



# Tier I Site Assessment

**Main CSJ:** 0113-13-168

**Form Prepared By:** Chelsea Miller (CP&Y, Inc.)

**Date of Evaluation:** February 24, 2020

**Proposed Letting Date:** November 2022

Project not assigned to TxDOT under the NEPA Assignment MOU

**District(s):** Austin

**County(ies):** Travis

**Roadway Name:** State Loop 360

**Limits From:** Lake Austin

**Limits To:** North of RM 2222

**Project Description:** TxDOT Austin District proposes to improve a portion of State Loop 360 from Lake Austin to north of RM 2222 in Austin, Travis County, Texas. The proposed project includes improvements to the intersection at SL 360 at Courtyard Drive by removing the signal on the mainlanes and replacing it with an underpass. The project would also construct a diverging diamond intersection at RM 2222. Bicycle/pedestrian accommodations will also be provided. The project is 0.86 miles in length and the project area is 67.2 acres in size. No easements are proposed for the project. No new ROW is required for the project.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

1.   No   Is the project limited to a maintenance activity exempt from coordination?  
<http://txdot.gov/inside-txdot/division/environmental/maintenance-program.html>
2.   No   Has the project previously completed coordination with TPWD?
3.   Yes   Is the project within range of a state threatened or endangered species or SGCN and suitable habitat is present?

**\*Explain:**

Suitable habitat for the Golden-cheeked Warbler (*Dendroica chrysoparia* - E), bracted twistflower (*Streptanthus bracteatus* - T), and Timber Rattlesnake (*Crotalus horridus* - T) was observed within the project area. A presence/absence survey for the bracted twistflower was conducted in May 2019. The survey produced no evidence of the species within the project area. Therefore, the project is not likely to impact the bracted twistflower. The Golden-cheeked Warbler and Timber Rattlesnake may be impacted by project activities.

Additionally, of the 99 SGCN listed for Travis County, the following 36 species have suitable habitat within the project area and may be impacted by project activities: big brown bat (*Eptesicus fuscus*), big free-tailed bat (*Nyctinomops macrotis*), cave myotis bat (*Myotis velifer*), eastern red bat (*Lasiurus borealis*), eastern spotted skunk (*Spilogale putorius*), hoary bat (*Lasiurus cinereus*), long-tailed weasel (*Mustela frenata*), Mexican free-tailed bat (*Tadarida brasiliensis*), Mexican long-tongued bat (*Choeronycteris mexicana*), Southern short-tailed shrew (*Blarina carolinensis*), tricolored bat (*Perimyotis subflavus*), western hog-nosed skunk (*Conepatus leuconotus*), eastern box turtle (*Terrapene carolina*), Northern spot-tailed earless lizard (*Holbrookia lacerata lacerata*), slender glass lizard (*Ophisaurus attenuatus*), Buckley tridens (*Tridens buckleyanus*), Texas barberry (*Berberis swaseyi*), basin bellflower (*Campanula reverchonii*), Correll's false dragon-head (*Phytotegia correllii*), Texas milk vetch (*Astragalus reflexus*), rock grape (*Vitis rupestris*), Glass Mountain coral-root (*Hexalectris nitida*), Greenman's bluet (*Houstonia parviflora*), Heller's marbleseed (*Onosmodium helleri*), Texabama croton (*Croton alabamensis* var. *texensis*), low spurge



**Tier I Site Assessment**

(Euphorbia peplidon), plateau milkvine (Matelea edwardsensis), scarlet leather-flower (Clematis texensis), spreading lestdaisy (Chaetopappa effusa), Texas seyeris (Seymeria texana), Engelmann's bladderpod (Physaria engelmannii), sycamore-leaf snowbell (Styrax platanifolius ssp. platanifolius), Canyon bean (Phaseolus texensis), Texas amorphia (Amorpha roemeriana), tree dodder (Cuscuta exaltata), and Warnock's coral-root (Hexalectris warnockii).

The Jollyville Plateau salamander (Eurycea tankawae), a federally-listed threatened species, was evaluated for suitable habitat within the project area through a visual inspection and presence/absence survey conducted in March and June 2019 by species experts. The survey did not produce any evidence of the species and did not observe any suitable habitat for the species within the project area. The species report is attached.

Date TPWD County List Accessed: February 7, 2020

Date that the NDD was accessed: June 19, 2018

What agency performed the NDD search? TPWD

What version of the NDD was used? April 24, 2019

No Does the BMP PA eliminate the requirement to coordinate for all species?

4. No NDD and TCAP review indicates adverse impacts to remnant vegetation?

5. No Does the project require a NWP with PCN or IP by USACE?

6. No Does the project include more than 200 linear feet of stream channel for each single and complete crossing of one or more of the following that is not already channelized or otherwise maintained:

7. No Does the project contain known isolated wetlands outside the TxDOT ROW that will be directly impacted by the project?

8. No Would the project impact at least 0.10 acre of riparian vegetation?

9. Yes Does project disturb a habitat type in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement?

**\*Explain:**

Field observations indicated 10.43 acres of Edwards Plateau Savannah, Woodland, and Shrubland habitat that would potentially be disturbed due to project activities. This exceeds the 3-acre coordination threshold.

\*Attach associated file of EMST output (Mapper Report or other Excel File which includes MOU Type, Ecosystem Name, Common/Vegetation Type Name) in ECOS



Excel File Name:

Courtyard-RM2222\_EMSTtable.xlsx

9.1. Yes Is there a discrepancy between actual habitat(s) and EMST mapped habitat(s)?

\*Explain:

The EMST data indicates the following habitat acreages within the project area: 0.06 acres of Riparian habitat; 10.74 acres of Edwards Plateau Savannah, Woodland, and Shrubland habitat; and 56.40 acres of Urban habitat.  
  
Field observations confirmed the following habitat acreages within the project area: 0.05 acres of Riparian habitat; 10.43 acres of Edwards Plateau Savannah, Woodland, and Shrubland habitat, and 56.72 acres of Urban habitat.

Attach file showing discrepancy between actual and EMST mapped habitat(s).

File Name:

Courtyard-RM2222\_EMSTtable.xlsx

### Is TPWD Coordination Required?

Yes

Early Coordination

Administrated Coordination - Must be conducted through ENV-NRM

BMPs Implemented or EPICs included (as necessary):

The following will be included in the EPIC sheet, Section V: The Migratory Bird Treaty Act (MBTA) of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole without a federal permit issued in accordance within the Act's policies and regulations. The contractor would remove all old migratory bird nests from any structure where work would be done from October 1 to February 15. In addition, the contractor would be prepared to prevent migratory birds from building nest(s) between February 15 and October 1. In the event that migratory birds are encountered on-site during project construction, efforts to avoid adverse impacts on protected birds, active nests, eggs and/or young would be observed.  
  
Impacts to the Golden-cheeked Warbler would be covered under the TxDOT/USFWS programmatic agreement (attached).  
  
Bat BMPs should be implemented to eliminate the need for coordination for the following bat species: big free-tailed bat, cave myotis bat, and Mexican long-tongued bat.  
  
Terrestrial Reptile BMPs should be implemented to eliminate the need for coordination for the timber rattlesnake.  
  
Pursuant to TPWD Vegetation and Invasive Species BMPs and EO 13112 on Invasive Species, seeding and replanting with TxDOT approved seedling specifications that is in compliance with EO 13112 would be done where possible.  
  
Early coordination is anticipated for impacts to Vegetation and wildlife species without defined BMPs.



**TxDOT Contact Information**

Name: Andy Blair

Phone Number: 512-832-7004

E-mail: Andrew.Blair@txdot.gov



## *Suggested Attachments*

**Aerial Map (with delineated project boundaries)**

**USFWS T&E List**

**TPWD T&E List**

**Species Analysis Summary**

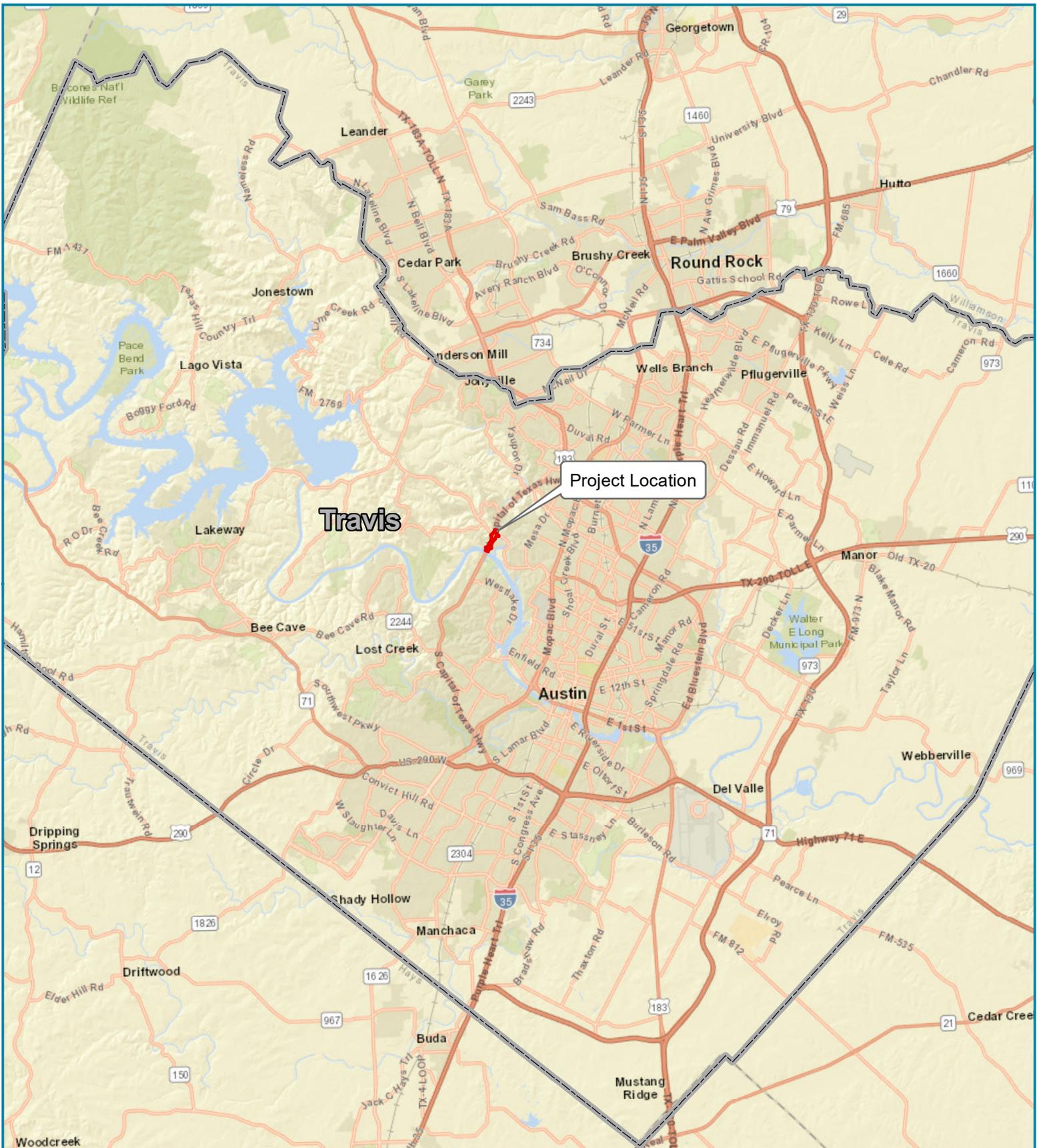
**NDD EOID List and Tracked Managed Areas (Required for TPWD Coordination)**

**EMST Project MOU Summary Table (Required for TPWD Coordination)**

**TPWD SGCN List**

**Photos (Required for TPWD Coordination)**

**Previous TPWD Coordination Documentation (if applicable)**



## Project Vicinity

State Loop 360  
 From North of RM 2222  
 To Lake Austin  
 Travis County, TX  
 CSJ: 0113-13-168

- Project Area
- County Boundary





## USGS Topographic Map

State Loop 360  
From North of RM 2222  
To Lake Austin  
Travis County, TX  
CSJ 0113-13-168

 Project Area

0 400 800 1,200 Feet





### Aerial Map

State Loop 360  
From Lake Austin  
To North of RM 2222  
Travis County, TX  
CSJ 0113-13-168

 Project Area



Source: Google Imagery 2018, ESRI Streets; TPWD EMST 2018





**Photograph 1:** A northeast-facing view of the project area taken from the southernmost project limit near Courtyard Drive.



**Photograph 2:** A typical view of the Edwards Plateau Savannah, Woodland, and Shrubland habitat found in the project area. This vegetation is potentially suitable Golden-cheeked Warbler habitat.



**Photograph 3:** An upstream view of West Bull Creek at RM 2222. The creek has been fully culverted within the project area.



**Photograph 4:** A view of typical Urban habitat within the project area.



**Photograph 5:** Swallow nests observed on the SL 360 bridge over RM 2222.

| SL 360 between Courtyard and RM 2222 - EMST Vegetation - Travis County, Texas |                 |   |                     |              |                        |                             |                |
|---|-----------------|---|---------------------|--------------|------------------------|-----------------------------|----------------|
| Common Name   | Ecoregion       | MOU Vegetation Type                               | EMST Mapped Acreage | MOU Acreage  | Field-Verified Acreage | Coordination Threshold (ac) | Threshold Met? |
| Edwards Plateau: Riparian Ashe Juniper Forest                                 | Edwards Plateau | Riparian  | 0.01                | 0.06         | 0.05                   | 0.1                         | No             |
| Open Water  | Edwards Plateau |   | 0.05                |              |                        |                             |                |
| Edwards Plateau: Ashe Juniper Motte and Woodland                              | Edwards Plateau | Edwards Plateau Savannah, Woodland, and Shrubland | 5.13                | 10.74        | 10.43                  | 3                           | Yes            |
| Edwards Plateau:Deciduous Oak/Evergreen Motte and Woodland                    | Edwards Plateau |   | 0.42                |              |                        |                             |                |
| Edwards Plateau: Oak/Hardwood Motte and Woodland                              | Edwards Plateau |   | 0.09                |              |                        |                             |                |
| Edwards Plateau: Ashe Juniper Slope Forest                                    | Edwards Plateau |   | 3.36                |              |                        |                             |                |
| Edwards Plateau: Oak/Ashe Juniper Slope Forest                                | Edwards Plateau |   | 1.74                |              |                        |                             |                |
| Urban High Intensity  | Edwards Plateau | Urban   | 7.09                | 56.40        | 56.72                  | N/A                         | N/A            |
| Urban Low Intensity   | Edwards Plateau |   | 49.31               |              |                        |                             |                |
| <b>Total</b>  |                 |   | <b>67.20</b>        | <b>67.20</b> | <b>67.20</b>           | <b>--</b>                   | <b>--</b>      |



## Mapped EMST Vegetation

State Loop 360  
 From Lake Austin  
 To North of RM 2222  
 Travis County, TX  
 CSJ 0113-13-168

 Project Area



Source: Google Imagery 2018, ESRI Streets; TPWD EMST 2018



**Legend**

- Edwards Plateau Savannah, Woodland, and Shrubland
- Riparian
- Urban

**Verified EMST Vegetation**

State Loop 360  
 From Lake Austin  
 To North of RM 2222  
 Travis County, TX  
 CSJ 0113-13-168

Project Area



Source: Google Imagery 2018, ESRI Streets; TPWD EMST 2018

### SL 360 from Courtyard to RM 2222 - NDD EO List, 1.5-Mile Buffer

| EO ID | Scientific Name                            | Common Name                   |
|-------|--|-------------------------------|
| 9370  | <i>Eurycea tonkawae</i>                    | Jollyville Plateau Salamander |
| 8074  | <i>Vireo atricapilla</i>                   | Black-capped Vireo            |
| 6769  | <i>Vireo atricapilla</i>                   | Black-capped Vireo            |
| 5125  | <i>Vireo atricapilla</i>                   | Black-capped Vireo            |
| 4540  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 4412  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 4103  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 3247  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 3062  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 2486  | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 424   | <i>Setophaga chrysoparia</i>               | Golden-cheeked Warbler        |
| 6994  | <i>Thamnophis sirtalis annectens</i>       | Texas Garter Snake            |
| 10446 | <i>Matelea edwardsensis</i>                | Plateau milkvine              |
| 10342 | <i>Matelea edwardsensis</i>                | Plateau milkvine              |
| 10257 | <i>Matelea edwardsensis</i>                | Plateau milkvine              |
| 5883  | <i>Texella reyesi</i>                      | Bone Cave harvestman          |
| 10753 | <i>Lythrum ovalifolium</i>                 | Plateau loosestrife           |
| 10752 | <i>Lythrum ovalifolium</i>                 | Plateau loosestrife           |
| 7117  | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 7116  | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 6852  | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 5146  | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 56    | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 55    | <i>Amorpha roemeriana</i>                  | Texas amorpha                 |
| 12689 | <i>Streptanthus bracteatus</i>             | bracted twistflower           |
| 6928  | <i>Streptanthus bracteatus</i>             | bracted twistflower           |
| 6457  | <i>Streptanthus bracteatus</i>             | bracted twistflower           |
| 10699 | <i>Seymeria texana</i>                     | Texas seymeria                |
| 2793  | <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange            |
| 221   | <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange            |
| 8192  | <i>Hexalectris nitida</i>                  | Glass Mountains coral-root    |
| 8197  | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 4037  | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 2895  | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 2412  | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 1132  | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 405   | <i>Tridens buckleyanus</i>                 | Buckley tridens               |
| 11065 | <i>Festuca versuta</i>                     | Texas fescue                  |
| 4101  | <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series       |
| 5655  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 4726  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 4724  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 3095  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 2811  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 1822  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 1261  | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 531   | <i>Onosmodium helleri</i>                  | Heller's marbleseed           |
| 10547 | <i>Prunus minutiflora</i>                  | Texas almond                  |

## Occurrence List for Quads Surrounding Request Area

| <u>Scientific Name:</u>   | <u>Common Name:</u> | <u>Occurrence<br/>Number:</u> | <u>State<br/>Status:</u> | <u>Federal<br/>Status:</u> | <u>Eo Id:</u> |
|---------------------------|---------------------|-------------------------------|--------------------------|----------------------------|---------------|
| <i>Amorpha roemeriana</i> | Texas amorpha       | 5                             |                          |                            | 6573          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 13                            |                          |                            | 2482          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 23                            |                          |                            | 2525          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 24                            |                          |                            | 7176          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 25                            |                          |                            | 5309          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 26                            |                          |                            | 3229          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 27                            |                          |                            | 4886          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 28                            |                          |                            | 1469          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 29                            |                          |                            | 7117          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 30                            |                          |                            | 7116          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 32                            |                          |                            | 2131          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 41                            |                          |                            | 7424          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 42                            |                          |                            | 2961          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 43                            |                          |                            | 6946          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 44                            |                          |                            | 5391          |
| <i>Amorpha roemeriana</i> | Texas amorpha       | 47                            |                          |                            | 2318          |

| <u>Scientific Name:</u>    | <u>Common Name:</u> | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|----------------------------|---------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 48                        |                      |                        | 6770          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 50                        |                      |                        | 1861          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 54                        |                      |                        | 7593          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 55                        |                      |                        | 962           |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 56                        |                      |                        | 3669          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 57                        |                      |                        | 4244          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 58                        |                      |                        | 375           |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 62                        |                      |                        | 6690          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 63                        |                      |                        | 5627          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 64                        |                      |                        | 816           |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 65                        |                      |                        | 5848          |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 68                        |                      |                        | 12481         |
| <i>Amorpha roemeriana</i>  | Texas amorpha       | 75                        |                      |                        | 12482         |
| <i>Astragalus reflexus</i> | Texas milk vetch    | 19                        |                      |                        | 10298         |
| <i>Berberis swaseyi</i>    | Texas barberry      | 6                         |                      |                        | 8715          |
| <i>Berberis swaseyi</i>    | Texas barberry      | 19                        |                      |                        | 11337         |
| <i>Berberis swaseyi</i>    | Texas barberry      | 21                        |                      |                        | 11301         |

| <u>Scientific Name:</u>       | <u>Common Name:</u>           | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-------------------------------|-------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Berberis swaseyi</i>       | Texas barberry                | 24                        |                      |                        | 11304         |
| <i>Berberis swaseyi</i>       | Texas barberry                | 36                        |                      |                        | 12370         |
| <i>Brickellia dentata</i>     | gravelbar brickellbush        | 8                         |                      |                        | 8714          |
| <i>Brickellia dentata</i>     | gravelbar brickellbush        | 9                         |                      |                        | 8740          |
| <i>Clematis texensis</i>      | scarlet leather-flower        | 40                        |                      |                        | 10142         |
| <i>Conepatus leuconotus</i>   | western hog-nosed skunk       | 2                         |                      |                        | 12789         |
| <i>Conepatus leuconotus</i>   | western hog-nosed skunk       | 106                       |                      |                        | 14368         |
| <i>Desmanthus reticulatus</i> | net-leaf bundleflower         | 9                         |                      |                        | 10096         |
| <i>Desmanthus reticulatus</i> | net-leaf bundleflower         | 10                        |                      |                        | 10095         |
| <i>Desmanthus reticulatus</i> | net-leaf bundleflower         | 12                        |                      |                        | 9996          |
| <i>Eurycea sosorum</i>        | Barton Springs salamander     | 2                         | E                    | LE                     | 8968          |
| <i>Eurycea sosorum</i>        | Barton Springs salamander     | 3                         | E                    | LE                     | 12351         |
| <i>Eurycea sosorum</i>        | Barton Springs salamander     | 4                         | E                    | LE                     | 12589         |
| <i>Eurycea tonkawae</i>       | Jollyville Plateau salamander | 1                         |                      | LT                     | 29            |
| <i>Eurycea tonkawae</i>       | Jollyville Plateau salamander | 2                         |                      | LT                     | 7887          |
| <i>Eurycea tonkawae</i>       | Jollyville Plateau salamander | 3                         |                      | LT                     | 3025          |
| <i>Eurycea tonkawae</i>       | Jollyville Plateau salamander | 4                         |                      | LT                     | 7000          |

| <u>Scientific Name:</u> | <u>Common Name:</u>           | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-------------------------|-------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 7                         |                      | LT                     | 5120          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 8                         |                      | LT                     | 1051          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 9                         |                      | LT                     | 6636          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 10                        |                      | LT                     | 6637          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 11                        |                      | LT                     | 1689          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 12                        |                      | LT                     | 3546          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 13                        |                      | LT                     | 4936          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 14                        |                      | LT                     | 1805          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 16                        |                      | LT                     | 3957          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 18                        |                      | LT                     | 4642          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 19                        |                      | LT                     | 438           |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 20                        |                      | LT                     | 437           |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 21                        |                      | LT                     | 8167          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 22                        |                      | LT                     | 3722          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 23                        |                      | LT                     | 6724          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 24                        |                      | LT                     | 5361          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 25                        |                      | LT                     | 9314          |

| <u>Scientific Name:</u> | <u>Common Name:</u>           | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-------------------------|-------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 26                        |                      | LT                     | 9325          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 27                        |                      | LT                     | 9348          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 28                        |                      | LT                     | 9349          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 29                        |                      | LT                     | 9350          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 30                        |                      | LT                     | 9352          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 31                        |                      | LT                     | 9353          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 32                        |                      | LT                     | 9357          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 33                        |                      | LT                     | 9364          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 34                        |                      | LT                     | 9365          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 35                        |                      | LT                     | 9366          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 36                        |                      | LT                     | 9367          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 37                        |                      | LT                     | 9368          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 38                        |                      | LT                     | 9369          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 39                        |                      | LT                     | 9370          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 41                        |                      | LT                     | 9372          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 42                        |                      | LT                     | 9373          |
| <i>Eurycea tonkawae</i> | Jollyville Plateau salamander | 43                        |                      | LT                     | 9374          |

| <u>Scientific Name:</u>   | <u>Common Name:</u>           | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|---------------------------|-------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Eurycea tonkawae</i>   | Jollyville Plateau salamander | 44                        |                      | LT                     | 9375          |
| <i>Eurycea tonkawae</i>   | Jollyville Plateau salamander | 47                        |                      | LT                     | 9378          |
| <i>Eurycea tonkawae</i>   | Jollyville Plateau salamander | 48                        |                      | LT                     | 9379          |
| <i>Eurycea tonkawae</i>   | Jollyville Plateau salamander | 49                        |                      | LT                     | 9380          |
| <i>Eurycea tonkawae</i>   | Jollyville Plateau salamander | 51                        |                      | LT                     | 9479          |
| <i>Festuca versuta</i>    | Texas fescue                  | 4                         |                      |                        | 8741          |
| <i>Festuca versuta</i>    | Texas fescue                  | 8                         |                      |                        | 10999         |
| <i>Festuca versuta</i>    | Texas fescue                  | 15                        |                      |                        | 11065         |
| <i>Festuca versuta</i>    | Texas fescue                  | 16                        |                      |                        | 11029         |
| <i>Festuca versuta</i>    | Texas fescue                  | 17                        |                      |                        | 11013         |
| <i>Festuca versuta</i>    | Texas fescue                  | 22                        |                      |                        | 11017         |
| <i>Festuca versuta</i>    | Texas fescue                  | 23                        |                      |                        | 11008         |
| <i>Festuca versuta</i>    | Texas fescue                  | 29                        |                      |                        | 11124         |
| <i>Hexalectris nitida</i> | Glass Mountains coral-root    | 18                        |                      |                        | 3891          |
| <i>Hexalectris nitida</i> | Glass Mountains coral-root    | 19                        |                      |                        | 4487          |
| <i>Hexalectris nitida</i> | Glass Mountains coral-root    | 23                        |                      |                        | 1088          |
| <i>Hexalectris nitida</i> | Glass Mountains coral-root    | 29                        |                      |                        | 2398          |

| <u>Scientific Name:</u>      | <u>Common Name:</u>        | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|------------------------------|----------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 30                        |                      |                        | 2399          |
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 32                        |                      |                        | 1083          |
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 35                        |                      |                        | 12463         |
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 37                        |                      |                        | 12464         |
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 38                        |                      |                        | 12465         |
| <i>Hexalectris nitida</i>    | Glass Mountains coral-root | 39                        |                      |                        | 12466         |
| <i>Hexalectris warnockii</i> | Warnock's coral-root       | 23                        |                      |                        | 12448         |
| <i>Holbrookia lacerata</i>   | spot-tailed earless lizard | 29                        |                      |                        | 9481          |
| <i>Holbrookia lacerata</i>   | spot-tailed earless lizard | 92                        |                      |                        | 9575          |
| <i>Holbrookia lacerata</i>   | spot-tailed earless lizard | 94                        |                      |                        | 9597          |
| <i>Invertebrate Cave</i>     |                            | 6                         |                      |                        | 3796          |
| <i>Invertebrate Cave</i>     |                            | 7                         |                      |                        | 4453          |
| <i>Invertebrate Cave</i>     |                            | 12                        |                      |                        | 3586          |
| <i>Invertebrate Cave</i>     |                            | 22                        |                      |                        | 3823          |
| <i>Invertebrate Cave</i>     |                            | 23                        |                      |                        | 6798          |
| <i>Invertebrate Cave</i>     |                            | 24                        |                      |                        | 4951          |
| <i>Invertebrate Cave</i>     |                            | 25                        |                      |                        | 2043          |

| <u>Scientific Name:</u>                    | <u>Common Name:</u>     | <u>Occurrence<br/>Number:</u> | <u>State<br/>Status:</u> | <u>Federal<br/>Status:</u> | <u>Eo Id:</u> |
|--|-------------------------|-------------------------------|--------------------------|----------------------------|---------------|
| <i>Invertebrate Cave</i>                   |                         | 26                            |                          |                            | 5755          |
| <i>Invertebrate Cave</i>                   |                         | 27                            |                          |                            | 2921          |
| <i>Invertebrate Cave</i>                   |                         | 28                            |                          |                            | 7909          |
| <i>Invertebrate Cave</i>                   |                         | 29                            |                          |                            | 1294          |
| <i>Invertebrate Cave</i>                   |                         | 30                            |                          |                            | 1293          |
| <i>Invertebrate Cave</i>                   |                         | 31                            |                          |                            | 175           |
| <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series | 1                             |                          |                            | 4101          |
| <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series | 22                            |                          |                            | 4631          |
| <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series | 23                            |                          |                            | 725           |
| <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series | 24                            |                          |                            | 6090          |
| <i>Juniperus ashei-quercus spp. series</i> | Ashe Juniper-oak Series | 25                            |                          |                            | 3440          |
| <i>Lampsilis bracteata</i>                 | Texas fatmucket         | 21                            | T                        | C                          | 9769          |
| <i>Lampsilis bracteata</i>                 | Texas fatmucket         | 24                            | T                        | C                          | 12575         |
| <i>Lythrum ovalifolium</i>                 | Plateau loosestrife     | 48                            |                          |                            | 10578         |
| <i>Lythrum ovalifolium</i>                 | Plateau loosestrife     | 49                            |                          |                            | 10579         |
| <i>Lythrum ovalifolium</i>                 | Plateau loosestrife     | 60                            |                          |                            | 10737         |
| <i>Lythrum ovalifolium</i>                 | Plateau loosestrife     | 68                            |                          |                            | 10751         |

