



Form Species Analysis

Project Name: **IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)**

CSJ(s): **0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068**

County(ies): **Colorado County**

Date Analysis Completed: **May 5, 2020**

Prepared by: **Jacobs**

The environmental review, consultation, and other actions required by applicable Federal environmental laws for ts project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, 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.
- 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:

- This project is not within 660 feet of an active or inactive Bald or Golden Eagle nest. Therefore, no coordination with USFWS is required.
- This project is within 660 feet of an active or inactive Bald or Golden Eagle nest; however, construction activities within 660 feet will not occur during the nesting season, and the project will adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, no coordination with USFWS is required.
- This project is within 660 feet of an nest or inactive Bald or Golden Eagle nest, and construction within 660 feet will occur during the nesting season or the project will not adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, coordination with USFWS to obtain a Non-Purposeful Take Permit is 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:

- use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction, and
- 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)):

- 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: _____

SPECIES ANALYSIS SPREADSHEET: Project Information Sheet

Project Name:	IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)
CSJ(s):	0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068
TxDOT District: <small>(Click dropdown arrow to select a District from List)</small>	Yoakum
County(ies): <small>(Click dropdown arrow to select each county)</small>	Colorado
Prepared by: <small>(Full Name)</small>	Scott Shashy
Date Completed: <small>(m/d/yyyy)</small>	3/15/2021

TxDOT ENV Spreadsheet Template date: October 8, 2020.

SPECIES ANALYSIS SUMMARY

Project Name: IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)

CSJ(s): 0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068

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?
Colorado	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.	Y	The Houston toad may occur in the project area in deep sands along streams, ponds, and rivers. There are historical locations for the species in the project area (see Attachment 5).	E	No effect	E	No impact	Houston toad surveys were conducted for the project area. There have been no species observed during the 2018, 2019, and 2020 breeding season surveys. Since no observation of Houston Toads were made during the 3 years of completed surveys, it has been determined that there will be no effect as a result of the project. Therefore, USFWS coordination is not required.	Y
Colorado	Birds	Attwater's Greater Prairie-chicken	<i>Tympanuchus cupido attwateri</i>	The species historically occurred throughout the Gulf Coast prairies from the Texas-Louisiana border south to the Rio Grande, but it is now restricted to narrow bands along the Texas coast, a few off-shore islands, and three remnant inland populations. Optimal habitat consists of well-drained grasslands with a high diversity of weeds, shrubs, and grasses comprising a variety of canopy cover, high vegetation density, and available surface water in the summer. During the breeding season, areas with short grasses and less than 25 percent leaf litter are utilized for nesting. During the summer, individuals utilize areas with shade from weeds, tall grasses, and shrubs. During the winter, individuals are found in moderate to heavy cover of grasses and forbs at least 6 inches in height.	N	No open prairies of mostly thick grass one to three feet tall occur in the project area. This species also has populations occurring on managed lands, none of which occur within the project area.	E	No effect	E	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Colorado	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	Brackish or freshwater marshes, ponds, and wet meadows do not exist within the project area.	T	No effect	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Colorado	Birds	Least Tern - Migratory	<i>Sternula (=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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Least Tern only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Least Tern is not expected to regularly occur and any use of this habitat would be incidental.	E	No effect	E	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Least Tern.	N

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Colorado	Birds	Piping Plover - Migratory	<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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Piping Plover only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Piping Plover is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Piping Plover.	N
Colorado	Birds	Red Knot - Migratory	<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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Red Knot only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Red Knot is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Red Knot.	N

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Colorado	Birds	Reddish Egret	<i>Egretta rufescens</i>	A year-round resident of the Texas Gulf Coast, the species inhabits saline, hypersaline, or brackish coastal habitats including barren sand or mud tidal flats, salt ponds, lagoons, and open mangrove communities. It occurs less frequently in other habitats such as coastal beaches, sparsely-vegetated freshwater marshes, and the shores of lakes and reservoirs. It nests on the ground or low in mangroves or other terrestrial vegetation (e.g. mesquite [<i>Prosopis glandulosa</i>], yucca [<i>Yucca</i> sp.], or prickly-pear [<i>Opuntia</i> sp.]) on natural islands or man-made dredge spoil islands, but it also occasionally nests on the coastal mainland. It forages in shallow water usually less than 15 centimeters deep.	N	No coastal habitats including mud tidal flats, salt ponds, lagoons, or open mangrove communities exist within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Colorado	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	Bottomland forests, cypress swamps, and freshwater marshes do not exist within the project area/	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project. Species is a potential migrant.	N
Colorado	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 freshwater marshes, sloughs, or irrigated rice fields occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Colorado	Birds	White-tailed Hawk	<i>Buteo albicaudatus</i>	This year-round resident species occurs throughout the Western Gulf Coastal Plain ecoregion of Texas and less frequently farther inland in the East Central Texas Plains and South Texas Plains regions. Near the coast, preferred habitat includes prairies, cordgrass flats, and live oak scrub. Further inland it inhabits prairies, mesquite and oak savannas, and mixed savanna-chaparral. Breeding occurs within open savannas with short trees and shrubs, such as mesquite (<i>Prosopis glandulosa</i>), hackberry (<i>Celtis laevigata</i>), and oak (<i>Quercus</i> sp.), with an average height of 12 feet and canopy diameter of 18 feet. Suitable coastal prairie habitat is similar to desirable range condition for cattle grazing.	Y	Prairies, savannas, and live oak scrub occurs within the project area.	—	N/A	T	May impact	Species may occur in undeveloped areas within the project area. No individuals of this species were observed during field visits.	N

