



Appendix 2.1: Ecological Resources Supplemental Information



Table A2.1-1: Representative Plants of Four Plant Communities at ABIA

RIPARIAN WOODS & FOREST		UPLAND WOODS		UPLAND PARKLAND/SAVANNAH		MAINTAINED (MOWED) GRASSLANDS	
Black Willow	<i>Salix nigra</i>	Cedar Elm	<i>Ulmus crassifolia</i>	Bermuda grass	<i>Cynodon dactylon</i>	Bermudagrass	<i>Cynodon dactylon</i>
Sycamore	<i>Platanus occidentalis</i>	Chinese tallow	<i>Triadica sebifera</i>	Johnsongrass	<i>Sorghum halepense</i>	St. Augustine grass	<i>Stenotaphrum secundatum</i>
Green ash	<i>Fraxinus pennsylvanica</i>	Chinaberry	<i>Melia azedarach</i>	Bumelia	<i>Sideroxylon lanuginosum</i>	Buffalograss	<i>Boutelous dactyloides</i>
Cottonwood	<i>Populus deltoides</i>	Hackberry	<i>Celtis laevigata</i>	King Ranch bluestem	<i>Bothriochloa ischaemum</i>	Texas bluegrass	<i>Poa arachnifera</i>
Hackberry	<i>Celtis laevigata</i>	Green ash	<i>Fraxinus pennsylvanica</i>	Prairie threeawn	<i>Aristida oligantha</i>	Brownseed paspalum	<i>Paspalum plicatulum</i>
Coma	<i>Sideroxylon celastrinum</i>	Mesquite	<i>Prosopis glandulosa</i>	Prostrate lawn flower	<i>Calyptocarpus vialis</i>	Crabgrass	<i>Digitaria texana</i>
Chinaberry	<i>Melia azedarach</i>	Bumelia	<i>Sideroxylon lanuginosum</i>	Western ragweed	<i>Ambrosia cumanensis</i>	Prostrate lawn flower	<i>Calyptocarpus vialis</i>
Cedar elm	<i>Ulmus crassifolia</i>	Greenbriar	<i>Smilax bona-nox</i>	Giant ragweed	<i>Ambrosia trifida</i>	Western ragweed	<i>Ambrosia psilostachya</i>
American elm	<i>Ulmus americana</i>	Poison ivy	<i>Toxicodendron radicans</i>	Knotroot bristlegrass	<i>Setaria parviflora</i>	Johnsongrass	<i>Sorghum halepense</i>
Box elder	<i>Acer negundo</i>	Mustang grape	<i>Vitis mustangensis</i>	Queen Anne's lace	<i>Daucus carota</i>	King Ranch bluestem	<i>Bothriochloa ischaemum</i>
Green ash	<i>Fraxinus pennsylvanica</i>	Lime prickly ash	<i>Zanthoxylum fagara</i>	Brownseed paspalum	<i>Paspalum plicatulum</i>	-	-
Soapberry	<i>Sapindus saponaria</i>	Chinese elm	<i>Ulmus parvifolia</i>	Doveweed	<i>Croton texensis</i>	-	-
Pecan	<i>Carya illinoensis</i>	Mulberry	<i>Morus microphylla</i>	Marestail	<i>Equisetum sp.</i>	-	-
Chinese privet	<i>Ligustrum sinense</i>	Chinese privet	<i>Ligustrum sinense</i>	Annual sunflower	<i>Helianthus annuus</i>	-	-

Table A2.1-1 Representative Plants of Four Plant Communities at ABIA (continued)

