

Desktop Analysis for Sensitive Biological Resources

Bridge M-21-B

Colorado Department of Transportation
Denver, Colorado

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Final

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Executive Summary

This report provides a summary of the potential impacts to natural resources for the replacement of Bridge M-21-B (the Project) located approximately 4.3 miles southwest of Timpas, Colorado. This report includes findings that a Design-Build Contractor may need to consider when bidding on the construction of the above referenced Project.

Key Findings

- The Project is located by the Lone Tree Arroyo, which the Project bridge spans.
- Potential Waters of the U.S.
 - No potentially jurisdictional waters or wetlands were identified though an ephemeral drainage feature, the Lone Tree Arroyo, exists (Figure 5).
- Sensitive Species
 - The Project has no potential to impact species listed under the federal Endangered Species Act.
 - The Project has the potential to impact 17 species listed by the Pike and San Isabel National Forest – Comanche Ranger District.
 - The Project has the potential to impact one species listed by Colorado Parks and Wildlife (CPW) as endangered or threatened.
 - Burrowing owl (*Athene cunicularia*) – State Threatened
 - There is potential for Migratory Bird Treaty Act (MBTA) species and bats to occur
- Floodplains
 - The Project is located within a Federal Emergency Management Agency (FEMA) floodplain zone A (Figure 4).
 - The Project will be designed to meet the floodplain standards established by CDOT, FEMA, and the Otero County Floodplain Administrator, and as such, will not alter the 100-year floodplain.

- Shortgrass Prairie Initiative (SGPI)
 - The Project is located within a region subject to the SGPI
- Hazardous Waste
 - No hazardous waste sites were identified during survey (Attachment D).
- Archaeological, Historic and Paleontological Resources
 - These resources are being assessed by CDOT and will be provided under separate cover

Risks, Permits and Mitigation

- Potential Waters of the U.S.
 - No wetlands or waters of the U.S. were identified. No Section 404 of the Clean Water Act permitting, or mitigation is anticipated.
- Sensitive Species
 - Clearance surveys for Migratory Bird Treaty Act (MBTA) species and bats will be required. Coordination with CPW may be required if seasonal avoidance is not possible.
 - Coordination with the U.S. Forest Service (USFS) may be required.
 - No Consultation with the U.S. Fish and Wildlife Service (USFWS) is anticipated.
- Stormwater
 - Impacts over 1 acre require a General Permit for Stormwater Discharges Associated with Construction Activity (depending on the level of impacts) which need to be approved by Colorado Department of Public Health and Environment.
- Shortgrass Prairie Initiative (SGPI)
 - Potential Project impacts are insignificant; no SGPI mitigation will be required.
- Hazardous Waste
 - The investigation has not identified any recognized environmental conditions that could impact the project area, and additional sampling is not recommended for the site.
 - Prior to any underground digging or soil disturbance, a utility locate should be called to prevent damage to any existing utilities within the PRA.

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- Attachment A – Information for Conservation and Planning Report (IPaC)
- Attachment B – Preliminary Bat Assessment Guidelines for Bridges/Structures
- Attachment C – Hazardous Waste Memorandum

1. Introduction

Stanley Consultants, Inc. (Stanley) was retained by the Colorado Department of Transportation (CDOT) to assess the environmental resources present within the vicinity of Bridge M-21-B, which scheduled to be replaced (the Project). The assessment of environmental resources presented in this desktop analysis is intended to inform the bridge planning and design process, as well as be used for permitting purposes once a bridge design has been selected. This document presents a summary of the findings of the resources assessed within the potential footprint of disturbance (Project Review Area [PRA]; Figure 1).

2. Background

2.1 Project Description

The CDOT Region 2 Bridge Bundle Design Build Project consists of the replacement of a total of nineteen (19) structures, including two (2) Additionally Requested Elements (AREs) structures, bundled together as a single design-build project. These structures are rural bridges on essential highway corridors (U.S. Highway [US] 350, US 24, Colorado State Highway [CO] 239 and CO 9) in southeastern and central Colorado. These key corridors provide rural mobility, intra- and interstate commerce, movement of agricultural products and supplies, and access to tourist destinations.

Fourteen (14) structures in this design build project are jointly funded by the USDOT FHWA Competitive Highway Bridge Program grant and the Colorado Bridge Enterprise (Project No. 23558). The remaining five (5) structures (including the two ARE structures) are funded solely by the Colorado Bridge Enterprise (Project No. 23559). Bridge M-21-B is funded under Project No. 23558.

The bridges included in the ‘Region 2 Bridge Bundle’ were selected based on similarities in the bridge conditions, risk factors, site characteristics, and probable replacement type, with the goal of achieving economy of scale. Seventeen of the bridges being replaced are at least 80 years old. Five of the bridges are Load Restricted, limiting trucking routes through major sections of the US 24 and US 350 corridors. The bundle is comprised of nine timber bridges, four concrete box culverts, one corrugated metal pipe (CMP), four concrete I-beam bridges, and one I-beam bridge with corrugated metal deck.

Bridge M-21-B is located on US 350 at milepost 51.682, approximately 4.3 miles southwest of Timpas, CO. The bridge is a two-span concrete deck on steel I-beam (33-foot wide by 84-foot long) that crosses over an ephemeral swale (Lone Tree Arroyo). The Project will replace this bridge with similarly sized concrete bridge.

As stated by the CDOT grant application, the roadway shall not be closed for construction. Two other alternatives were investigated:

Alternative 1: Phasing the constructions to keep one lane open. To meet all typical CDOT roadway phased construction criteria, this alternative will require overbuilding the proposed bridge on one side. The width of the proposed structure is contingent upon the girder type and width and will vary from the alternative described below.

Alternative 2: Building a two-lane shoofly on one side of the existing bridge with a temporary pipe placed under the road for drainage. The existing ROW provides enough clearance to construct a shoofly on either side of the bridge. However, due to the relatively long existing bridge structure and consistently high existing vertical clearance under the bridge, this alternative is considered to be less cost effective than Alternative 1.

Alternative 1 (phased construction with one lane open) was identified as a preferred traffic alternative for this structure. More information on traffic detour options can be found in the Traffic Design Memorandum for this structure.

Once the bridge is complete and ready for use, any disturbed areas from both the construction and temporary bypass will be restored to original contours and reseeded.

2.2 Project Purpose and Need

The concrete deck on steel I-beam bridge (Structure M-21-B) was built in 1937 on US 350 which is a key north-south corridor connecting residents and tourists from La Junta and the Arkansas River Valley to Trinidad and the Rocky Mountains. The structure is in poor condition, requiring frequent inspection and repair from issues such as cracking on the wing walls and abutments, damaged bearing anchors, deck cracking, spalls with exposed rebar, and other general deterioration. This bridge is well past its replacement life and is not up to current construction and safety standards and must be replaced to prevent potential failure.