| <u>Scientific Name:</u>     | <u>Common Name:</u> | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-----------------------------|---------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Matelea edwardsensis</i> | plateau milkvine    | 24                        |                      |                        | 10136         |
| <i>Matelea edwardsensis</i> | plateau milkvine    | 27                        |                      |                        | 10446         |
| <i>Matelea edwardsensis</i> | plateau milkvine    | 30                        |                      |                        | 10034         |
| <i>Matelea edwardsensis</i> | plateau milkvine    | 31                        |                      |                        | 10256         |
| <i>Matelea edwardsensis</i> | plateau milkvine    | 32                        |                      |                        | 10206         |
| <i>Matelea edwardsensis</i> | plateau milkvine    | 33                        |                      |                        | 10329         |
| <i>Matelea sagittifolia</i> | arrowleaf milkvine  | 8                         |                      |                        | 10652         |
| <i>Micropterus treculii</i> | Guadalupe bass      | 17                        |                      |                        | 4680          |
| <i>Micropterus treculii</i> | Guadalupe bass      | 18                        |                      |                        | 4150          |
| <i>Micropterus treculii</i> | Guadalupe bass      | 19                        |                      |                        | 7074          |
| <i>Micropterus treculii</i> | Guadalupe bass      | 49                        |                      |                        | 5157          |
| <i>Micropterus treculii</i> | Guadalupe bass      | 50                        |                      |                        | 5159          |
| <i>Micropterus treculii</i> | Guadalupe bass      | 63                        |                      |                        | 13927         |
| <i>Micropterus treculii</i> | Guadalupe bass      | 68                        |                      |                        | 13944         |
| <i>Myotis velifer</i>       | cave myotis bat     | 1                         |                      |                        | 6697          |
| <i>Myotis velifer</i>       | cave myotis bat     | 2                         |                      |                        | 3915          |
| <i>Myotis velifer</i>       | cave myotis bat     | 3                         |                      |                        | 6375          |

| <u>Scientific Name:</u>     | <u>Common Name:</u> | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-----------------------------|---------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Neoleptoneta myopica</i> | Tooth Cave spider   | 1                         |                      | LE                     | 7765          |
| <i>Neoleptoneta myopica</i> | Tooth Cave spider   | 2                         |                      | LE                     | 3800          |
| <i>Notropis buccula</i>     | smalleye shiner     | 7                         |                      | LE                     | 5813          |
| <i>Notropis shumardi</i>    | silverband shiner   | 15                        |                      |                        | 13997         |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 2                         |                      |                        | 2811          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 3                         |                      |                        | 5655          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 5                         |                      |                        | 4214          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 6                         |                      |                        | 3192          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 7                         |                      |                        | 6646          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 13                        |                      |                        | 7597          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 14                        |                      |                        | 851           |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 18                        |                      |                        | 6206          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 26                        |                      |                        | 6485          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 27                        |                      |                        | 5124          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 29                        |                      |                        | 4726          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 30                        |                      |                        | 4724          |
| <i>Onosmodium helleri</i>   | Heller's marbleseed | 31                        |                      |                        | 4123          |

| <u>Scientific Name:</u>                    | <u>Common Name:</u>         | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|--|-----------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 32                        |                      |                        | 6643          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 35                        |                      |                        | 5409          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 36                        |                      |                        | 3095          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 38                        |                      |                        | 2             |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 39                        |                      |                        | 37            |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 42                        |                      |                        | 2826          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 50                        |                      |                        | 1844          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 51                        |                      |                        | 7502          |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 55                        |                      |                        | 12475         |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 57                        |                      |                        | 12474         |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 61                        |                      |                        | 12477         |
| <i>Onosmodium helleri</i>                  | Heller's marbleseed         | 62                        |                      |                        | 12478         |
| <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange          | 6                         |                      |                        | 2793          |
| <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange          | 7                         |                      |                        | 221           |
| <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange          | 8                         |                      |                        | 5458          |
| <i>Philadelphus texensis var. ernestii</i> | canyon mock-orange          | 11                        |                      |                        | 6840          |
| <i>Physostegia correllii</i>               | Correll's false dragon-head | 2                         |                      |                        | 2649          |

| <u>Scientific Name:</u>                                      | <u>Common Name:</u>                         | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|--|---|---------------------------|----------------------|------------------------|---------------|
| <i>Physostegia correllii</i>                                 | Correll's false dragon-head                 | 9                         |                      |                        | 11359         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 47                        |                      |                        | 10496         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 58                        |                      |                        | 10546         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 63                        |                      |                        | 10551         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 66                        |                      |                        | 10554         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 80                        |                      |                        | 10725         |
| <i>Prunus minutiflora</i>                                    | Texas almond                                | 84                        |                      |                        | 10728         |
| <i>Quercus buckleyi series</i>                               | Texas Oak Series                            | 28                        |                      |                        | 2344          |
| <i>Quercus buckleyi series</i>                               | Texas Oak Series                            | 30                        |                      |                        | 4594          |
| <i>Quercus fusiformis / Schizachyrium scoparium Woodland</i> | Plateau Live Oak / Little Bluestem Woodland | 9                         |                      |                        | 11493         |
| <i>Quercus fusiformis/schizachyrium scoparium series</i>     | Plateau Live Oak/little Bluestem Series     | 11                        |                      |                        | 7266          |
| <i>Quercus fusiformis/schizachyrium scoparium series</i>     | Plateau Live Oak/little Bluestem Series     | 17                        |                      |                        | 5826          |
| <i>Rhadine persephone</i>                                    | Tooth Cave ground beetle                    | 1                         |                      | LE                     | 5045          |
| <i>Rhadine persephone</i>                                    | Tooth Cave ground beetle                    | 2                         |                      | LE                     | 3717          |
| <i>Rhadine persephone</i>                                    | Tooth Cave ground beetle                    | 3                         |                      | LE                     | 6495          |
| <i>Rhadine persephone</i>                                    | Tooth Cave ground beetle                    | 4                         |                      | LE                     | 4437          |
| <i>Rhadine persephone</i>                                    | Tooth Cave ground beetle                    | 6                         |                      | LE                     | 5944          |

| <u>Scientific Name:</u>   | <u>Common Name:</u>      | <u>Occurrence<br/>Number:</u> | <u>State<br/>Status:</u> | <u>Federal<br/>Status:</u> | <u>Eo Id:</u> |
|---------------------------|--------------------------|-------------------------------|--------------------------|----------------------------|---------------|
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 8                             |                          | LE                         | 7739          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 9                             |                          | LE                         | 826           |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 10                            |                          | LE                         | 825           |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 11                            |                          | LE                         | 1558          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 12                            |                          | LE                         | 5567          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 14                            |                          | LE                         | 2097          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 15                            |                          | LE                         | 1052          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 16                            |                          | LE                         | 7376          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 17                            |                          | LE                         | 4764          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 18                            |                          | LE                         | 850           |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 19                            |                          | LE                         | 4917          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 20                            |                          | LE                         | 4916          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 21                            |                          | LE                         | 2081          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 22                            |                          | LE                         | 7853          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 23                            |                          | LE                         | 2939          |
| <i>Rhadine persephone</i> | Tooth Cave ground beetle | 24                            |                          | LE                         | 1036          |
| <i>Rookery</i>            |                          | 529                           |                          |                            | 3207          |

| <u>Scientific Name:</u>   | <u>Common Name:</u>                | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|---|------------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 84                        |                      |                        | 11974         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 85                        |                      |                        | 11975         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 86                        |                      |                        | 11976         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 92                        |                      |                        | 11982         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 93                        |                      |                        | 11983         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 103                       |                      |                        | 11993         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 104                       |                      |                        | 11994         |
| <i>Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Grassland</i> | Vertisol Blackland Prairie         | 105                       |                      |                        | 11995         |
| <i>Schizachyrium scoparium-sorghastrum nutans series</i>  | Little Bluestem-indiangrass Series | 74                        |                      |                        | 3598          |
| <i>Schizachyrium scoparium-sorghastrum nutans series</i>  | Little Bluestem-indiangrass Series | 79                        |                      |                        | 6780          |
| <i>Schizachyrium scoparium-sorghastrum nutans series</i>  | Little Bluestem-indiangrass Series | 81                        |                      |                        | 4955          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 11                        | E                    | LE                     | 7403          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 16                        | E                    | LE                     | 7976          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 18                        | E                    | LE                     | 3062          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 19                        | E                    | LE                     | 5986          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 20                        | E                    | LE                     | 5985          |
| <i>Setophaga chrysoparia</i>  | golden-cheeked warbler             | 21                        | E                    | LE                     | 1494          |

| <u>Scientific Name:</u>      | <u>Common Name:</u>    | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|------------------------------|------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 22                        | E                    | LE                     | 6677          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 23                        | E                    | LE                     | 3954          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 24                        | E                    | LE                     | 2725          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 25                        | E                    | LE                     | 4319          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 26                        | E                    | LE                     | 1676          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 27                        | E                    | LE                     | 4107          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 30                        | E                    | LE                     | 7576          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 33                        | E                    | LE                     | 5447          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 35                        | E                    | LE                     | 8195          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 37                        | E                    | LE                     | 3896          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 38                        | E                    | LE                     | 4976          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 39                        | E                    | LE                     | 1054          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 40                        | E                    | LE                     | 1056          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 41                        | E                    | LE                     | 7222          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 42                        | E                    | LE                     | 3715          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 43                        | E                    | LE                     | 3261          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 46                        | E                    | LE                     | 7076          |

| <u>Scientific Name:</u>      | <u>Common Name:</u>    | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|------------------------------|------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 47                        | E                    | LE                     | 3406          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 48                        | E                    | LE                     | 6660          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 49                        | E                    | LE                     | 5062          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 51                        | E                    | LE                     | 1666          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 94                        | E                    | LE                     | 908           |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 95                        | E                    | LE                     | 6312          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 96                        | E                    | LE                     | 1499          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 100                       | E                    | LE                     | 5617          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 108                       | E                    | LE                     | 2712          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 119                       | E                    | LE                     | 423           |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 120                       | E                    | LE                     | 424           |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 123                       | E                    | LE                     | 2450          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 124                       | E                    | LE                     | 5901          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 126                       | E                    | LE                     | 6983          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 127                       | E                    | LE                     | 3797          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 128                       | E                    | LE                     | 6509          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 129                       | E                    | LE                     | 5211          |

| <u>Scientific Name:</u>      | <u>Common Name:</u>    | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|------------------------------|------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 130                       | E                    | LE                     | 5212          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 131                       | E                    | LE                     | 1760          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 132                       | E                    | LE                     | 5726          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 133                       | E                    | LE                     | 2617          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 134                       | E                    | LE                     | 7711          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 135                       | E                    | LE                     | 571           |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 136                       | E                    | LE                     | 1882          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 137                       | E                    | LE                     | 5510          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 138                       | E                    | LE                     | 3093          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 139                       | E                    | LE                     | 7959          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 140                       | E                    | LE                     | 7960          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 141                       | E                    | LE                     | 1075          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 142                       | E                    | LE                     | 3264          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 143                       | E                    | LE                     | 5016          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 144                       | E                    | LE                     | 1130          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 145                       | E                    | LE                     | 6785          |
| <i>Setophaga chrysoparia</i> | golden-cheeked warbler | 189                       | E                    | LE                     | 113           |

| <u>Scientific Name:</u>        | <u>Common Name:</u>          | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|--------------------------------|------------------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Setophaga chrysoparia</i>   | golden-cheeked warbler       | 197                       | E                    | LE                     | 2357          |
| <i>Setophaga chrysoparia</i>   | golden-cheeked warbler       | 198                       | E                    | LE                     | 6727          |
| <i>Setophaga chrysoparia</i>   | golden-cheeked warbler       | 199                       | E                    | LE                     | 6106          |
| <i>Setophaga chrysoparia</i>   | golden-cheeked warbler       | 224                       | E                    | LE                     | 871           |
| <i>Setophaga chrysoparia</i>   | golden-cheeked warbler       | 237                       | E                    | LE                     | 3026          |
| <i>Seymeria texana</i>         | Texas seymeria               | 34                        |                      |                        | 10701         |
| <i>Seymeria texana</i>         | Texas seymeria               | 37                        |                      |                        | 10704         |
| <i>Spilogale gracilis</i>      | western spotted skunk        | 41                        |                      |                        | 14266         |
| <i>Streptanthus bracteatus</i> | bracted twistflower          | 35                        |                      | C                      | 12689         |
| <i>Streptanthus bracteatus</i> | bracted twistflower          | 36                        |                      | C                      | 12690         |
| <i>Stygobromus balconis</i>    | Balcones Cave amphipod       | 1                         |                      |                        | 12350         |
| <i>Tartarocreagris texana</i>  | Tooth Cave pseudoscorpion    | 1                         |                      | LE                     | 6824          |
| <i>Tartarocreagris texana</i>  | Tooth Cave pseudoscorpion    | 2                         |                      | LE                     | 398           |
| <i>Texamaurops reddelli</i>    | Kretschmarr Cave mold beetle | 1                         |                      | LE                     | 2094          |
| <i>Texamaurops reddelli</i>    | Kretschmarr Cave mold beetle | 2                         |                      | LE                     | 5006          |
| <i>Texamaurops reddelli</i>    | Kretschmarr Cave mold beetle | 4                         |                      | LE                     | 7641          |
| <i>Texamaurops reddelli</i>    | Kretschmarr Cave mold beetle | 6                         |                      | LE                     | 7260          |

| <u>Scientific Name:</u> | <u>Common Name:</u>  | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|-------------------------|----------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Texella reddelli</i> | Reddell harvestman   | 5                         |                      | LE                     | 6408          |
| <i>Texella reddelli</i> | Reddell harvestman   | 7                         |                      | LE                     | 7758          |
| <i>Texella reddelli</i> | Reddell harvestman   | 8                         |                      | LE                     | 5981          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 2                         |                      | LE                     | 8107          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 3                         |                      | LE                     | 2447          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 4                         |                      | LE                     | 324           |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 5                         |                      | LE                     | 5109          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 6                         |                      | LE                     | 3337          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 7                         |                      | LE                     | 6518          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 8                         |                      | LE                     | 1801          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 9                         |                      | LE                     | 7846          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 10                        |                      | LE                     | 7845          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 11                        |                      | LE                     | 4824          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 12                        |                      | LE                     | 3710          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 13                        |                      | LE                     | 4696          |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 14                        |                      | LE                     | 739           |
| <i>Texella reyesi</i>   | Bone Cave harvestman | 15                        |                      | LE                     | 1973          |

| <u>Scientific Name:</u>              | <u>Common Name:</u>  | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|--------------------------------------|----------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Texella reyesi</i>                | Bone Cave harvestman | 16                        |                      | LE                     | 3438          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 18                        |                      | LE                     | 5883          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 30                        |                      | LE                     | 4586          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 31                        |                      | LE                     | 3943          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 32                        |                      | LE                     | 5441          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 33                        |                      | LE                     | 2365          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 34                        |                      | LE                     | 8076          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 35                        |                      | LE                     | 835           |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 36                        |                      | LE                     | 3711          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 58                        |                      | LE                     | 7115          |
| <i>Texella reyesi</i>                | Bone Cave harvestman | 60                        |                      | LE                     | 1078          |
| <i>Thamnophis sirtalis annectens</i> | Texas garter snake   | 9                         |                      |                        | 6992          |
| <i>Thamnophis sirtalis annectens</i> | Texas garter snake   | 10                        |                      |                        | 6994          |
| <i>Thamnophis sirtalis annectens</i> | Texas garter snake   | 11                        |                      |                        | 6167          |
| <i>Tridens buckleyanus</i>           | Buckley tridens      | 7                         |                      |                        | 2528          |
| <i>Tridens buckleyanus</i>           | Buckley tridens      | 16                        |                      |                        | 5432          |
| <i>Tridens buckleyanus</i>           | Buckley tridens      | 17                        |                      |                        | 2895          |

| <u>Scientific Name:</u>    | <u>Common Name:</u> | <u>Occurrence Number:</u> | <u>State Status:</u> | <u>Federal Status:</u> | <u>Eo Id:</u> |
|----------------------------|---------------------|---------------------------|----------------------|------------------------|---------------|
| <i>Tridens buckleyanus</i> | Buckley tridens     | 24                        |                      |                        | 8155          |
| <i>Tridens buckleyanus</i> | Buckley tridens     | 27                        |                      |                        | 4801          |
| <i>Tridens buckleyanus</i> | Buckley tridens     | 47                        |                      |                        | 12468         |
| <i>Tridens buckleyanus</i> | Buckley tridens     | 51                        |                      |                        | 12469         |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 17                        | E                    |                        | 1782          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 37                        | E                    |                        | 5625          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 39                        | E                    |                        | 6884          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 40                        | E                    |                        | 6886          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 58                        | E                    |                        | 4211          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 59                        | E                    |                        | 2580          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 105                       | E                    |                        | 885           |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 106                       | E                    |                        | 8074          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 107                       | E                    |                        | 1412          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 108                       | E                    |                        | 3543          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 170                       | E                    |                        | 2761          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 171                       | E                    |                        | 6769          |
| <i>Vireo atricapilla</i>   | black-capped vireo  | 172                       | E                    |                        | 5125          |

| <u>Scientific Name:</u>  | <u>Common Name:</u> | <u>Occurrence<br/>Number:</u> | <u>State<br/>Status:</u> | <u>Federal<br/>Status:</u> | <u>Eo Id:</u> |
|--------------------------|---------------------|-------------------------------|--------------------------|----------------------------|---------------|
| <i>Vireo atricapilla</i> | black-capped vireo  | 173                           | E                        |                            | 3276          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 174                           | E                        |                            | 4499          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 175                           | E                        |                            | 1890          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 176                           | E                        |                            | 7707          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 190                           | E                        |                            | 7295          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 264                           | E                        |                            | 6937          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 265                           | E                        |                            | 5683          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 266                           | E                        |                            | 648           |
| <i>Vireo atricapilla</i> | black-capped vireo  | 268                           | E                        |                            | 2371          |
| <i>Vireo atricapilla</i> | black-capped vireo  | 273                           | E                        |                            | 4560          |



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

February 07, 2020

Consultation Code: 02ETAU00-2020-SLI-0750

Event Code: 02ETAU00-2020-E-01585

Project Name: SL 360 from Courtyard to RM 2222

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
  - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
  - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

### Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php> ) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Austin Ecological Services Field Office**

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

---

## Project Summary

Consultation Code: 02ETAU00-2020-SLI-0750

Event Code: 02ETAU00-2020-E-01585

Project Name: SL 360 from Courtyard to RM 2222

Project Type: TRANSPORTATION

**Project Description:** TxDOT Austin District proposes to improve a portion of State Loop 360 between Courtyard and RM 2222 in Austin, Travis County, Texas. The proposed action would construct a grade separation at Courtyard Drive with the State Loop (SL) 360 mainlanes and a diverging diamond interchange at RM 2222 and SL 360. It would also include construction of connector road from just north of RM 2222 to just south of Courtyard Drive, with a shared-use path extending from just north of RM 2222 to the Pennybacker Bridge over Lake Austin. The project is 0.86 miles in length and the project area is 67.2 acres in size. No new ROW is required for the project.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/30.356390223306605N97.79282633454355W>



Counties: Travis, TX

---

## Endangered Species Act Species

There is a total of 18 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
-

## Birds

| NAME  | STATUS     |
|---|------------|
| <p>Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i></p> <p>No critical habitat has been designated for this species.<br/>Species profile: <a href="https://ecos.fws.gov/ecp/species/33">https://ecos.fws.gov/ecp/species/33</a></p>  | Endangered |
| <p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop.<br/>No critical habitat has been designated for this species.<br/>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>   | Endangered |
| <p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.<br/>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br/>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p> | Threatened |
| <p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species.<br/>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>   | Threatened |
| <p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population<br/>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br/>Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a></p>   | Endangered |

## Amphibians

| NAME   | STATUS     |
|--|------------|
| <p>Austin Blind Salamander <i>Eurycea waterlooensis</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br/>Species profile: <a href="https://ecos.fws.gov/ecp/species/5737">https://ecos.fws.gov/ecp/species/5737</a></p>  | Endangered |
| <p>Barton Springs Salamander <i>Eurycea sosorum</i></p> <p>No critical habitat has been designated for this species.<br/>Species profile: <a href="https://ecos.fws.gov/ecp/species/1113">https://ecos.fws.gov/ecp/species/1113</a></p>  | Endangered |
| <p>Jollyville Plateau Salamander <i>Eurycea tonkawae</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br/>Species profile: <a href="https://ecos.fws.gov/ecp/species/3116">https://ecos.fws.gov/ecp/species/3116</a></p> | Threatened |

## Clams

| NAME  | STATUS    |
|---|-----------|
| Texas Fatmucket <i>Lampsilis bracteata</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9041">https://ecos.fws.gov/ecp/species/9041</a> | Candidate |
| Texas Fawnsfoot <i>Truncilla macrodon</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8965">https://ecos.fws.gov/ecp/species/8965</a>  | Candidate |
| Texas Pimpleback <i>Quadrula petrina</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8966">https://ecos.fws.gov/ecp/species/8966</a>   | Candidate |

## Insects

| NAME  | STATUS     |
|---|------------|
| Kretschmarr Cave Mold Beetle <i>Texamaurops reddelli</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/3140">https://ecos.fws.gov/ecp/species/3140</a> | Endangered |
| Tooth Cave Ground Beetle <i>Rhadine persephone</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/5625">https://ecos.fws.gov/ecp/species/5625</a>       | Endangered |

## Arachnids

| NAME   | STATUS     |
|--|------------|
| Bee Creek Cave Harvestman <i>Texella reddelli</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/2464">https://ecos.fws.gov/ecp/species/2464</a>       | Endangered |
| Bone Cave Harvestman <i>Texella reyesi</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/5306">https://ecos.fws.gov/ecp/species/5306</a>              | Endangered |
| Tooth Cave Pseudoscorpion <i>Tartarocreagris texana</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/6667">https://ecos.fws.gov/ecp/species/6667</a> | Endangered |
| Tooth Cave Spider <i>Neoleptoneta myopica</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/2360">https://ecos.fws.gov/ecp/species/2360</a>           | Endangered |

## Flowering Plants

| NAME  | STATUS    |
|---|-----------|
| Bracted Twistflower <i>Streptanthus bracteatus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/2856">https://ecos.fws.gov/ecp/species/2856</a> | Candidate |

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

---

| EDWARDS PLATEAU SPECIES OF GREATEST CONSERVATION NEED |                                      |         |       |                   |          |  |
|---|--------------------------------------|---------|-------|-------------------|----------|--|
| Scientific Name                                       | Common Name                          | Status  |       | Abundance Ranking |          | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|   |                                      | Federal | State | Global            | State    |  |
| <b>MAMMALS</b>  |                                      |         |       |                   |          |  |
| <i>Antrozous pallidus</i>                             | Pallid bat                           |         |       | G5                | S5       | Caves/Karst, Desert scrub, Grassland, Shrubland  |
| <i>Conepatus leuconotus</i>                           | Hog-nosed skunk                      |         |       | G5                | S4       | Shrubland, Savanna/Open Woodland, Barren/Sparse Vegetation,                                |
| <i>Corynorhinus townsendii</i>                        | Townsend's big-eared bat             |         |       | G4T4              | S3? S4?  | Caves/Karst, Desert scrub, Grassland, Shrubland  |
| <i>Cynomys ludovicianus</i>                           | Black-tailed prairie dog             |         |       | G5T3              | S3       | Grassland  |
| <i>Eptesicus fuscus</i>                               | Big brown bat                        |         |       | G5                | S5       | Forest, Barren/Sparse Vegetation, Caves/Karst, Artificial Refugia                          |
| <i>Geomys texensis bakeri</i>                         | Frio pocket gopher                   |         |       | G2QT2             | S2       | Riparian   |
| <i>Geomys texensis texensis</i>                       | Llano pocket gopher                  |         |       | G3T2              | S2       | Riparian   |
| <i>Lutra canadensis</i>                               | River otter                          |         |       | G5                | S4       | Riparian   |
| <i>Mormoops megalophylla</i>                          | Ghost-faced bat                      |         |       | G4                | S2       | Desert Scrub, Riparian, Caves/Karst  |
| <i>Mustela frenata</i>                                | Long-tailed weasel                   |         |       | G5                | S5       | Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland                           |
| <i>Mustela nigripes</i>                               | Black-footed ferret                  | LE      |       | G1                | SH       | Grassland  |
| <i>Myotis vellifer</i>                                | Cave myotis                          |         |       | G5                | S4       | Caves/Karst,   |
| <i>Nasua narica</i>                                   | White-nosed coati                    |         | T     | G5                | S2?      | Forest, Desert Scrub, Riparian   |
| <i>Parastrellus hesperus</i>                          | Canyon Bat (western pipistrelle)     |         |       | G5                | S5       | Riparian, Barren Sparse Vegetation   |
| <i>Perimyotis subflavus</i>                           | Tricolored Bat (eastern pipistrelle) |         |       | G5                | S5       | Caves/Karst, Artificial Refugia, Woodland  |
| <i>Puma concolor</i>                                  | Mountain lion                        |         |       | G5                | S2       | Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian                 |
| <i>Spilogale gracilis</i>                             | Western spotted skunk                |         |       | G5                | S5       | Agricultural, Grassland, Forest, Woodland, Desert Scrub                                    |
| <i>Spilogale putorius</i>                             | Eastern spotted skunk                |         |       | G4T               | S4       | Savanna/Open Woodland, Grassland   |
| <i>Sylvilagus aquaticus</i>                           | Swamp rabbit                         |         |       | G5                | S5       | Riparian, Freshwater Wetland   |
| <i>Tadarida brasiliensis</i>                          | Brazilian free-tailed bat            |         |       | G5                | S5       | Cave/Karst, Artificial Refugia   |
| <i>Taxidea taxus</i>                                  | American badger                      |         |       | G5                | S5       | Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest                           |
| <i>Ursus americanus</i>                               | Black bear                           | SAT     | T     | G5                | S3       | Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland                           |
| <i>Vulpes velox</i>                                   | Swift fox                            |         |       | G3                | S3?      | Grassland  |
| <b>BIRDS</b>  |                                      |         |       |                   |          |  |
| <i>Colinus virginianus</i>                            | Northern Bobwhite                    |         |       | G5                | S4B      | Grassland, Shrubland, Savanna/Open Woodland  |
| <i>Cyrtonyx montezumae</i>                            | Montezuma Quail                      |         |       | G4G5              | S3B      | Grassland, Shrubland   |
| <i>Meleagris gallopavo</i>                            | Wild Turkey                          |         |       | G5                | S5B      | Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural                           |
| <i>Circus cyaneus</i>                                 | Northern Harrier                     |         |       | G5                | S2B, S3N | Grassland, Shrubland   |
| <i>Buteogallus anthracinus</i>                        | Common Black-Hawk                    |         | T     | G4G5              | S2B      | Woodland, Riparian   |
| <i>Parabuteo unicinctus</i>                           | Harris's Hawk                        |         |       | G5                | S3B      | Desert Scrub, Grassland, Shrubland   |
| <i>Buteo lineatus</i>                                 | Red-shouldered Hawk                  |         |       | G5                | S4B      | Woodland, Forest, Riparian, Freshwater Wetland   |
| <i>Buteo albonotatus</i>                              | Zone-tailed Hawk                     |         | T     | G4                | S3B      | Barren/Sparse Vegetation, Riparian   |
| <i>Aquila chrysaetos</i>                              | Golden Eagle                         |         |       | G5                | S3B      | Desert Scrub, Grassland, Shrubland   |
| <i>Caprimulgus carolinensis</i>                       | Chuck-will's-widow                   |         |       | G5                | S3S4B    | Woodland, Forest, Riparian   |
| <i>Tyrannus forficatus</i>                            | Scissor-tailed Flycatcher            |         |       | G5                | S3B      | Desert Scrub, Grassland, Shrubland, Agricultural, Developed                                |
| <i>Lanius ludovicianus</i>                            | Loggerhead Shrike                    |         |       | G4                | S4B      | Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed         |
| <i>Vireo bellii</i>                                   | Bell's Vireo                         |         |       | G5                | S3B      | Desert scrub, Shrubland, Riparian  |
| <i>Vireo atricapilla</i>                              | Black-capped Vireo                   | LE      | E     | G3                | S2B      | Shrubland  |
| <i>Poecile carolinensis</i>                           | Carolina Chickadee                   |         |       | G5                | S5B      | Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural                                |
| <i>Anthus spragueii</i>                               | Sprague's Pipit                      | C       |       | G4                | S3N      | Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural                               |
| <i>Parula pitiayumi</i>                               | Tropical Parula                      |         | T     | G5                | S3B      | Savanna/Open Woodland, Woodland, Forest, Riparian  |
| <i>Dendroica chrysoparia*</i>                         | Golden-cheeked Warbler               | LE      | E     | G2                | S2B      | Woodland   |
| <i>Dendroica dominica</i>                             | Yellow-throated Warbler              |         |       | G5                | S4B      | Woodland, Forest, Riparian   |
| <i>Seiurus motacilla</i>                              | Louisiana Waterthrush                |         |       | G5                | S3B      | Woodland, Forest, Riparian   |
| <i>Aimophila cassinii</i>                             | Cassin's Sparrow                     |         |       | G5                | S4B      | Grassland, Shrubland   |
| <i>Aimophila ruficeps</i>                             | Rufous-crowned Sparrow               |         |       | G5                | S4B      | Grassland  |
| <i>Spizella pusilla</i>                               | Field Sparrow                        |         |       | G5                | S5B      | Grassland, Shrubland, Savanna/Open Woodland  |