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Colorado	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 large rivers, marshes, lakes, or playas within the project area.*	E	No effect	E	No impact	The species is a potential migrant. Suitable nesting and feeding habitats are not present in the project area.	N
Colorado	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).	Y	There is suitable habitat present in ditches and other shallow standing waters throughout the proposed project.	—	N/A	T	No impact	The species is a potential migrant. No nesting habitat occurs within the project area. Any use would be incidental.	N
Colorado	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	Mountain county, desert mountain, cliffs, or steep hillsides do not occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Colorado	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.	Y	Large streams and medium rivers within the Colorado River basin are present in the project area.	C	May affect	T	May impact	May Affect, but is Not Likely to Adversely Affect, is anticipated due to the implementation of mussel BMPs, including pre-construction mussel surveys. This species is a candidate for Federal listing, and if the listing status is changed from candidate to listed, surveys and USFWS coordination would be required. The Action Area is the Colorado River. NDD data shows an occurrence of the species ~ 1.0 mile southeast of the proposed project. Species may be affected if bridge pilings/drill shafts are built in suitable aquatic habitat.	N

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Colorado	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.	Y	Large streams and medium rivers within the Colorado River basin are present in the project area.	C	May affect	T	May impact	May Affect, but is Not Likely to Adversely Affect, is anticipated due to the implementation of mussel BMPs, including pre-construction mussel surveys. This species is a candidate for Federal listing, and if the listing status is changed from candidate to listed, surveys and USFWS coordination would be required. The Action Area is the Colorado River. NDD data shows an occurrence of the species ~ 1.0 mile southeast of the proposed project. Species may be affected if bridge piling/drill shafts are built in suitable aquatic habitat.	N
Colorado	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 arid areas with sparse vegetation occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Fishes	Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	The species is primarily found in the Atlantic from Canada to Florida, but occasionally occurs in the Gulf of Mexico. It has not been recorded off the Texas coast. It is primarily a marine species, when not breeding, but is found close to shore. It migrates to rivers and brackish water features (sometimes tidal) in the spring and fall to spawn, usually over bottoms of hard clay, rubble, gravel, and/or shell.	N	No Marine Habitats Present	E	No Effect	—	N/A	No suitable habitat present.	N
Fishes	Giant Manta Ray	<i>Manta birostris</i>	The giant manta ray has a world-wide distribution, but is currently limited to several highly fragmented populations. It is the largest species of ray with a wingspan of up to 29 feet. The giant manta ray is a filter feeder that forages primarily on microscopic organisms, but is known to consume some small fish. Common occurrences are in oceanic waters, offshore, and near protective coastlines. The species has been documented in the Gulf of Mexico, including juvenile nursery grounds at Flower Garden Banks National Marine Sanctuary off the coast of Texas. This species also occasionally occurs in estuarine waters near ocean inlets at potential nursery grounds.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Fishes	Great Hammerhead	<i>Sphyrna mokarran</i>	This generalist species of shark prefers warm coastal waters where it occurs. However, it can be found in deep open ocean as well as shallow coastal waters. It migrates seasonally in search of ideal water temperatures.	N	No Marine Habitats Present	—	N/A	T	No Impact	No suitable habitat present.	N
Fishes	Largetooth Sawfish	<i>Pristis pristis</i>	This species has the widest historic range of all the sawfish species; however, worldwide populations have decreased dramatically. Adult habitat includes inshore coastal waters, lagoons, river mouths, and estuaries, and juveniles inhabit fresh water systems that have connectivity to brackish or marine coastal systems. The species has been documented at the Flower Garden Banks National Marine Sanctuary. This species feeds on invertebrates and small fishes. Historically, the Gulf of Mexico along the Texas coast had a large population; however, the Texas coast population has dramatically decreased, and it has not been recorded off the coast of Texas since 1943.	N	No Marine Habitats Present	E	No Effect	—	N/A	No suitable habitat present.	N