3. Project Review Area

Since the final bridge design has not yet been selected, the limits of the 18.15-acre PRA (see Figure 2) were defined to include all potential designs informed by discussions with the Project engineers and include considerations such as the location of the CDOT ROW, access permissions from adjacent land owners, the need for traffic control during construction, and design requirements to bring existing structures into alignment with current CDOT standards. Based on those discussions, the PRA for this bridge extends about 200 feet (ft) on the either side of the bridge (from centerline) to accommodate any potential design changes. The PRA also extends for 2,000 ft north and south from the bridge along the road (US 350) within the CDOT ROW.

Part of the PRA is located on National Forest System (NFS) lands (Comanche National Grasslands). The bridge and the remainder of the PRA is located on private lands in Otero County, Colorado, southwest of Timpas, Colorado within Township 26S, Range 57W, Section 19 (Figure 1).

3.1 Land Use

Land use in the vicinity of the PRA predominantly consists of agriculture (livestock grazing). Some of the lands immediately surrounding and including the PRA are USFS – Comanche National Grasslands, but with a section of the PRA being in private lands (Figure 2).

3.2 Water

The waterway under the roadway bridge is an ephemeral drainage feature known as the Lone Tree Arroyo, which runs from the south to the north and under the bridge. The feature does not exhibit an OHWM, does not experience regular flows, and likely only contains some storm event flows such as 5- to 10-year storms. Vegetation was found within what should be the channel bed area, suggesting any flows are very infrequent. However, older piles of wrack were observed suggesting at least a strong storm flows in recent years but none since then.

3.3 Physical Features

The terrain surrounding the PRA (elevation: 4,535±5 ft) consists of the eastern plains of Colorado, including the Arkansas River Valley to the north. To the west of the PRA is the foothills of the Front Range of the Rocky Mountains, and to the south and east is the Purgatoire River Valley.

Within the PRA, the bridge, roadway, and roadway shoulder are the dominant constructed features, while the natural features consist predominantly of the arroyo, open agricultural lands, and the surrounding arid shrub and grasslands.

3.4 Vegetation Community

The vegetation surrounding the PRA is primarily open grasslands, much of which is used for livestock grazing. The dominant vegetation is various upland grasses such as wheatgrasses and fescues, but with other scattered forbs and low shrubs.

3.5 Wildlife Corridors

The statewide assessment of wildlife linkages (Southern Rockies Ecosystem Project 2005) mapped no wildlife linkage corridors within the vicinity of the PRA (Figure 3). The closest wildlife corridors are the black-tailed prairie dog (*Cynomys ludovicianus*), approximately 12 miles to the south, with the swift fox (*Vulpes velox*), approximately 11 miles to the northwest, all well outside of the PRA (Figure 3). No roadkill has been recorded within or close to the PRA (OTIS 2020), though occasional movements individuals or small groups of mule deer (*Odocoileus hemionus*) or elk (*Cervus canadensis*) in the area are always possible.

4. Resource Analysis Methods

4.1 Desktop Analysis

A desktop analysis was conducted to identify potential resources of concern and collect information respective of the PRA from available publications and online resources. The desktop analysis also assessed Project location and associated land management to determine applicable environmental regulations to be considered for the Project.

The desktop analysis was conducted by gathering data from a variety of sources including: the National Wetland Inventory (NWI) wetlands mapping; Colorado Wetland Inventory; Federal Emergency Management Agency (FEMA) floodplain mapping; U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) and other publicly available documents on species reviews and rulings; USFWS critical habitat mapper; USFS publicly available documents on species lists, U.S. Department of Agriculture's National Resources Conservation Service soil mapping; U.S. Geological Survey StreamStats; Environmental Protection Agency's waters mapping; and aerial photography.

4.2 Species Screening Analysis

Special status species analyzed in this report include: 1) species listed by the USFWS under the Endangered Species Act (ESA) that have been identified by the USFWS Colorado Ecological Service Field Office through the IPaC online query (Attachment A); 2) species listed by Colorado Park & Wildlife (CPW) as State Endangered or State Threatened; 3) species listed by the USFS – Pike and San Isabel National Forest as Forest Service sensitive and are known to occur within or have suitable habitat located in the Comanche Ranger District (Olson 2019); 4) species listed under the Bald and Golden Eagle Protection Act (BGEPA); and 4) species protected under the Migratory Bird Treaty Act (MBTA).

Screening analysis methods for determining species lists and habitat information includes resources mentioned above (e.g., IPaC), as well as CPW databases and publications related to any state-listed threatened or endangered species. Other resources on species-specific information includes a variety of sources such as USFWS literature and fact sheets, USFS Region 2 sensitive species list, USFS literature and fact sheets, and published white literature. Data for species presence has been gathered from CDOT and the Colorado Natural Heritage Program (CNHP), from GIS data and site-specific species records request (CNHP 2020).

Based on the special status species lists generated from the above sources, a screening analysis was performed to evaluate the potential for special status species or designated or proposed critical habitat to occur within the PRA. Criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

Present: The species has been observed to occur in the PRA based on known records, the PRA is within the known range of the species, *and* habitat characteristics required by the species are known to be present.

Possible: The species has not been observed in the PRA based on known records, but the known, current distribution of the species includes the PRA *and* the required habitat characteristics of the species appear to be present in the PRA.

Unlikely: The known, current distribution of the species does not include the PRA, but the distribution of the species is close enough such that the PRA may be within the dispersal or foraging distance of the species. The habitat characteristics required by the species may be present in the PRA.

None: The PRA is outside of the known distribution of the species, *and/or* the habitat characteristics required by the species are not present.

The screening analysis also assessed the potential for impacts to sensitive species. Impacts to ESA-listed species were assessed per the criteria outlined in the Endangered Species Consultation Handbook (USFWS 1998, Section 3.5, pg 3-12):

- **No effect:** No impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences.
- **May affect, but not likely to adversely affect:** All effects are beneficial, insignificant, or discountable. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur.
- **May affect, and is likely to adversely affect:** Listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure.