RIPARIAN WOODS & FOREST		UPLAND WOODS		UPLAND PARKLAND/SAVANNAH		MAINTAINED (MOWED) GRASSLANDS	
Red Mulberry	<i>Moras rubra</i>	Retama	<i>Parkinsonia aculeata</i>	Bamboo	<i>Phyllosachys aurea</i>	-	-
Rough-leaf dogwood	<i>Cornus drummondii</i>	Poverty weed	<i>Baccharis neglecta</i>	Indian blanket	<i>Gaillardia pulchella</i>	-	-
Wax-leaf ligustrum	<i>Ligustrum japonicum</i>	American beautyberry	<i>Callicarpa americana</i>	Indian blanket	<i>Gaillardia pulchella</i>	-	-
Chinese elm	<i>Ulmus parvifolia</i>	Texas lantana	<i>Lantana horrida</i>	Morningglory	<i>Ipomea</i> spp.	-	-
Chinese tallow	<i>Triadica sebifera</i>	Yaupon	<i>Ilex vomitoria</i>	Western ragweed	<i>Ambrosia psilosachya</i>	-	-
Greenbriar	<i>Smilax bona-nox</i>	Possumhaw	<i>Ilex decidua</i>	Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	-	-
Elbowbush	<i>Forestiera pubescens</i>	Wax-leaf ligustrum	<i>Ligustrum japonicum</i>	Prairie verbena	<i>Glandularia bipinnatifida</i>	-	-
Bumelia	<i>Sideroxylon lanuginosum</i>	Frostweed	<i>Verbesina virginica</i>	Frostweed	<i>Verbesina virginica</i>	-	-
Texas walnut	<i>Juglans microcarpa</i>	Inland Woodoats Woo	<i>Chasmanthium latifolium</i>	Annual broomweed	<i>Amphiachyris dracunculoides</i>	-	-
Western soapberry	<i>Sapindus drummondii</i>	Poverty weed	<i>Baccharis neglecta</i>	King Ranch Bluestem	<i>Bothriochloa ischaemum</i>	-	-
Prickly pear	<i>Opuntia</i> spp.	Inland woodoats	<i>Chasmanthium latifolium</i>	Little bluestem	<i>Schizachyrium scoparium</i>	-	-
Mustang grape	<i>Vitis mustangensis</i>	Canada wildrye	<i>Elymus canadensis</i>	Dewberry	<i>Rubus trivialis</i>	-	-
Winter grape	<i>Vitis cinerea</i> var. <i>helleri</i>	King Ranch bluestem	<i>Bothriochloa ischaemum</i>	Mesquite	<i>Prosopis glandulosa</i>	-	-
Virginia creeper	<i>Parthenocissus quinquefolia</i>	Little bluestem	<i>Schizachyrium scoparium</i>	Hackberry	<i>Celtis laevigata</i>	-	-

Table A2.1-1 Representative Plants of Four Plant Communities at ABIA (continued)

RIPARIAN WOODS & FOREST		UPLAND WOODS		UPLAND PARKLAND/SAVANNAH		MAINTAINED (MOWED) GRASSLANDS	
Poison ivy	<i>Toxicodendron radicans</i>	Western ragweed	<i>Ambrosia psilostachya</i>	Poverty weed	<i>Baccharis neglecta</i>	-	-
Giant ragweed	<i>Ambrosia trifida</i>	-	-	Cedar elm	<i>Ulmus crassifolia</i>	-	-
Inland Woodoats Woo	<i>Chasmanthium latifolium</i>	-	-	Live oak	<i>Quercus virginiana</i>	-	-
Canada wildrye	<i>Elymus canadensis</i>	-	-	-	-	-	-
Knotroot bristlegrass	<i>Setaria parviflora</i>	-	-	-	-	-	-

Source: Hicks & Company field investigations, June 2017.

