by this RHCP by preserving and managing certain known endangered and rare species habitat areas. For the covered bird species, due to the paucity of high quality habitat within Williamson County, the RHCP will need to focus mitigation efforts outside of the County, although mitigation opportunities will be actively pursue within the County as well (see Sections 5.4 and 5.5, below). In addition to these general objectives, the biological goals of the Williamson County RHCP will be met by accomplishing the following measurable objectives:

- Ensure Recovery Plan conservation goals for the Bone Cave harvestman and Coffin Cave mold beetle in Williamson County are reached as quickly as possible. The published recovery (downlisting) criteria (USFWS 1994) include the following:
  - Three KFAs within each KFR<sup>54</sup> in each species' range should be protected in perpetuity.
  - If fewer than three KFAs exist for a species, that species would still be considered for downlisting if it occurred in two KFAs and those were adequately protected.
- Provide long-term management (*in perpetuity*) of the KFAs required for covered species recovery.
- For additional karst invertebrate species, acquire and manage KFAs that are rich in invertebrate species diversity.
- For golden-cheeked warbler, contribute to the amount of high quality habitat (at least 1,000 acres [405 hectares] within the first four years of the plan) preserved in perpetuity in Recovery Region 5.

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<sup>53</sup> One of the 20 additional karst invertebrate species, the Tooth Cave ground beetle, is already listed.

<sup>54</sup> With the exception of Cedar Park KFR, which contains the Bone Cave harvestman but is already largely developed and has little potential for additional take and little or no potential for establishment of additional protected KFAs.



- For black-capped vireo, restore and enhance protected vireo habitat either within or outside Williamson County commensurate with vireo habitat taken under the plan.
- For the Georgetown salamander (a candidate species not covered by the proposed Permit), increase knowledge of the species' status, distribution, and conservation needs through research in Years 2–6 of the plan.
- Increase the knowledge and understanding of covered and additional species via research and monitoring throughout the 30 years of the plan.
- Increase public understanding and appreciation of the need to protect the covered and additional species via public education throughout the 30 years of the plan.

### **5.1.1.3 Conservation Measures for Attaining Biological Objectives**

The strategy for attaining the above biological objectives consists of the following conservation measures. Each of these measures is described in detail later in this chapter.

*For the covered species:*

- For karst species, to discourage impact on species-occupied caves within 50 feet of the cave footprint and to provide sufficient funds to contribute to the purchase of KFAs, levy a high participation fee (\$400,000/cave) for impacts within 50 feet of the cave footprint.
- To mitigate for incidental take of the Bone Cave harvestman and Coffin Cave mold beetle, purchase or acquire management control<sup>55</sup> of approximately 700 acres (283 hectares) of KFAs, establishing three KFAs for each species in the KFRs where the two species occur: North Williamson County KFR, Georgetown KFR, and McNeil/Round Rock KFR for the Bone Cave harvestman, and North Williamson County KFR and Georgetown KFR for the Coffin Cave mold beetle.<sup>56</sup>
- Develop and carry out long-term management/monitoring plans for 10 of the 22 existing karst conservation areas (see Table 3-1 and Figure 3-2), the 700 acres in new KFAs, and up to 240 acres of protected karst habitat as identified above.
- For the golden-cheeked warbler and the black-capped vireo, preserve habitat by helping plan participants avoid and minimize impacts to habitat.
- For the golden-cheeked warbler and the black-capped vireo, minimize disturbance during the nesting season through temporal and spatial restrictions on clearing activities.

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<sup>55</sup> A service-approved KFA may be established for an existing conservation area that meets all KFA criteria except adequate management, if the Foundation provides the needed management, beginning with the preparation of a karst management and monitoring plan.

<sup>56</sup> No take or mitigation is planned for the fourth KFR in the County, Cedar Park, because that KFR is already built out to the extent that insufficient undeveloped land with occupied caves is available for a KFA. No KFAs are planned for the Tooth Cave ground beetle because, in Williamson County, this species is known only from the Cedar Park KFR, which cannot support a new KFA. Little additional development on undisturbed land will occur in Cedar Park, so no additional take of the Tooth Cave ground beetle in the County is expected in any case.