Fishes	Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	This pelagic shark ranges from Argentina to Maine, including the Gulf of Mexico, the Pacific Ocean, and the Caribbean Sea. It is generally a surface-dwelling species, but it can also be found in water depths up to 183 meters. The oceanic whitetip shark generally remains offshore in the open ocean or along the outer continental shelf, but is occasionally found near oceanic islands. It prefers water temperatures greater than 20 degrees Celsius.	N	No Marine Habitats Present	T	No Effect	T	No Impact	No suitable habitat present.	N
Fishes	Shortfin Mako	<i>Isurus oxyrinchus</i>	This species of shark prefers the surface of open warm seas in the Gulf of Mexico. It feeds primarily on schooling fishes like mackerels and herrings.	N	No Marine Habitats Present	—	N/A	T	No Impact	No suitable habitat present.	N
Fishes	Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	The shortnose sturgeon inhabits rivers and Atlantic coastal bays and estuaries from Canada to Florida. The species has not been documented near the Texas coast or in the Gulf of Mexico.	N	No Marine Habitats Present	E	No Effect	—	N/A	No suitable habitat present.	N
Invertebrates	Boulder Star Coral	<i>Orbicella franksi</i>	This rare coral is endemic to the Gulf of Mexico and Caribbean Sea, specifically in areas around Florida, Bermuda, and the Bahamas. It is known to occur in the Flower Garden Banks National Marine Sanctuary which is located approximately 70 to 115 miles off the coasts of Texas and Louisiana. It is an important reef building species that forms domes, columns, and flat shelf-like colonies. Preferred habitat includes most reef environments and depths ranging from 1 to 82 meters. The species requires very specific water parameters and is highly sensitive to changes in water and air temperatures, salinity, methane gasses and carbon dioxide concentrations, light levels, ultraviolet radiation, water quality, turbulence, and sedimentation.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Invertebrates	Elkhorn Coral	<i>Acropora palmata</i>	The elkhorn coral is found in the Gulf of Mexico and Caribbean Sea including Flower Garden Banks National Marine Sanctuary, which is located approximately 70 to 115 miles off the coasts of Texas and Louisiana. This coral species reproduces asexually and sexually and is found in reef environments in deeper, more protected, water depths from 5 to 20 meters and in more shallow, turbulent water at depths of 1 to 5 meters. On rare occasions, it can be found at depths of 60 meters. The tolerable water temperature range for this species is 21 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N

Invertebrates	Lobed Star Coral	<i>Orbicella annularis</i>	This hermaphroditic broadcast-spawning coral grows in shallow reef systems and can be found at depths up to 82 meters. The species range is from Latin America through the Gulf of Mexico, including the Flower Garden Banks National Marine Sanctuary, and extending north and east to Bermuda and the Caribbean. It is often one of the most dominant and abundant species where found. This coral species can form massive colonies, is considered a reef-builder, and provides other reef dwellers refuge from predators. The tolerable water temperature range for this species is 23 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gases and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation. Any of these events lasting longer than a few weeks will most likely result in death.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Invertebrates	Mountainous Star Coral	<i>Orbicella faveolata</i>	The mountainous star coral occurs in shallow waters in the Gulf of Mexico and Caribbean Sea. It has been documented in the Flower Garden Banks National Marine Sanctuary, which is from 70 to 115 miles off the Texas coast. This species can grow in water depths up to 40 meters. The mountainous star coral is often one of the most dominant and abundant species where found. The tolerable water temperature range for this species is 23 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gases and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Invertebrates	Pillar Coral	<i>Dendrogyra cylindrus</i>	Pillar corals range from Latin America north through the Gulf of Mexico to the coast of Florida. This broadcast-spawning coral reproduces sexually and is found in sheltered reef environments. The species can live in water depths up to 25 meters. Corals are vulnerable to changes in water salinity, air and water temperatures, concentrations of methane gases and carbon dioxide, light levels, increased ultraviolet radiation, high water turbulence, and burial by sedimentation.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N