Table A2.1-2: Threatened & Endangered Species of Potential Occurrence in Travis County

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
PLANTS				
Bracted twistflower <i>Stephanthus bracteatus</i>	C	NL	Texas endemic; 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.	No
Basin bellflower <i>Campanula reverchonii</i>	NL	SGCN	Texas endemic; 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.	Potentially occurs but not confirmed
Boerne bean <i>Phaseolus texensis</i>	NL	SGCN	Narrowly endemic to rocky canyons in eastern and southern Edwards Plateau; occurring on limestone soils in mixed woodlands, on limestone cliffs and outcrops, and frequently along creeks.	No
Arrow-leaf milkvine <i>Matelea sagittifolia</i>	NL	SGCN	Most consistently encountered in thornscrub in South Texas.	No
Buckley tridens <i>Tridens buckleyanus</i>	NL	SGCN	Occurs in juniper-oak woodlands on rocky limestone slopes.	No
Glass Mountains coral-root <i>Hexalectris nitida</i>	NL	SGCN	Found in mixed woodlands in canyons in Brewster County and in juniper woodlands over limestone in the Edwards Plateau.	No
Gravelbar brickellbush <i>Brickellia dentata</i>	NL	SGCN	Restricted to frequently scoured gravelly alluvial beds in creek and river bottoms.	Potentially occurs but not confirmed
Heller's marbleseed <i>Onosmodium helleri</i>	NL	SGCN	Occurs in loamy, calcareous soils in oak-juniper woodlands on rocky limestone slopes.	No
Low spurge <i>Euphorbia peplidion</i>	NL	SGCN	Occurs in a variety of vernal moist areas.	Potentially occurs but not confirmed

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Narrowleaf brickellbush <i>Brickellia eupatorioides</i> var. <i>gracillima</i>	NL	SGCN	Occurs in moist to dry gravelly alluvial soils along riverbanks and on limestone slopes.	Potentially occurs but not confirmed
Net-leaf bundleflower <i>Desmanthus reticulatus</i>	NL	SGCN	Mostly found on clay prairies in the coastal plain of central and south Texas.	Potentially occurs but not confirmed
Plateau loosestrife <i>Lythrum ovalifolium</i>	NL	SGCN	Occurs on banks and gravelly beds of perennial streams or strongly intermittent streams of the Edwards Plateau.	No
Plateau milkvine <i>Matelea edwardsensis</i>	NL	SGCN	Found in juniper-oak and oak-juniper woodlands.	No
Rock grape <i>Vitis rupestris</i>	NL	SGCN	Occurs on rocky limestone slopes and in streambeds.	No
Scarlet leather-flower <i>Clematis texensis</i>	NL	SGCN	Found in oak-juniper woodlands in mesic rocky limestone canyons.	No
Stanfield's beebalm <i>Monarda punctata</i> var. <i>stanfieldii</i>	NL	SGCN	Occurs in granite sands along the middle Colorado River and tributaries.	No
Sycamore-leaf snowbell <i>Styrax platanifolius</i> var. <i>stanfieldii</i>	NL	SGCN	Found in oak-juniper woodlands on steep, rocky banks.	No
Texas almond <i>Prunus minutiflora</i>	NL	SGCN	Occurs on grassland and shrublands, mostly on calcareous soil underlain by limestone but occasionally on sandier soils underlain by granite.	Potentially occurs but not confirmed
Texas amorphia <i>Amorpha roemeriana</i>	NL	SGCN	Found in juniper-oak woodlands on rocky limestone slopes.	No
Texas barberry <i>Berberis swaseyi</i>	NL	SGCN	Occurs in shallow, calcareous stony clay of upland grassland/shrublands over limestone and in loamier soils in wooded canyons on creek terraces.	No

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Texas fescue <i>Festuca versuta</i>	NL	SGCN	Occurs in mesic woodlands on limestone-derived soils on stream terraces and canyon slopes.	No
Texas milkvetch <i>Astragalus reflexus</i>	NL	SGCN	Occurs in grasslands and prairies on calcareous and clay substrates.	Potentially occurs but not confirmed
Texas seymeria <i>Seymeria texana</i>	NL	SGCN	Found in grassy openings in juniper-oak woodlands on dry rocky slopes and on rocky outcrops in shaded canyons.	No
Tree dodder <i>Cuscuta exaltata</i>	NL	SGCN	Parasitic on various <i>Quercus</i> , <i>Juglans</i> , <i>Rhus</i> , <i>Vitis</i> , <i>Ulmus</i> and <i>Diospyros</i> species as well as <i>Acacia berlandieri</i> and other woody plants	Potentially occurs but not confirmed
Correll's false dragon-head <i>Physostegia correllii</i>	NL	SGCN	Found in wet, silty clay loams on stream sides; 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 creeks in central Texas.	Potentially occurs but not confirmed
Texabama croton <i>Croton alabamensis var texensis</i>	NL	SGCN	Texas endemic; 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.	No