| Scientific Name                       | Common Name                                      | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place                      |
|---------------------------------------|--|---------|-------|-------------------|-------|---|
|                                       |  | Federal | State | Global            | State |   |
| <i>Ammodramus savannarum</i>          | Grasshopper Sparrow                              |         |       | G5                | S3B   | Grassland, Agricultural   |
| <i>Chondestes grammacus</i>           | Lark Sparrow                                     |         |       | G5                | S4B   | Grassland, Shrubland, Savanna/Open Woodland   |
| <i>Ammodramus leconteii</i>           | Le Conte's Sparrow                               |         |       |                   |       | Grassland   |
| <i>Zonotrichia querula</i>            | Harris's Sparrow                                 |         |       | G5                | S4    | Shrubland, Agricultural   |
| <i>Piranga rubra</i>                  | Summer Tanager                                   |         |       | G5                | S5B   | Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural                              |
| <i>Passerina ciris</i>                | Painted Bunting                                  |         |       | G5                | S4B   | Shrubland, Agricultural   |
| <i>Spiza americana</i>                | Dickcissel                                       |         |       | G5                | S4B   | Grassland, Agricultural   |
| <i>Sturnella magna</i>                | Eastern Meadowlark                               |         |       | G5                | S5B   | Grassland, Shrubland, Savanna/Open Woodland   |
| <i>Icterus spurius</i>                | Orchard Oriole                                   |         |       | G5                | S4B   | Shrubland, Savanna/Open Woodland, Woodland, Riparian  |
| <b>REPTILES AND AMPHIBIANS</b>        |  |         |       |                   |       |   |
| <i>Anaxyrus (Bufo) woodhousii</i>     | Woodhouse's toad                                 |         |       | G5                | SU    | woodland, forest, freshwater wetland  |
| <i>Apalone mutica</i>                 | smooth softshell turtle                          |         |       |                   |       | riparian, riverine, lacustrine, freshwater wetland  |
| <i>Apalone spinifera</i>              | spiny softshell turtle                           |         |       |                   |       | riparian, riverine, lacustrine, freshwater wetland  |
| <i>Cheyleydra serpentina</i>          | Common snapping turtle                           |         |       |                   |       | riparian, riverine  |
| <i>Crotalus atrox</i>                 | Western diamondback rattlesnake                  |         |       |                   | S4    | barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst                    |
| <i>Drymarchon melanurus erebennus</i> | Texas Indigo Snake                               |         | T     | G4                | S3    | shrubland, savanna  |
| <i>Eurycea latitans</i>               | Cascade Caverns salamander                       |         | T     | G3                | S1    | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea nana</i>                   | San Marcos salamander                            | LT      | T     | G1                | S1    | freshwater wetland (springs)  |
| <i>Eurycea naufragia</i>              | Georgetown Salamander                            | C       |       | G1                | S1    | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea neotenes</i>               | Texas salamander                                 |         |       | G1                | S2    | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea pterophila</i>             | Blanco River springs salamander                  |         |       | G2                | S2    | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea rathbuni</i>               | Texas blind salamander                           | LE      | E     | G1                | S1    | aquifer, caves, and karst, freshwater wetland (springs)   |
| <i>Eurycea robusta</i>                | Blanco blind salamander                          |         | T     | G1Q               | S1    | aquifer   |
| <i>Eurycea sosorum</i>                | Barton Springs salamander                        | LE      | E     | G1                | S1    | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea tonkawae</i>               | Jollyville Plateau Salamander                    | C       |       | G1                | S2S3  | caves and karst, freshwater wetland (springs)   |
| <i>Eurycea tridentifera</i>           | Comal blind salamander                           |         | T     | G1                | S1    | Aquifer, Caves and Karst  |
| <i>Eurycea waterlooensis</i>          | Austin blind salamander                          | C       |       | G1                | S1    | Aquifer but often found in Freshwater Wetland (springs) and Caves, Karst could apply as well                    |
| <i>Gopherus berlandieri</i>           | Texas tortoise                                   |         | T     | G4                | S2*   | savanna, shrubland  |
| <i>Graptemys caglei</i>               | Cagle's map turtle                               |         | T     | G3                | S1    | riparian, riverine  |
| <i>Graptemys versa</i>                | Texas map turtle                                 |         |       | G4                | SU    | riparian, riverine  |
| <i>Heterodon nasicus</i>              | Western hognosed snake                           |         |       |                   |       | desert scrub, grassland, shrubland  |
| <i>Holbrookia lacerata lacerata</i>   | Plateau earless lizard                           |         |       |                   | S2    | desert scrub, grassland, shrubland, savanna   |
| <i>Nerodia paucimaculata</i>          | Concho water snake                               | LT-PDL  |       | G2                | S2    | riparian, riverine, cultural aquatic  |
| <i>Ophisaurus attenuatus</i>          | western slender glass lizard                     |         |       |                   |       | grassland, savanna  |
| <i>Phrynosoma cornutum</i>            | Texas horned lizard                              |         | T     | G4G5              | S4    | desert scrub, grassland, savanna  |
| <i>Pseudacris streckeri</i>           | Strecker's Chorus Frog                           |         |       | G5                | S3    | grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland                                    |
| <i>Sistrurus catenatus</i>            | massasauga                                       |         |       |                   |       | grassland, barren/sparse vegetation, shrubland, coastal,  |
| <i>Terrapene carolina</i>             | Eastern box turtle                               |         |       | G5                | S3    | grasslands, savanna, woodland   |
| <i>Terrapene ornata</i>               | Ornate box turtle                                |         |       | G5                | S3    | grassland, barren/sparse vegetation, desert scrub, savanna, woodland  |
| <i>Thamnophis sirtalis annectans</i>  | Texas Garter Snake<br>(Eastern Texas/New Mexico) |         |       | G5                | S2    | riparian, around lacustrine and cultural aquatic sites  |
| <i>Trachemys scripta</i>              | Red-eared slider                                 |         |       |                   |       | riparian, riverine, lacustrine, freshwater wetland, cultural aquatic  |
| <b>FRESHWATER FISHES</b>              |  |         |       |                   |       |   |
| <i>Anguilla rostrata</i>              | American eel                                     |         |       | G4                | S5    | streams and reservoirs in drainages connected to marine environments  |
| <i>Cyprinella lepida</i>              | Plateau shiner                                   |         |       | G1G2              | S1S2  | clear, cool, spring-fed headwater creeks, gravel and limestone substrates                                       |
| <i>Cyprinella proserpina</i>          | Proserpine shiner                                |         | T     | G3                | S2    | pool habitats; adapted to flood-prone environments  |
| <i>Cyprinella sp.</i>                 | Nueces river shiner                              |         |       | G1G2Q             | S1S2  | clear, cool, spring-fed headwater creeks  |
| <i>Cyprinodon eximius ssp</i>         | Devils River pupfish                             |         |       |                   |       | tributary to larger rivers; rarely in headsprings; shallow, isolated pool habitat in the Devils River; sandy to |
| <i>Dionda argentosa</i>               | Manantial roundnose minnow                       |         |       | G2                | S2    | Headwaters and runs of spring-influenced waters   |
| <i>Dionda diaboli</i>                 | Devils River minnow                              | LT      | T     | G1                | S1    | over gravel-cobble substrate, usually associated with aquatic macrophytes                                       |

| Scientific Name                 | Common Name                    | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place                   |
|---------------------------------|--------------------------------|---------|-------|-------------------|-------|--|
|                                 |                                | Federal | State | Global            | State |  |
| <i>Dionda nigrotaeniata</i>     | Guadalupe roundnose minnow     |         |       | G4                | S4    | spring-influenced headwaters   |
| <i>Dionda serena</i>            | Nueces roundnose minnow        |         |       | G2                | S2    | spring-influenced headwaters   |
| <i>Etheostoma grahami</i>       | Rio Grande darter              |         | T     | G2G3              | S2    | Gravel and rubble riffles in spring-fed tributaries, creeks, and streams                                     |
| <i>Gambusia heterochir</i>      | Clear Creek gambusia           | LE      | E     | G1                | S1    | springs  |
| <i>Ictalurus lupus</i>          | Headwater catfish              |         |       | G3                | S2    | clear streams and rivers with moderate gradients, deep spring runs   |
| <i>Micropterus treculii</i>     | Guadalupe bass                 |         |       | G3                | S3    | small lentic environments; commonly taken in flowing water   |
| <i>Percina apristis</i>         | Guadalupe darter               |         |       |                   |       | collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west |
| <b>INVERTEBRATES</b>            |                                |         |       |                   |       |  |
| <i>Allotxiweckelia hirsuta</i>  | A cave obligate amphipod       |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Almuerzothyas n. sp.</i>     | An aquatic mite                |         |       | G1*               | S1*   | Caves/Karst  |
| <i>Amblycorypha uhleri</i>      | A katydid                      |         |       | G2G3*             | S2?*  | Savanna/Open Woodland  |
| <i>Apocheiridium reddelli</i>   | A cave obligate pseudoscorpion |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Arethaea ambulata</i>        | A katydid                      |         |       | G2G3*             | S2?*  | Savanna/Open Woodland  |
| <i>Arrenurus n. sp.</i>         | An aquatic mite                |         |       | G1*               | S1*   | Caves/Karst  |
| <i>Artesia subterranea</i>      | A cave obligate amphipod       |         |       | G1G2              | S1?*  | Caves/Karst  |
| <i>Austrotinodes texensis</i>   | Texas Austrotinodes caddisfly  |         |       | G2                | S2    | Riparian, Riverine   |
| <i>Baetodes alleni</i>          | A mayfly                       |         |       | G1G2              | S1?*  | Riparian, Riverine   |
| <i>Balconorbis uvaldensis</i>   | Balcones ghostsnail            |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Batrisodes cryptotexanus</i> | A cave obligate beetle         |         |       | G2*               | S2*   | Caves/Karst  |
| <i>Batrisodes dentifrons</i>    | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes fanti</i>         | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes feminiclypeus</i> | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes gravesi</i>       | A cave obligate beetle         |         |       | G2*               | S2*   | Caves/Karst  |
| <i>Batrisodes grubbsi</i>       | A cave obligate beetle         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Batrisodes incisipes</i>     | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes pekinsi</i>       | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes reyesi</i>        | A cave obligate beetle         |         |       | G2G3              | S2*   | Caves/Karst  |
| <i>Batrisodes shadeae</i>       | A cave obligate beetle         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Batrisodes texanus</i>       | A cave obligate beetle         | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Batrisodes venyivi</i>       | A cave obligate beetle         | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Batrisodes wartoni</i>       | A cave obligate beetle         |         |       | G1G2*             | S1    | Caves/Karst  |
| <i>Bombus pensylvanicus</i>     | American bumblebee             |         |       | GU                | SU*   | Grassland, Savanna/Open Woodland   |
| <i>Bombus sonorus</i>           | Sonoran bumblebee              |         |       | GU                | SU*   | Grassland, Savanna/Open Woodland   |
| <i>Bombus variabilis</i>        | Variable cuckoo bumblebee      |         |       | GU                | SU*   | Grassland, Savanna/Open Woodland   |
| <i>Brackenridgia reddelli</i>   | A cave obligate isopod         |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Caenis arwini</i>            | A mayfly                       |         |       | G1G3              | S2?*  | Riparian, Riverine   |
| <i>Calathaemon holthuisi</i>    | A cave obligate shrimp         |         |       | G1G2              | S1?*  | Caves/Karst  |
| <i>Chitrella ellioti</i>        | A cave obligate pseudoscorpion |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina bandera</i>         | A cave obligate spider         |         |       | G2G3              | S2*   | Caves/Karst  |
| <i>Cicurina bandida</i>         | Bandit Cave spider             |         |       | G1G2              | S1    | Caves/Karst  |
| <i>Cicurina baronia</i>         | Robber Baron Cave meshweaver   | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Cicurina barri</i>           | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina browni</i>          | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina caliga</i>          | A cave obligate spider         |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Cicurina caverna</i>         | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina coryelli</i>        | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina ellioti</i>         | A cave obligate spider         |         |       | G2G3              | S2*   | Caves/Karst  |
| <i>Cicurina ezelli</i>          | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina gruta</i>           | A cave obligate spider         |         |       | G1G2              | S1*   | Caves/Karst  |

| Scientific Name                 | Common Name                           | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|---------------------------------|---------------------------------------|---------|-------|-------------------|-------|--|
|                                 |                                       | Federal | State | Global            | State |  |
| <i>Cicurina holsingeri</i>      | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina hoodensis</i>       | A cave obligate spider                |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Cicurina machete</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina macla</i>           | Madla Cave meshweaver                 | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Cicurina mckenziei</i>       | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina medina</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina menardia</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina mixmaster</i>       | A cave obligate spider                |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Cicurina obscura</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina orellia</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina pablo</i>           | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina pastura</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina patei</i>           | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina porteri</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina puentecilla</i>     | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina rainesi</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina reclusa</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina reddelli</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina russelli</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina sansaba</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina selecta</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina serena</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina sheari</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina sprousei</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina stowersi</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina suttoni</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina trivisiae</i>       | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina troglobia</i>       | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina ubicki</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina uvalde</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina venefica</i>        | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina venii</i>           | Braken Bat Cave Meshweaver            | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Cicurina vespera</i>         | Government Canyon Bat Cave Meshweaver | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Cicurina vibora</i>          | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cicurina wartoni</i>         | Warton cave Meshweaver                | C       |       | G1                | S1    | Caves/Karst  |
| <i>Cicurina watersi</i>         | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Cisthene conjuncta</i>       | A lichen moth                         |         |       | G1Q               | S1Q*  | Forest, Savanna/Open Woodland  |
| <i>Colletes bumeliae</i>        | A cellophane bee                      |         |       | G1*               | S1*   | Grassland, Savanna/Open Woodland   |
| <i>Comaldessus stygius</i>      | Comal Springs diving beetle           |         |       | G1                | S1    | Aquifer, Riparian  |
| <i>Daedalochila hippocrepis</i> | Horseshoe liptooth                    |         |       | G1                | S1    | Woodland   |
| <i>Dichopetala catinata</i>     | A katydid                             |         |       | G1?*              | S1?*  | Grassland, Shrubland   |
| <i>Dichopetala seeversi</i>     | A katydid                             |         |       | G1*               | S1*   | Grassland, Shrubland   |
| <i>Dinocheirus cavicolus</i>    | A cave obligate pseudoscorpion        |         |       | G2G3              | S2*   | Caves/Karst  |
| <i>Eidmennella nastuta</i>      | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Eidmennella reclusa</i>      | A cave obligate spider                |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Elaphoidella n. sp.</i>      | A cave obligate copepod               |         |       | G1*               | S1*   | Caves/Karst  |
| <i>Haideoporus texanus</i>      | Edwards Aquifer diving beetle         |         |       | G1G2              | S1    | Aquifer, Freshwater Wetland  |
| <i>Heterelmis comalensis</i>    | Comal Springs riffle beetle           | LE      |       | G1                | S1    | Aquifer, Freshwater Wetland  |
| <i>Heterelmis sp.</i>           | Fern Bank Springs riffle beetle       |         |       | G1*               | S1*   | Aquifer, Freshwater Wetland  |
| <i>Heterelmis sp.</i>           | Fessenden Springs riffle beetle       |         |       | G1*               | S1*   | Aquifer, Freshwater Wetland  |

| Scientific Name                     | Common Name                        | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|-------------------------------------|------------------------------------|---------|-------|-------------------|-------|--|
|                                     |                                    | Federal | State | Global            | State |  |
| <i>Heterelmis</i> sp.               | Devils River Springs riffle beetle |         |       | G1*               | S1*   | Aquifer, Freshwater Wetland  |
| <i>Holcopasites jerryrozeni</i>     | A cuckoo bee                       |         |       | G1*               | S1*   | Grassland, Shrubland   |
| <i>Holospira goldfussi</i>          | New Braunfels Holospira            |         |       | G2G3              | S2?*  | Woodland   |
| <i>Holsingerius samacos</i>         | A cave obligate amphipod           |         |       | G1G2              | S1?*  | Caves/Karst  |
| <i>Hyalella texana</i>              | Clear Creek amphipod               |         |       | G1                | S1    | Aquifer, Freshwater Wetland  |
| <i>Hydroptila melia</i>             | A caddisfly                        |         |       | G2G3              | S2?*  | Riparian, Riverine   |
| <i>Ingolfiella n. sp.</i>           | A cave obligate amphipod           |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Lampsilis bracteata</i>          | Texas fatmucket                    |         | T     | G1                | S1*   | Riverine   |
| <i>Leucohya texana</i>              | A cave obligate pseudoscorpion     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Lirceolus bisetus</i>            | A cave obligate isopod             |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Lirceolus hardeni</i>            | A cave obligate isopod             |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Lirceolus pilus</i>              | A cave obligate isopod             |         |       | G2G3              | S2?   | Caves/Karst  |
| <i>Lirceolus smithii</i>            | Texas troglobitic water slater     |         |       | G1G2              | S1    | Caves/Karst  |
| <i>Lymantes nadineae</i>            | A cave obligate beetle             |         |       | G1*               | S1*   | Caves/Karst  |
| <i>Macrotera parkeri</i>            | A mining bee                       |         |       | G1G2*             | S1S2* | Grassland, Shrubland   |
| <i>Macrotera robertsi</i>           | A mining bee                       |         |       | G1*               | S1*   | Grassland, Shrubland   |
| <i>Marstonia comalensis</i>         | Comal siltsnail                    |         |       | G1                | S1    | Aquifer, Freshwater Wetland  |
| <i>Mexistenasellus coahuila</i>     | A cave obligate isopod             |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Mexiweckelia hardeni</i>         | A cave obligate amphipod           |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Microceramus texanus</i>         | Texas urocoptid                    |         |       | G2                | S2*   | Woodland   |
| <i>Millerelix gracilis</i>          | Edwards Plateau liptooth           |         |       | G2G3              | S2?*  | Woodland   |
| <i>Myrmecoderus laevipennis</i>     | A narrow-waisted bark beetle       |         |       | G1*               | S1*   | Forest, Woodland   |
| <i>Nectopsyche texana</i>           | A caddisfly                        |         |       | G1G3              | S2?*  | Riparian, Riverine   |
| <i>Tayshaneta anopica</i>           | A cave obligate spider             |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Tayshaneta bullis</i>            | A cave obligate spider             |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tayshaneta concinna</i>          | A cave obligate spider             |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Tayshaneta devia</i>             | A cave obligate spider             |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Tayshaneta microps</i>           | Government Canyon Bat Cave spider  | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Tayshaneta myopica</i>           | Tooth Cave spider                  | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Tayshaneta valverde</i>          | A cave obligate spider             |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Neotrichia juani</i>             | A caddisfly                        |         |       | G1                | S1*   | Riparian, Riverine   |
| <i>Nitocrellopsis texana</i>        | A cave obligate copepod            |         |       | G1*               | S1*   | Caves/Karst  |
| <i>Oncopodura fenestra</i>          | A cave obligate springtail         |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Oxyelophila callista</i>         | A snout moth                       |         |       | G1?*              | S1?*  | Woodland   |
| <i>Oxyethira ulmeri</i>             | A caddisfly                        |         |       | G2G3              | S2?*  | Riparian, Riverine   |
| <i>Palaemonetes antrorum</i>        | A cave obligate shrimp             |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Palaemonetes texanus</i>         | Texas river shrimp                 |         |       | G1G2*             | S1?*  | Riverine   |
| <i>Parabogidiella americana</i>     | A cave obligate amphipod           |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Paraholsingerius smaragdinus</i> | A cave obligate amphipod           |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Paralimnetis texana</i>          | Pointytop finger clam shrimp       |         |       | G1                | S1*   | Riparian, Riverine   |
| <i>Paramexiweckelia ruffoi</i>      | A cave obligate amphipod           |         |       | G1G2              | S1?*  | Caves/Karst  |
| <i>Patera leatherwoodi</i>          | Pedernales oval                    |         |       | G1                | S1*   | Woodland   |
| <i>Perdita dolanensis</i>           | A mining bee                       |         |       | G1*               | S1*   | Grassland, Shrubland   |
| <i>Petrophila daemonalis</i>        | A snout moth                       |         |       | G1?*              | S1?*  | Grassland, Shrubland   |
| <i>Phreatodrobia conica</i>         | Hueco cavesnail                    |         |       | G1                | S1*   | Caves/Karst  |
| <i>Phreatodrobia imitata</i>        | Mimic cavesnail                    |         |       | G1                | S1    | Caves/Karst  |
| <i>Phreatodrobia micra</i>          | Flattened cavesnail                |         |       | G2G3              | S2S3  | Caves/Karst  |
| <i>Phreatodrobia nugax</i>          | Nymph trumpet                      |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Phreatodrobia plana</i>          | Disc cavesnail                     |         |       | G2                | S2*   | Caves/Karst  |
| <i>Phreatodrobia punctata</i>       | High-hat cavesnail                 |         |       | G2                | S2*   | Caves/Karst  |

| Scientific Name                  | Common Name                    | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|----------------------------------|--------------------------------|---------|-------|-------------------|-------|--|
|                                  |                                | Federal | State | Global            | State |  |
| <i>Phreatodrobia rotunda</i>     | Beaked cavesnail               |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Plauditus texanus</i>         | A mayfly                       |         |       | G2G3              | S1?*  | Riparian, Riverine   |
| <i>Pogonomyrmex comanche</i>     | Comanche harvester ant         |         |       | G2G3*             | S2*   | Barren/Sparse Vegetation   |
| <i>Procloeon distinctum</i>      | A mayfly                       |         |       | G1G3              | S2?*  | Riverine, Riparian   |
| <i>Protandrena maurula</i>       | A mining bee                   |         |       | G1G2*             | S1S2* | Grassland, Shrubland   |
| <i>Protoptila arca</i>           | A caddisfly                    |         |       | G1                | S1    | Riverine, Riparian   |
| <i>Pygarctia lorula</i>          | A tiger moth                   |         |       | G2G3              | S2?*  | Savanna/Open Woodland  |
| <i>Quadrula aurea</i>            | Golden orb                     |         | T     | G1                | S2*   | Riverine   |
| <i>Quadrula houstonensis</i>     | Smooth pimpleback              |         | T     | G2                | S1S2* | Riverine   |
| <i>Quadrula mitchelli</i>        | False Spike                    |         | T     | GH                | SH    | Riverine   |
| <i>Quadrula petrina</i>          | Texas pimpleback               |         | T     | G2                | S1*   | Riverine   |
| <i>Rhadine austinica</i>         | A cave obligate beetle         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Rhadine bullis</i>            | A cave obligate beetle         |         |       | G2*               | S2    | Caves/Karst  |
| <i>Rhadine exilis</i>            | A cave obligate beetle         | LE      |       | G1                | S1    | Caves/Karst  |
| <i>Rhadine infernalis</i>        | A cave obligate beetle         | LE      |       | G2G3              | S1    | Caves/Karst  |
| <i>Rhadine insolata</i>          | A cave obligate beetle         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Rhadine noctivaga</i>         | A cave obligate beetle         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Rhadine persephone</i>        | Tooth Cave ground beetle       | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Rhadine reyesi</i>            | A cave obligate beetle         |         |       | G1G2*             | S1S2* | Caves/Karst  |
| <i>Rhadine russelli</i>          | A cave obligate beetle         |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Rhadine specia</i>            | A cave obligate beetle         |         |       | G2*               | S2*   | Caves/Karst  |
| <i>Rhadine subterranea</i>       | A cave obligate beetle         |         |       | G2*               | S2*   | Caves/Karst  |
| <i>Seborgia relict</i>           | A cave obligate amphipod       |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Speocirolana hardeni</i>      | A cave obligate isopod         |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Speodesmus echinourus</i>     | A cave obligate millipede      |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Speodesmus falcatus</i>       | A cave obligate millipede      |         |       | G2 *              | S2*   | Caves/Karst  |
| <i>Speodesmus ivyi</i>           | A cave obligate millipede      |         |       | G2 *              | S2*   | Caves/Karst  |
| <i>Speodesmus reddelli</i>       | A cave obligate millipede      |         |       | G2 *              | S2*   | Caves/Karst  |
| <i>Sphinx eremitoides</i>        | Sage sphinx                    |         |       | G1G2              | S1?*  | Grassland  |
| <i>Streptocephalus linderi</i>   | Spinyfinger fairy shrimp       |         |       | G2                | S2*   | Riverine, Riparian   |
| <i>Stygobromus balconis</i>      | A cave obligate amphipod       |         |       | G2G3              | S1    | Caves/Karst  |
| <i>Stygobromus dejectus</i>      | Cascade Cave amphipod          |         |       | G1G2              | S1    | Caves/Karst  |
| <i>Stygobromus flagellatus</i>   | Ezell's Cave amphipod          |         |       | G2G3              | S1    | Caves/Karst  |
| <i>Stygobromus hadenoecus</i>    | Devil's Sinkhole amphipod      |         |       | G1G2              | S1    | Caves/Karst  |
| <i>Stygobromus limbus</i>        | Border Cave amphipod           |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Stygobromus longipes</i>      | Long-legged Cave amphipod      |         |       | G2G3              | S1    | Caves/Karst  |
| <i>Stygobromus n. sp.</i>        | Neel's Cave amphipod           |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygobromus n. sp.</i>        | Devils River Cave amphipod     |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygobromus n. sp.</i>        | Fessenden Cave amphipod        |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygobromus n. sp.</i>        | Lost Maples Cave amphipod      |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygobromus n. sp.</i>        | San Gabriel Cave amphipod      |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygobromus pecki</i>         | Peck's Cave amphipod           | LE      | E     | G1G2              | S1    | Caves/Karst  |
| <i>Stygobromus reddelli</i>      | Reddell stygobromid            |         |       | G1G2              | S1    | Caves/Karst  |
| <i>Stygobromus russelli</i>      | A cave obligate amphipod       |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Stygoparnus comalensis</i>    | Comal Springs dryopid beetle   | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Stygopyrgus bartonensis</i>   | Barton cavesnail               |         |       | G1                | S1    | Caves/Karst  |
| <i>Tartarocreagrís altimana</i>  | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagrís amblyopa</i>  | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagrís attenuata</i> | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagrís domina</i>    | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |

| Scientific Name                                 | Common Name                    | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|---|--------------------------------|---------|-------|-------------------|-------|--|
|   |                                | Federal | State | Global            | State |  |
| <i>Tartarocreagriss grubbsi</i>                 | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagriss hoodensis</i>               | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagriss infernalis</i>              | A cave obligate pseudoscorpion |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Tartarocreagriss intermedia</i>              | A cave obligate pseudoscorpion |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Tartarocreagriss proserpina</i>              | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagriss reddelli</i>                | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagriss reyesi</i>                  | A cave obligate pseudoscorpion |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Tartarocreagriss texana</i>                  | Tooth Cave Pseudoscorpion      | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Tethysbaena texana</i>                       | A cave obligate crustacean     |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Texamaurops reddelli</i>                     | Kretschmarr Cave Mold Beetle   | LE      |       | G2G3              | S1    | Caves/Karst  |
| <i>Texanobathynella bowmani</i>                 | A bathynellid                  |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Texapyrgus longleyi</i>                      | Striated Hydrobe               |         |       | G1                | S1    | Freshwater Wetland   |
| <i>Texella brevidenta</i>                       | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella brevistyla</i>                       | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella cokendolpheri</i>                    | Cokendolpher Cave Harvestman   | LE      |       | G1G2              | S1    | Caves/Karst  |
| <i>Texella diplospina</i>                       | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella grubbsi</i>                          | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella hardeni</i>                          | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella mulaiki</i>                          | A cave obligate harvestman     |         |       | G2G3              | S2*   | Caves/Karst  |
| <i>Texella reddelli</i>                         | Reddell harvestman             | LE      |       | G2G3              | S2*   | Caves/Karst  |
| <i>Texella renkesae</i>                         | A cave obligate harvestman     |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Texella reyesi</i>                           | Bone Cave harvestman           | LE      |       | G2G3              | S2*   | Caves/Karst  |
| <i>Texella spinoperca</i>                       | A cave obligate harvestman     |         |       | G1G2*             | S1*   | Caves/Karst  |
| <i>Texiweckelia texensis</i>                    | A cave obligate amphipod       |         |       | G2G3              | S2?*  | Caves/Karst  |
| <i>Truncilla macrodon</i>                       | Texas fawnfoot                 |         | T     | G2Q               | S1*   | Riverine   |
| <i>Tyrannochthonius muchmoreorum</i>            | A cave obligate pseudoscorpion |         |       |                   |       | Caves/Karst  |
| <i>Tyrannochthonius troglodytes</i>             | A cave obligate pseudoscorpion |         |       | G1G2              | S1*   | Caves/Karst  |
| <i>Xiphocentron messapus</i>                    | A caddisfly                    |         |       | G1G3              | S2?*  | Riparian, Riverine   |
| <b>PLANTS</b>                                   |                                |         |       |                   |       |  |
| <i>Agalinis densiflora</i>                      | Osage Plains false foxglove    |         |       | G3                | S2    | Savanna/Open Woodland - Outcrops   |
| <i>Amorpha roemeriana</i>                       | Texas amorpha                  |         |       | G3                | S3    | Woodland   |
| <i>Argythamnia aphoroides</i>                   | Hill Country wild-mercury      |         |       | G2G3              | S2S3  | Savanna/Open Woodland  |
| <i>Astragalus mollissimus var. coryi</i>        | Cory's woolly locoweed         |         |       | G5T3              | S3    | Grassland (limestone substrates)   |
| <i>Astragalus reflexus</i>                      | Texas milk vetch               |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Astragalus wrightii</i>                      | Wright's milkvetch             |         |       | G3                | S3    | Grassland; Savanna/Open Woodland   |
| <i>Bauhinia lunarioides</i>                     | Anacacho orchid                |         |       | G3                | S1    | Shrubland  |
| <i>Berberis swaseyi</i>                         | Texas barberry                 |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Brazoria enquistii</i>                       | Enquist's sandmint             |         |       | G2                | S2    | Riparian (sandy banks and streamsides) with Savanna/Open Woodland matrix                   |
| <i>Brickellia dentata</i>                       | gravelbar brickellbush         |         |       | G3G4              | S3S4  | Riparian   |
| <i>Brickellia eupatorioides var. gracillima</i> | narrowleaf brickellbush        |         |       | G5T3              | S3    | Riparian   |
| <i>Campanula reverchonii</i>                    | Basin bellflower               |         |       | G2                | S2    | Barren/Sparse Vegetation (granite gravels and outcrops)                                    |
| <i>Cardamine macrocarpa var. texana</i>         | Texas largeseed bittercress    |         |       | G3T2              | S2    | Woodland (oak-juniper)   |
| <i>Carex edwardsiana</i>                        | canyon sedge                   |         |       | G3G4S3S4          | S3S4  | Woodland (slopes above Riparian)   |
| <i>Chaetopappa effusa</i>                       | spreading leastdaisy           |         |       | G3G4              | S3S4  | Woodland   |
| <i>Clematis texensis</i>                        | scarlet leather-flower         |         |       | G3G4              | S3S4  | Woodland   |
| <i>Colubrina stricta</i>                        | Comal snakewood                |         |       | G2                | S1    | Shrubland  |
| <i>Crataegus turnerorum</i>                     | Turners' hawthorn              |         |       | G3Q               | S3    | Savanna/Open Woodland  |
| <i>Croton alabamensis var. texensis</i>         | Texabama croton                |         |       | G3T2              | S2    | Woodland   |
| <i>Cuscuta exaltata</i>                         | tree dodder                    |         |       | G3                | S3    | Woodland   |
| <i>Dalea hallii</i>                             | Hall's prairie-clover          |         |       | G3                | S3    | Savanna/Open Woodland; Grassland   |

| Scientific Name   | Common Name                 | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place |
|---|-----------------------------|---------|-------|-------------------|-------|--|
|   |                             | Federal | State | Global            | State |  |
| <i>Dalea sabinalis</i>                                    | Sabinal prairie-clover      |         |       | GH                | SH    | Grassland; Savanna/Open Woodland   |
| <i>Desmanthus reticulatus</i>                             | net-leaf bundleflower       |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Desmodium lindheimeri</i>                              | Lindheimer's tickseed       |         |       | G3G4              | S1    | Woodland   |
| <i>Donrichardsia macroneuron</i>                          | Don Richard's spring moss   |         |       | G1                | S1    | Freshwater Wetland (springs)   |
| <i>Echinocereus coccineus</i> var. <i>paucispinus</i>     | Texas claret-cup cactus     |         |       | G5T3              | S3    | Shrublands; Desert Scrub; Grasslands; Woodlands  |
| <i>Ephedra coryi</i>                                      | Cory's ephedra              |         |       | G3                | S3    | Barren/Sparse Vegetation (inland sand dunes); Grasslands                                   |
| <i>Eriocaulon koermickianum</i>                           | small-headed pipewort       |         |       | G2                | S1    | Freshwater Wetland (bogs)  |
| <i>Eriogonum nealleyi</i>                                 | Irion County wild-buckwheat |         |       | G2                | S2    | Savanna/Open Woodland; Grassland   |
| <i>Eriogonum tenellum</i> var. <i>ramosissimum</i>        | Basin wild-buckwheat        |         |       | G5T3              | S3    | Barren/Sparse Vegetation (granite gravels and outcrops)                                    |
| <i>Euphorbia peploidon</i>                                | low spurge                  |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Festuca versuta</i>                                    | Texas fescue                |         |       | G3                | S3    | Woodland   |
| <i>Galactia watsoniana</i>                                | Watson's milk-pea           |         |       | G1                | S1    | Woodland (canyons)   |
| <i>Gilia ludens</i>                                       | South Texas gilia           |         |       | G3                | S3    | Shrubland  |
| <i>Glossopetalon texense</i>                              | Texas greasebush            |         |       | G1                | S1    | Savanna/Open Woodland; Barren/Sparse Vegetation (limestone cliffs, ledges, or outcrops)    |
| <i>Hesperaloe parviflora</i>                              | red yucca                   |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Hexalectris nitida</i>                                 | Glass Mountains coral-root  |         |       | G3                | S3    | Woodland   |
| <i>Hexalectris warnockii</i>                              | Warnock's coral-root        |         |       | G2G3              | S2    | Woodland   |
| <i>Houstonia parviflora</i>                               | Greenman's bluet            |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Isoetes lithophila</i>                                 | rock quillwort              |         |       | G2                | S2    | Freshwater Wetland (vernal pools)  |
| <i>Isoetes piedmontana</i>                                | Piedmont quillwort          |         |       | G3                | S1    | Freshwater Wetland (vernal pools)  |
| <i>Lythrum ovalifolium</i>                                | Plateau loosestrife         |         |       | G3G4              | S3S4  | Riparian; Freshwater Wetlands (seeps)  |
| <i>Matelea edwardsensis</i>                               | Plateau milkvine            |         |       | G3                | S3    | Woodland (canyons)   |
| <i>Matelea sagittifolia</i>                               | arrowleaf milkvine          |         |       | G3                | S3    | Shrubland; Woodland  |
| <i>Monarda punctata</i> var. <i>stanfieldii</i>           | Stanfield's beebalm         |         |       | G5T3              | S3    | Savanna/Open Woodland  |
| <i>Muhlenbergia villiflora</i> var. <i>villosa</i>        | villos muhly                |         |       | G5T3              | S2    | Barren/Sparse Vegetation (gypseous soils); Shrubland                                       |
| <i>Nesaea longipes</i>                                    | longstalk heimia            |         |       | G2G3              | S2    | Freshwater Wetland (springs, cienegas)   |
| <i>Oenothera cordata</i>                                  | heartleaf evening-primrose  |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Onosmodium helleri</i>                                 | Heller's marbleseed         |         |       | G3                | S3    | Woodland   |
| <i>Packera texensis</i>                                   | Llano butterweed            |         |       | G2                | S2    | Savanna/Open Woodland (on granite gravels)   |
| <i>Pediomelum cyphocalyx</i>                              | turnip-root scurfpea        |         |       | G3G4              | S3S4  | Grassland  |
| <i>Penstemon guadalupensis</i>                            | Guadalupe beardtongue       |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Penstemon triflorus</i> subsp. <i>integrifolius</i>    | Heller's beardtongue        |         |       | G3T3              | S2    | Savanna/Open Woodland; Barren/Sparse Vegetation (limestone cliffs, ledges, or outcrops)    |
| <i>Penstemon triflorus</i> subsp. <i>triflorus</i>        | threeflower penstemon       |         |       | G3T3              | S3    | Savanna/Open Woodland; Barren/Sparse Vegetation (limestone cliffs, ledges, or outcrops)    |
| <i>Phaseolus texensis</i>                                 | canyon bean                 |         |       | G2                | S2    | Woodland (canyons)   |
| <i>Philadelphus ernestii</i>                              | canyon mock-orange          |         |       | G3                | S3    | Woodland (canyons on limestone outcrops or boulders)                                       |
| <i>Phoradendron hawksworthii</i>                          | Hawksworth's mistletoe      |         |       | G3                | S3    | Woodland   |
| <i>Physaria engelmannii</i>                               | Engelmann's bladderpod      |         |       | G3                | S3    | Savanna/Open Woodland  |
| <i>Physostegia correllii</i>                              | Correll's false dragon-head |         |       | G2                | S2    | Riparian; Riverine; Freshwater Wetland   |
| <i>Polygala palmeri</i>                                   | Palmer's milkwort           |         |       | G3                | S2    | Shrubland  |
| <i>Pomaria brachycarpa</i>                                | broadpod rushpea            |         |       | G2                | S2    | Savanna/Open Woodland  |
| <i>Prenanthes carrii</i>                                  | canyon rattlesnake-root     |         |       | G2                | S2    | Woodland (canyons)   |
| <i>Prunus minutiflora</i>                                 | Texas almond                |         |       | G3G4              | S3S4  | Savanna/Open Woodland  |
| <i>Prunus texana</i>                                      | Texas peachbush             |         |       | G3G4              | S3S4  | Savanna/Open Woodland; Grassland   |
| <i>Salvia pentstemonoides</i>                             | big red sage                |         |       | G1                | S1    | Barren/Sparse Vegetation (limestone outcrops, boulders, and cliffs); Woodland (canyons)    |
| <i>Sclerocactus breviphamatus</i> subsp. <i>tobuschii</i> | Tobusch fishhook cactus     | LE      | E     | G4T3              | S3    | Savanna/Open Woodland  |
| <i>Selenia jonesii</i>                                    | Jones' selenia              |         |       | G3                | S3    | Grassland  |
| <i>Seymeria texana</i>                                    | Texas seymeria              |         |       | G3                | S3    | Woodland   |
| <i>Shinnersia rivularis</i>                               | springrun whitehead         |         |       | G2G3              | S1    | Riverine (riffles)   |
| <i>Spigelia texana</i>                                    | Florida pinkroot            |         |       | G3                | S3    | Woodland (canyons); Freshwater Wetland (Bottomland Forest)                                 |
| <i>Streptanthus bracteatus</i>                            | bracted twistflower         |         |       | G1G2              | S1S2  | Woodland; Savanna/Open Woodland  |

| Scientific Name                                  | Common Name                  | Status  |       | Abundance Ranking |       | General Habitat Type(s) in Texas<br>These are VERY broad habitat types as a starting place          |
|--|------------------------------|---------|-------|-------------------|-------|---|
|  |                              | Federal | State | Global            | State |   |
| <i>Streptanthus platycarpus</i>                  | broadpod twistflower         |         |       | G3                | S3    | Savanna/Open Woodland   |
| <i>Styrax platanifolius subsp. platanifolius</i> | sycamore-leaf snowbell       |         |       | G3T3              | S3    | Woodland  |
| <i>Styrax platanifolius subsp. stellatus</i>     | hairy sycamore-leaf snowbell |         |       | G3T3              | S3    | Woodland  |
| <i>Styrax platanifolius subsp. texanus</i>       | Texas snowbells              | LE      | E     | G3T1              | S1    | Barren/Sparse Vegetation (limestone cliffs and ledges); Riparian; with Woodland or Shrubland matrix |
| <i>Tradescantia pedicellata</i>                  | granite spiderwort           |         |       | G2Q               | S2    | Savanna/Open Woodland   |
| <i>Tragia nigricans</i>                          | darkstem noseburn            |         |       | G3                | S3    | Woodland  |
| <i>Tridens buckleyanus</i>                       | Buckley tridens              |         |       | G3G4              | S3S4  | Woodland  |
| <i>Valerianella stenocarpa</i>                   | bigflower cornsalad          |         |       | G3                | S3    | Savanna/Open Woodland   |
| <i>Valerianella texana</i>                       | Edwards Plateau cornsalad    |         |       | G2                | S2    | Savanna/Open Woodland (igneous or metamorphic gravels)  |
| <i>Zizania texana</i>                            | Texas wild rice              | LE      | E     | G1                | S1    | Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)        |

Last Update: 7/17/2019

## TRAVIS COUNTY

### AMPHIBIANS

**Austin blind salamander**

*Eurycea waterlooensis*

Mostly restricted to subterranean cavities of the Edwards Aquifer; dependent upon water flow/quality from the Barton Springs segment of the Edwards Aquifer; only known from the outlets of Barton Springs (Sunken Gardens (Old Mill) Spring, Eliza Spring, and Parthenia (Main) Spring which forms Barton Springs Pool); feeds on amphipods, ostracods, copepods, plant material, and (in captivity) a wide variety of small aquatic invertebrates

Federal Status: LE

State Status: E

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1

**Barton Springs salamander**

*Eurycea sosorum*

Dependent upon water flow/quality from the Barton Springs pool of the Edwards Aquifer; known from the outlets of Barton Springs and subterranean water-filled caverns; found under rocks, in gravel, or among aquatic vascular plants and algae, as available; feeds primarily on amphipods

Federal Status: LE

State Status: E

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1

**Jollyville Plateau salamander**

*Eurycea tonkawae*

Known from springs and waters of some caves north of the Colorado River

Federal Status: LT

State Status:

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S2

**Pedernales River Springs salamander**

*Eurycea sp. 6*

Known only from springs

Federal Status:

State Status:

SGCN: N

Endemic: Y

Global Rank: G1

State Rank: S1S2

**Strecker's chorus frog**

*Pseudacris streckeri*

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

**Texas salamander**

*Eurycea neotenes*

Troglobitic; springs, seeps, cave streams, and creek headwaters; often hides under rocks and leaves in water; restricted to Helotes and Leon Creek drainages

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1S2

**DISCLAIMER**

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### AMPHIBIANS

**Woodhouse's toad** *Anaxyrus woodhousii*  
Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.  
Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### ARACHNIDS

**Bandit Cave spider** *Cicurina bandida*  
Very small, subterrestrial, subterranean obligate  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2Q State Rank: S1

**Bone Cave harvestman** *Texella reyesi*  
Small, blind, cave-adapted harvestman endemic to several caves in Travis and Williamson counties; weakly differentiated from *Texella reddelli*  
Federal Status: LE State Status: SGCN: Y  
Endemic: Y Global Rank: G2G3 State Rank: S2

**No accepted common name** *Tartarocreagris altimana*  
Habitat description is not available at this time.  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1G2 State Rank: S1

**No accepted common name** *Texella spinoperca*  
Habitat description is not available at this time.  
Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: GNR State Rank: SNR

**No accepted common name** *Tartarocreagris attenuata*  
Habitat description is not available at this time.  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1G2 State Rank: S1

**No accepted common name** *Tartarocreagris domina*  
Habitat description is not available at this time.  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1G2 State Rank: S1

### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### ARACHNIDS

**No accepted common name**      *Tartarocreagris proserpina*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2                      State Rank: S1

**No accepted common name**      *Eidmannella reclusa*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2                      State Rank: S1

**No accepted common name**      *Cicurina trivisiae*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2Q                      State Rank: S1

**No accepted common name**      *Texella mulaiki*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G2G3                      State Rank: S2

**No accepted common name**      *Tartarocreagris infernalis*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G2G3                      State Rank: S2?

**No accepted common name**      *Tartarocreagris intermedia*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2                      State Rank: S1

**No accepted common name**      *Texella grubbsi*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2                      State Rank: S1

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### ARACHNIDS

**Reddell harvestman** *Texella reddelli*

Small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties

Federal Status: LE                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G2G3                      State Rank: S2

**Tooth Cave pseudoscorpion** *Tartarocreagris texana*

Small, cave-adapted pseudoscorpion known from small limestone caves of the Edwards Plateau

Federal Status: LE                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G1G2                      State Rank: S1

**Tooth Cave spider** *Neoleptoneta myopica*

Very small, cave-adapted, sedentary spider

Federal Status: LE                      State Status:                      SGCN: Y  
Endemic:                      Global Rank: G1G2                      State Rank: S1

### BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:                      State Status: T                      SGCN: Y  
Endemic: N                      Global Rank: G5                      State Rank: S3B,S3N

**black rail** *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT                      State Status:                      SGCN: Y  
Endemic: N                      Global Rank: G3G4                      State Rank: S2

**black-capped vireo** *Vireo atricapilla*

Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer

Federal Status:                      State Status: E                      SGCN: Y  
Endemic: N                      Global Rank: G3                      State Rank: S2B

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### BIRDS

**Franklin's gull** *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4G5 State Rank: S2N

**golden-cheeked warbler** *Setophaga chrysoparia*

Ashe juniper in mixed stands with various oaks (*Quercus* spp.). Edges of cedar brakes. Dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer.

Federal Status: LE State Status: E SGCN: Y  
Endemic: N Global Rank: G2 State Rank: S2B

**interior least tern** *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y  
Endemic: N Global Rank: G4T2Q State Rank: S1B

**mountain plover** *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

**piping plover** *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2N

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### BIRDS

**swallow-tailed kite** *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2B

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4T4 State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S4B

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE State Status: E SGCN: Y  
Endemic: N Global Rank: G1 State Rank: S1N

**wood stork** *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4 State Rank: SHB,S2N

**zone-tailed hawk** *Buteo albonotatus*

Arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S3B

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### CRUSTACEANS

**Balcones Cave amphipod** *Stygobromus balconis*

Subaquatic, subterranean obligate amphipod

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2G3 State Rank: S2

**Ezell's Cave amphipod** *Stygobromus flagellatus*

Known only from artesian wells

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2G3 State Rank: S3

**No accepted common name** *Lirceolus bisetus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1G2 State Rank: S1

### FISH

**american eel** *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habitats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S4

**Guadalupe bass** *Micropterus treculii*

Endemic to the streams of the northern and eastern Edwards Plateau including portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of the Edwards Plateau streams in decreased abundance, primarily in the lower Colorado River; two introduced populations have been established in the Nueces River system. A pure population was re-established in a portion of the Blanco River in 2014. Species prefers lentic environments but commonly taken in flowing water; numerous smaller fish occur in rapids, many times near eddies; large individuals found mainly in riffle tail races; usually found in spring-fed streams having clear water and relatively consistent temperatures.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3 State Rank: S3

**sharpnose shiner** *Notropis oxyrhynchus*

Range is now restricted to upper Brazos River upstream of Possum Kingdom Lake. May be native to Red River and Colorado River basins. Typically found in turbid water over mostly silt and shifting sand substrates.

Federal Status: LE State Status: SGCN: Y  
Endemic: Y Global Rank: G3 State Rank: S3

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### FISH

**silverband shiner** *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S4 |

**smalleye shiner** *Notropis buccula*

Restricted to the Rio Grande basin in Texas including the lower Pecos River. Typically found in large rivers and creeks associated with a variety of flowing-water habitats such as runs and riffles over gravel, cobble, and sand.

|                    |                 |                |
|--------------------|-----------------|----------------|
| Federal Status: LE | State Status:   | SGCN: Y        |
| Endemic: Y         | Global Rank: G2 | State Rank: S2 |

**Texas shiner** *Notropis amabilis*

In Texas, it is found primarily in Edwards Plateau streams from the San Gabriel River in the east to the Pecos River in the west. Typical habitat includes rocky or sandy runs, as well as pools.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G4 | State Rank: S4 |

### INSECTS

**a cave obligate beetle** *Rhadine austinica*

Habitat description is not available at this time.

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: Y      | Global Rank: G1G2 | State Rank: S1S2 |

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

|                 |                   |                 |
|-----------------|-------------------|-----------------|
| Federal Status: | State Status:     | SGCN: Y         |
| Endemic:        | Global Rank: G3G4 | State Rank: SNR |

**Comanche harvester ant** *Pogonomyrmex comanche*

Habitat description is not available at this time.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: Y      | Global Rank: G2G3 | State Rank: S2 |

**Kretschmarr Cave mold beetle** *Texamaurops reddelli*

Small, cave-adapted beetle found under rocks buried in silt; small, Edwards Limestone caves in of the Jollyville Plateau, a division of the Edwards Plateau

|                    |                   |                |
|--------------------|-------------------|----------------|
| Federal Status: LE | State Status:     | SGCN: Y        |
| Endemic: Y         | Global Rank: G1G2 | State Rank: S1 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### INSECTS

**No accepted common name**      *Andrena scotoptera*

Habitat description is not available at this time.

|                 |                  |                 |
|-----------------|------------------|-----------------|
| Federal Status: | State Status:    | SGCN: Y         |
| Endemic:        | Global Rank: GNR | State Rank: SNR |

**No accepted common name**      *Xiphocentron messapus*

Habitat description is not available at this time.

|                 |                   |                 |
|-----------------|-------------------|-----------------|
| Federal Status: | State Status:     | SGCN: Y         |
| Endemic: Y      | Global Rank: G1G3 | State Rank: S2? |

**No accepted common name**      *Bombus variabilis*

Habitat description is not available at this time.

|                 |                 |                 |
|-----------------|-----------------|-----------------|
| Federal Status: | State Status:   | SGCN: Y         |
| Endemic:        | Global Rank: GU | State Rank: SNR |

**No accepted common name**      *Lymantes nadineae*

Habitat description is not available at this time.

|                 |                  |                 |
|-----------------|------------------|-----------------|
| Federal Status: | State Status:    | SGCN: Y         |
| Endemic:        | Global Rank: GNR | State Rank: SNR |

**No accepted common name**      *Macrotera parkeri*

Habitat description is not available at this time.

|                 |                  |                 |
|-----------------|------------------|-----------------|
| Federal Status: | State Status:    | SGCN: Y         |
| Endemic:        | Global Rank: GNR | State Rank: SNR |

**No accepted common name**      *Neotrichia juani*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic:        | Global Rank: G1 | State Rank: S1 |

**No accepted common name**      *Rhadine subterranea*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G2 | State Rank: S2 |

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### INSECTS

**No accepted common name**      *Oncopodura fenestra*

Habitat description is not available at this time.

|                 |                   |                 |
|-----------------|-------------------|-----------------|
| Federal Status: | State Status:     | SGCN: Y         |
| Endemic: Y      | Global Rank: G2G3 | State Rank: S2? |

**Tooth Cave ground beetle**      *Rhadine persephone*

Resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties

|                    |                   |                |
|--------------------|-------------------|----------------|
| Federal Status: LE | State Status:     | SGCN: Y        |
| Endemic: Y         | Global Rank: G1G2 | State Rank: S1 |

### MAMMALS

**American badger**      *Taxidea taxus*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S5 |

**Aransas short-tailed shrew**      *Blarina hylophaga plumbea*

Excavates burrows in sandy soils underlying mottes of live oak trees or in areas with little to no ground cover; 2-3 litters of 4-6 young per year

|                 |                    |                |
|-----------------|--------------------|----------------|
| Federal Status: | State Status:      | SGCN: Y        |
| Endemic: Y      | Global Rank: G5T1Q | State Rank: S1 |

**big brown bat**      *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S5 |

**big free-tailed bat**      *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic:        | Global Rank: G5 | State Rank: S3 |

**cave myotis bat**      *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: N      | Global Rank: G4G5 | State Rank: S4 |

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### MAMMALS

**eastern red bat**

*Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: N      | Global Rank: G3G4 | State Rank: S4 |

**eastern spotted skunk**

*Spilogale putorius*

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

|                 |                 |                  |
|-----------------|-----------------|------------------|
| Federal Status: | State Status:   | SGCN: Y          |
| Endemic: N      | Global Rank: G4 | State Rank: S1S3 |

**hoary bat**

*Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: N      | Global Rank: G3G4 | State Rank: S4 |

**long-tailed weasel**

*Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S5 |

**Mexican free-tailed bat**

*Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S5 |

**Mexican long-tongued bat**

*Choeronycteris mexicana*

Only Texas record is from riparian forest; in general--neotropical nectivorous species roosting in caves, mines, and large crevices found in deep canyons along the Rio Grande ; also found in buildings and often associated with big-eared bats (*Plecotus* spp.); single TX record from Santa Ana NWR

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: N      | Global Rank: G3G4 | State Rank: S1 |

**mink**

*Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S4 |

**DISCLAIMER**

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### MAMMALS

**mountain lion** *Puma concolor*

Rugged mountains & riparian zones.

|                 |                 |                  |
|-----------------|-----------------|------------------|
| Federal Status: | State Status:   | SGCN: Y          |
| Endemic: N      | Global Rank: G5 | State Rank: S2S3 |

**plains spotted skunk** *Spilogale putorius interrupta*

Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: N          |
| Endemic: N      | Global Rank: G4T4 | State Rank: S1S3 |

**southern short-tailed shrew** *Blarina carolinensis*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S4 |

**swamp rabbit** *Sylvilagus aquaticus*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S5 |

**tricolored bat** *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: N      | Global Rank: G2G3 | State Rank: S3S4 |

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G4 | State Rank: S4 |

**woodland vole** *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S3 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### MOLLUSKS

**false spike mussel**

*Fusconaia mitchelli*

Possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G1 State Rank: S1

**No accepted common name**

*Phreatodrobia punctata*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2 State Rank: S1

**No accepted common name**

*Patera leatherwoodi*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G1 State Rank: S1

**No accepted common name**

*Millerelix gracilis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G2G3 State Rank: S2?

**No accepted common name**

*Stygopyrgus bartonensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1 State Rank: S1

**smooth pimpleback**

*Quadrula houstonensis*

Small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins

Federal Status: C State Status: T SGCN: Y  
Endemic: Y Global Rank: G2 State Rank: S1S2

**Texas fatmucket**

*Lampsilis bracteata*

Streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and coarse gravel or sand in moderately flowing water; Colorado and Guadalupe River basins

Federal Status: C State Status: T SGCN: Y  
Endemic: Y Global Rank: G1 State Rank: S1

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### MOLLUSKS

|   |                           |                |
|---|---------------------------|----------------|
| <b>Texas pimpleback</b>   | <i>Cyclonaias petrina</i> |                |
| Mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado River basin. |                           |                |
| Federal Status: C   | State Status: T           | SGCN: Y        |
| Endemic: Y  | Global Rank: G2           | State Rank: S1 |

### REPTILES

|   |                                   |                |
|---|-----------------------------------|----------------|
| <b>American alligator</b>   | <i>Alligator mississippiensis</i> |                |
| Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments. |                                   |                |
| Federal Status:   | State Status:                     | SGCN: N        |
| Endemic: N  | Global Rank: G5                   | State Rank: S4 |

|  |                            |                |
|--|----------------------------|----------------|
| <b>common garter snake</b>   | <i>Thamnophis sirtalis</i> |                |
| Irrigation canals and riparian-corridor farmlands in west; marshy, flooded pastureland, grassy or brushy borders of permanent bodies of water; coastal salt marshes. |                            |                |
| Federal Status:  | State Status:              | SGCN: N        |
| Endemic:   | Global Rank: G5            | State Rank: S2 |

|  |                           |                |
|--|---------------------------|----------------|
| <b>eastern box turtle</b>  | <i>Terrapene carolina</i> |                |
| Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989). |                           |                |
| Federal Status:  | State Status:             | SGCN: Y        |
| Endemic: N   | Global Rank: G5           | State Rank: S3 |

|  |                                     |                |
|--|-------------------------------------|----------------|
| <b>northern spot-tailed earless lizard</b>         | <i>Holbrookia lacerata lacerata</i> |                |
| Habitat description is not available at this time. |                                     |                |
| Federal Status:                                    | State Status:                       | SGCN: Y        |
| Endemic: Y   | Global Rank: G3G4TNR                | State Rank: S2 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### REPTILES

#### slender glass lizard

*Ophisaurus attenuatus*

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S3 |

#### spot-tailed earless lizard

*Holbrookia lacerata*

Central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: N      | Global Rank: G3G4 | State Rank: S2 |

#### Texas garter snake

*Thamnophis sirtalis annectens*

Irrigation canals and riparian-corridor farmlands in west; marshy, flooded pastureland, grassy or brushy borders of permanent bodies of water; coastal salt marshes. Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: Y      | Global Rank: G5T4 | State Rank: S1 |

#### Texas horned lizard

*Phrynosoma cornutum*

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status: T   | SGCN: Y        |
| Endemic: N      | Global Rank: G4G5 | State Rank: S3 |

#### Texas map turtle

*Graptemys versa*

Rivers with moderate current, abundant aquatic vegetation, and basking logs; also associated oxbows and lakes (Bartlett and Bartlett 1999).