Impacts to Forest sensitive species were assessed per the objectives and criteria for sensitive species management outlined in the Forest Service Manual (FSM 2600, R2 Supplement 2670-2018-1, 2672.42) and including the following:

- **No impact.** No impacts, positive or negative, to listed or proposed resources.
- **Beneficial impact.**
- **May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing.**
- **Likely to result in a loss of viability in the Planning Area, or in a trend to federal listing.**

An Action Area, defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02(d)) is typically required for a review of ESA-listed species. An Action Area was not created for this analysis, as the specific action and associated direct or indirect impacts have not yet been determined for the Project at this time. The PRA extends 200 ft upgradient (southeast) and downgradient (northwest) along the drainage (as restricted by the railroad ROW) from the bridge (Figure 2). However, a larger Action Area may be needed to review ESA-listed species depending on the final design.

4.3 Field Survey

On August 26, 2020, Stanley biologists conducted a pedestrian survey of the 18.15-acre PRA. The pedestrian survey included delineations of any potential wetlands or other waters of the U.S. (WOTUS), and characterizations of the surrounding vegetation and wildlife habitat that could be potentially impacted by construction activities. General site observations were also recorded, such as the topography, the land use and condition within and adjacent to the PRA, and any wildlife observations.

Our project team conducted WOTUS and wetland delineations in accordance with U.S. Army Corps of Engineers (USACE) delineation guidance (USACE 2005, USACE and U.S. Environmental Protection Agency [EPA] 2008), regional supplemental manuals (USACE 2010), and ordinary high water mark (OHWM) identification manuals (Curtis and Lichvar 2010). Although the definition of WOTUS has been in flux in recent years, Colorado remains under the jurisdictional interpretation of Section 404 of the Clean Water Act (CWA) established in *Rapanos v. United States* (Rapanos). The potential for WOTUS to occur within the PRA was therefore evaluated per the Rapanos guidance and associated documents. Additional details are provided in the Aquatic Resources Delineation Report. GPS locations of any resources were recorded using ESRI's Collector and Survey123 apps on an iPad connected to a sub-meter GPS antenna.

5. Resource Analysis Results

5.1 Special Status Species

This first screening was to determine species within or near the PRA that have potential habitat or records of occurrence. Results from the IPaC query (Attachment A), USFS Region 2 sensitive species list for the Pike and San Isabel National Forest – Comanche Ranger District (Olson 2019), and the CPW state-listed threatened and endangered species identified a total of **54** species for assessment (Table 1, Special Status Species Analysis Screening). Of the **54** species assessed, the following five (**5**) species were determined to have a possible potential to occur within the PRA:

- Burrowing owl (USFS sensitive; State threatened)
- Desert massasauga (USFS sensitive)
- Ferruginous hawk (USFS sensitive)
- Grasshopper sparrow (USFS sensitive)
- Swift fox (USFS sensitive)

Twelve (**12**) species were determined to have an unlikely potential to occur, all of which are USFS sensitive species. The remaining **37** special status species were determined to have no potential to occur. There is no designated or proposed critical habitat within the PRA. The Colorado Natural Heritage Program (CNHP) species presence database was queried for records for ESA- and state-listed threatened and endangered species, as well as USFS sensitive species within 2 miles of the M-21-B bridge location, but no records were found for any species (CNHP 2020).

Based on the current understanding of Project plans, although the Project may adversely impact individuals it is not likely to result in a loss of viability for sensitive species populations in the Comanche National Grasslands' Planning Area, or cause a trend to federal listing for any species with the potential to occur within the PRA.

The USFWS office that services the PRA (the Colorado Ecological Services Field Office) has determined that impacts to the **least tern, piping plover, and whooping crane** only need to be considered for water-related activities/use in the North Platte, South Platte, and Laramie Basins in Nebraska. The PRA does not occur within the North Platte, South Platte, or Laramie watersheds and will not directly or indirectly impact these watersheds.