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Warnock's coral-root <i>Hexalectris warnockii</i>	NL	SGCN	Found in leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creek beds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 meters [6550 feet]), primarily on igneous substrates; in Terrell County under <i>Quercus fusiformis</i> mottes on terraces of spring-fed perennial streams, draining an otherwise 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.	No
MOLLUSKS				
False spike mussel <i>Quincuncina mitchelli</i>	NL	T	Found in substrates of cobble and mud with water lilies present; in the Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins.	No
Smooth pimpleback <i>Quadrula houstonensis</i>	C	T	Found in 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.	None confirmed
Texas fatmucket <i>Lampsilis bracteata</i>	C	T	Found in 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.	Potentially occurs within the Colorado River and Onion Creek but not confirmed
Texas fawnsfoot <i>Truncilla macrodon</i>	C	T	Little known; possibly rivers and larger streams; intolerant of impoundment; flowing rice irrigation canals; possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins.	None confirmed
Texas pimpleback <i>Quadrula petrina</i>	C	T	Occurs in mud, gravel, and sand substrates; generally, in areas with slow flow rates; Colorado and Guadalupe river basins.	None confirmed

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
CRUSTACEANS				
An amphipod <i>Stygobromus russelli</i>	NL	SGCN	Found in subterranean waters, usually in caves and limestone aquifers; resident of numerous caves in ca. 10 counties of the Edwards Plateau.	No
Balcones Cave amphipod <i>Stygobromus balconis</i>	NL	SGCN	Subaquatic, subterranean obligate amphipod.	No
Bifurcated cave amphipod <i>Stygobromus bifurcatus</i>	NL	SGCN	Found in cave pools.	No
INSECTS				
Kretschmarr Cave mold beetle <i>Texamaurops reddelli</i>	E	NL	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.	No
Tooth Cave blind rove beetle <i>Cylindropsis sp 1</i>	NL	SGCN	One specimen collected from Tooth Cave; only known North American collection of this genus.	No
Tooth Cave ground beetle <i>Rhadine persephone</i>	E	NL	Resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties.	No
ARACHNIDS				
Bandit Cave spider <i>Cicurina bandida</i>	NL	SGCN	Very small, subterrestrial, subterranean obligate.	No
Bee Creek Cave harvestman <i>Texella reddelli</i>	E	NL	Small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties.	No
Bone Cave harvestman <i>Texella reyesi</i>	E	NL	Small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties.	No
Tooth Cave pseudoscorpion <i>Tartarocreagris texana</i>	E	NL	Small, cave-adapted, known from small limestone caves of the Edwards Plateau.	No

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Tooth Cave Spider <i>Leptoneta myopica</i>	E	NL	Very small, cave-adapted spider.	No
Wharton's cave meshweaver <i>Cicurina wartoni</i>	NL	SGCN	Very small, cave-adapted spider.	No
FISH				
Guadalupe bass <i>Micropterus treculii</i>	NL	SGCN	Endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system.	Likely to occur but not confirmed
AMPHIBIANS				
Austin blind salamander <i>Eurycea waterlooensis</i>	E	NL	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.	No
Barton Springs salamander <i>Eurycea sosorum</i>	E	E	Dependent upon water flow/quality from the Barton Springs segment of the Edwards Aquifer; only known from the outlets of Barton Springs; spring dweller, but ranges into subterranean water-filled caverns.	No
Jollyville Plateau salamander <i>Eurycea tonkawae</i>	T	NL	Known from springs and waters of some caves north of the Colorado River.	No
Pedernales River springs salamander <i>Eurycea sp 6</i>	NL	SGCN	Endemic; known only from springs.	No
REPTILES				
Spot-tailed earless lizard <i>Holbrookia lacerata</i>	NL	SGCN	Found in central and southern Texas and adjacent Mexico; moderately open prairie brushland; flat areas free of vegetation or other obstructions, including disturbed areas.	No
Texas garter snake <i>Thamnophis sirtalis annectens</i>	NL	SGCN	Found in, but not restricted to, wet or moist microhabitats that are conducive to the species occurrence; hibernates underground or in/under surface cover.	Yes