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G4 | State Rank: SU |

#### Texas tortoise

*Gopherus berlandieri*

Open brush with a grass understory is preferred; open grass and bare ground are avoided. Seasonally flooded tidal flats are not utilized. When inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status: T | SGCN: Y        |
| Endemic: N      | Global Rank: G4 | State Rank: S2 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### REPTILES

**timber (canebrake) rattlesnake**      *Crotalus horridus*

Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status: T | SGCN: Y        |
| Endemic: N      | Global Rank: G4 | State Rank: S4 |

**western box turtle**      *Terrapene ornata*

Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G5 | State Rank: S3 |

### PLANTS

**arrowleaf milkvine**      *Matelea sagittifolia*

Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July and Dec?

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G3 | State Rank: S3 |

**basin bellflower**      *Campanula reverchonii*

Among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G2 | State Rank: S2 |

**bracted twistflower**      *Streptanthus bracteatus*

Shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer

|                   |                 |                |
|-------------------|-----------------|----------------|
| Federal Status: C | State Status:   | SGCN: Y        |
| Endemic: Y        | Global Rank: G1 | State Rank: S1 |

**Buckley tridens**      *Tridens buckleyanus*

Occurs in juniper-oak woodlands on rocky limestone slopes; Perennial; Flowering/Fruiting April-Nov

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: Y      | Global Rank: G3G4 | State Rank: S3S4 |

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### PLANTS

**canyon bean** *Phaseolus texensis*

Narrowly endemic to rocky canyons in eastern and southern Edwards Plateau occurring on limestone soils in mixed woodlands, on limestone cliffs and outcrops, frequently along creeks.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G2 | State Rank: S2 |

**canyon mock-orange** *Philadelphus texensis var. ernestii*

Usually found growing from honeycomb pits on outcrops of Cretaceous limestone exposed as rimrock along mesic canyons, usually in the shade of mixed evergreen-deciduous canyon woodland; flowering April-June, fruit dehiscing September-October

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G2 | State Rank: S3 |

**canyon sedge** *Carex edwardsiana*

Habitat description is not available at this time.

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: Y      | Global Rank: G3G4 | State Rank: S3S4 |

**Correll's false dragon-head** *Physostegia correllii*

Wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G2 | State Rank: S2 |

**Engelmann's bladderpod** *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G4 | State Rank: S3 |

**glandular gay-feather** *Liatris glandulosa*

Occurs in herbaceous vegetation on limestone outcrops (Carr 2015)

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### PLANTS

**Glass Mountains coral-root**      *Hexalectris nitida*

Apparently rare in mixed woodlands in canyons in the mountains of the Brewster County, but encountered with regularity, albeit in small numbers, under *Juniperus ashei* in woodlands over limestone on the Edwards Plateau, Callahan Divide and Lampasas Cutplain; Perennial; Flowering June-Sept; Fruiting July-Sept

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G3 | State Rank: S3 |

**gravelbar brickellbush**      *Brickellia dentata*

Essentially restricted to frequently-scoured gravelly alluvial beds in creek and river bottoms; Perennial; Flowering June-Nov; Fruiting June-Oct

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: Y      | Global Rank: G3G4 | State Rank: S3S4 |

**Greenman's bluet**      *Houstonia parviflora*

Habitat description is not available at this time.

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

**Heller's marbleseed**      *Onosmodium helleri*

Occurs in loamy calcareous soils in oak-juniper woodlands on rocky limestone slopes, often in more mesic portions of canyons; Perennial; Flowering March-May

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

**low spurge**      *Euphorbia peplidion*

Occurs in a variety of vernal-moist situations in a number of natural regions; Annual; Flowering Feb-April; Fruiting March-April

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

**narrowleaf brickellbush**      *Brickellia eupatorioides var. gracillima*

Moist to dry gravelly alluvial soils along riverbanks but also on limestone slopes; Perennial; Flowering/Fruiting April-Nov

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: Y      | Global Rank: G5T3 | State Rank: S3 |

**net-leaf bundleflower**      *Desmanthus reticulatus*

Mostly on clay prairies of the coastal plain of central and south Texas; Perennial; Flowering April-July; Fruiting April-Oct

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## TRAVIS COUNTY

### PLANTS

- Plateau loosestrife** *Lythrum ovalifolium*  
Banks and gravelly beds of perennial (or strong intermittent) streams on the Edwards Plateau, Llano Uplift and Lampasas Cutplain; Perennial; Flowering/Fruiting April-Nov  
Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S3S4
- plateau milkvine** *Matelea edwardsensis*  
Occurs in various types of juniper-oak and oak-juniper woodlands; Perennial; Flowering March-Oct; Fruiting May-June  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3 State Rank: S3
- rock grape** *Vitis rupestris*  
Occurs on rocky limestone slopes and in streambeds; Perennial; Flowering March-May; Fruiting May-July  
Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S1
- scarlet leather-flower** *Clematis texensis*  
Usually in oak-juniper woodlands in mesic rocky limestone canyons or along perennial streams; Perennial; Flowering March-July; Fruiting May-July  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3G4 State Rank: S3S4
- spreading lestdaisy** *Chaetopappa effusa*  
Limestone cliffs, ledges, bluffs, steep hillsides, sometimes in seepy areas, oak-juniper, oak, or mixed deciduous woods, 300-500 m elevation; Perennial; Flowering (May) July-Oct  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3G4 State Rank: S3S4
- Stanfield's beebalm** *Monarda stanfieldii*  
Largely confined to granite sands along the middle course of the Colorado River and its tributaries; Perennial  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3 State Rank: S3
- sycamore-leaf snowbell** *Styrax platanifolius ssp. platanifolius*  
Rare throughout range, usually in oak-juniper woodlands on steep rocky banks and ledges along intermittent or perennial streams, rarely far from some reliable source of moisture; Perennial; Flowering April-May; Fruiting May-Aug.  
Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3T3 State Rank: S3
- Texabama croton** *Croton alabamensis var. texensis*

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### PLANTS

In duff-covered loamy clay soils on rocky slopes in forested, mesic limestone canyons; locally abundant on deeper soils on small terraces in canyon bottoms, often forming large colonies and dominating the shrub layer; scattered individuals are occasionally on sunny margins of such forests; also found in contrasting habitat of deep, friable soils of limestone uplands, mostly in the shade of evergreen woodland mottes; flowering late February-March; fruit maturing and dehiscing by early June

|                 |                   |                |
|-----------------|-------------------|----------------|
| Federal Status: | State Status:     | SGCN: Y        |
| Endemic: Y      | Global Rank: G3T2 | State Rank: S2 |

**Texas almond** *Prunus minutiflora*

Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May and Oct; Fruiting Feb-Sept

|                 |                   |                  |
|-----------------|-------------------|------------------|
| Federal Status: | State Status:     | SGCN: Y          |
| Endemic: Y      | Global Rank: G3G4 | State Rank: S3S4 |

**Texas amorphia** *Amorpha roemeriana*

Juniper-oak woodlands or shrublands on rocky limestone slopes, sometimes on dry shelves above creeks; Perennial; Flowering May-June; Fruiting June-Oct

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G3 | State Rank: S3 |

**Texas barberry** *Berberis swaseyi*

Shallow calcareous stony clay of upland grasslands/shrublands over limestone as well as in loamier soils in openly wooded canyons and on creek terraces; Perennial; Flowering/Fruiting March-June

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

**Texas fescue** *Festuca versuta*

Occurs in mesic woodlands on limestone-derived soils on stream terraces and canyon slopes; Perennial; Flowering/Fruiting April-June

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: N      | Global Rank: G3 | State Rank: S3 |

**Texas milk vetch** *Astragalus reflexus*

Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

**Texas seymeria** *Seymeria texana*

Found primarily in grassy openings in juniper-oak woodlands on dry rocky slopes but sometimes on rock outcrops in shaded canyons; Annual; Flowering May-Nov; Fruiting July-Nov

|                 |                 |                |
|-----------------|-----------------|----------------|
| Federal Status: | State Status:   | SGCN: Y        |
| Endemic: Y      | Global Rank: G3 | State Rank: S3 |

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## TRAVIS COUNTY

### PLANTS

**tree dodder**

*Cuscuta exaltata*

Parasitic on various *Quercus*, *Juglans*, *Rhus*, *Vitis*, *Ulmus*, and *Diospyros* species as well as *Acacia berlandieri* and other woody plants; Annual; Flowering May-Oct; Fruiting July-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

**turnip-root scurfea**

*Pediomelum cyphocalyx*

Grasslands and openings in juniper-oak woodlands on limestone substrates on the Edwards Plateau and in north-central Texas (Carr 2015).

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**Warnock's coral-root**

*Hexalectris warnockii*

In leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under *Quercus fusiformis* mottes on terraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G2G3

State Rank: S2

**Wright's milkvetch**

*Astragalus wrightii*

Habitat description is not available at this time.

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

**DISCLAIMER**

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.



# Form Species Analysis

Project Name: **SL 360 from Courtyard to RM 2222**

CSJ(s): **0113-13-168**

County(ies): **Travis County**

Date Analysis Completed: **February 12, 2020**

Prepared by: **Chelsea Miller (CP&Y, Inc.)**

<If the project is assigned to TxDOT by FHWA, retain the following sentence; if not, delete it>

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

## I. Endangered Species Act

Select the appropriate statement below based on the determinations recorded in the completed project-specific species analysis spreadsheet:

- This project does not require consultation with or authorization from the USFWS under the Endangered Species Act.
- This project requires consultation with or authorization from the USFWS under the Endangered Species Act.

For a project that requires federal authorization or approval, if the completed project-specific species analysis spreadsheet indicates, "May affect," for any species, then consultation with the USFWS is required under section 7 of the Endangered Species Act and the second checkbox above must be checked.

For more information regarding the Endangered Species Act, see **ENV's Endangered Species Act Handbook**.

## II. TPWD Coordination

Select the appropriate statement below:

- This project consists solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore no coordination with TPWD is required. Do not fill out a separate Tier I Site Assessment Form.
- This project does not consist solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore a Tier I Site Assessment is required.



III. Bald and Golden Eagle Protection Act (BGEPA)

Select the appropriate statement below:

- Three checkbox options regarding BGEPA compliance: 1) Not within 660 feet, no coordination required. 2) Within 660 feet, no construction during nesting season, will adhere to 2007 guidelines, no coordination required. 3) Within 660 feet, construction during nesting season or non-compliance with 2007 guidelines, coordination with USFWS for permit required.

For more information regarding BGEPA, see Section 7.0 of ENV's Ecological Resources Handbook.

IV. Migratory Bird Protections

This project will comply with applicable provisions of the Migratory Bird Treaty Act (MBTA) and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is the department's policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition it is the department's policy to, where appropriate and practicable:

- Two bullet points: 1) use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction, and 2) schedule construction activities outside the typical nesting season.

For more information regarding migratory bird protections, see ENV's Guidance: Avoiding Migratory Birds and Handling Potential Violations and Section 3.0 of ENV's Ecological Resources Handbook.

V. Resources Consulted

Indicate which resources were consulted/actions were taken to make the species analysis determinations recorded in this form (DO NOT ATTACH TO THIS FORM OR UPLOAD TO ECOS ANY RESOURCES CONSULTED – JUST CHECK THE APPROPRIATE BOX(ES)):

- Grid of checkboxes for resource consultation: Aerial Photography, Topographic Map, Natural Diversity Database (NDD), Karst Zone Maps, Ecological Mapping System of Texas (EMST), Site Visit, Species Expert Consulted, Species Habitat or Presence/absence Survey.

Other: \_\_\_\_\_



# Form

## Documentation of Applicability of Programmatic Consultation with USFWS

---

Project Name: **State Loop 360 from Lake Austin to north of RM 2222**

CSJ(s): **0113-13-168**

County(ies): **Travis County**

Date Form Completed: **2/18/2020**

Prepared by: **Chelsea Miller (CP&Y, Inc.)**

Select the species for which this form is prepared:

- Red-cockaded Woodpecker
- Golden-cheeked Warbler

If this form is prepared for the Red-cockaded Woodpecker, complete Section I below.

If this form is being prepared for the Golden-cheeked Warbler, complete Section II below.

### I. Red-cockaded Woodpecker (RCW)

Explain methods used to identify potential RCW habitat in the vicinity of the project area (e.g., formal presence/absence surveys, formal transects, visual observation from right-of-way where right-of-entry has not been granted, species and/or managed area information from resource agencies, etc.):

**<enter explanation>**

Date(s) of field reconnaissance: **<enter date(s)>**

Name and job title of person(s) who conducted field reconnaissance: **<enter name(s) and job title(s)>**

Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): **<enter title or file name>**

Select the checkbox below (required):

- A map and photos of potential RCW habitat in the vicinity of the project area are included with this form.

Select the appropriate statement below (select only one statement):

- The project area is bordered exclusively by privately owned land.
- The project area is bordered exclusively by publicly owned land.



- The project area is bordered by some privately owned land and some publicly owned land.

Select the appropriate statement below (select only one statement):

- Field reconnaissance indicated that suitable RCW nesting habitat occurs within 400 feet of the project area.
- Field reconnaissance indicated that suitable RCW nesting habitat does not occur within 400 feet of the project area.

If this second box is checked, then the correct effect call for the RCW is “no effect,” and use of the programmatic consultation agreement for the RCW is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section I.

Identify the applicable project type(s) as listed on page 2 of **ENV’s Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**:

**<enter project type(s)>**

Identify the types of impact(s) to the RCW or its habitat that may result from this project (e.g., noise, removal of vegetation, removal of mature trees > 10-inch diameter at breast height):

**<enter types of impacts>**

Select the checkbox below (required):

- The following voluntary conservation measures will be implemented for this project:
- Stockpile and equipment storage areas and other PSLs would not be placed adjacent to active RCW clusters within 200 feet of the cleared ROW.
  - Avoid work during the RCW breeding season (April 1 to July 31) adjacent to any project area where active RCW cavity trees are located within 200 feet of the ROW.
  - Work would not begin until one hour after sunrise and would cease one hour before sunset each day where active RCW cavity trees are located within 200 feet of the ROW to ensure that birds are not flushed from their cavities in the morning or prevented from roosting in the evening.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

**<enter explanation>**

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

**<enter explanation>**



Select the appropriate statement below (select only one statement):

- The potential effects of this project on the Red-cockaded Woodpecker are covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**; therefore, no project-specific consultation with the USFWS is required for this species.
- The potential effects of this project on the Red-cockaded Woodpecker are NOT covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**; therefore, project-specific consultation with the USFWS is required for this species.

## II. Golden-cheeked Warbler (GCW)

Explain methods used to identify potential GCW habitat in the vicinity of the project area (e.g., formal presence/absence surveys, formal transects, visual observation from right-of-way where right-of-entry has not been granted, species and/or managed area information from resource agencies, etc.):

**Visual inspection of the project area was performed.**

Date(s) of field reconnaissance: **7/19/2019**

Name and job title of person(s) who conducted field reconnaissance: **Melissa Cross and Chelsea Miller, Environmental Specialists (CP&Y, Inc.)**

Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): **N/A**

Select the appropriate statement below (select only one statement):

- Field reconnaissance indicated that known or potential GCW habitat occurs within 300 feet of the project area.
- Field reconnaissance indicated that known or potential GCW habitat does not occur within 300 feet of the project area.

If this second box is checked, then the correct effect call for the GCW is "no effect," and use of the programmatic consultation agreement for the GCW is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section II.

Identify the applicable project type(s) as listed in **ENV's Endangered Species Act Programmatic Consultation Agreement for the Black-Capped Vireo and Golden-cheeked Warbler** (see "Attachment 1. Definition of Activities" included with TxDOT's request for programmatic consultation dated July 27, 2017):

Linear transportation, no new ROW required.



Identify the types of impact(s) to the GCW or its habitat that may result from this project (e.g., noise, removal of individual trees or shrubs, or areas of woody vegetation removal up to 2 acres in any single patch or 8 acres cumulative over the entire length of the project):

Noise impacts, limited to the time during construction. Removal of woody vegetation entirely within the existing ROW.

Select the checkbox below (required):

- The following voluntary conservation measures will be implemented for this project:
- Limit the operation of heavy machinery to paved areas, areas free of native vegetation, and to areas with slopes that are less than 33 percent consisting of stable soils.
  - Confirm the presence of listed species at or near the project site through pre-construction surveys or assume they are present and implement appropriate protection measures.
  - Minimize impacts to listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction activities.
  - Schedule the most effective amount of personnel and equipment to complete construction to reduce the time of disturbance to listed species.
  - Review temporary roadside material storage locations and notify contractors of the areas with potential to support habitat for rare, threatened, and endangered species and of the conservation need to avoid these areas.
  - Avoid use of non-native invasive plant species.
  - Sterilize equipment for tree trimming between trees in areas affected by surface transferable bacterial, viral, and fungal diseases.
  - Do not disturb, destroy, or remove active nests during the nesting season.
  - Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.
  - Limit the use of machinery in habitat that may support ground-nesting birds during the spring and early summer months.
  - Coordinate with ENV and the District Environmental Coordinators prior to grading and blading activities for wildfire management and control.
  - Train maintenance crews on how to handle hazardous chemicals if used, and encourage them to use them sparingly and only when absolutely necessary.



- Retain existing vegetation whenever possible.
- Use general good housekeeping practices and do not leave waste behind on the job site.
- Use care to avoid spills, leaks and drips of equipment and cleaning fluids when cleaning tools, servicing equipment or doing routine maintenance.
- Projects that would involve clearing or trimming of individual trees or shrubs in or near (within 300 feet of) potential habitat would be phased so that any clearing activities would occur outside the breeding season (between September 1<sup>st</sup> and February 28<sup>th</sup>) to minimize impacts to GCW.
- TxDOT personnel and project contractors, as appropriate, will be informed of these Programmatic Consultation requirements.
- Projects that would require trimming or removal of more than a few individual trees or shrubs or linear strips of woody vegetation will be inspected by qualified TxDOT biologists. Biologists would determine if areas of vegetation to be disturbed meet the criteria for potential GCW habitat and make an effect call based on the potential impacts in order to determine if a project-specific consultation is warranted.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

EPIC sheet

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

TxDOT construction inspectors will ensure that contract terms are followed during construction.

Select the appropriate statement below (select only one statement):

- The potential effects of this project on the Golden-cheeked Warbler are covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for the Black-capped Vireo and Golden-cheeked Warbler**; therefore, no project-specific consultation with the USFWS is required for this species.
- The potential effects of this project on the Golden-cheeked Warbler are NOT covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for the Black-capped Vireo and Golden-cheeked Warbler**; therefore, project-specific consultation with the USFWS is required for this species.

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon      | Common Name                   | Scientific Name                     | Habitat  | Suitable Habitat Present? | Explanation for determination regarding suitable habitat  | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|------------|-------------------------------|-------------------------------------|--|---------------------------|---|----------------|--|--------------|---|---|------------------------------------|
| Travis | Amphibians | Barton Springs Salamander     | <i>Eurycea sosorum</i>              | The species is only known to occur at Barton Springs in Austin, Texas, and subterranean habitats in the Barton Springs Segment of the Edwards Aquifer. "Surface" habitat for the Barton Springs salamander refers to the spring pools and spring runs where the Barton Springs salamander is observed as opposed to its subsurface aquifer habitat. The Barton Springs salamander inhabits relatively stable aquatic environmental conditions. These conditions consist of perennially flowing spring water that is generally clear, clean, mostly neutral (pH about 7), and stenothermal (narrow temperature range) with an annual average temperature of about 70° to 72° F. Flows of clean spring water with a relatively constant, cool temperature are essential to maintaining the well-oxygenated water necessary for salamander respiration and survival. Dissolved oxygen concentrations average about 6 mg/l.  | N                         | The project area is outside of the known species range.   | E              | No effect  | E            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species.   | N                                  |
| Travis | Amphibians | Houston Toad                  | <i>Anaxyrus (Bufo) houstonensis</i> | The species inhabits areas with deep, friable, sandy soils that contain varying degrees of overstory vegetation. There is a very strong correlation between Houston toad sites and the occurrence of deep (>40 inches) sandy soils in more or less contiguous zones of greater than 20,000 acres. All existing, known Houston toad populations occur within two separate bands of geologic formations, which contain the deepest surface sands in the region. Within Bastrop County, these formations include the Sparta Sand, Weches Formation, Queen City Sand, Recklaw Formation, and Carrizo Sand. To the southeast in Lavaca, Austin, and Colorado counties lies the other band of Houston toad habitat, which includes the Willis and Goliad formations. Vegetative cover within Houston toad habitat usually contains some degree of forested vegetation. Loblolly pine ( <i>Pinus taeda</i> ) and post oak ( <i>Quercus stellata</i> ) are common overstory species. | N                         | The project area does not contain any deep sandy soils or loblolly-post oak woodlands.  | E              | No effect  | E            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species.   | N                                  |
| Travis | Amphibians | Jollyville Plateau Salamander | <i>Eurycea tonkawae</i>             | Surface populations occur in springs of the Jollyville Plateau and springs of nearby Brushy Creek. Optimal habitat includes springs, spring-fed streams, and caves with flowing water.   | N                         | Field investigation of the aquatic conditions within the project area, as well as presence/absence survey, reveal that there is no suitable habitat for this species within the project area. | T              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. See Jollyville Plateau salamander report attached to Tier I form. | Y                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon     | Common Name               | Scientific Name                 | Habitat   | Suitable Habitat Present? | Explanation for determination regarding suitable habitat  | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|-----------|---------------------------|---------------------------------|---|---------------------------|---|----------------|--|--------------|---|---|------------------------------------|
| Travis | Arachnids | Bee Creek Cave Harvestman | <i>Texella reddelli</i>         | This subterranean obligate species inhabits karstic features within the Edwards Limestone Formation. It is known from Tooth, Bee Creek, McDonald, Weldon, and Bone Caves, and possibly Root Cave, in Travis and Williamson Counties.  | N                         | No caves are located within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Arachnids | Bone Cave Harvestman      | <i>Texella reyesi</i>           | A subterranean obligate, the species occurs in small isolated karstic features within the Edwards Limestone Formation. Sensitive to low humidity and temperature, it is found under large rocks in dark cool parts of caves. It is known from 203 different caves and six karst fauna regions in Travis and Williamson Counties.  | N                         | No caves are located within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Arachnids | Tooth Cave Pseudoscorpion | <i>Tartarocreagris texana</i>   | This subterranean obligate species inhabits karstic features within the Edwards Limestone Formation. It is known from five caves in the Jollyville Plateau karst fauna Region in Travis County, including Tooth and Amber Caves.  | N                         | No caves are located within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Arachnids | Tooth Cave Spider         | <i>Tayshaneta myopica</i>       | This subterranean obligate species inhabits karstic features within the Edwards Limestone Formation. It is known only from 13 caves in the Jollyville Plateau and McNeil/Round Rock karst fauna regions in Travis and Williamson counties.  | N                         | No caves are located within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Birds     | Bald Eagle                | <i>Haliaeetus leucocephalus</i> | The species occurs throughout Texas and is divided into two populations: breeding and non-breeding or wintering birds. Breeding populations occur primarily in the eastern half of the state and in coastal counties from Rockport to Houston. Nonbreeding or wintering populations are located primarily in the panhandle, central, and east Texas, and in other areas of suitable habitat throughout the state. Habitat consists of dense mature coniferous or hardwood trees adjacent to large open bodies of water. Breeding habitat can include any type of wetland habitat such as rivers, marshes, or large lakes with high concentration of prey fish. Trees utilized for nesting are typically over 60 feet tall, have an open structure, and close proximity to habitat edge. | N                         | While the project area is adjacent to a major source of water, no suitable trees for nesting were observed within the project area.   | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon | Common Name            | Scientific Name                           | Habitat   | Suitable Habitat Present? | Explanation for determination regarding suitable habitat  | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|-------|------------------------|---|---|---------------------------|---|----------------|--|--------------|---|---|------------------------------------|
| Travis | Birds | Black Rail             | <i>Laterallus jamaicensis</i>             | Black rails are year-round residents of the central and upper coast and migrants in the eastern part of the state. The species nests in salt, brackish, and freshwater marshes, pond borders, wet meadows, and wetlands with hydrophytic grass species. Water depth is an important and key habitat component, as the species typically is found where water is less than two to four centimeters deep. Other significant habitat factors may include vegetation density, distance to open water, and water regime stability. Nesting typically occurs in the highest sections of the marsh, which have mesic to hydric soils and are flooded by only the highest tides. Nests are built in areas with saturated or shallowly flooded soils and dense vegetation on damp ground, on mat of previous year's dead grasses, or over shallow water. In salt or brackish marshes, typical habitat includes dense stands of cordgrasses ( <i>Spartina</i> sp.), spikegrasses ( <i>Distichlis</i> sp.), and needlerush ( <i>Juncus</i> sp.), or, in more upland saltbush communities along marsh edges. Typical freshwater habitat includes species such as cattail ( <i>Typha</i> ) and bulrush ( <i>Scirpus</i> sp.). Non-breeding habitat is thought to be similar to breeding habitat. | N                         | No marsh habitat occurs within or adjacent to the project area.   | PT             | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species.   | N                                  |
| Travis | Birds | Black-capped Vireo     | <i>Vireo atricapilla</i>                  | This migratory species overwinters in Mexico and nests throughout the Edwards Plateau and eastern Trans-Pecos region during the breeding season. The species nests in "shinneries" that are primarily comprised of sumac and oak species. Optimal breeding habitat occurs near outcrops of Edwards or Fredericksburg limestone that support interspersed stands of oak-juniper woodlands with a distinctive patchy, two-layered aspect: a shrub and tree layer with open, grassy spaces. Foliage reaching to ground level is required for nesting cover. Species composition is less important than the presence of adequate broad-leaved shrubs, foliage to ground level, and required structure.  | N                         | The project area does not contain the distinct, patchy, two-layered woodlands required for the species. | —              | N/A  | E            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species.   | N                                  |
| Travis | Birds | Golden-cheeked Warbler | <i>Setophaga (=Dendroica) chrysoparia</i> | This migratory species breeds in central Texas along the Balcones Escarpment on the eastern edge of the Edwards Plateau and ranges from southwest of Fort Worth to northeast of Del Rio. Breeding habitat consists of juniper-oak woodlands dominated by Ashe juniper ( <i>Juniperus ashei</i> ) and various oak ( <i>Quercus</i> sp.) species and deciduous trees found in areas with steep slopes, canyon heads, draws, and adjacent ridgetops. The species is dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are generally placed in upright forks of mature Ashe junipers or various deciduous species. Occupied sites usually contain junipers at least 40 years old.   | Y                         | The project area contains regions of oak-juniper woodlands and steep slopes.                            | E              | May affect   | E            | May impact                                    | As suitable habitat for this species is within the project area, project activities may adversely affect this species. These impacts would be covered under the TxDOT/USFWS programmatic agreement (attached with Tier I form). | N                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon | Common Name         | Scientific Name                    | Habitat  | Suitable Habitat Present? | Explanation for determination regarding suitable habitat             | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|-------|---------------------|------------------------------------|--|---------------------------|--|----------------|--|--------------|---|---|------------------------------------|
| Travis | Birds | Least Tern          | <i>Sterna (=Sterna) antillarum</i> | The interior population (subspecies <i>athalassos</i> ) of the Least Tern nests on bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with inland rivers and reservoirs. It occasionally nests on man-made structures such as sand and gravel pits or gravel rooftops. Preferred habitat includes sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines of lakes and reservoirs. Colony sites can move annually, depending on landscape disturbance and vegetation growth at established colonies. It is known to nest at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, and along the Red River.   | N                         | No sandy, open flats or shorelines occur within the project area.    | E              | No effect  | E            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Birds | Piping Plover       | <i>Charadrius melodus</i>          | This migratory species overwinters in Texas, where it occurs on beaches, ephemeral sand flats, barrier islands, sand, mud, algal flats, washover passes, salt marshes, lagoons, and dunes along the Gulf Coast and adjacent offshore islands, including spoil islands in the Intracoastal Waterway. Algal flats appear to be the highest quality habitat because of their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low or very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. | N                         | No flat, marshy, or sandy areas occur within the project area.       | T              | No effect  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Birds | Red Knot            | <i>Calidris canutus rufa</i>       | The species is a winter resident and migrant in Texas. It is primarily found in marine habitats such as sandy beaches, salt marshes, lagoons, mudflats of estuaries and bays, and mangrove swamps during winter months. It primarily occurs along the Gulf coast on tidal flats and beaches and less frequently in marshes and flooded fields. It has occasionally been observed along shorelines of large lakes and freshwater marshes.   | N                         | No marine habitat occurs within the project area.                    | T              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Birds | Swallow-tailed Kite | <i>Elanoides forficatus</i>        | This migratory species breeds in the South Central Plains of east Texas and throughout the southeastern U.S. In Texas, breeding habitat occurs between sea level and 230 meters in elevation in bottomland forests, cypress swamps, pine glades, and freshwater marshes skirting large lakes. It nests near the tops of trees that are higher than the surrounding stand, often near a clearing or the edge of a forest or woodland. It prefers to nest in pines, but occasionally uses species such as bald cypress ( <i>Taxodium distichum</i> ), water oak ( <i>Quercus nigra</i> ), or cottonwood ( <i>Populus deltoides</i> ).  | N                         | No bottomland forests or marshy areas occur within the project area. | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon  | Common Name      | Scientific Name           | Habitat   | Suitable Habitat Present? | Explanation for determination regarding suitable habitat  | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|--------|------------------|---------------------------|---|---------------------------|---|----------------|--|--------------|---|---|------------------------------------|
| Travis | Birds  | White-faced Ibis | <i>Plegadis chihi</i>     | The species is found in the Western Gulf Coastal Plains ecoregion of Texas. Preferred habitat includes freshwater wetlands, marshes, ponds, rivers, irrigated land, and sloughs, but it occasionally forages in brackish or saltwater marshes. It nests in marshes in low trees, on the ground in bulrushes ( <i>Scirpus</i> sp.) or reeds, or on floating mats.  | N                         | No marshy or ponded areas occur within the project area.  | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |
| Travis | Birds  | Whooping Crane   | <i>Grus americana</i>     | The species breeds in Canada and winters on the Texas coast at Aransas National Wildlife Refuge. During migration it typically stops to rest and feed in open bottomlands of large rivers and marshes but, like other waterbirds, it may also utilize flooded croplands, playas, large wetlands associated with lakes, small ponds, and various other aquatic features. Typical migration habitat includes sites with good horizontal visibility, water depth of 30 centimeters or less, and minimum wetland size of 0.04 hectare for roosting. | N                         | No open bottomlands or other flooded low-lying areas occur within the project area.   | E              | No effect  | E            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Birds  | Wood Stork       | <i>Mycteria americana</i> | The species breeds in Mexico, and nesting sites have not been recorded in Texas since 1960. However, post-breeding migrants disperse into Texas in the summer. Foraging habitat includes freshwater prairie ponds, flooded pastures or fields, ditches, and other shallow standing water with an open canopy, occasionally including brackish wetlands. The species typically roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries).  | N                         | No shallow ponds or flooded fields occur within the project area.   | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |
| Travis | Birds  | Zone-tailed Hawk | <i>Buteo albonotatus</i>  | The species occurs in arid open country, especially open deciduous or pine-oak woodland, mesa and mountain country, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains. It nests in a variety of sites including small trees in lower desert, giant cottonwoods in riparian areas, and mature conifers in high mountain regions. Nests are typically constructed in large trees like cottonwoods ( <i>Populus deltoides</i> ), usually along streams near cliffs or steep hillsides.     | N                         | While the project area is adjacent to steep cliff faces, the project area does not contain any arid open country or pine-oak woodlands. | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |
| Travis | Fishes | Smalleye Shiner  | <i>Notropis buccula</i>   | The species is likely extirpated from the lower and middle portions of the Brazos River, currently known only from the upper Brazos River above Possum Kingdom Reservoir. The species is common in river channels and side channels with water of moderate depth and current. It is typically found in broad channels with high turbidity and constant shifting sand substrate, or occasionally silt substrate. It is most frequently found using the center of the channel, avoiding the shallow depth and slow velocity of the stream edges.  | N                         | The project area is outside of the known species range.   | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon    | Common Name                  | Scientific Name                            | Habitat  | Suitable Habitat Present? | Explanation for determination regarding suitable habitat   | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|----------|------------------------------|--|--|---------------------------|--|----------------|--|--------------|---|---|------------------------------------|
| Travis | Insects  | Kretschmarr Cave Mold Beetle | <i>Texamaurops reddelli</i>                | This subterranean obligate species inhabits karstic features within the Edwards Limestone Formation. It is known from nine caves in the Jollyville Plateau karst fauna Region in Travis and Williamson Counties, including Kretschmarr, Amber, Tooth and Coffin Caves.   | N                         | No karst voids or caves were observed within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Insects  | Tooth Cave Ground Beetle     | <i>Rhadine persephone</i>                  | This subterranean obligate species inhabits karstic features within the Edwards Limestone Formation. It is known from 61 caves in the Cedar Park and Jollyville Plateau karst fauna Regions in Travis County, including Tooth and Kretschmarr Caves.   | N                         | No karst voids or caves were observed within the project area. Additionally, the project area is in karst zone 4, areas requiring further research but are unlikely to contain karst features. | E              | No effect  | —            | N/A   | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |
| Travis | Mollusks | False Spike                  | <i>Fusconaia (=Quadrula) mitchelli</i>     | Freshwater mussel currently found in the Rio Grande, Pecos, Middle Colorado, and Guadalupe River basins. The species occurs in medium to large rivers with various substrates including mud and mixtures of sand, gravel, and cobble. It is found in riffle and pool habitats, and host species include the red ( <i>Cyprinella lutrensis</i> ) and blacktail shiner ( <i>C. venusta</i> ).  | N                         | No perennial water sources occur within the project area.  | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |
| Travis | Mollusks | Smooth Pimpleback            | <i>Cyclonaias (=Quadrula) houstonensis</i> | A freshwater mussel endemic to the central portions of the Colorado and Brazos River basins in Texas. The species occurs in small to moderate streams and rivers with slow to moderate flow rates with mud, sand, or fine gravel substrate. It is tolerant to impoundment and has been observed in large reservoirs. It appears to be intolerant of dramatic water level fluctuations, or scoured bedrock or shifting sand substrates.   | N                         | No perennial water sources occur within the project area.  | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species. | N                                  |
| Travis | Mollusks | Texas Fatmucket              | <i>Lampsilis bracteata</i>                 | A freshwater mussel endemic to streams and small rivers of the Texas Hill Country, the species occurs in moderately flowing waters generally less than 1 meter in depth. It can occur in sand or gravel substrates, but typically occurs in soft silt deposits in bank or pool habitats or cracks in bedrock. It inhabits microhabitats among large cobble, boulders, bedrock ledges, horizontal cracks in bedrock slabs, and macrophyte beds. It has been reported inhabiting roots of cypress trees and other vegetation along steep banks. It is intolerant to impoundment and absent from backwater, mid-channel, and riffle habitats. | N                         | No perennial water sources occur within the project area.  | C              | No effect  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species. | N                                  |