Table 1. Special Status Species Screening Analysis

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Amphibians and Reptiles			
Boreal toad <i>(Bufo boreas boreas)</i> CO – E	<p>Range: Rocky Mountains area, usually between 8,500 to 11,500 ft of elevation.</p> <p>Habitat: Mountain lakes, ponds, meadows, wetlands in subalpine forests.</p>	<p>Potential to Occur: None. No suitable habitat, no sub-alpine fir communities with wetlands or ponds.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation: None needed.</p>
Desert massasauga <i>(Sistrurus catenatus edwardsii)</i> USFS	<p>Range: Found in many western states such as Arizona, Colorado, New Mexico and Kansas. It occurs in southeastern Colorado below 5,500 ft and inhabits plains grasslands and sandhill areas. It is found in the Timpas Creek watershed within the Comanche grasslands (Olson 2019).</p> <p>Habitat: Variety of habitats including grassy wetlands, rocky hillsides, shrub-grass communities, and desert grasslands. Requires dense soils for hibernation sites (Olson 2019).</p>	<p>Potential to Occur: Possible. The PRA is within the species range, is close to the Timpas Creek watershed, and does contain arid grasslands and shrubs. Foraging habitat is suitable.</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing. The Project will disturb the ground and some vegetation, including for the temporary detour. The temporary construction activity may disturb individuals but would not result in impacts to the population that would cause a trend towards listing.</p> <p>Mitigation: None needed.</p>
Plains leopard frog <i>(Lithobates blairi)</i> USFS	<p>Range: Ranges from South Dakota to Arizona and Texas, and including Kentucky. In Colorado, can be found in a variety of river and creek watersheds in eastern Colorado (Olson 2019).</p> <p>Habitat: By streams, ponds, reservoirs, irrigation ditches, and other water bodies in grasslands, valleys, and canyon bottoms (Olson 2019).</p>	<p>Potential to Occur: None. The PRA is within the species range and is known to occur in the Comanche district. However, there's no perennial water source within or close to the PRA. Timpas Creek is likely too dry during parts of the year to be listed as a possible creek habitat for this species.</p>	<p>No impact. No aquatic habitat for species presence.</p> <p>Mitigation: None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Birds			
<p>Burrowing owl (<i>Athene cunicularia</i>)</p> <p>USFS CO – T</p>	<p>Range: Western U.S. and Florida. In Colorado, primarily found in eastern third of the state but does breed in South Park District (Olson 2019), but also in the western desert lands.</p> <p>Habitat: Open, arid lands with scattered shrubs and animal burrows.</p> <p>Elevation: No specified.</p>	<p>Potential to Occur: Possible. Open grasslands or arid lands are present, though no animal burrows observed in the PRA. However, nesting burrows could exist within 1,320 ft of the PRA, the recommended human encroachment buffer during the nesting season of March 15 to August 31 (CDOW 2020).</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing. No nests or animal burrows present within or adjacent to the PRA, but surveys may be required during nesting season (Mar 15 to Aug 31) within 1,320 ft of the PRA.</p> <p>Mitigation. If nesting pairs are identified, coordination with CPW may be required, or avoid construction during nesting season (Mar 15 to Aug 31). Consultation with CPW may be required if impacts to habitat occur.</p>
<p>Cassin’s sparrow (<i>Peucaea cassinii</i>)</p> <p>USFS</p>	<p>Range: Western states including Nebraska to Arizona, Texas, and Mexico. Winters close to and south of the U.S. Border. In Colorado, the species can be found in the eastern plains including the Comanche Ranger District (Olson 2019).</p> <p>Habitat: Open, arid grasslands with shrubs and sand sagebrush dominated prairies. Birds arrive in April and depart by end of October. Nesting habitat in short or medium grass prairie with some shrubs, but not pure grasslands or shrublands (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The species is known within the Comanche ranger district, but the habitat of the PRA is not suitable for nesting as shrub density is either too dense or too sparse.</p>	<p>No impact. No nesting habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Chestnut-collared longspur (<i>Calcarius ornatus</i>)</p> <p>USFS</p>	<p>Range: Southern Canada to northeastern Colorado and South Dakota. In Colorado, the species is mostly in the northeast, and rare farther west and south to the base of the foothills. Rarely breeds in the Comanche (Olson 2019).</p> <p>Habitat: Nesting habitat in short or medium grass prairie recently grazed, avoiding undisturbed habitats. Rarely breeds in the Timpas unit of the Comanche (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The species is known within the Comanche ranger district but is rarely known to breed in the area including the PRA. Grasslands within the PRA are grazed but may not be suitable as short grass prairie.</p>	<p>No impact. No nesting habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Ferruginous hawk <i>(Buteo regalis)</i> USFS	<p>Range: Southern Canada to northern California and east to northern Texas. In Colorado, the species can be found mostly in the plains but can reach into the mountain parks (Olson 2019).</p> <p>Habitat: Grasslands and shrublands with varied topography and ready access to trees, rock outcrops, and other elevated structures. Sensitive to human activity during nesting. Attracted to prairie dog towns for forage (Olson 2019).</p>	<p>Potential to Occur: Possible. The species is known within the Comanche ranger district. However, due to US 350 and lack of large obvious concentrations of prey animals and abundant elevated perches, only migrant foraging individuals likely in the PRA.</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing. The Project construction activities may temporarily disturb foraging individuals but as trees are sparse close to the PRA, such disturbances unlikely to affect nesting and would not result in impacts to the population that would cause a trend towards listing.</p> <p>Mitigation. Raptor nesting surveys may be required within a ½ mile of Project if work occurs during species' nesting season (Feb 1 to July 15).</p>
Grasshopper sparrow <i>(Ammodramus savannarum)</i> USFS	<p>Range: Much of North America from southern Canada to Texas and Georgia but can include California and Florida. Known to breed in the tablelands and plains of Colorado (Olson 2019).</p> <p>Habitat: Prefers large areas of prairie grasslands or grasslands with a component of rabbitbrush or saltbush. Breeds locally in the Comanche from May to early September (Olson 2019).</p>	<p>Potential to Occur: Possible. The PRA is within its breeding range. Potential habitat does exist if not within than at least close to the PRA.</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing. The Project will disturb the ground and some vegetation, including for the temporary detour. The temporary construction activity may disturb individuals but would not result in impacts to the population that would cause a trend towards listing.</p> <p>Mitigation: Pre-construction nesting surveys for any nesting birds would be necessary if ground disturbance occurs during the nesting season (Apr 1 to Aug 31).</p>
Least tern <i>(Sterna antillarum)</i> ESA – E CO – E	<p>Range: In southeastern Colorado, in the La Junta-Lamar area.</p> <p>Habitat: Sandy or pebbly beaches around lakes and reservoirs, or sandbars in river channels.</p>	<p>Potential to Occur: None. Outside of range, no large beaches or sandbars around lakes, reservoirs, or rivers.</p>	<p>No Effect. The species does not have any potential to occur within the PRA and the Project does not occur within any watersheds of concern (see top of Section 5.1).</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
<p>Lesser prairie-chicken (<i>Tympanuchus pallidicinctus</i>)</p> <p>USFS CO – T</p>	<p>Range: In extreme southeastern Colorado.</p> <p>Habitat: Large, sandy grasslands with abundant grasses, sandsage, and yucca.</p>	<p>Potential to Occur: None. Outside of range, no large, suitable grasslands.</p>	<p>No impact. No habitat for species presence.</p> <p>Mitigation: None needed.</p>
<p>Lewis' woodpecker (<i>Melanerpes lewis</i>)</p> <p>USFS</p>	<p>Range: Found in southern British Columbia and South Dakota south to California and Oklahoma panhandle. Fairly common in southeastern Colorado from Chaffee and southwestern El Paso counties southward (Olson 2019).</p> <p>Habitat: Occurs in open canopied stands with brushy understories and abundant downed woody material. Prefers pine woodlands, riparian cottonwoods, and pinon-juniper woodlands, with abundant snags, between 3,500 to 7,000 ft (Olson 2019).</p>	<p>Potential to Occur: None. No suitable habitat within or adjacent to the PRA; no pine woodlands, riparian woodlands, or pinon-juniper woodlands.</p>	<p>No impact. No habitat for species presence.</p> <p>Mitigation: None needed.</p>
<p>Loggerhead shrike (<i>Lanius ludovicianus</i>)</p> <p>USFS</p>	<p>Range: Found from Alberta to Quebec south to California, Texas and central Mexico, and Florida. In Colorado, primarily occurs in South Park, Arkansas River Tablelands, Plains Canyons, and Sandhill Ogallala Plateau. Has been recorded in the Pikes Peak Ranger District (Olson 2019).</p> <p>Habitat: Inhabits open areas with short vegetation, fence rows, orchards, and open woodlands. Breeding habitat in open areas with only scattered and isolated trees or shrubs from 4,000 to 8,900 ft (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The PRA does contain open areas but without any open woodlands of any kind, or even scattered trees close by. Possible only as foraging migrants or flyovers.</p>	<p>No impact. Likely only foraging habitat by migrants within or adjacent to the PRA.</p> <p>Mitigation: None needed.</p>
<p>Long-billed curlew (<i>Numenius americanus</i>)</p> <p>USFS</p>	<p>Range: Southern Canada to northern California and Texas. In Colorado, the species is mostly a summer resident of the southeastern plains including the Comanche (Olson 2019).</p> <p>Habitat: Nesting habitat in short and mixed grass prairies on flat to rolling lands. Vegetation generally not dense, and shallow water areas used when available (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The species is known within the Comanche Ranger District, though presence is known to exist much farther southeast in the Carrizo unit. Grasslands within the PRA may be suitable, but the lack of water may greatly limit the PRA and surrounding area as suitable for nesting and raising young.</p>	<p>No impact. Likely only foraging habitat by migrants within or adjacent to the PRA.</p> <p>Mitigation: None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
<p>McCown's longspur (<i>Rhynchophanes mccownii</i>)</p> <p>USFS</p>	<p>Range: Southern Canada to eastern Colorado. In Colorado, the species is mostly in the eastern plains, and rare farther west and south to the base of the foothills. Rarely summers in the Comanche (Olson 2019).</p> <p>Habitat: Nesting habitat in arid, short grass prairies recently grazed, or even over-grazed pastures. Rarely breeds in the Comanche (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The species is known within the Comanche Ranger District but is rarely known to breed in the area including the PRA. Grasslands within the PRA are grazed but may not be suitable as short grass prairie. Likely only winter migrant foragers in or near the PRA.</p>	<p>No impact. No nesting habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Mexican spotted owl (<i>Strix occidentalis lucida</i>)</p> <p>ESA – T CO – T</p>	<p>Range: Front Range of central Colorado, elsewhere in western US.</p> <p>Habitat: Steep, rocky canyons, mature mixed conifer woodland close to riparian zones.</p> <p>Elevation: 4,100 to 9,000 ft.</p>	<p>Potential to Occur: None. No mature mixed conifer woodlands, and no steep, rocky canyons.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation: None needed.</p>
<p>Mountain plover (<i>Charadrius montanus</i>)</p> <p>USFS</p>	<p>Range: From southern Canada to New Mexico and Texas, wintering in central California, southern Arizona and Texas, and northern Mexico. In Colorado, the species can breed in the plains in many the major watersheds (Olson 2019).</p> <p>Habitat: Flat areas with short grass and scattered cactus, avoiding taller vegetation and hillsides. Habitat can also include fallow or tilled farm fields and prairie dog towns (Olson 2019).</p>	<p>Potential to Occur: Unlikely. The PRA is within the Comanche, a known breeding area, grass height and shrub density may not be suitable for nesting. Small hillsides are close to parts of the PRA, which may deter nesting. The PRA is also not closely associated with a major watershed.</p>	<p>No impact. The species may not have suitable nesting within or adjacent to the PRA.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Northern harrier <i>(Circus cyaneus)</i> USFS	<p>Range: Much of North America, coast to coast and as far south as Texas. In Colorado, the species can be found from the plains up and into the mountain parks (Olson 2019).</p> <p>Habitat: Moist grasslands, agricultural areas, and marshes, but can range into less suitable habitats. Nesting requires tall wetland vegetation and grasses. Wintering grounds are more open, treeless areas. (Olson 2019).</p>	<p>Potential to Occur: Unlikely. No suitable nesting habitat near the PRA, but winter foraging habitat is found close to the PRA. The Comanche is known more as wintering grounds.</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing.</p> <p>If the Project disturbance occurs during the winter months, Project construction activities may temporarily disturb foraging individuals but as trees are sparse close to the PRA, such disturbances unlikely to affect nesting and would not result in impacts to the population that would cause a trend towards listing.</p> <p>Mitigation. Raptor nesting surveys may be required within a ½ mile of Project if work occurs during species' nesting season (Feb 1 to July 15), although no seasonal restrictions or recommended nesting buffer zones have been determined by CPW for this species.</p>