Invertebrates	Rough Cactus Coral	<i>Mycetophyllia ferox</i>	The rough cactus coral inhabits sheltered reef environments in the Gulf of Mexico and Caribbean Sea. This species can grow in water depths from 5 to 30 meters. The tolerable water temperature range for this species is 0 to 25 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation. Any of these events lasting longer than a few weeks will most likely result in death.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Invertebrates	Staghorn Coral	<i>Acropora cervicornis</i>	The staghorn coral occurs throughout the Caribbean Sea and southern Gulf of Mexico, including Flower Gardens National Marine Sanctuary. This species can grow in water depths up to 30 meters. The tolerable water temperature range for this species is 20 to 30 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to changes in salinity, air temperatures, concentrations of methane gasses and carbon dioxide, light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N
Mammals	Blue Whale	<i>Balaenoptera musculus</i>	The blue whale is the largest animal on the planet and found in all oceans with the exception of the Arctic Ocean. Its occurrence in the Gulf of Mexico is extremely rare with only two reported strandings along the Gulf coast (Louisiana and Texas). This baleen whale feeds almost exclusively on krill and seasonally migrates between winter breeding grounds (fall and winter) and summer feeding grounds (spring and summer). Its range extends from the subtropics to the Greenland Sea with sightings off of Canada's coast, the eastern United States, and infrequently in the Caribbean and Gulf of Mexico.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Bryde's Whale	<i>Balaenoptera edeni</i>	Unlike other baleen whales, Bryde's whale is restricted to tropical, subtropical, and warm temperate waters of the Atlantic, Indian, and Pacific Oceans. Bryde's whales are smoky gray with light mottling and three distinctive parallel ridges that extend from the blowhole to the tip of the snout. Some populations are migratory while others are year-round residents. Bryde's whales feed on krill, shrimp, crabs, copepods, and schooling fish in the open ocean.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N

Mammals	False Killer Whale	<i>Pseudorca crassidens</i>	The false killer whale is a toothed whale that inhabits the tropical and subtropical waters of all oceans. It is usually observed in the open ocean but is found near land around oceanic islands and coasts with nearshore deep water. Two separate strandings have been documented on the Texas coast. The false killer whale generally feeds on squid and fish, but have been known to take marine mammals and other whales.	N	No Marine Habitats Present	E	No Effect	T	No Impact	No suitable habitat present.	N
Mammals	Fin Whale	<i>Balaenoptera physalus</i>	The fin whale is a cosmopolitan baleen species that is known from all oceans. It is pelagic and usually found 25 miles or more from the shore. This species migrates seasonally from high-latitude summer feeding grounds to low-latitude wintering areas. There has only been one sighting in Texas: a young whale stranded in Chambers County.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Gulf of Mexico Bryde's Whale	<i>Balaenoptera edeni (GoM subspecies)</i>	The Gulf of Mexico subspecies of Bryde's whale is the only non-migratory resident baleen whale in the Gulf of Mexico. It is found primarily near the continental shelf off the Florida panhandle. The species is not documented in Texas waters; however, strandings have occurred along the Louisiana coast. They are a pelagic species and one of the more frequently observed baleen whales in the Gulf of Mexico. It is estimated that there are fewer than 100 individuals of the subspecies, with fewer than 50 mature individuals.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Humpback Whale	<i>Megaptera novaeangliae</i>	The humpback whale is found in all oceans up to the polar ice caps. The species follows distinct migratory patterns between summer feeding grounds in temperate regions to tropical waters during the winter breeding season. Humpback whales are a baleen species known for their exceptionally long flippers. There is only one documented occurrence of the species from the Texas coast in the early 1990's.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Killer Whale	<i>Orcinus orca</i>	The killer whale is known to occur in every ocean, but they are most commonly found in colder temperate waters. The species is the most widely distributed of all whales and dolphins. It is often found in the southern part of the Gulf of Mexico; however, one individual was sighted in waters off Port Aransas, Texas in the northern Gulf of Mexico and another stranded individual was documented on South Padre Island in Texas. The killer whale is a top predator in the marine environment.	N	No Marine Habitats Present	E	No Effect	T	No Impact	No suitable habitat present.	N