SPECIES ANALYSIS SUMMARY  
 Project Name: State Loop 360 - Courtyard to RM 2222  
 CSJ(s): 0113-13-168

| County | Taxon    | Common Name                    | Scientific Name                       | Habitat   | Suitable Habitat Present? | Explanation for determination regarding suitable habitat                           | Federal Status | Effect/Take Determination for Federally Listed Species | State Status | Impact Determination for State-Listed Species | Explanation for Effect/Take and/or Impact Determination   | Presence/Absence survey conducted? |
|--------|----------|--------------------------------|---------------------------------------|---|---------------------------|--|----------------|--|--------------|---|---|------------------------------------|
| Travis | Mollusks | Texas Fawnsfoot                | <i>Truncilla macrodon</i>             | A freshwater mussel that is currently limited to the Brazos and Colorado River basins in Texas. The species occupies large streams to medium rivers and is intolerant to impoundment. Little is known about the species due to lack of representative specimens, however it is thought that the species prefers sand, gravel, and sandy-mud substrate in water with a moderate current. It is also found in perennial irrigation canals for rice. | N                         | No perennial water sources occur within the project area.                          | C              | No effect  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species.   | N                                  |
| Travis | Mollusks | Texas Pimpleback               | <i>Cyclonaias (=Quadrula) petrina</i> | A freshwater mussel endemic to the middle and lower portions of the Colorado River basin in Texas. The species inhabits medium to large rivers with shallow water and slow to moderate currents. It occurs in gravel-filled cracks in bedrock and microhabitats and on mud, sand, gravel, and cobble substrates. It is intolerant to extremely soft substrates, shifting sands, scoured bottoms, and impoundments.                                | N                         | No perennial water sources occur within the project area.                          | C              | No effect  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not affect the species.   | N                                  |
| Travis | Plants   | Bracted Twistflower            | <i>Streptanthus bracteatus</i>        | The species is found in south-central Texas. It is an annual; endemic to the Edwards Plateau where it occurs on shallow, well-drained gravelly clays and clay loams over limestone, within oak-juniper woodland and associated openings, on steep to moderate slopes, and in canyon bottoms. Often found amid dense shrub growth where there is some protection from browsing.  | Y                         | The project area contains oak-juniper woodlands over limestone slopes.             | C              | No effect  | —            | N/A   | While potentially suitable habitat for this species occurs within the project area, a presence/absence survey conducted in May 2019 did not find any specimens of this species within the project area. Therefore, the project is not anticipated to affect this species. | Y                                  |
| Travis | Reptiles | Texas Horned Lizard            | <i>Phrynosoma cornutum</i>            | The species is found in semi-arid open areas with scattered vegetation comprised of bunchgrass, cacti, yucca, mesquite, acacia, juniper, or other woody shrubs and small trees commonly found in loose sandy or loamy soils.  | N                         | No semi-arid open areas with semi-xeric vegetation occurs within the project area. | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species.   | N                                  |
| Travis | Reptiles | Texas Tortoise                 | <i>Gopherus berlandieri</i>           | Restricted to the Southern Texas Plains, the species occurs in scrub forest and arid habitats with well drained soils. It is typically found in open brush with a grass understory; areas of open grass and bare ground are usually avoided.  | N                         | No arid habitats or open brushy areas occur within the project area.               | —              | N/A  | T            | No impact                                     | As no suitable habitat for this species occurs within the project area, the project would not impact the species.   | N                                  |
| Travis | Reptiles | Timber (Canebrake) Rattlesnake | <i>Crotalus horridus</i>              | The timber rattlesnake may be found in swamps, floodplains, upland pine and deciduous woodlands, riparian zones, and abandoned farmland near a permanent water source, such as rivers, lakes, ponds, streams, and swamps where tree stumps, logs, and branches provide refuge. The species generally prefers dense ground cover, such as grapevines or palmetto. The timber rattlesnake occurs widely in eastern Texas.                           | Y                         | The project area contains wooded regions with dense ground cover.                  | —              | N/A  | T            | May impact                                    | As suitable habitat for this species occurs within the project area, the project may impact this species.   | N                                  |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon      | Species (Common Name)      | Reference   |
|------------|----------------------------|---|
| All        | All Species                | NatureServe Explorer website <a href="http://explorer.natureserve.org">http://explorer.natureserve.org</a>  |
| All        | All Species                | TPWD RTEST website <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a> July 17, 2019 version retrieved July 29, 2019.   |
| All        | All Species                | USFWS ECOS website <a href="https://ecos.fws.gov/">https://ecos.fws.gov/</a> Retrieved August 16, 2019.   |
| All        | All Species                | USFWS IPAC website <a href="https://ecos.fws.gov/ipac/">https://ecos.fws.gov/ipac/</a> Retrieved August 2019.   |
| Amphibians | Austin Blind Salamander    | Chamberlain, D. A. and L. O'Donnell. 2003. City of Austin's captive breeding program for the Barton Springs and Austin blind salamanders (January 1-December 31, 2002). City of Austin Watershed Protection and Development Review Department annual permit (PRT-839031) report.  |
| Amphibians | Austin Blind Salamander    | Hillis, D. M., D. A. Chamberlain, T. P. Wilcox, and P. T. Chippindale. 2001. A new species of subterranean blind salamander (Plethodontidae: Hemidactyliini: Eurycea: Typhlomolge) from Austin, Texas, and a systematic revision of central Texas paedomorphic salamanders. <i>Herpetologica</i> 57:266-280.  |
| Amphibians | Barton Springs Salamander  | <a href="https://tpwd.texas.gov/huntwild/wild/species/bartonspringssalamander/">https://tpwd.texas.gov/huntwild/wild/species/bartonspringssalamander/</a>   |
| Amphibians | Barton Springs Salamander  | <a href="https://www.iucnredlist.org/species/8392/12909469">https://www.iucnredlist.org/species/8392/12909469</a>   |
| Amphibians | Black-spotted Newt         | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Notoptthalmus+meridionalis">http://explorer.natureserve.org/servlet/NatureServe?searchName=Notoptthalmus+meridionalis</a>   |
| Amphibians | Black-spotted Newt         | <a href="https://www.iucnredlist.org/species/59452/11944420">https://www.iucnredlist.org/species/59452/11944420</a>   |
| Amphibians | Blanco Blind Salamander    | Berkhouse, C. S., and J. N. Fries. 1995. Critical thermal maxima of juvenile and adult San Marcos salamanders ( <i>Eurycea nana</i> ). <i>Southwestern Naturalist</i> 40(4).  |
| Amphibians | Blanco Blind Salamander    | Hillis, D. M., D. A. Chamberlain, T. P. Wilcox, and P. T. Chippindale. 2001. A new species of subterranean blind salamander (Plethodontidae: Hemidactyliini: Eurycea: Typhlomolge) from Austin, Texas, and a systematic revision of central Texas paedomorphic salamanders. <i>Herpetologica</i> 57:266-280.  |
| Amphibians | Cascade Caverns Salamander | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Eurycea+latitans">http://explorer.natureserve.org/servlet/NatureServe?searchName=Eurycea+latitans</a>   |
| Amphibians | Cascade Caverns Salamander | <a href="https://www.iucnredlist.org/species/59267/11895685#habitat-ecology">https://www.iucnredlist.org/species/59267/11895685#habitat-ecology</a>   |
| Amphibians | Comal Blind Salamander     | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=105895&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=105895&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=105895">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=105895&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=105895&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=105895</a> |
| Amphibians | Comal Blind Salamander     | <a href="https://www.inaturalist.org/taxa/27119-Eurycea-tridentifera">https://www.inaturalist.org/taxa/27119-Eurycea-tridentifera</a>   |
| Amphibians | Comal Blind Salamander     | <a href="https://www.iucnredlist.org/species/8393/12909608#habitat-ecology">https://www.iucnredlist.org/species/8393/12909608#habitat-ecology</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon      | Species (Common Name)         | Reference   |
|------------|-------------------------------|---|
| Amphibians | Georgetown Salamander         | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=105895&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=105895&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=105895">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=105895&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=105895&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=105895</a> |
| Amphibians | Houston Toad                  | Price, A.H. 2003. The Houston Toad in Bastrop State Park 1990 - 2002: A Narrative. Occasional Papers Wildlife Division, Texas Parks & Wildlife Department. 1:1-21.  |
| Amphibians | Houston Toad                  | Price, A.H. and J.H. Yantis. 1993. Houston toad ( <i>Bufo houstonensis</i> ) status survey. Final Report as required by the Endangered Species Act, Section 6, Endangered and Threatened Species Conservation. Texas Project No. E-1-4, Job No. 8. Texas Parks and Wildlife Department, Austin, Texas. 13 pp + figs.  |
| Amphibians | Jollyville Plateau Salamander | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Eurycea+tonkawae">http://explorer.natureserve.org/servlet/NatureServe?searchName=Eurycea+tonkawae</a>   |
| Amphibians | Jollyville Plateau Salamander | <a href="http://www.austintexas.gov/content/1361/FAQ/4646">http://www.austintexas.gov/content/1361/FAQ/4646</a>   |
| Amphibians | Jollyville Plateau Salamander | <a href="https://www.iucnredlist.org/species/59275/11908615">https://www.iucnredlist.org/species/59275/11908615</a>   |
| Amphibians | Mexican Burrowing Toad        | <a href="https://www.herpssoftexas.org/content/mexican-burrowing-toad">https://www.herpssoftexas.org/content/mexican-burrowing-toad</a>   |
| Amphibians | Mexican Burrowing Toad        | <a href="https://www.iucnredlist.org/species/59040/11873951#habitat-ecology">https://www.iucnredlist.org/species/59040/11873951#habitat-ecology</a>   |
| Amphibians | Mexican TreeFrog              | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Smilisca+baudinii">http://explorer.natureserve.org/servlet/NatureServe?searchName=Smilisca+baudinii</a>   |
| Amphibians | Mexican TreeFrog              | <a href="https://www.iucnredlist.org/species/64076/12741970#habitat-ecology">https://www.iucnredlist.org/species/64076/12741970#habitat-ecology</a>   |
| Amphibians | Salado Salamander             | <a href="https://amphibiaweb.org/species/5378">https://amphibiaweb.org/species/5378</a>   |
| Amphibians | Salado Salamander             | <a href="https://www.iucnredlist.org/species/59271/11908207#habitat-ecology">https://www.iucnredlist.org/species/59271/11908207#habitat-ecology</a>   |
| Amphibians | San Marcos Salamander         | Nelson, J. 1993. Population size, distribution, and life history of <i>Eurycea nana</i> in the San Marcos River. M.S. Thesis, Southwest Texas State University. USFWS 1996. San Marcos and Comal Springs and associated aquatic ecosystems (revised) recovery plan. U.S. Fish and Wildlife Service.   |
| Amphibians | sheep Frog                    | <a href="http://www.zo.utexas.edu/research/txherps/frogs/">http://www.zo.utexas.edu/research/txherps/frogs/</a>   |
| Amphibians | sheep Frog                    | <a href="https://www.herpssoftexas.org/content/sheep-frog">https://www.herpssoftexas.org/content/sheep-frog</a>   |
| Amphibians | South Texas siren             | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Amphibians | Texas Blind Salamander        | Berkhouse, C. S., and J. N. Fries. 1995. Critical thermal maxima of juvenile and adult San Marcos salamanders ( <i>Eurycea nana</i> ). <i>Southwestern Naturalist</i> 40(4).  |
| Amphibians | Texas Blind Salamander        | Hillis, D. M., D. A. Chamberlain, T. P. Wilcox, and P. T. Chippindale. 2001. A new species of subterranean blind salamander (Plethodontidae: Hemidactyliini: <i>Eurycea</i> : <i>Typhlomolge</i> ) from Austin, Texas, and a systematic revision of central Texas paedomorphic salamanders. <i>Herpetologica</i> 57:266-280.  |
| Amphibians | White-lipped Frog             | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Leptodactylus+fragilis">http://explorer.natureserve.org/servlet/NatureServe?searchName=Leptodactylus+fragilis</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon      | Species (Common Name)                 | Reference   |
|------------|---------------------------------------|---|
| Amphibians | White-lipped Frog                     | <a href="https://amphibiaweb.org/cgi/amphib_query?where-genus=Leptodactylus&amp;where-species=fragilis">https://amphibiaweb.org/cgi/amphib_query?where-genus=Leptodactylus&amp;where-species=fragilis</a>                   |
| Amphibians | White-lipped Frog                     | <a href="https://www.iucnredlist.org/species/57127/11587519">https://www.iucnredlist.org/species/57127/11587519</a>   |
| Arachnids  | Bee Creek Cave Harvestman             | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+reddelli">http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+reddelli</a>   |
| Arachnids  | Bee Creek Cave Harvestman             | <a href="https://ecos.fws.gov/docs/federal_register/fr1473.pdf">https://ecos.fws.gov/docs/federal_register/fr1473.pdf</a>   |
| Arachnids  | Bone Cave Harvestman                  | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+reyesi">http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+reyesi</a>   |
| Arachnids  | Bone Cave Harvestman                  | <a href="https://ecos.fws.gov/docs/five_year_review/doc5768.pdf">https://ecos.fws.gov/docs/five_year_review/doc5768.pdf</a>   |
| Arachnids  | Braken Bat Cave Meshweaver            | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01D">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01D</a>   |
| Arachnids  | Braken Bat Cave Meshweaver            | Hedin et al. 2018. Sequence capture phylogenomics of eyeless Cicurina spiders from Texas caves, with emphasis on US federally-endangered species from Bexar County.   |
| Arachnids  | Cokendolpher Cave Harvestman          | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+cokendolpheri">http://explorer.natureserve.org/servlet/NatureServe?searchName=Texella+cokendolpheri</a>                                     |
| Arachnids  | Cokendolpher Cave Harvestman          | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J016">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J016</a>   |
| Arachnids  | Government Canyon Bat Cave Meshweaver | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01B">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01B</a>   |
| Arachnids  | Government Canyon Bat Cave Meshweaver | Hedin et al. 2018. Sequence capture phylogenomics of eyeless Cicurina spiders from Texas caves, with emphasis on US federally-endangered species from Bexar County.   |
| Arachnids  | Government Canyon Bat Cave Spider     | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Neoleptoneta+microps">http://explorer.natureserve.org/servlet/NatureServe?searchName=Neoleptoneta+microps</a>                                       |
| Arachnids  | Government Canyon Bat Cave Spider     | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J018">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J018</a>   |
| Arachnids  | Madla Cave Meshweaver                 | Hedin et al. 2018. Sequence capture phylogenomics of eyeless Cicurina spiders from Texas caves, with emphasis on US federally-endangered species from Bexar County.   |
| Arachnids  | Madla Cave Meshweaver                 | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J019">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J019</a>   |
| Arachnids  | Robber Baron Cave Meshweaver          | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01A">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J01A</a>   |
| Arachnids  | Tooth Cave Pseudoscorpion             | <a href="https://ecos.fws.gov/docs/five_year_review/doc5773.pdf">https://ecos.fws.gov/docs/five_year_review/doc5773.pdf</a>   |
| Arachnids  | Tooth Cave Pseudoscorpion             | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J00A">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J00A</a>   |
| Arachnids  | Tooth Cave Spider                     | <a href="https://ecos.fws.gov/docs/five_year_review/doc5774.pdf">https://ecos.fws.gov/docs/five_year_review/doc5774.pdf</a>   |
| Arachnids  | Tooth Cave Spider                     | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J00B">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=J00B</a>   |
| Birds      | American Peregrine Falcon             | <a href="https://tpwd.texas.gov/huntwild/wild/species/amperegrine/">https://tpwd.texas.gov/huntwild/wild/species/amperegrine/</a>   |
| Birds      | American Peregrine Falcon             | <a href="https://www.allaboutbirds.org/guide/peregrine_falcon/lifehistory">https://www.allaboutbirds.org/guide/peregrine_falcon/lifehistory</a>   |
| Birds      | Arizona Botteri's Sparrow             | <a href="https://www.audubon.org/field-guide/bird/botteris-sparrow">https://www.audubon.org/field-guide/bird/botteris-sparrow</a>   |
| Birds      | Attwater's Greater Prairie-chicken    | 2010. Attwater's Prairie-chicken Recovery Plan. 2nd Rev. Southwestern Region USFW. Albuguerque, New Mexico.   |
| Birds      | Bachman's Sparrow                     | Farrand, J., Jr. 1988. Eastern Birds: An Audubon Handbook. McGraw-Hill Book Company. New York, New York, USA.   |
| Birds      | Bald Eagle                            | <a href="https://www.fs.fed.us/database/feis/animals/bird/hale/all.html">https://www.fs.fed.us/database/feis/animals/bird/hale/all.html</a>   |
| Birds      | Bald Eagle                            | <a href="https://www.webcitation.org/6Q2VGMkav?url=http://raptors.hancockwildlife.org/BEIA/PAGES/Section-14.pdf">https://www.webcitation.org/6Q2VGMkav?url=http://raptors.hancockwildlife.org/BEIA/PAGES/Section-14.pdf</a> |
| Birds      | Black Rail                            | <a href="https://ebird.org/species/blkrai">https://ebird.org/species/blkrai</a>   |
| Birds      | Black Rail                            | <a href="https://www.allaboutbirds.org/guide/Black_Rail/id">https://www.allaboutbirds.org/guide/Black_Rail/id</a>   |
| Birds      | Black-capped Vireo                    | <a href="https://www.fws.gov/southwest/es/Documents/R2ES/black-capped_vireo_Science_Report_FINAL_5-06.pdf">https://www.fws.gov/southwest/es/Documents/R2ES/black-capped_vireo_Science_Report_FINAL_5-06.pdf</a>             |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon | Species (Common Name)         | Reference  |
|-------|-------------------------------|--|
| Birds | Black-capped Vireo            | <a href="https://www.wjonline.org/doi/abs/10.1676/11-134.1">https://www.wjonline.org/doi/abs/10.1676/11-134.1</a>  |
| Birds | Botteri's Sparrow             | <a href="https://www.audubon.org/field-guide/bird/botteris-sparrow">https://www.audubon.org/field-guide/bird/botteris-sparrow</a>  |
| Birds | Cactus Ferruginous Pygmy-owl  | <a href="https://www.audubon.org/field-guide/bird/ferruginous-pygmy-owl">https://www.audubon.org/field-guide/bird/ferruginous-pygmy-owl</a>  |
| Birds | Common Black-hawk             | <a href="https://txtbba.tamu.edu/species-accounts/common-black-hawk">https://txtbba.tamu.edu/species-accounts/common-black-hawk</a>  |
| Birds | Eskimo Curlew                 | <a href="https://tpwd.texas.gov/huntwild/wild/species/eskcurl/">https://tpwd.texas.gov/huntwild/wild/species/eskcurl/</a>  |
| Birds | Eskimo Curlew                 | <a href="https://www.audubon.org/news/the-eskimo-curlew-hasnt-been-seen-55-years-it-time-declare-it-extinct">https://www.audubon.org/news/the-eskimo-curlew-hasnt-been-seen-55-years-it-time-declare-it-extinct</a>  |
| Birds | Golden-cheeked Warbler        | Groce, J., H.A. Mathewson, M.L. Morrison, N. Wilkins. 2010. Scientific evaluation for the 5-year status review of the golden-cheeked warbler. Prepared for U.S. Fish and Wildlife Service  |
| Birds | Golden-cheeked Warbler        | Ladd, C. G. 1985. Nesting habitat requirements of the golden-cheeked warbler. M.S. thesis. Southwest Texas State University. San Marcos, Texas, USA.   |
| Birds | Golden-cheeked Warbler        | U.S. Fish and Wildlife Service (USFWS). 1992. golden-cheeked warbler ( <i>Dendroica chrysoparia</i> ) recovery plan. Albuquerque, New Mexico, USA.   |
| Birds | Gray Hawk                     | <a href="https://txtbba.tamu.edu/species-accounts/gray-hawk/">https://txtbba.tamu.edu/species-accounts/gray-hawk/</a>  |
| Birds | Gray Hawk                     | <a href="https://www.allaboutbirds.org/guide/gray_hawk/lifehistory">https://www.allaboutbirds.org/guide/gray_hawk/lifehistory</a>  |
| Birds | Least Tern                    | Campbell, L. 2003. Endangered and threatened animals of Texas, their life history and management. Texas Parks and Wildlife Press. Austin, Texas, USA.  |
| Birds | Least Tern                    | <a href="https://tpwd.texas.gov/huntwild/wild/species/leasttern/">https://tpwd.texas.gov/huntwild/wild/species/leasttern/</a>  |
| Birds | Least Tern                    | Lott, C. A. 2006. Distribution and Abundance of the Interior Population of the least tern ( <i>Sternula antillarum</i> ), 2005: A Review of the First Complete Range-Wide Survey in the Context of Historic and Ongoing Monitoring Efforts. U.S. Army Corps of Engineers. Washington, D.C., USA. |
| Birds | Mexican Spotted Owl           | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=8196">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=8196</a>  |
| Birds | Northern Aplomado Falcon      | <a href="https://txtbba.tamu.edu/species-accounts/aplomado-falcon/">https://txtbba.tamu.edu/species-accounts/aplomado-falcon/</a>  |
| Birds | Northern Aplomado Falcon      | <a href="https://www.iucnredlist.org/species/22696450/131940332">https://www.iucnredlist.org/species/22696450/131940332</a>  |
| Birds | Northern Beardless-tyrannulet | <a href="https://www.iucnredlist.org/species/22699177/93717756">https://www.iucnredlist.org/species/22699177/93717756</a>  |
| Birds | Piping Plover                 | Haig, S.M. and L.W. Oring. 1985. Distribution and status of the piping plover throughout the annual cycle. J. Field Ornith. 56(4):334-345.   |
| Birds | Piping Plover                 | <a href="http://ecos.fws.gov/speciesProfile/profile/speciesProfile?spcode=B079">http://ecos.fws.gov/speciesProfile/profile/speciesProfile?spcode=B079</a>  |
| Birds | Piping Plover                 | U.S. Fish and Wildlife Service (USFWS). 2003. Recovery Plan for the Great Lakes piping plover ( <i>Charadrius melodus</i> ). USFWS Region 3. Ft. Snelling, Minnesota, USA.   |
| Birds | Red Knot                      | <a href="https://www.allaboutbirds.org/guide/Red_Knot/lifehistory">https://www.allaboutbirds.org/guide/Red_Knot/lifehistory</a>  |
| Birds | Red Knot                      | <a href="https://www.texasaltwaterfishingmagazine.com/fishing/education/fi-shy-facts/red-knots">https://www.texasaltwaterfishingmagazine.com/fishing/education/fi-shy-facts/red-knots</a>  |
| Birds | Red-cockaded Woodpecker       | <a href="https://tpwd.texas.gov/huntwild/wild/species/rcw/">https://tpwd.texas.gov/huntwild/wild/species/rcw/</a>  |
| Birds | Red-cockaded Woodpecker       | <a href="https://txtbba.tamu.edu/species-accounts/red-cockaded-woodpecker/">https://txtbba.tamu.edu/species-accounts/red-cockaded-woodpecker/</a>  |
| Birds | Red-cockaded Woodpecker       | <a href="https://www.fws.gov/ncsandhills/rcw.html">https://www.fws.gov/ncsandhills/rcw.html</a>  |
| Birds | Red-crowned Parrot            | <a href="https://ebird.org/species/recpar">https://ebird.org/species/recpar</a>  |
| Birds | Red-crowned Parrot            | <a href="https://txtbba.tamu.edu/species-accounts/red-crowned-parrot/">https://txtbba.tamu.edu/species-accounts/red-crowned-parrot/</a>  |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon       | Species (Common Name)          | Reference   |
|-------------|--------------------------------|---|
| Birds       | Reddish Egret                  | <a href="https://nhpbs.org/natureworks/reddishegret.htm#3">https://nhpbs.org/natureworks/reddishegret.htm#3</a>   |
| Birds       | Reddish Egret                  | <a href="https://tpwd.texas.gov/huntwild/wild/species/reddishegret/">https://tpwd.texas.gov/huntwild/wild/species/reddishegret/</a>   |
| Birds       | Reddish Egret                  | <a href="https://www.iucnredlist.org/species/22696916/93592693">https://www.iucnredlist.org/species/22696916/93592693</a>   |
| Birds       | Rose-throated Becard           | <a href="https://neotropical.birds.cornell.edu/Species-Account/nb/species/rotbec/distribution">https://neotropical.birds.cornell.edu/Species-Account/nb/species/rotbec/distribution</a>   |
| Birds       | Rose-throated Becard           | <a href="https://www.iucnredlist.org/species/22700670/93791247">https://www.iucnredlist.org/species/22700670/93791247</a>   |
| Birds       | Sooty Tern                     | <a href="https://neotropical.birds.cornell.edu/Species-Account/nb/species/sooter1/distribution#hab">https://neotropical.birds.cornell.edu/Species-Account/nb/species/sooter1/distribution#hab</a>   |
| Birds       | Sooty Tern                     | <a href="https://txtbba.tamu.edu/species-accounts/sooty-tern/">https://txtbba.tamu.edu/species-accounts/sooty-tern/</a>   |
| Birds       | Southwestern Willow Flycatcher | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Empidonax+traillii+extimus">http://explorer.natureserve.org/servlet/NatureServe?searchName=Empidonax+traillii+extimus</a>   |
| Birds       | Southwestern Willow Flycatcher | <a href="https://www.fws.gov/nevada/protected_species/birds/species/swwf.html">https://www.fws.gov/nevada/protected_species/birds/species/swwf.html</a>   |
| Birds       | Swallow-tailed Kite            | <a href="https://txtbba.tamu.edu/species-accounts/swallow-tailed-kite/">https://txtbba.tamu.edu/species-accounts/swallow-tailed-kite/</a>   |
| Birds       | Swallow-tailed Kite            | <a href="https://www.audubon.org/field-guide/bird/swallow-tailed-kite">https://www.audubon.org/field-guide/bird/swallow-tailed-kite</a>   |
| Birds       | Texas Botteri's Sparrow        | <a href="https://txtbba.tamu.edu/species-accounts/botteris-sparrow/">https://txtbba.tamu.edu/species-accounts/botteris-sparrow/</a>   |
| Birds       | Tropical Parula                | <a href="https://txtbba.tamu.edu/species-accounts/tropical-parula/">https://txtbba.tamu.edu/species-accounts/tropical-parula/</a>   |
| Birds       | Whooping Crane                 | <a href="https://www.allaboutbirds.org/guide/Whooping_Crane/lifehistory">https://www.allaboutbirds.org/guide/Whooping_Crane/lifehistory</a>   |
| Birds       | wood stork                     | <a href="https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0496.pdf">https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0496.pdf</a>   |
| Birds       | Yellow-billed Cuckoo           | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Coccyzus+americanus">http://explorer.natureserve.org/servlet/NatureServe?searchName=Coccyzus+americanus</a>   |
| Birds       | Zone-tailed Hawk               | <a href="https://txtbba.tamu.edu/species-accounts/zone-tailed-hawk">https://txtbba.tamu.edu/species-accounts/zone-tailed-hawk</a>   |
| Birds       | Zone-tailed Hawk               | <a href="https://www.nwf.org/Educational-Resources/Wildlife-Guide/Birds/Whooping-Crane">https://www.nwf.org/Educational-Resources/Wildlife-Guide/Birds/Whooping-Crane</a>   |
| Crustaceans | Diminutive Amphipod            | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Gammarus+hyalleloides">http://explorer.natureserve.org/servlet/NatureServe?searchName=Gammarus+hyalleloides</a>   |
| Crustaceans | Diminutive Amphipod            | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Crustaceans | Peck's Cave Amphipod           | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=110476&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=110476&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=110476">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=110476&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=110476&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=110476</a> |
| Crustaceans | Peck's Cave Amphipod           | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=8575">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=8575</a>   |
| Crustaceans | Pecos Amphipod                 | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=K024">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=K024</a>   |
| Crustaceans | Pecos Amphipod                 | <a href="https://www.govinfo.gov/content/pkg/FR-2012-08-16/pdf/2012-19829.pdf">https://www.govinfo.gov/content/pkg/FR-2012-08-16/pdf/2012-19829.pdf</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon  | Species (Common Name)      | Reference   |
|--------|----------------------------|---|
| Fish   | Scalloped Hammerhead Shark | George H. Burgess, Lawrence R. Beerkircher, Gregor M. Cailliet, John K. Carlson, Enris Cortés, Kenneth J. Goldman, R. Dean Grubbs, John A. Musick, Michael K. Musyl & Colin A. Simpfendorfer. 2005. Is the collapse of shark populations in the Northwest Atlantic Ocean and Gulf of Mexico real?, Fisheries, 30:10, 19-26, DOI: 10.1577/1548-8446(2005)30[19:ITCOSP]2.0.CO;2 |
| Fish   | Scalloped Hammerhead Shark | Piercy Andrew N., Carlson John K., Sulikowski James A., Burgess George H. 2007. Age and growth of the scalloped hammerhead shark, Sphyrna lewini, in the north-west Atlantic Ocean and Gulf of Mexico. Marine and Freshwater Research 58, 34-40.  |
| Fishes | Arkansas River Shiner      | <a href="http://ecos.fws.gov/tess_public/profile/speciesProfile.jsessionid=59559A8156AC4701D4B745DAD565003C?spcode=E05X">http://ecos.fws.gov/tess_public/profile/speciesProfile.jsessionid=59559A8156AC4701D4B745DAD565003C?spcode=E05X</a>   |
| Fishes | Atlantic Sturgeon          | <a href="https://www.fisheries.noaa.gov/species/atlantic-sturgeon">National Oceanic and Atmospheric Administration (NOAA), Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). Available at https://www.fisheries.noaa.gov/species/atlantic-sturgeon. Accessed August 2019.</a>  |
| Fishes | Big Bend Gambusia          | <a href="https://tpwd.texas.gov/huntwild/wild/species/bbgambus/">https://tpwd.texas.gov/huntwild/wild/species/bbgambus/</a>   |
| Fishes | Big Bend Gambusia          | <a href="https://www.biologicaldiversity.org/campaigns/esa_works/profile_pages/BigBendgambusia.html">https://www.biologicaldiversity.org/campaigns/esa_works/profile_pages/BigBendgambusia.html</a>   |
| Fishes | Big Bend Gambusia          | <a href="https://www.iucnredlist.org/species/8890/18229201#habitat-ecology">https://www.iucnredlist.org/species/8890/18229201#habitat-ecology</a>   |
| Fishes | Blackside Darter           | <a href="http://txstate.fishesoftexas.org/percina%20maculata.htm">http://txstate.fishesoftexas.org/percina%20maculata.htm</a>   |
| Fishes | Blackside Darter           | <a href="http://www.fishesoftexas.org/taxa/percina-maculata">http://www.fishesoftexas.org/taxa/percina-maculata</a>   |
| Fishes | Blackside Darter           | <a href="https://www.fishbase.se/summary/3498">https://www.fishbase.se/summary/3498</a>   |
| Fishes | Blue Sucker                | Walburg, C. H., G. L. Kaiser, and P. L. Hudson. 1971. Lewis and Clark Lake tailwater biota and some relations of the tailwater and reservoir fish populations, pp. 449-467. In; Reservoir fisheries and limnology. G. E. Hall, ed. Spec. Publ., no. 8, American Fisheries Society, Washington, D.C.   |
| Fishes | Bluehead Shiner            | <a href="http://txstate.fishesoftexas.org/pteronotropis%20hubbsi.htm">http://txstate.fishesoftexas.org/pteronotropis%20hubbsi.htm</a>   |
| Fishes | Chihuahua Shiner           | <a href="http://txstate.fishesoftexas.org/notropis%20chihuahua.htm">http://txstate.fishesoftexas.org/notropis%20chihuahua.htm</a>   |
| Fishes | Clear Creek Gambusia       | <a href="http://txstate.fishesoftexas.org/gambusia%20heterochir.htm">http://txstate.fishesoftexas.org/gambusia%20heterochir.htm</a>   |
| Fishes | Clear Creek Gambusia       | <a href="https://tpwd.texas.gov/huntwild/wild/species/clearcreekgambusia/">https://tpwd.texas.gov/huntwild/wild/species/clearcreekgambusia/</a>   |
| Fishes | Comanche Springs Pupfish   | <a href="http://www.fishesoftexas.org/taxa/cyprinodon-elegans">http://www.fishesoftexas.org/taxa/cyprinodon-elegans</a>   |
| Fishes | Conchos Pupfish            | <a href="http://txstate.fishesoftexas.org/cyprinodon%20eximius.htm">http://txstate.fishesoftexas.org/cyprinodon%20eximius.htm</a>   |
| Fishes | Devils River Minnow        | <a href="http://txstate.fishesoftexas.org/cyprinodon%20eximius.htm">http://txstate.fishesoftexas.org/cyprinodon%20eximius.htm</a>   |
| Fishes | Dwarf Seahorse             | Fedrizzi N, Stiassny ML, Boehm JT, Dougherty ER, Amato G, Mendez M. Population Genetic Structure of the Dwarf Seahorse (Hippocampus zosterae) in Florida. PLoS One. 2015;10(7):e0132308. Published 2015 Jul 22. doi:10.1371/journal.pone.0132308.   |
| Fishes | Fountain Darter            | Habitat utilization and population size estimate of fountain darters, Etheostoma fonticola, in the Comal River, Texas. Texas Journal of Science 45(4):341-348.  |
| Fishes | Fountain Darter            | Schenck, J. R., and B.G. Whiteside. 1976. Distribution, habitat preference, and population size estimate of Etheostoma fonticola. Copeia 76(4):697-703.   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon  | Species (Common Name)     | Reference   |
|--------|---------------------------|---|
| Fishes | Giant Manta Ray           | Graham RT, Witt MJ, Castellanos DW, Remolina F, Maxwell S, Godley BJ, et al. 2012. Satellite Tracking of Manta Rays Highlights Challenges to Their Conservation. PLoS ONE 7(5): e36834. <a href="https://doi.org/10.1371/journal.pone.0036834">https://doi.org/10.1371/journal.pone.0036834</a> .   |
| Fishes | Gulf Sturgeon             |   |
| Fishes | Leon Springs Pupfish      | <a href="http://txstate.fishesoftexas.org/cyprinodon%20bovinus.htm">http://txstate.fishesoftexas.org/cyprinodon%20bovinus.htm</a>   |
| Fishes | Leon Springs Pupfish      | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=1135">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=1135</a>   |
| Fishes | Mexican Blindcat          | <a href="https://www.iucnredlist.org/species/18136/7669809">https://www.iucnredlist.org/species/18136/7669809</a>   |
| Fishes | Mexican Goby              | <a href="https://www.fishbase.de/summary/Ctenogobius-claytonii.html">https://www.fishbase.de/summary/Ctenogobius-claytonii.html</a>   |
| Fishes | Mexican Stoneroller       | <a href="http://txstate.fishesoftexas.org/campostoma%20ornatum.htm">http://txstate.fishesoftexas.org/campostoma%20ornatum.htm</a>   |
| Fishes | Nassau Grouper            | Sadovy, Y. 1999. The Case of the Disappearing Grouper: <i>Epinephelus striatus</i> , the Nassau Group, in the Caribbean and Western Atlantic. Proceedings of the 45th Gulf and Caribbean Fisheries Institute.   |
| Fishes | Oceanic Whitetip Shark    | George H. Burgess, Lawrence R. Beerkircher, Gregor M. Cailliet, John K. Carlson, Enris Cortés, Kenneth J. Goldman, R. Dean Grubbs, John A. Musick, Michael K. Musyl & Colin A. Simpfendorfer. 2005. Is the collapse of shark populations in the Northwest Atlantic Ocean and Gulf of Mexico real?, Fisheries, 30:10, 19-26, DOI: 10.1577/1548-8446(2005)30[19:ITCOSP]2.0.CO;2 |
| Fishes | Opposum Pipefish          | <a href="https://www.fishbase.se/summary/Microphis-brachyurus.html">https://www.fishbase.se/summary/Microphis-brachyurus.html</a>   |
| Fishes | Paddlefish                | <a href="http://txstate.fishesoftexas.org/polydon%20spathula.htm">http://txstate.fishesoftexas.org/polydon%20spathula.htm</a>   |
| Fishes | Pecos Gambusia            | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=460">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=460</a>   |
| Fishes | Pecos Gambusia            | <a href="https://tpwd.texas.gov/huntwild/wild/species/pecogamb/">https://tpwd.texas.gov/huntwild/wild/species/pecogamb/</a>   |
| Fishes | Pecos Pupfish             | <a href="http://txstate.fishesoftexas.org/cyprinodon%20pecosensis.htm">http://txstate.fishesoftexas.org/cyprinodon%20pecosensis.htm</a>   |
| Fishes | Proserpine Shiner         | <a href="http://txstate.fishesoftexas.org/cyprinella%20proserpina.htm">http://txstate.fishesoftexas.org/cyprinella%20proserpina.htm</a>   |
| Fishes | Rio Grande Chub           | <a href="http://txstate.fishesoftexas.org/gila%20pandora.htm">http://txstate.fishesoftexas.org/gila%20pandora.htm</a>   |
| Fishes | Rio Grande Darter         | <a href="http://txstate.fishesoftexas.org/etheostoma%20grahami.htm">http://txstate.fishesoftexas.org/etheostoma%20grahami.htm</a>   |
| Fishes | Rio Grande Silvery Minnow | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E071">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E071</a>   |
| Fishes | River Goby                | <a href="http://txstate.fishesoftexas.org/awaous%20banana.htm">http://txstate.fishesoftexas.org/awaous%20banana.htm</a>   |
| Fishes | San Marcos Gambusia       | <a href="http://txstate.fishesoftexas.org/gambusia%20georgei.htm">http://txstate.fishesoftexas.org/gambusia%20georgei.htm</a>   |
| Fishes | Sharptooth Shiner         | <a href="http://txstate.fishesoftexas.org/notropis%20oxyrhynchus.htm">http://txstate.fishesoftexas.org/notropis%20oxyrhynchus.htm</a>   |
| Fishes | Shortnose Sturgeon        |   |
| Fishes | Shovelnose Sturgeon       | <a href="http://txstate.fishesoftexas.org/scaphirhynchus%20platyrhynchus.htm">http://txstate.fishesoftexas.org/scaphirhynchus%20platyrhynchus.htm</a>   |
| Fishes | Smalleye Shiner           | <a href="http://txstate.fishesoftexas.org/notropis%20buccula.htm">http://txstate.fishesoftexas.org/notropis%20buccula.htm</a>   |
| Fishes | Smalltooth Sawfish        | Carlson, John K., Jason Osborn, J., Thomas Schmidt. 2007. Monitoring the recovery of smalltooth sawfish, <i>Pristis pectinata</i> , using standardized relative indices of abundance. Biological Conservation. 136(0), 195-202.   |
| Fishes | Smalltooth Sawfish        | <a href="https://www.fishbase.se/summary/Pristis-pectinata">https://www.fishbase.se/summary/Pristis-pectinata</a>   |
| Fishes | Smalltooth Sawfish        | <a href="https://www.iucnredlist.org/species/18175/141791261#habitat-ecology">https://www.iucnredlist.org/species/18175/141791261#habitat-ecology</a>   |
| Fishes | Smalltooth Sawfish        |   |
| Fishes | Spotfin Gambusia          | <a href="https://www.iucnredlist.org/species/8898/">https://www.iucnredlist.org/species/8898/</a>   |
| Fishes | Toothless Blindcat        | <a href="http://txstate.fishesoftexas.org/trogloglanis%20pattersoni.htm">http://txstate.fishesoftexas.org/trogloglanis%20pattersoni.htm</a>   |
| Fishes | Western Creek Chubsucker  | <a href="https://www.fishbase.se/summary/66122">https://www.fishbase.se/summary/66122</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon         | Species (Common Name)                           | Reference   |
|---------------|---|---|
| Fishes        | Widemouth Blindcat                              | <a href="http://txstate.fishesoftexas.org/satan%20eurystomus.htm">http://txstate.fishesoftexas.org/satan%20eurystomus.htm</a>   |