Piping plover <i>(Charadrius melodus circumcinctus)</i> ESA – T CO – T	<p>Range: In eastern Colorado, in the Arkansas and South Platte River drainages.</p> <p>Habitat: Sandy beaches around lakes and reservoirs, sandbars in river channels, or sandy wet pastures.</p>	<p>Potential to Occur: None. No large, suitable sandy beaches or sandbars.</p>	<p>No Effect. The species does not have any potential to occur within the PRA and the Project does not occur within any watersheds of concern (see top of Section 5.1).</p> <p>Mitigation. None needed.</p>
Plains sharp-tailed grouse <i>(Tympanuchus phasianellus jamesii)</i> CO – E	<p>Range: In extreme northeastern Colorado, mostly in Weld County.</p> <p>Habitat: Medium to tall grasslands, almost exclusively in Conservation Reserve Program grasslands.</p>	<p>Potential to Occur: None. Outside of range, no large, suitable grasslands.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) ESA – E CO – E	<p>Range: In southcentral and southwestern Colorado, in Alamosa area, usually below 8,500 ft.</p> <p>Habitat: Dense riparian habitats with saturated soils, standing water or nearby streams.</p>	<p>Potential to Occur: None. No perennial water or saturated soils, and not known to be in this part of Colorado.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Whooping crane (<i>Grus americana</i>) ESA – E CO – E	<p>Range: Along coastal areas of the Great Lakes, Gulf Coast, and Arctic Coast. In Colorado, species occurs rarely as migrants during the spring and fall in eastern Colorado.</p> <p>Habitat: Mudflats and bulrush marshes around reservoirs and agricultural areas.</p>	<p>Potential to Occur: None. No mudflats or saltmarshes, and no records in Colorado for the last 10 years.</p>	<p>No Effect. The species does not have any potential to occur within the PRA and the Project does not occur within any watersheds of concern (see top of Section 5.1).</p> <p>Mitigation. None needed.</p>
Fish			
Arkansas darter (<i>Etheostoma cragini</i>) CO – T	<p>Range: Found in the Upper Arkansas, Fountain Creek, Horse Creek, Upper Arkansas at John Martin, Big Sandy Creek, Rush Creek, Black Squirrel Creek and Chico Creek drainages.</p> <p>Habitat: Found in shallow, clear, sandy streams with spring-fed pools and abundant rooted aquatic vegetation. Can occur in large, deep pools during late summer low-water periods when streams may become intermittent.</p>	<p>Potential to Occur: None. The PRA is located outside of the species' known range, no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Bonytail (<i>Gila elegans</i>) ESA – E CO – E	<p>Range: Extirpated from historic range (USFWS 2002). Historically occurred in the Colorado River system, including the Gila, Salt, Yampa, Green, Colorado and Gunnison rivers (CPW 2020, AGFD 2020). No reproducing populations are known in the wild.</p> <p>Habitat: Historically found in warm-water reaches of larger rivers (USFWS 2002). Recorded using the main stream portions of mid-sized to large rivers, usually over mud and rocks. (AGFD 2020). Observed spawning over rocky shoals and shorelines (USFWS 2002).</p>	<p>Potential to Occur: None. The PRA does not occur within the species' historic range and the species has been extirpated from its historic range.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
<p>Brassy minnow (<i>Hybognathus hankinsoni</i>)</p> <p>CO – T</p>	<p>Range: In Colorado, found in the Lower South Platte River Basin and in Colorado River backwaters (CPW 2016b).</p> <p>Habitat: Occurs in a variety of environmental conditions, including stream channels (particularly pools), backwaters, and beaver ponds with continuous connectivity to other waters (CPW 2016b). Suitable habitat includes cool, clear water, fluctuating plains streams, and streams with abundant aquatic vegetation and submergent vegetation, (CPW 2016b, Wooding 1985). The species prefers clear, slow streams but have been collected in larger rivers with higher turbidity, and occasionally in lakes (MFWP 2020).</p>	<p>Potential to Occur: None. The PRA is located outside of the species' known range, no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Colorado pikeminnow (<i>Ptychocheilus lucius</i>)</p> <p>ESA – E CO – T</p>	<p>Range: Current range restricted to the Green, Yampa, White, Gunnison, and Colorado Rivers (AGFD 2002a, CPW 2020).</p> <p>Habitat: Occurs in swift flowing muddy rivers with quiet, warm backwater.</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Common shiner (<i>Luxilus cornutus</i>)</p> <p>CO – T</p>	<p>Range: Current known range in Colorado includes northern Colorado along the South Platte River from Denver and Ovid (Woodling 1985; Fuller 2004).</p> <p>Habitat: Occurs in moderate gradient streams with cool, clear water, gravel bottoms and shaded by brush or trees (Woodling 1985).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Flathead chub (<i>Platygobio gracilis</i>)</p> <p>USFS</p>	<p>Range: Southwestern Canada south to New Mexico and Texas, and east to Mississippi. In Colorado, range restricted to Arkansas and Rio Grande rivers, with some known in the Cimarron River, Purgatoire River, and Chacuaco Creek watersheds (Olson 2019).</p> <p>Habitat: Streams with turbid, fast-moving water in main channels of small to large rivers, in shallow to fairly deep water over mud, rock, or sand (Olson 2019).</p>	<p>Potential to Occur: None. No perennial flowing water, no river habitat.</p>	<p>No impact. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
<p>Greenback cutthroat trout (<i>Oncorhynchus clarki stomias</i>)</p> <p>ESA – T CO – T</p>	<p>Range: Historic range includes all mountain and foothill habitats of the South Platte and Arkansas river drainage systems. Currently only found in Bear Creek on Pikes Peak in the Arkansas River drainage (USFWS 2014). Reintroductions have started in a high elevation lake west of Fort Collins.</p> <p>Habitat: Occurs in cold, clear, gravely headwater streams and mountain lakes which provide an abundant food supply of insects (CPW 2020).</p>	<p>Potential to Occur: None. No perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Humpback chub (<i>Gila cypha</i>)</p> <p>ESA – E CO – T</p>	<p>Range: In Colorado, species is currently found in deep, canyon-bound portions of the Colorado River in Black Rocks and in the Yampa River at Dinosaur National Monument (AGFD 2001, CPW 2020).</p> <p>Habitat: Occurs in deep, fast-moving, turbid waters often associated with large boulders and steep cliffs (CPW 2020).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Lake chub (<i>Couesius plumbeus</i>)</p> <p>CO - E</p>	<p>Range: In Colorado, the species has been recorded in the Platte River drainage west of Boulder and in South St. Vrain Creek (Stasiak 2006a), but is largely extirpated from Colorado (Wooding 1985).</p> <p>Habitat: Most commonly found in cool, shallow waters, but can occur in a wide variety of environments (Becker 1983, Stasiak 2006a). Also found in clear water and gravel bottoms of glacial scour lakes, and occasionally in turbid streams (Stasiak 2006a). They more commonly inhabit lakes in the southern portion of their range (Becker 1983).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' current known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
<p>Northern redbelly dace (<i>Phoxinus eos</i>)</p> <p>CO - E</p>	<p>Range: In Colorado, extant populations occur in tributaries to the upper Platte River drainage system (Garber Creek, Jackson Creek, Plum Creek) (Stasiak 2006b).</p> <p>Habitat: Occurs in sluggish, spring-fed streams with a lot of vegetation and woody debris (Stasiak 2006b; Wooding 1985). Species requires a constant supply of cool, spring water with sufficient oxygen. Habitat typically includes cover in the form of undercut banks, heavy vegetation, or brushy debris (Stasiak 2006b).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Plains minnow <i>(Hybognathus placitus)</i> USFS CO – E	<p>Range: In Colorado, the species has been recorded on the South Platte River (Washington and Yuma Counties) and Arkansas River (Kiowa County) (Wooding 1985).</p> <p>Habitat: Inhabits channels of shallow, fluctuating streams with shifting sand substrates (Rees et al 2005). Found in both clear and turbid streams (Rees et al 2005).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No impact. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Razorback sucker <i>(Xyrauchen texanus)</i> ESA – E CO – E	<p>Range: In Colorado, species' current distribution is limited to the Yampa, Colorado and Gunnison rivers.</p> <p>Habitat: Found in a variety of habitats from deep, clear to turbid waters of large rivers and some reservoirs over mud, sand or gravel (AGFD 2002b, CPW 2020).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Rio Grande sucker <i>(Catostomus plebeius)</i> CO – E	<p>Range: In Colorado, the species is found only in Hot Creek and McIntyre Springs in Conejos County (Rees and Miller 2005, Wooding 1985).</p> <p>Habitat: An obligate riverine species found in areas near rapidly flowing water in pools, riffles, and glides (Rees and Miller 2005). The species is associated with low gradient habitats with cobble and small boulder substrate (Swift-White et al 1999).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Southern redbelly dace <i>(Phoxinus erythrogaster)</i> CO – E	<p>Range: In Colorado, the species is found in the headwaters of the Arkansas River near Pueblo and Canon City (Stasiak 2007, Wooding 1985).</p> <p>Habitat: Occurs in sluggish headwaters and upland creeks (usually spring-fed) with vegetation and woody debris (Stasiak 2007). Suitable habitat include clear creeks with abundant riparian vegetation and algal growths covering a stream substrate of deep silt deposits (Wooding 1985).</p>	<p>Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Suckermouth minnow (<i>Phenacobius mirabilis</i>) CO – E	Range: In Colorado, the species is limited to the eastern plains, in portions of the mainstem and lower mainstem South Platte (Logan, Sedgewick, Washington, Weld, and Yuma Counties) and some tributaries of the Arkansas Rivers (Prowers County) (Wooding 1985). Habitat: Occurs in riffle areas of warm prairie streams of all sizes with low to moderate currents and year-round flow (Wooding 1985).	Potential to Occur: None. The PRA occurs outside of the species' known range and no perennial flowing water.	No Effect. No habitat for species presence. Mitigation. None needed.
Insects			
Monarch butterfly (<i>Danaus plexippus plexippus</i>) USFS	Range: From British Columbia and Newfoundland south to California, Texas, and Florida. Species is a frequent migrant throughout most of the PSICC (Olson 2019) Habitat: Found in many different habitats including grasslands, woodlands, shrublands, and urban areas, but only in the presence of milkweeds (Olson 2019).	Potential to Occur: Unlikely. The PRA is located within the species known range and contains potentially suitable habitat. However, host plant species (milkweeds) was not observed in or near the PRA, and therefore unlikely to support the species.	No impact. No habitat for species presence. Mitigation. None needed.
Mammals			
Black-footed ferret (<i>Mustela nigripes</i>) ESA – E USFS CO – E	Range: Historically known only in eastern Colorado, experimental populations have been reintroduced in eastern Colorado since 2001. Habitat: Grasslands and shrublands that support prairie dog populations.	Potential to Occur: None. No experimental populations close to Project, and no large prairie dog populations.	No Effect. No habitat for species presence. Mitigation. None needed.
Canada Lynx (<i>Lynx canadensis</i>) ESA – T CO – E	Range: Historically known from the mountainous regions, but likely disappeared from Colorado by the mid-1970s. Reintroduced in 1999 to the San Juan Mountains in southwestern Colorado. Habitat: Dense, subalpine forest and mountain streams wherever abundant snowshoe hare populations are found.	Potential to Occur: None. The habitat at the PRA is open grasslands and is not suitable.	No Effect. No habitat for species presence. Mitigation. None needed.
Fringed myotis (<i>Myotis thysanodes</i>) USFS	Range: From British Columbia and South Dakota south to California and Texas. Present within the Pikes Peak Ranger District (Olson 2019). Habitat: Found to forage in a variety of woodlands and some shrublands near water, with snags, caves, mines, and buildings important for roosting (Olson 2019).	Potential to Occur: Unlikely. The PRA occurs within the species known range. However, the habitat in the PRA is open grasslands with few shrubs, and lack of perennial water, and therefore is not suitable.	No impact. No habitat for species presence. Mitigation. None needed.