Mammals	North Atlantic Right Whale	<i>Eubalaena glacialis</i>	The species has worldwide distribution with known occurrences of single individuals and pods in the Gulf of Mexico, including near the Texas coast; however, reports of this species are rare. They are typically observed in pods in deeper water depths (greater than 500 feet deep); however, individuals of this species are known to hunt for prey close to shore and on occasion, beach themselves. Some pods will often reside in the same region for many years with little movement of immigration or emigration. They feed on other whales, sharks, turtles, seals, and sea birds.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Sei Whale	<i>Balaenoptera borealis</i>	The sei whale is a baleen species that inhabits subtropical, temperate, and subpolar waters worldwide. It prefers deeper waters offshore where it feeds on plankton, small schooling fish, and cephalopods. This species has annual migrations from subtropical, temperate waters during the winter (breeding) to subpolar, cool waters in the summer.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Mammals	Sperm Whale	<i>Physeter macrocephalus</i>	The sperm whale is a toothed whale that ranges from Alaska south along the Pacific coast to the Pacific Islands, along the Atlantic coast from New England to Florida, and throughout the Gulf of Mexico. This species is regularly seen in the Gulf of Mexico with more than 25 individuals observed, and two individuals were tracked swimming along the Texas coastline off South Padre Island and Port Aransas, Texas. This species feeds on cuttlefish, squids, octopus, and other marine animals.	N	No Marine Habitats Present	E	No Effect	E	No Impact	No suitable habitat present.	N
Fishes	Scalloped Hammerhead Shark	<i>Sphyrna lewini</i>	This coastal pelagic species is highly migratory and primarily inhabits deeper temperate, warm, and tropical waters worldwide. Adults of the species have been recorded along the continental shelf off Texas, the Flower Garden Banks National Marine Sanctuary, Stetson Bank, and Padre Island National Seashore. Juveniles have been recorded within nurseries in Texas coastal bays and estuaries. The females return to their natal sites, which generally include shallow nearshore waters like bays and estuaries used for nurseries. They typically feed on mackerel, herring, and sardines; however, they occasionally feed on octopus and squid.	N	No Marine Habitats Present	T	No Effect	—	N/A	No suitable habitat present.	N

SPECIES ANALYSIS SUMMARY NOTES

Common Name	Scientific Name	Notes
Ashy Dogweed	<i>Thymophylla tephroleuca</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Jim Hogg.
Attwater's Greater Prairie-chicken	<i>Tympanuchus cupido attwateri</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Fort Bend, Wharton.
Barton Springs Salamander	<i>Eurycea sosorum</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Williamson.
Bee Creek Cave Harvestman	<i>Texella reddelli</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Williamson.
Big Bend Gambusia	<i>Gambusia gaigei</i>	
Black Bear	<i>Ursus americanus</i>	
Black Lace Cactus	<i>Echinocereus reichenbachii</i> var. <i>albertii</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Duval, Nueces.
Black Rail	<i>Laterallus jamaicensis</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Anderson, Aransas, Archer, Austin, Bastrop, Baylor, Bee, Bell, Borden, Bosque, Brazoria, Brazos, Briscoe, Brown, Burleson, Caldwell, Calhoun, Callahan, Cameron, Chambers, Childress, Clay, Coke, Coleman, Collin, Colorado, Comanche, Cooke, Coryell, Cottle, Crosby, Dallas, Delta, Denton, DeWitt, Dickens, Eastland, Ellis, Erath, Falls, Fannin, Fayette, Fisher, Floyd, Foard, Fort Bend, Franklin, Freestone, Galveston, Garza, Goliad, Gonzales, Grayson, Grimes, Guadalupe, Hale, Hall, Hamilton, Hardeman, Harris, Haskell, Henderson, Hill, Hood, Hopkins, Houston, Howard, Hunt, Hutchinson, Jack, Jackson, Jefferson, Johnson, Jones, Karnes, Kaufman, Kenedy, Kent, King, Kleberg, Knox, Lamar, Lampasas, Lavaca, Lee, Leon, Liberty, Limestone, Lubbock, Lynn, Madison, Matagorda, McLennan, Milam, Mills, Mitchell, Montague, Montgomery, Motley, Navarro, Nolan, Nueces, Palo Pinto, Parker, Rains, Red River, Refugio, Robertson, Rockwall, Runnels, San Jacinto, San Patricio, Scurry, Shackelford, Somervell, Stephens, Stonewall, Swisher, Tarrant, Taylor, Throckmorton, Travis, Van Zandt, Victoria, Walker, Waller, Washington, Wharton, Wichita, Wilbarger, Williamson, Wilson, Wise, Wood, Young.
Brazos Heelsplitter	<i>Potamilus streckersoni</i>	Note: Not currently mapped by RTEST. See habitat description. Possible counties based on literature include: Young, Palo Pinto, Hood, Somervell, Bosque, Hill, Johnson