| Insects       | [no common name] Beetle<br>(Rhadine exilis)     | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Rhadine+exilis+">http://explorer.natureserve.org/servlet/NatureServe?searchName=Rhadine+exilis+</a>   |
| Insects       | [no common name] Beetle<br>(Rhadine exilis)     | <a href="https://ecos.fws.gov/docs/five_year_review/doc3846.pdf">https://ecos.fws.gov/docs/five_year_review/doc3846.pdf</a>   |
| Insects       | [no common name] Beetle<br>(Rhadine infernalis) | <a href="https://bugguide.net/node/view/1138577">https://bugguide.net/node/view/1138577</a>   |
| Insects       | American Burying Beetle                         | <a href="https://ecos.fws.gov/docs/five_year_review/doc1968.pdf">https://ecos.fws.gov/docs/five_year_review/doc1968.pdf</a>   |
| Insects       | Coffin Cave Mold Beetle                         | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Batrisodes+texanus">http://explorer.natureserve.org/servlet/NatureServe?searchName=Batrisodes+texanus</a>   |
| Insects       | Coffin Cave Mold Beetle                         | <a href="https://bugguide.net/node/view/443852">https://bugguide.net/node/view/443852</a>   |
| Insects       | Coffin Cave Mold Beetle                         | <a href="https://ecos.fws.gov/docs/five_year_review/doc5768.pdf">https://ecos.fws.gov/docs/five_year_review/doc5768.pdf</a>   |
| Insects       | Comal Springs Dryopid Beetle                    | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Stygoparnus+comalensis">http://explorer.natureserve.org/servlet/NatureServe?searchName=Stygoparnus+comalensis</a>   |
| Insects       | Comal Springs Dryopid Beetle                    | <a href="https://bugguide.net/node/view/287708">https://bugguide.net/node/view/287708</a>   |
| Insects       | Comal Springs Dryopid Beetle                    | <a href="https://www.biologicaldiversity.org/species/invertebrates/Comal_Springs_dryopid_beetle/natural_history.html">https://www.biologicaldiversity.org/species/invertebrates/Comal_Springs_dryopid_beetle/natural_history.html</a>   |
| Insects       | Comal Springs Riffle Beetle                     | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Heterelmis+comalensis">http://explorer.natureserve.org/servlet/NatureServe?searchName=Heterelmis+comalensis</a>   |
| Insects       | Comal Springs Riffle Beetle                     | <a href="https://bioone.org/journals/The-Coleopterists-Bulletin/volume-69/issue-3/0010-065X-69.3.521/Underwater-Pupation-by-the-Comal-Springs-riffle-beetle-iHeterelmis-comalensis/10.1649/0010-065X-69.3.521.short">https://bioone.org/journals/The-Coleopterists-Bulletin/volume-69/issue-3/0010-065X-69.3.521/Underwater-Pupation-by-the-Comal-Springs-riffle-beetle-iHeterelmis-comalensis/10.1649/0010-065X-69.3.521.short</a> |
| Insects       | Helotes Mold Beetle                             | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Batrisodes+venyivi">http://explorer.natureserve.org/servlet/NatureServe?searchName=Batrisodes+venyivi</a>   |
| Insects       | Helotes Mold Beetle                             | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=IOPT">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=IOPT</a>   |
| Insects       | Kretschmarr Cave Mold Beetle                    | <a href="https://ecos.fws.gov/docs/five_year_review/doc5771.pdf">https://ecos.fws.gov/docs/five_year_review/doc5771.pdf</a>   |
| Insects       | Kretschmarr Cave Mold Beetle                    | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=3140">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=3140</a>   |
| Insects       | Tooth Cave Ground Beetle                        | <a href="https://ecos.fws.gov/docs/five_year_review/doc5772.pdf">https://ecos.fws.gov/docs/five_year_review/doc5772.pdf</a>   |
| Insects       | Tooth Cave Ground Beetle                        | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=IOIB">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=IOIB</a>   |
| Invertebrates | Boulder Star Coral                              | <a href="http://www.ploa.com/Vize_P.D._Coral_Reefs_(2006)_25:_169_">Vize, P.D. Coral Reefs (2006) 25: 169.</a><br><a href="https://doi.org/10.1007/s00338-005-0082-5">https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Boulder Star Coral                              | Zimmer, B., Precht, W., Hickerson, E. et al. Coral Reefs. 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .  |
| Invertebrates | Elkhorn Coral                                   | <a href="http://www.ploa.com/Vize_P.D._Coral_Reefs_(2006)_25:_169_">Vize, P.D. Coral Reefs (2006) 25: 169.</a><br><a href="https://doi.org/10.1007/s00338-005-0082-5">https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Elkhorn Coral                                   | William F. Prechta, Kenneth J. P. Deslarzes, Emma L. Hickerson, George P. Schmahl, Marissa F. Nuttall, Richard B. Aronson. 2014. Back to the future: The history of acroporid corals at the Flower Garden Banks, Gulf of Mexico, US. Marine Geology. 349: 152-161.  |
| Invertebrates | Elkhorn Coral                                   | Zimmer, B., Precht, W., Hickerson, E. et al. Coral Reefs. 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .  |
| Invertebrates | Lobed Star Coral                                | <a href="http://www.ploa.com/Vize_P.D._Coral_Reefs_(2006)_25:_169_">Vize, P. D. 2006. Coral Reefs 25: 169.</a><br><a href="https://doi.org/10.1007/s00338-005-0082-5">https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Lobed Star Coral                                | Zimmer, B., Precht, W., Hickerson, E. et al. Coral Reefs. 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .  |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon         | Species (Common Name)  | Reference  |
|---------------|------------------------|--|
| Invertebrates | Mountainous Star Coral | John P. Rippe Mikhail V. Matz Elizabeth A. Green Mónica Medina Nida Z. Khawaja Thanapat Pongwarin Jorge H. Pinzón C. Karl D. Castillo Sarah W. Davies. 2017. Population structure and connectivity of the mountainous star coral, <i>Orbicella faveolata</i> , throughout the wider Caribbean region. <i>Ecology and Evolution</i> . 7(22): Available at <a href="https://doi.org/10.1002/ece3.3448">https://doi.org/10.1002/ece3.3448</a> . |
| Invertebrates | Mountainous Star Coral | <a href="https://doi.org/10.1007/s00338-005-0082-5">Vize, P. D. 2006. Coral Reefs 25: 169. https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Mountainous Star Coral | Zimmer, B., Precht, W., Hickerson, E. et al. <i>Coral Reefs</i> . 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .   |
| Invertebrates | Pillar Coral           | <a href="https://doi.org/10.1007/s00338-005-0082-5">Vize, P. D. 2006. Coral Reefs 25: 169. https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Pillar Coral           | Zimmer, B., Precht, W., Hickerson, E. et al. <i>Coral Reefs</i> . 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .   |
| Invertebrates | Rough Cactus Coral     | <a href="https://doi.org/10.1007/s00338-005-0082-5">Vize, P. D. 2006. Coral Reefs 25: 169. https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Rough Cactus Coral     | Zimmer, B., Precht, W., Hickerson, E. et al. <i>Coral Reefs</i> . 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .   |
| Invertebrates | Staghorn Coral         | <a href="https://doi.org/10.1007/s00338-005-0082-5">Vize, P. D. 2006. Coral Reefs 25: 169. https://doi.org/10.1007/s00338-005-0082-5</a>   |
| Invertebrates | Staghorn Coral         | William F.Prechta, Kenneth J.P.Deslarzes, Emma L.Hickerson, George P.Schmahl, Marissa F.Nuttall, Richard B.Aronson. 2014. Back to the future: The history of acroporid corals at the Flower Garden Banks, Gulf of Mexico, US. <i>Marine Geology</i> . 349: 152-161.  |
| Invertebrates | Staghorn Coral         | Zimmer, B., Precht, W., Hickerson, E. et al. <i>Coral Reefs</i> . 2006. 25: 192. <a href="https://doi.org/10.1007/s00338-005-0054-9">https://doi.org/10.1007/s00338-005-0054-9</a> .   |
| Mammals       | Black Bear             | <a href="https://tpwd.texas.gov/landwater/land/habitats/trans_pecos/nongame/blackbear/">https://tpwd.texas.gov/landwater/land/habitats/trans_pecos/nongame/blackbear/</a>  |
| Mammals       | Black Bear             | <a href="https://tpwd.texas.gov/landwater/land/habitats/trans_pecos/nongame/blackbear/">https://tpwd.texas.gov/landwater/land/habitats/trans_pecos/nongame/blackbear/</a>  |
| Mammals       | Black Bear             | <a href="https://www.jstor.org/stable/3671651?seq=1#page_scan_tab_contents">https://www.jstor.org/stable/3671651?seq=1#page_scan_tab_contents</a>  |
| Mammals       | Black Bear             | <a href="https://www.jstor.org/stable/3873013?seq=1#page_scan_tab_contents">https://www.jstor.org/stable/3873013?seq=1#page_scan_tab_contents</a>  |
| Mammals       | Blue Whale             | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.   |
| Mammals       | Bryde's Whale          | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.   |
| Mammals       | Bryde's Whale          | <a href="https://www.fisheries.noaa.gov/species/brydes-whale">https://www.fisheries.noaa.gov/species/brydes-whale</a>  |
| Mammals       | Coues' Rice Rat        | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Orzomys+couesi+aquaticus">http://explorer.natureserve.org/servlet/NatureServe?searchName=Orzomys+couesi+aquaticus</a>  |
| Mammals       | Coues' Rice Rat        | <a href="https://tpwd.texas.gov/gis/maps/images/biotic-provinces-of-texas/view">https://tpwd.texas.gov/gis/maps/images/biotic-provinces-of-texas/view</a>  |
| Mammals       | Coues' Rice Rat        | <a href="https://www.iucnredlist.org/species/15592/115128044">https://www.iucnredlist.org/species/15592/115128044</a>  |
| Mammals       | False Killer Whale     | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.   |
| Mammals       | Fin Whale              | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| <b>Taxon</b> | <b>Species (Common Name)</b> | <b>Reference</b>  |
|--------------|------------------------------|---|
| Mammals      | Gulf Coast Jaguarundi        | <a href="https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0013_jaguarundi.pdf">https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0013_jaguarundi.pdf</a>   |
| Mammals      | Gulf Coast Jaguarundi        | Norwell, K. and P. Jackson. 1996. Status Survey and Conservation Action Plan: Wild Cats. Available at <a href="https://portals.iucn.org/library/sites/library/files/documents/1996-008.pdf">https://portals.iucn.org/library/sites/library/files/documents/1996-008.pdf</a> |
| Mammals      | Gulf of Mexico Bryde's Whale | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | Humpback Whale               | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | Humpback Whale               | <a href="http://www.nsrl.ttu.edu/tmot1/meganova.htm">http://www.nsrl.ttu.edu/tmot1/meganova.htm</a>   |
| Mammals      | Humpback Whale               | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Mammals      | Killer Whale                 | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | Louisiana Black Bear         | <a href="https://www.fws.gov/southeast/wildlife/mammals/louisiana-black-bear/#habitat-section">https://www.fws.gov/southeast/wildlife/mammals/louisiana-black-bear/#habitat-section</a>   |
| Mammals      | Mexican Long-nosed Bat       | <a href="https://academic.oup.com/jmammal/article-abstract/72/4/706/886702">https://academic.oup.com/jmammal/article-abstract/72/4/706/886702</a>   |
| Mammals      | Mexican Long-nosed Bat       | <a href="https://www.iucnredlist.org/species/11697/22126172">https://www.iucnredlist.org/species/11697/22126172</a>   |
| Mammals      | North Atlantic Right Whale   | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | ocelot                       | <a href="https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0013_ocelot.pdf">https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w700_0_0013_ocelot.pdf</a>   |
| Mammals      | ocelot                       | Norwell, K. and P. Jackson. 1996. Status Survey and Conservation Action Plan: Wild Cats. Available at <a href="https://portals.iucn.org/library/sites/library/files/documents/1996-008.pdf">https://portals.iucn.org/library/sites/library/files/documents/1996-008.pdf</a> |
| Mammals      | Palo Duro Mouse              | <a href="https://tpwd.texas.gov/huntwild/wild/species/pdmouse/">https://tpwd.texas.gov/huntwild/wild/species/pdmouse/</a>   |
| Mammals      | Rafinesque's Big-eared Bat   | <a href="https://plants.usda.gov/core/profile?symbol=nyaq2">https://plants.usda.gov/core/profile?symbol=nyaq2</a>   |
| Mammals      | Rafinesque's Big-eared Bat   | <a href="https://www.fws.gov/refuge/trinity_river/wildlife/bats.html">https://www.fws.gov/refuge/trinity_river/wildlife/bats.html</a>   |
| Mammals      | Rafinesque's Big-eared Bat   | <a href="https://www.iucnredlist.org/species/17600/21976905">https://www.iucnredlist.org/species/17600/21976905</a>   |
| Mammals      | Sei Whale                    | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | Southern Yellow Bat          | <a href="https://tpwd.texas.gov/huntwild/wild/species/syellow/">https://tpwd.texas.gov/huntwild/wild/species/syellow/</a>   |
| Mammals      | Southern Yellow Bat          | <a href="https://www.iucnredlist.org/species/11350/22119259#habitat-ecology">https://www.iucnredlist.org/species/11350/22119259#habitat-ecology</a>   |
| Mammals      | Sperm Whale                  | Fertl, Dagmar. 1998. Whales and dolphins of the Gulf of Mexico: A teacher's companion.  |
| Mammals      | Spotted Bat                  | <a href="http://www.nsrl.ttu.edu/tmot1/eudemacu.htm">http://www.nsrl.ttu.edu/tmot1/eudemacu.htm</a>   |
| Mammals      | Spotted Bat                  | <a href="https://tpwd.texas.gov/huntwild/wild/species/spotted/">https://tpwd.texas.gov/huntwild/wild/species/spotted/</a>   |
| Mammals      | Spotted Bat                  | <a href="https://www.iucnredlist.org/species/8166/22028573">https://www.iucnredlist.org/species/8166/22028573</a>   |
| Mammals      | Texas Kangaroo Rat           | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=2985">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=2985</a>   |
| Mammals      | Texas Kangaroo Rat           | <a href="https://tpwd.texas.gov/huntwild/wild/species/kanrat/">https://tpwd.texas.gov/huntwild/wild/species/kanrat/</a>   |
| Mammals      | Texas Kangaroo Rat           | <a href="https://www.fws.gov/southwest/es/ArlingtonTexas/pdf/TKR_FactSheet_20160808.pdf">https://www.fws.gov/southwest/es/ArlingtonTexas/pdf/TKR_FactSheet_20160808.pdf</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)  | Reference   |
|----------|------------------------|---|
| Mammals  | West Indian Manatee    | U.S. Fish and Wildlife Service. 2001. Florida Manatee Recovery Plan (Trichechus manatus latirostris) – Third Revision. Southeast Region, U.S. Fish and Wildlife Service. Atlanta, Georgia.<br><a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A007">https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A007</a>   |
| Mammals  | White-nosed Coati      | <a href="http://www.nsrl.ttu.edu/tmot1/nasunari.htm">http://www.nsrl.ttu.edu/tmot1/nasunari.htm</a>   |
| Mammals  | White-nosed Coati      | <a href="https://www.iucnredlist.org/species/41683/45216060#habitat-ecology">https://www.iucnredlist.org/species/41683/45216060#habitat-ecology</a>   |
| Mollusks | Diamond Y Spring snail | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Ps_eudotryonia+adamantina+">http://explorer.natureserve.org/servlet/NatureServe?searchName=Ps_eudotryonia+adamantina+</a>   |
| Mollusks | Diamond Y Spring snail | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Mollusks | False Spike            | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.121144&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.121144&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=SYN.121144">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.121144&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.121144&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=SYN.121144</a> |
| Mollusks | False Spike            | <a href="https://www.fws.gov/southwest/es/Documents/R2ES/AUES_Mussel_Summit_3_Robertson&amp;Pandolfi.pdf">https://www.fws.gov/southwest/es/Documents/R2ES/AUES_Mussel_Summit_3_Robertson&amp;Pandolfi.pdf</a>   |
| Mollusks | Golden Orb             | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.122925&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.122925&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=SYN.122925">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.122925&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.122925&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=SYN.122925</a> |
| Mollusks | Gonzales Tryonia       | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=108392&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=108392&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=108392">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=108392&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=108392&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=108392</a>   |
| Mollusks | Louisiana Pigtoe       | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=113470&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=113470&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=113470">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=113470&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=113470&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radiobutton=radiobutton&amp;selectedIndexes=113470</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)    | Reference   |
|----------|--------------------------|---|
| Mollusks | Mexican Fawnsfoot        | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=117864&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=117864&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=117864">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=117864&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=117864&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=117864</a>   |
| Mollusks | Ouachita Rock Pocketbook | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.125299&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.125299&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.125299">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.125299&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.125299&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.125299</a> |
| Mollusks | Ouachita rock pocketbook | <a href="https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=4509">https://ecos.fws.gov/ecp0/profile/speciesProfile?sld=4509</a>   |
| Mollusks | Pecos assiminea          | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=821442&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=821442&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=821442">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=821442&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=821442&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=821442</a>   |
| Mollusks | Phantom Springsnail      | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.115842&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.115842&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.115842">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.115842&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=SYN.115842&amp;offPageSelectedEIType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.115842</a> |
| Mollusks | Phantom Tryonia          | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=109259&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=109259&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=109259">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=109259&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=109259&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=109259</a>   |
| Mollusks | Salina Mucket            | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=680054&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=680054&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=680054">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=680054&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedEIKey=680054&amp;offPageSelectedEIType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=680054</a>   |
| Mollusks | Salina mucket            | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name) | Reference   |
|----------|-----------------------|---|
| Mollusks | Sandbank Pocketbook   | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=117064&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=117064&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=117064">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=117064&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=117064&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=117064</a>   |
| Mollusks | Smooth Pimpleback     | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.122926&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=SYN.122926&amp;offPageSelectedElType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.122926">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=SYN.122926&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=SYN.122926&amp;offPageSelectedElType=species_synonymn&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=SYN.122926</a> |
| Mollusks | Southern Hickorynut   | <a href="https://www.iucnredlist.org/species/15021/546965#habitat-ecology">https://www.iucnredlist.org/species/15021/546965#habitat-ecology</a>   |
| Mollusks | Texas Fatmucket       | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=112012&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=112012&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=112012">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=112012&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=112012&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=112012</a>   |
| Mollusks | Texas Fawnsfoot       | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=120471&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=120471&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=120471">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=120471&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=120471&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=120471</a>   |
| Mollusks | Texas Fawnsfoot       | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Mollusks | Texas Heelsplitter    | Howells, R.G., R.W. Neck, and H.D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press: Austin, Texas. 218 pp.  |
| Mollusks | Texas Heelsplitter    | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=115372&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=115372&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=115372">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=115372&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=115372&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radio button=radio button&amp;selectedIndexes=115372</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)            | Reference   |
|----------|----------------------------------|---|
| Mollusks | Texas Hornshell                  | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=121272&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=121272&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=121272">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=121272&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=121272&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=121272</a> |
| Plants   | Ashy Dogweed                     | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Ashy Dogweed                     | U.S. Fish and Wildlife Service. 1987. Ashy dogweed ( <i>Thymophlla tephroleuca</i> ) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.<br><a href="https://ecos.fws.gov/docs/recovery_plan/880729.pdf">https://ecos.fws.gov/docs/recovery_plan/880729.pdf</a>   |
| Plants   | Ashy Dogweed                     | Williamson, P. 2002. The effects of disturbance on the ashy dogweed ( <i>Thymophylla tephroleuca</i> ) and the prostrate milkweed ( <i>Asclepias prostrata</i> ). Section 6 final report. Austin: Texas Parks & Wildlife Department.<br><a href="https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/listed-species/plants/ashy_dogweed.phtml">https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/listed-species/plants/ashy_dogweed.phtml</a>   |
| Plants   | Black Lace Cactus                | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Black Lace Cactus                | U.S. Fish and Wildlife Service. 1986. Black Lace Cactus ( <i>Echinocereus reichenbachii</i> var. <i>albertii</i> ). Recovery Plan, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.   |
| Plants   | Bracted Twistflower              | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | Bracted Twistflower              | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.  |
| Plants   | Bunched Cory Cactus              | U.S. Fish and Wildlife Service. 1989. Bunched Cory cactus ( <i>Coryphantha ramillosa</i> ) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque. <a href="https://ecos.fws.gov/docs/recovery_plan/900413c.pdf">https://ecos.fws.gov/docs/recovery_plan/900413c.pdf</a>  |
| Plants   | Chisos Mountains Hedgehog Cactus | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Davis' Green Pitaya              | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Geocarpon minimum                | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | Geocarpon minimum                | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Guadalupe Fescue                 | Federal Register 2017. Endangered and Threatened Wildlife and Plants; Endangered Species Status for Guadalupe fescue; Designation of Critical Habitat for Guadalupe fescue. Federal Register, Volume 82, number 172. Thursday, September 7, 2017, Rules and Regulations, pages 42245 -42260. <a href="https://www.govinfo.gov/content/pkg/FR-2017-09-07/pdf/2017-19001.pdf#page=1">https://www.govinfo.gov/content/pkg/FR-2017-09-07/pdf/2017-19001.pdf#page=1</a>  |
| Plants   | Guadalupe Fescue                 | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station<br><a href="https://www.govinfo.gov/content/pkg/FR-2017-09-07/pdf/2017-19001.pdf#page=1">https://www.govinfo.gov/content/pkg/FR-2017-09-07/pdf/2017-19001.pdf#page=1</a>  |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon  | Species (Common Name)               | Reference   |
|--------|-------------------------------------|---|
| Plants | Hinckley Oak                        | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Johnson's Seagrass                  | Eiseman, N. J., Calvin McMillan. 1980. A new species of seagrass, <i>Halophila johnsonii</i> , from the Atlantic coast of Florida. <i>Aquatic Botany</i> .90(2009:89-92.)   |
| Plants | Large-fruited Sand-verbena          | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Little Aguja (=creek) Pondweed      | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Little Aguja (=creek) Pondweed      | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Little Aguja (=creek) Pondweed      | USFWS 1994. Little Anuja Pondweek Recovery Plan ( <i>Potamogeton clystocarpus</i> ). U.S. Fish and Wildlife Service, Region 2, Albuquerque, New Mexico. Available at: <a href="https://ecos.fws.gov/docs/recovery_plan/940620a.pdf">https://ecos.fws.gov/docs/recovery_plan/940620a.pdf</a>   |
| Plants | Lloyd's Mariposa Cactus             | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Navasota ladies'-tresses            | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Neches River Rose-mallow            | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Nellie Cory Cactus                  | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Pecos (=puzzle, =paradox) Sunflower | Federal Register 2008. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for <i>Helianthus paradoxus</i> (Pecos Sunflower); Final Rule. U.S. Fish and Wildlife Service. Federal Register, Volume 73, Number 63, Tuesday, April 1, 2008. Rules and Regulations. page 17762 - 17807. <a href="https://www.govinfo.gov/content/pkg/FR-2008-04-01/pdf/E8-5811.pdf#page=2">https://www.govinfo.gov/content/pkg/FR-2008-04-01/pdf/E8-5811.pdf#page=2</a>   |
| Plants | Pecos (=puzzle, =paradox) Sunflower | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Pecos (=puzzle, =paradox) Sunflower | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Slender Rush-pea                    | Federal Register 2017. Endangered and Threatened Wildlife and Plants; Draft Texas Coastal Bend Shortgrass Prairie Multi-species Recovery Plan: Including Slender Rush-Pea ( <i>Hoffmannseggia tenella</i> ) and South Texas Ambrosia ( <i>Ambrosia cheiranthifolia</i> ). U.S. Fish and Wildlife Service. Federal Register, Volume 82, Number 104, Thursday, June 1, 2017, Notices. Page 25299 - 25302. <a href="https://www.govinfo.gov/content/pkg/FR-2017-06-01/pdf/2017-11305.pdf#page=1">https://www.govinfo.gov/content/pkg/FR-2017-06-01/pdf/2017-11305.pdf#page=1</a> |
| Plants | Slender Rush-pea                    | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Slender Rush-pea                    | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Sneed Pincushion Cactus             | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon  | Species (Common Name)     | Reference   |
|--------|---------------------------|---|
| Plants | South Texas Ambrosia      | Federal Register 2017. Endangered and Threatened Wildlife and Plants; Draft Texas Coastal Bend Shortgrass Prairie Multi-species Recovery Plan: Including Slender Rush-Pea ( <i>Hoffmannseggia tenella</i> ) and South Texas Ambrosia ( <i>Ambrosia cheiranthifolia</i> ). U.S. Fish and Wildlife Service. Federal Register, Volume 82, Number 104, Thursday, June 1, 2017, Notices. Page 25299 - 25302. <a href="https://www.govinfo.gov/content/pkg/FR-2017-06-01/pdf/2017-11305.pdf#page=1">https://www.govinfo.gov/content/pkg/FR-2017-06-01/pdf/2017-11305.pdf#page=1</a> |
| Plants | South Texas Ambrosia      | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Star Cactus               | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Star Cactus               | USFWS 2003. Star cactus ( <i>Astrophytum asterias</i> ) Recovery Plan. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico. <a href="https://ecos.fws.gov/docs/recovery_plan/031106.pdf">https://ecos.fws.gov/docs/recovery_plan/031106.pdf</a>   |
| Plants | Terlingua Creek Cat's-eye | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Terlingua Creek Cat's-eye | USFWS 1994. Terlingua Creek Cat's-eye Recovery Plan ( <i>Cryptantha crassipes</i> ). US Fish and Wildlife Service, Region 2, Albuquerque, New Mexico. <a href="https://ecos.fws.gov/docs/recovery_plan/940405.pdf">https://ecos.fws.gov/docs/recovery_plan/940405.pdf</a>   |
| Plants | Texas Ayenia              | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Ayenia              | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Ayenia              | USFWS 2016. Recovery Plan for the Tamaulipan Kidney-petal ( <i>Ayenia limitaris</i> ). U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico. <a href="https://ecos.fws.gov/docs/recovery_plan/Texas%20ayenia%20Recovery%20Plan%20R2.pdf">https://ecos.fws.gov/docs/recovery_plan/Texas%20ayenia%20Recovery%20Plan%20R2.pdf</a>   |
| Plants | Texas Golden Gladecress   | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Golden Gladecress   | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Poppy-mallow        | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Poppy-mallow        | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Prairie Dawn-flower | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Prairie Dawn-flower | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Snowbells           | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Snowbells           | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Trailing Phlox      | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants | Texas Trailing Phlox      | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants | Texas Trailing Phlox      | USFWS 1995. Texas Trailing Phlox ( <i>Plox mivalis</i> spp. <i>texensis</i> ) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. <a href="https://ecos.fws.gov/docs/recovery_plan/950328a.pdf">https://ecos.fws.gov/docs/recovery_plan/950328a.pdf</a>   |
| Plants | Texas Wild-rice           | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)        | Reference   |
|----------|------------------------------|---|
| Plants   | Texas Wild-rice              | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.  |
| Plants   | Tobusch Fishhook Cactus      | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | Tobusch Fishhook Cactus      | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.  |
| Plants   | Walker's Manioc              | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | Walker's Manioc              | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.  |
| Plants   | White Bladderpod             | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | White Bladderpod             | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station.  |
| Plants   | Zapata Bladderpod            | <a href="https://tpwd.texas.gov/gis/rtest/">https://tpwd.texas.gov/gis/rtest/</a>   |
| Plants   | Zapata Bladderpod            | Poole, J.M., W. R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station   |
| Plants   | Zapata Bladderpod            | USFWS 2004. Zapata bladderpod ( <i>Lesquerella thamnophila</i> ) Recovery Plan. U.S. Fish and Wildlife Service, Region 2, Albuquerque, New Mexico. <a href="https://ecos.fws.gov/docs/recovery_plan/040825.pdf">https://ecos.fws.gov/docs/recovery_plan/040825.pdf</a>  |
| Reptiles | Alligator Snapping Turtle    | Dixon, J. R. 2013. Amphibians and Reptiles of Texas. Third Edition. Texas A&M University Press. College Station, Texas, USA.  |
| Reptiles | Black-striped Snake          | <a href="https://www.herpssoftexas.org/content/regal-black-striped-snake">https://www.herpssoftexas.org/content/regal-black-striped-snake</a>   |
| Reptiles | Black-striped Snake          | <a href="https://www.iucnredlist.org/species/63750/3128696#habitat-ecology">https://www.iucnredlist.org/species/63750/3128696#habitat-ecology</a>   |
| Reptiles | Brazos Water Snake           | Conant, R. and J. T. Collins. 1998. The Peterson field guide series: A field guide to Reptiles and Amphibians, Eastern and Central North America, third edition. Houghton Mifflin Company, Boston, Massachusetts, USA.  |
| Reptiles | Cagle's Map Turtle           | Hibbitts, T.D. and T.L. Hibbitts. 2016. Texas Turtles and Crocodylians. Texas Natural History Guides, University of Texas Press.  |
| Reptiles | Cagle's Map Turtle           | University of Texas. 2018. Herps of Texas Website. Available at: <a href="http://www.herpssoftexas.org/">http://www.herpssoftexas.org/</a>  |
| Reptiles | Chihuahuan Desert lyre snake | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=681174&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=681174&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=681174">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=681174&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=681174&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=681174</a> |
| Reptiles | Chihuahuan Desert Lyre Snake | <a href="https://www.inaturalist.org/taxa/73981-Trimorphodon-vilkinsonii">https://www.inaturalist.org/taxa/73981-Trimorphodon-vilkinsonii</a>   |
| Reptiles | Chihuahuan Desert Lyre Snake | <a href="https://www.iucnredlist.org/species/63997/12728524#habitat-ecology">https://www.iucnredlist.org/species/63997/12728524#habitat-ecology</a>   |
| Reptiles | Chihuahuan Mud Turtle        | <a href="https://www.inaturalist.org/taxa/39741-Kinosternon-hirtipes-murrayi">https://www.inaturalist.org/taxa/39741-Kinosternon-hirtipes-murrayi</a>   |
| Reptiles | Chihuahuan Mud Turtle        | <a href="https://www.iucnredlist.org/species/63670/97381507#habitat-ecology">https://www.iucnredlist.org/species/63670/97381507#habitat-ecology</a>   |
| Reptiles | Green Sea Turtle             | <a href="https://tpwd.texas.gov/huntwild/wild/species/greentur/">https://tpwd.texas.gov/huntwild/wild/species/greentur/</a>   |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)        | Reference  |
|----------|------------------------------|--|
| Reptiles | Green Sea Turtle             | Valverde R.A., Holzwart K.R. 2017. Sea Turtles of the Gulf of Mexico. In: Ward C. (eds) Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. Springer, New York, NY.  |
| Reptiles | Hawksbill Sea Turtle         | <a href="https://tpwd.texas.gov/huntwild/wild/species/seaturtle/">https://tpwd.texas.gov/huntwild/wild/species/seaturtle/</a>  |
| Reptiles | Hawksbill Sea Turtle         | <a href="https://www.iucnredlist.org/species/8005/12881238#habitat-ecology">https://www.iucnredlist.org/species/8005/12881238#habitat-ecology</a>  |
| Reptiles | Kemp's Ridley Sea Turtle     | <a href="https://tpwd.texas.gov/huntwild/wild/species/ridley/">https://tpwd.texas.gov/huntwild/wild/species/ridley/</a>  |
| Reptiles | Kemp's Ridley Sea Turtle     | <a href="https://www.iucnredlist.org/species/11533/3292342#habitat-ecology">https://www.iucnredlist.org/species/11533/3292342#habitat-ecology</a>  |
| Reptiles | Kemp's Ridley Sea Turtle     | Valverde R.A., Holzwart K.R. 2017. Sea Turtles of the Gulf of Mexico. In: Ward C. (eds) Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. Springer, New York, NY.  |
| Reptiles | Leatherback Sea Turtle       | <a href="https://tpwd.texas.gov/huntwild/wild/species/lethback/">https://tpwd.texas.gov/huntwild/wild/species/lethback/</a>  |
| Reptiles | Leatherback Sea Turtle       | <a href="https://www.iucnredlist.org/species/6494/43526147#habitat-ecology">https://www.iucnredlist.org/species/6494/43526147#habitat-ecology</a>  |
| Reptiles | Leatherback Sea Turtle       | Valverde R.A., Holzwart K.R. 2017. Sea Turtles of the Gulf of Mexico. In: Ward C. (eds) Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. Springer, New York, NY.  |
| Reptiles | Loggerhead Sea Turtle        | <a href="https://srelherp.uga.edu/turtles/carcar.htm">https://srelherp.uga.edu/turtles/carcar.htm</a>  |
| Reptiles | Loggerhead Sea Turtle        | <a href="https://tpwd.texas.gov/huntwild/wild/species/logghead/">https://tpwd.texas.gov/huntwild/wild/species/logghead/</a>  |
| Reptiles | Loggerhead Sea Turtle        | Valverde R.A., Holzwart K.R. 2017. Sea Turtles of the Gulf of Mexico. In: Ward C. (eds) Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. Springer, New York, NY.  |
| Reptiles | Louisiana Pine Snake         | Werler, J. E., and J. R. Dixon. 2000. Texas snakes: Identification, Distribution, and Natural History. University of Texas Press. Austin, Texas, USA. Dixon, J. R. 2013. Amphibians and Reptiles of Texas. Third Edition. Texas A&M University Press. College Station, Texas, USA. |
| Reptiles | Mountain Short-horned Lizard | <a href="https://www.inaturalist.org/taxa/36315-Phrynosoma-hernandesii">https://www.inaturalist.org/taxa/36315-Phrynosoma-hernandesii</a>  |
| Reptiles | Mountain Short-horned Lizard | <a href="https://www.iucnredlist.org/species/64076/12741970#habitat-ecology">https://www.iucnredlist.org/species/64076/12741970#habitat-ecology</a>  |
| Reptiles | Northern Cat-eyed Snake      | <a href="http://animaldiversity.ummz.umich.edu/site/accounts/information/Leptodeira_septentrionalis.html">http://animaldiversity.ummz.umich.edu/site/accounts/information/Leptodeira_septentrionalis.html</a>  |
| Reptiles | Northern Cat-eyed Snake      | <a href="https://tpwd.texas.gov/gis/maps/images/biotic-provinces-of-texas/view">https://tpwd.texas.gov/gis/maps/images/biotic-provinces-of-texas/view</a>  |
| Reptiles | Northern Cat-eyed Snake      | <a href="https://www.inaturalist.org/taxa/29724-Leptodeira-septentrionalis">https://www.inaturalist.org/taxa/29724-Leptodeira-septentrionalis</a>  |
| Reptiles | Northern Scarlet Snake       | Werler, J. E., and J. R. Dixon. 2000. Texas snakes: Identification, Distribution, and Natural History. University of Texas Press. Austin, Texas, USA   |
| Reptiles | Reticulate Collared Lizard   | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Crotaphytus+reticulatus">http://explorer.natureserve.org/servlet/NatureServe?searchName=Crotaphytus+reticulatus</a>  |
| Reptiles | Reticulate Collared Lizard   | <a href="https://www.iucnredlist.org/species/64012/12735138#habitat-ecology">https://www.iucnredlist.org/species/64012/12735138#habitat-ecology</a>  |