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Texas horned lizard <i>Phrynosoma cornutum</i>	NL	T	Found in pen, 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.	No
BIRDS				
American peregrine falcon <i>Falco peregrinus anatum</i>	DL	T	Year-round resident and local breeder in west Texas; also, migrant across the state from more northern breeding areas in U.S. and Canada; winters along the coast and farther south; occupies a wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant; stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Yes
Arctic peregrine Falcon <i>Falco peregrinus tundrius</i>	DL	NL	Migrant throughout the state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Yes
Bald eagle <i>Haliaeetus leucocephalus</i>	DL	T	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter.	Yes
Black-capped vireo <i>Vireo atricapilla</i>	E	E	Found in oak-juniper woodlands with patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; nesting season March-late summer.	No
Golden-cheeked warbler <i>Setophaga chrysoparia</i>	E	E	Found in juniper-oak woodlands; dependent on mature Ashe juniper for long fine bark strips used in nest construction; nesting season late March–early summer.	No
Mountain plover <i>Charadrius montanus</i>	NL	SGCN	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; non-breeding: shortgrass plains and bare, dirt (plowed) fields.	No

Table A2.1-2 Threatened & Endangered Species of Potential Occurrence in Travis County (continued)

SPECIES	FEDERAL STATUS	STATE STATUS	DESCRIPTION OF SUITABLE HABITAT	HABITAT PRESENT?
Peregrine falcon <i>Falco peregrinus</i>	DL	T	Both subspecies migrate across the state from more northern breeding areas in the US and Canada to winter along the coast and farther south; subspecies (<i>F. p. anatum</i>) is also a resident breeder in west Texas; the two subspecies' listing status differ: <i>F. p. tundrius</i> is no longer listed in Texas, but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level.	Yes
Piping plover <i>Charadrius melodus</i>	T	NL	Winter migrant arriving in late July or early August; will remain for up to nine months; prefers sandy beaches and lakeshores.	No
Western burrowing owl <i>Athene cunicularia hypugaea</i>	NL	SGCN	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.	Yes
Whooping crane <i>Grus americana</i>	E	E	Potential migrant via plains throughout most of the state to the coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.	No
MAMMALS				
Cave myotis bat <i>Myotis velifer</i>	NL	SGCN	Colonial and cave dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned cliff swallow (<i>Hirundo pyrrhonota</i>) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter.	Yes
Plains spotted skunk <i>Spilogale putorius interrupta</i>	NL	SGCN	Catholic; found in open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.	Yes

Notes: E – Endangered, T = Threatened, C = Candidate for Listing, SGCN = Species of Greatest Conservation Need, DL = Delisted; DL, M = Delisted, Monitoring, NL = Not Listed; rare, but with no current regulatory protection

Source: U.S. Fish and Wildlife Service List of Species by County for Texas. Available at: <http://www.fws.gov/endangered/>. Accessed June 13, 2017. U.S. Fish and Wildlife Service Environmental Conservation On-line Service (ECOS) species profiles. Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile>. Accessed June 23, 2017. Texas Parks and Wildlife Department Annotated County Lists of Rare Species: Travis County, last revision May 16, 2017. Available at: <http://www.tpwd.state.tx.us/gis/ris/es/>. Accessed June 13, 2017.