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Gray wolf (<i>Canis lupus</i>) ESA – E CO – E	Range: Historically know in wildlands of Colorado but have been extirpated for some time. Habitat: Variety of wild habitats where herds of large game and abundant small game animals exist.	Potential to Occur: None. Currently extirpated from Colorado.	No Effect. No species presence. Mitigation. None needed.
Grizzly bear (<i>Ursus arctos</i>) ESA – T CO – E	Range: Historically know in wildlands of Colorado but have been likely extirpated for some time. Habitat: Variety of wild habitats in foothills and mountains.	Potential to Occur: None. Currently believed to be extirpated from Colorado.	No Effect. No species presence. Mitigation. None needed.
Hoary bat (<i>Lasiurus cinereus</i>) USFS	Range: Widespread, ranging from northern Canada to Guatemala. In Colorado, species probably occurs statewide from the plains to timberline (CPW 2020). Habitat: Found mostly in deciduous trees along streams in the plains but can be in conifer woodlands. A tree-roosting species and can be expected to live in any habitat with trees.	Potential to Occur: Unlikely. The PRA occurs within the species known range. However, the habitat in the PRA is open grasslands with few shrubs and no trees and is not suitable for roosting.	No impact. No habitat for species presence. Mitigation. None needed.
Kit fox (<i>Vulpes macrotis</i>) CO – E	Range: Western Colorado in arid shrublands from Montrose to Grand Junction. Habitat: Semi-desert shrublands of saltbush, shadscale, and greasewood.	Potential to Occur: None. No suitable shrublands, and no populations in the area.	No Effect. No species presence. Mitigation. None needed.
Preble's meadow jumping mouse (<i>Zapus hudsonius preblei</i>) ESA – T CO – T	Range: Within stream and river systems along the Front Range in Colorado, generally below 7,600 ft. Habitat: Well-developed riparian or wetland shrub vegetation with undisturbed adjacent diverse grasslands.	Potential to Occur: None. No surrounding streams or other perennial water.	No Effect. No habitat for species presence. Mitigation. None needed.
River otter (<i>Lontra canadensis</i>) CO – T	Range: Populations restored in the 1970s within stream systems in western Colorado, with some scattered populations in the northeast. Habitat: Healthy forested riparian habitats, with some overhanging banks along long reaches, and/or beaver ponds within 4 th order or greater stream systems.	Potential to Occur: None. No forested riparian habitats and no perennial flowing water.	No Effect. No habitat for species presence. Mitigation. None needed.