**SPECIES ANALYSIS SUMMARY REFERENCES**

| Taxon    | Species (Common Name)          | Reference   |
|----------|--------------------------------|---|
| Reptiles | Reticulated Gecko              | <a href="https://www.herpssoftexas.org/category/taxon/sauria/eublepharidae/coleonyx/coleonyx-reticulatus">https://www.herpssoftexas.org/category/taxon/sauria/eublepharidae/coleonyx/coleonyx-reticulatus</a>   |
| Reptiles | Reticulated Gecko              | <a href="https://www.iucnredlist.org/species/64037/12738857#habitat-ecology">https://www.iucnredlist.org/species/64037/12738857#habitat-ecology</a>   |
| Reptiles | Speckled Racer                 | <a href="https://www.inaturalist.org/taxa/26835-Drymobius-margaritiferus#Habitat">https://www.inaturalist.org/taxa/26835-Drymobius-margaritiferus#Habitat</a>   |
| Reptiles | Speckled Racer                 | <a href="https://www.iucnredlist.org/species/197481/2488545#habitat-ecology">https://www.iucnredlist.org/species/197481/2488545#habitat-ecology</a>   |
| Reptiles | Texas Horned Lizard            | <a href="https://tpwd.texas.gov/huntwild/wild/species/thlizard/">https://tpwd.texas.gov/huntwild/wild/species/thlizard/</a>   |
| Reptiles | Texas Indigo Snake             | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=637223&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=637223&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=637223&amp;selectedIndexes=103475">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=637223&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=637223&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=637223&amp;selectedIndexes=103475</a> |
| Reptiles | Texas Scarlet Snake            | <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Cemophora+coccinea+lineri">http://explorer.natureserve.org/servlet/NatureServe?searchName=Cemophora+coccinea+lineri</a>   |
| Reptiles | Texas Scarlet Snake            | <a href="https://www.inaturalist.org/taxa/27379-Cemophora-coccinea-lineri#Geographic_range">https://www.inaturalist.org/taxa/27379-Cemophora-coccinea-lineri#Geographic_range</a>   |
| Reptiles | Texas Tortoise                 | Hibbitts, T.D. and T.L. Hibbitts. 2016 Texas Turtles and Crocodilians. Texas Natural History Guides, University of Texas Press.   |
| Reptiles | Texas Tortoise                 | <a href="http://www.herpssoftexas.org/">http://www.herpssoftexas.org/</a>   |
| Reptiles | Texas Tortoise                 | <a href="http://www.texasturtles.org/Gopherus_berlandieri.html">http://www.texasturtles.org/Gopherus_berlandieri.html</a>   |
| Reptiles | Timber (Canebrake) Rattlesnake | <a href="https://tpwd.texas.gov/huntwild/wild/species/timberrattlesnake/">https://tpwd.texas.gov/huntwild/wild/species/timberrattlesnake/</a>   |
| Reptiles | Timber (Canebrake) Rattlesnake | Werler, J. E., and J. R. Dixon. 2000. Texas snakes: Identification, Distribution, and Natural History. University of Texas Press. Austin, Texas, USA  |
| Reptiles | Trans-Pecos Black-headed Snake | <a href="http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=101137&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=101137&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=101137">http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&amp;loadTemplate=species_RptComprehensive.wmt&amp;selectedReport=RptComprehensive.wmt&amp;summaryView=tabular_report.wmt&amp;elKey=101137&amp;paging=home&amp;save=true&amp;startIndex=1&amp;nextStartIndex=1&amp;reset=false&amp;offPageSelectedElKey=101137&amp;offPageSelectedElType=species&amp;offPageYesNo=true&amp;post_processes=&amp;radioButton=radioButton&amp;selectedIndexes=101137</a>   |
| Reptiles | Trans-Pecos Black-headed Snake | <a href="https://www.herpssoftexas.org/content/trans-pecos-black-headed-snake">https://www.herpssoftexas.org/content/trans-pecos-black-headed-snake</a>   |