SPECIES ANALYSIS SUMMARY NOTES

Common Name	Scientific Name	Notes
Carolinae Tryonia	<i>Tryonia oasiensis</i>	Note: Not currently mapped by RTEST. See habitat description. County location based on literature: Terrell
Comanche Springs Pupfish	<i>Cyprinodon elegans</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Pecos.
Eskimo Curlew	<i>Numenius borealis</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Cameron, Cooke, Galveston, Kendall, San Patricio, Washington.
False Spike	<i>Fusconaia (=Quadrula) mitchelli</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Bastrop, Blanco, Burnet, Caldwell, Comal, Concho, Dewitt,
Fountain Darter	<i>Etheostoma fonticola</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Caldwell, Gonzales, Guadalupe.
Geocarpon Minimum	<i>Geocarpon minimum</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Gregg, Palo Pinto
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i> (formerly <i>Dendroica chrysoparia</i>)	Note: This species is listed by TPWD but not by IPaC in the following county: Parker.
Gonzales Tryonia	<i>Tryonia circumstriata</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Terrell.
Great Hammerhead	<i>Sphyrna mokarran</i>	Note: Not currently mapped by RTEST. See habitat description.
Jollyville Plateau Salamander	<i>Eurycea tonkawae</i>	
Killer Whale	<i>Orcinus orca</i>	
Largetooth Sawfish	<i>Pristis pristis</i>	
Louisiana Pigtoe	<i>Pleurobema riddellii</i>	
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	
North Atlantic Right Whale	<i>Eubalaena glacialis</i>	
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	
Opossum Pipefish	<i>Microphis brachyurus</i>	
Phantom Springsnail	<i>Cochliopa (=Pyrgulopsis) texana</i>	
Pillar Coral	<i>Dendrogyra cylindrus</i>	
Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>	
Ocelot	<i>Leopardus (=Felis) pardalis</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Kinney, Uvalde.

SPECIES ANALYSIS SUMMARY NOTES

Common Name	Scientific Name	Notes
Ouachita Rock Pocketbook	<i>Arcidens (=Arkansia) wheeleri</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Lamar, Red River.
Rio Grande Chub	<i>Gila pandora</i>	
Rio Grande Silvery Minnow	<i>Hybognathus amarus</i>	
San Marcos Gambusia	<i>Gambusia georgei</i>	
Sei Whale	<i>Balaenoptera borealis</i>	
Slender Rush-pea	<i>Hoffmannseggia tenella</i>	
Rio Grande Darter	<i>Etheostoma grahami</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Crockett, Kinney, Maverick, Terrell, Val Verde, Webb.
Spotfin Gambusia	<i>Gambusia krumholzi</i>	
San Marcos Salamander	<i>Eurycea nana</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Caldwell.
Sharpnose Shiner	<i>Notropis oxyrhynchus</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Austin, Bosque, Brazos, Burleson, Coke, Falls, Foard, Fort Bend, Garza, Hill, Limestone, McLennan, Milam, Mills, Robertson, San Saba, Travis, Waller, Washington, Wilbarger.
Texas Ayenia	<i>Ayenia limitaris</i>	
Texas Fatmucket	<i>Lampsilis bracteata</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Llano.
Spotted Bat	<i>Euderma maculatum</i>	Note: This species is listed by TPWD but not by IPaC in the following county: Brewster.
Texas Horned Lizard	<i>Phrynosoma cornutum</i>	
Texas Pigtoe	<i>Fusconaia askewi</i>	
Texas Blind Salamander	<i>Eurycea rathbuni</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Blanco, Caldwell, Guadalupe.
Texas Fawnsfoot	<i>Truncilla macrodon</i>	Note: This species is listed by TPWD but not by IPaC in the following counties: Brazoria, Haskell, Jones, McLennan, Parker.

Taxon	Species (Common Name)	Reference1	Reference 2	Reference 3	Reference 4
All	All Species	NatureServe Explorer website http://explorer.natureserve.org	TPWD RTEST website https://tpwd.texas.gov/gis/rtest/ May 21, 2020 version retrieved June 20, 2020	USFWS ECOS website https://ecos.fws.gov/ Retrieved August 16, 2019.	USFWS IPAC website https://ecos.fws.gov/ipac/ Retrieved August 2019.
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.	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.		
Birds	Attwater's Greater Prairie-chicken	USFWS. 2010. Attwater's Prairie-chicken Recovery Plan. 2nd Rev. Southwestern Region USFW. Albuguerque, New Mexico.			
Birds	Black Rail	https://ebird.org/species/blkrai	https://www.allaboutbirds.org/guide/Black_Rail/id		
Birds	Reddish Egret	https://nhpbs.org/natureworks/reddishegret.htm#3	https://tpwd.texas.gov/huntwild/wild/species/reddishegret/		
Birds	Swallow-tailed Kite	https://txbba.tamu.edu/species-accounts/swallow-tailed-kite/	https://www.audubon.org/field-guide/bird/swallow-tailed-kite		
Birds	Whooping Crane	https://www.allaboutbirds.org/guide/Whooping_Crane/lifehisto ry			
Birds	Zone-tailed Hawk	https://txbba.tamu.edu/species-accounts/zone-tailed-hawk	https://www.nwf.org/Educational-Resources/Wildlife-Guide/Birds/Whooping-Crane		
Reptiles	Texas Horned Lizard	https://tpwd.texas.gov/huntwild/wild/species/thlizard/			