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Rocky Mountain bighorn sheep <i>(Ovis canadensis canadensis)</i> USFS	<p>Range: Occurs in mountainous regions of western North America from British Columbia and Alberta south to northern New Mexico and central Arizona (Olson 2019).</p> <p>Habitat: Found in open or semi-open terrain characterized by a mix of steep or gentle slopes, broken cliffs, rock outcrops, and canyons and their adjacent river benches and mesa tops (Olson 2019).</p>	<p>Potential to Occur: Unlikely. Although the PRA occurs within the species' range, the lack of cover within or near to the PRA, and lack of year-around water, the PRA may not suitable.</p>	<p>No impact. Poor habitat for species presence.</p> <p>Mitigation. None needed.</p>
Swift fox <i>(Vulpes velox)</i> USFS	<p>Range: From southwestern Canada, New Mexico and Texas. In Colorado, it occurs from the foothills east to the Arkansas River valley and the Ogallala Plateau. Uncommon in the Comanche (Olson 2019).</p> <p>Habitat: Shortgrass prairie, plains, desert shrublands, low vegetation, away from agriculture, and can be impacted by grazing. Nocturnal species (Olson 2019).</p>	<p>Potential to Occur: Possible. The PRA occurs within the species known range and predicted distribution (Stratman 2017). However, the habitat in the PRA is open, grazed grasslands with few shrubs, next to a busy highway, and may be lower quality habitat.</p>	<p>May adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing. The PRA is unlikely to be suitable for denning but may support foraging or migrant individuals.</p> <p>Mitigation. None needed.</p>
Townsend's big-eared bat <i>(Corynorhinus townsendii)</i> USFS	<p>Range: Found in British Columbia, South Dakota, and West Virginia south to California, Texas, and North Carolina. Has been recorded in the Pikes Peak Ranger District (Olson 2019).</p> <p>Habitat: Found primarily roosting in caves, mines, and rocky ledges habitats up to 9,500 ft, but can use trees at times. Common in mesic habitats with coniferous and deciduous forests (Olson 2019).</p>	<p>Potential to Occur: Unlikely. Although the PRA occurs within the species' range, the lack preferred roosting habitat and available water likely precludes this species being present within or near the PRA.</p>	<p>No impact. No habitat for species presence.</p> <p>Mitigation. None needed.</p>
Wolverine <i>(Gulo gulo)</i> CO – E	<p>Range: Historically known from the mountainous regions of North America, but likely disappeared from Colorado by 1919. A few transient reports since 2009, but unlikely to be any permanent populations in Colorado.</p> <p>Habitat: High alpine forests and tundra where snow persists in places throughout most or all of the year.</p>	<p>Potential to Occur: None. No high alpine forest habitats, no suitable habitat.</p>	<p>No Effect. No habitat for species presence.</p> <p>Mitigation. None needed.</p>