SPECIES ANALYSIS SUMMARY (ADDENDUM)

Project Name: IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)
 CSJ(s): 0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068

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?
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SPECIES ANALYSIS SUMMARY (SGCN)
 Project Name: IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)
 CSJ(s): 0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068

County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Impact Determination for SGCNs	Explanation for Impact Determination	Presence/ Absence survey conducted?
Colorado	Amphibians	southern crawfish frog	<i>Lithobates areolatus areolatus</i>	Terrestrial and aquatic: The terrestrial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.	Y	Aquatic Habitats and cattle pasture present	May impact	May impact, not likely to impact, due to limited impacts to preferred habitats and mobile nature of species.	N
Colorado	Amphibians	Strecker's chorus frog	<i>Pseudacris streckeri</i>	Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.	N	Sandy soils not present within Proposed ROW	No impact	No suitable habitat present.	N
Colorado	Amphibians	Woodhouse's toad	<i>Anaxyrus woodhousii</i>	Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.	Y	Variety of aquatic habitats present are suitable.	May impact	May impact, not likely to impact, due to limited impacts to preferred habitats and mobile nature of species.	N
Colorado	Birds	bald eagle	<i>Haliaeetus leucocephalus</i>	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	N	Colorado River present; no large trees or cliffs within project area	No impact	No eagle nests are known to occur within 660 feet of the proposed project area. The project would comply with the Bald And Golden Eagle Protection Act.	N
Colorado	Birds	Black Rail	<i>Laterallus jamaicensis</i>	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	N	No coastal habitats are present.	No impact	No suitable habitat present.	N
Colorado	Birds	Franklin's gull	<i>Leucophaeus pipixcan</i>	This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.	N	No coastal habitats are present.	No impact	No suitable habitat present.	N
Colorado	Birds	western burrowing owl	<i>Athene cunicularia hypugaea</i>	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	N	No open grasslands are present	No impact	No suitable habitat present.	N
Colorado	Fish	american eel	<i>Anguilla rostrata</i>	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	N	No large rivers present	No impact	No suitable habitat present.	N

SPECIES ANALYSIS SUMMARY (SGCN)
 Project Name: IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)
 CSJ(s): 0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068

County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Impact Determination for SGCNs	Explanation for Impact Determination	Presence/ Absence survey conducted?
Colorado		Guadalupe bass	<i>Micropterus treculii</i>	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.	Y	Decreased populations found in lower Colorado	May impact	May impact, not likely to impact, due to limited impacts to preferred habitat, limited populations known to occur within the project area, and the mobile nature of species.	N
Colorado	Insects	American bumblebee	<i>Bombus pensylvanicus</i>	Habitat description is not available at this time.	Y	Species generally found throughout area.	May impact	May impact, not likely to impact, due to the mobile nature of the species.	N
Colorado	Mammals	big brown bat	<i>Eptesicus fuscus</i>	Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.	N	No woodlands present	No impact	No suitable habitat present.	N
Colorado	Mammals	big free-tailed bat	<i>Nyctinomops macrotis</i>	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	N	No Canyons or buildings present.	No impact	No suitable habitat present.	N
Colorado	Mammals	eastern spotted skunk	<i>Spilogale putorius</i>	Generalist; 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.	Y	Suitable habitat present for generalist species.	May impact	May impact, not likely to impact, due to the mobile nature of the species.	N
Colorado	Mammals	long-tailed weasel	<i>Mustela frenata</i>	Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.	N	No woodlands present	No impact	No suitable habitat present.	N
Colorado	Mammals	mountain lion	<i>Puma concolor</i>	Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains &	N	No riparian impacts anticipated.	No impact	No suitable habitat present.	N
Colorado	Mammals	swamp rabbit	<i>Sylvilagus aquaticus</i>	Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.	Y	Floodplains of Colorado River are present	May impact	May impact, not likely to impact, due to limited impact to preferred habitats and mobile nature of the species.	N
Colorado	Mammals	tricolored bat	<i>Perimyotis subflavus</i>	Forest, woodland and riparian areas are important. Caves are very important to this species.	N	No woodlands, riparian or caves present.	No impact	No suitable habitat present.	N
Colorado	Reptiles	eastern box turtle	<i>Terrapene carolina</i>	Terrestrial: 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.	N	Fields are present, but adjacent forests are not.	No impact	No suitable habitat present.	N

SPECIES ANALYSIS SUMMARY (SGCN)
 Project Name: IH 10: State Highway (SH) 71 to US Highway (US) 90 (Alleyton Road South)
 CSJ(s): 0271-01-083, 0535-08-072, 0027-01-045, and 0266-02-068

County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Impact Determination for SGCNs	Explanation for Impact Determination	Presence/ Absence survey conducted?
Colorado	Reptiles	slender glass lizard	<i>Ophisaurus attenuatus</i>	Terrestrial: 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.	N	Habitats not present	No impact	No suitable habitat present.	N
Colorado	Reptiles	smooth softshell	<i>Apalone mutica</i>	Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).	N	no sandbars present	No impact	No suitable habitat present.	N
Colorado	Reptiles	Texas map turtle	<i>Graptemys versa</i>	Aquatic: Primarily a river turtle but can also be found in reservoirs. Can be found in deep and shallow water with sufficient basking sites (emergent rocks and woody debris).	N	no rocky, woody debris present	No impact	No suitable habitat present.	N
Colorado	Reptiles	timber (canebrake) rattlesnake	<i>Crotalus horridus</i>	Terrestrial: 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.	N	no upland woodlands, riparian, or dense ground cover present	No impact	No suitable habitat present.	N
Colorado	Reptiles	western box turtle	<i>Terrapene ornata</i>	Terrestrial: 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.	Y	Cattle pastures are present.	May impact	May impact, not likely to impact, due to limited impacts to preferred habitats and mobile nature of the species.	N
Colorado	Reptiles	western hognose snake	<i>Heterodon nasicus</i>	Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.	N	No prairie habitats are present.	No impact	No suitable habitat present.	N
Colorado	Reptiles	western massasauga	<i>Sistrurus tergeminus</i>	Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.	N	No prairie habitats are present.	No impact	No suitable habitat present.	N
Colorado	Plants	coastal gay-feather	<i>Liatris bracteata</i>	Coastal prairie grasslands of various types, from salty prairie on low-lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall	N	No prairie habitats are present.	No impact	No suitable habitat present.	N
Colorado	Plants	heartleaf evening-primrose	<i>Oenothera cordata</i>	Occurs in post oak woodlands on sandy soils on the coastal plain (Carr 2015).	N	No coastal plains present.	No impact	No suitable habitat present.	N
Colorado	Plants	Indianola beakrush	<i>Rhynchospora indianolensis</i>	Locally abundant in cattle pastures in some areas (at least during wet years), possibly becoming a management problem in such sites; Perennial; Flowering/Fruiting April-Nov	Y	Cattle pastures present.	May impact	May impact, not likely to impact, due to the limited anticipated impacts to preferred habitat.	N

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County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Impact Determination for SGCNs	Explanation for Impact Determination	Presence/ Absence survey conducted?
Colorado	Plants	Mohlenbrock's sedge	Cyperus grayioides	Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; Occurs primarily in deep, periodically disturbed sandy soils in open areas maintained by factors such as wind, erosion, or fire. This species does not occur in shaded areas or in areas of high competition with other herbaceous species. Habitats include remnant sand prairies, sandy fields, sand blow outs, sandhill woodlands, pine barrens, and open barrens in which the slope is sufficient to produce sand erosion. May also occur in areas where the soils have been disturbed by logging or road construction; Perennial	N	No woodlands present.	No impact	No suitable habitat present.	N
Colorado	Plants	Oklahoma grass pink	Calopogon oklahomensis	Mesic, acidic, sandy to loamy prairies, pine savannas, oak woodlands, edges of bogs, and frequently mowed meadows (Goldman, Magrath & Catling 2002). Flowering March-July.	N	No prairies, pine savannas, woodlands or bogs present.	No impact	No suitable habitat present.	N
Colorado	Plants	Shinner's sunflower	Helianthus occidentalis ssp. plantagineus	Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.	N	No coastal plains present.	No impact	No suitable habitat present.	N
Colorado	Plants	Texas beebalm	Monarda viridissima	Endemic perennial herb of the Carrizo Sands; deep, well-drained sandy soils in openings of post oak woodlands; flowers white.	N	No woodlands present.	No impact	No suitable habitat present.	N
Colorado	Plants	Texas pinkroot	Spigelia texana	Woodlands on loamy soils; Perennial; Flowering March-Nov; Fruiting April-Nov	N	No woodlands present.	No impact	No suitable habitat present.	N
Colorado	Plants	Traub's rainlily	Cooperia traubii	Primarily sandy loam, open fields, coastal plains. Flowering early summer-mid fall (Jul-Nov) (Flagg, Smith & Flory 2002).	N	No coastal plains present. G27:G35E35G30;G35G22:G35E35G30;G35G17:G35E35G30;G35G	No impact	No suitable habitat present.	N