Species and Status ¹	Habitat and Range	Potential to Occur	Potential Effects
Plants			
Giant helleborine (<i>Epipactis gigantea</i>) USFS	Range: In Colorado, it occurs mostly in the far western portion of the state, but also known in a few eastern counties including Las Animas County, including parts of the Purgatoire River Canyon (Olson 2019). Habitat: Warm-water seeps and springs only in selected locations (Olson 2019).	Potential to Occur: None. No seeps or springs, or any perennial water source, and not near the Purgatoire River Canyon; no suitable habitat.	No impact. No habitat for species presence. Mitigation. None needed.
Golden columbine (<i>Aquilegia chrysantha</i>) USFS	Range: Species occurs in Utah and Colorado south to Arizona and Texas. In Colorado, species is found in the Pikes Peak Batholith, Northern Arkansas Granitics, South Platte River Canyon, Southern Front Range Foothills, and Plains Canyons (Olson 2019). Habitat: Species occurs along streams or moist rocky ravines from 5,200 to 8,500 ft in elevation. Douglas-fir is a typical canopy dominant tree in these areas (Olson 2019).	Potential to Occur: None. No streams or moist rocky ravines with Douglas fir, also below elevation range; no suitable habitat.	No impact. No habitat for species presence. Mitigation. None needed.
Sandhill goosefoot (<i>Chenopodium cycloides</i>) USFS	Range: Eastern Colorado, western Nebraska, eastern New Mexico, and western Texas. In eastern Colorado, found only around Arkansas tablelands and Sandy High Plains. Occurs close but not within the Comanche (Olson 2019). Habitat: Grows on gentle, sandy slopes, in sandy soils and within vegetated edges of sand dunes. (Olson 2019).	Potential to Occur: None. The PRA is located in flat grasslands, not near any sand dunes or other very sandy areas. Soils a mix silty loams and silty clays; no suitable habitat.	No impact. No habitat for species presence. Mitigation. None needed.
Wheel milkweed (<i>Asclepias uncialis</i>) USFS	Range: Wyoming south to Arizona, New Mexico, and Texas. In Colorado, found on the eastern plains up to the east slope foothills. Occurs around the Arkansas and Purgatoire Rivers. Not known in Otero County, closest populations in Las Animas County (Olson 2019). Habitat: Shortgrass prairie and open pinon-juniper woodlands, in sandy or gravelly soils (Olson 2019).	Potential to Occur: None. The PRA is located outside of the species known locations, and soil within the PRA are silty loams and silty clays.	No impact. The species does not have any potential to occur within the PRA, no suitable habitat. Mitigation. None needed.

Source: Colorado Parks and Wildlife (2020) unless otherwise noted.

¹Status:

ESA – E = Federally endangered under the Endangered Species Act

ESA – T = Federally threatened under the Endangered Species Act

USFS = U.S. Forest Service sensitive species for Comanche Ranger District (National Grasslands)

CO – E = State of Colorado endangered according to CPW

CO – T = State of Colorado threatened according to CPW

5.2 MBTA Species

Migratory Bird Treaty Act (MBTA) species have a low potential to be nesting within 300 ft of the Project, as the area surrounding the Project contains only open, disturbed grasslands. However, at the time of survey, barn owls (*Tyto alba*) were observed nesting and roosting in the bridge structure, between the top of the abutments and below the decks. The standard specifications in CDOT Section 240 Protection of Migratory Birds During Structure Work must be followed to ensure that take of migratory birds does not occur. No disturbance activities may be conducted during the MBTA nesting season (April 1 to August 31)¹ unless the following steps are taken (per CDOT Section 240.02):

- (1) The Contractor shall remove existing nests prior to April 1. If the Contract is not awarded prior to April 1 and CDOT has removed existing nests, then the monitoring of nest building shall become the Contractor's responsibility upon the Notice to Proceed.
- (2) During the time that the birds are trying to build or occupy their nests, between April 1 and August 31, the Contractor shall monitor the structures at least once every three days for any nesting activity.
- (3) If birds have started to build any nests, the nests shall be removed before they are completed. Water shall not be used to remove the nests if nests are located within 50 ft of any surface waters.
- (4) Installation of netting may be used to prevent nest building. The netting shall be monitored and repaired or replaced as needed. Netting shall consist of a mesh with openings that are $\frac{3}{4}$ inch by $\frac{3}{4}$ inch or less.

5.3 BGEPA Species

The screening analysis determined that both species protected under the Bald and Golden Eagle Protection Act (BGEPA) have some potential to occur within the PRA. The basis of determination of each species' potential to occur within the PRA is provided in Table 2.

¹ Although the Project is located at a high elevation that may result in a shorter nesting season, a change in the official MBTA nesting season would require approval of specific dates from a CDOT biologist (pers comm J. Peterson, Oct 14, 2020).

Table 2. Potential for Occurrence of BGEPA* Species within the PRA

Species	Known Habitat Preferences	Distribution and Occurrence Records	Potential to Occur in the PRA
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Inhabits coastal areas, estuaries, and inland waters with unimpeded horizontal and vertical aspects for catching prey. Found in habitats with open canopy and easy-to-access mature, large trees for perching and nesting (CPW 2016b). The species typically prefers trees within 1 mile of open water with fish (CPW 2016b).	Restricted to North America, mainly in Canada and the U.S. In Colorado, bald eagles are found throughout much of the state during both the summer and winter. They can often be seen near large reservoirs and along major rivers (South Platte, Arkansas, Rio Grande, Yampa, Colorado) (CPW 2020). The species has been recorded breeding in many counties in Colorado, but not in Otero County where the PRA is located (CPW 2016b).	Unlikely. The PRA is within the species' geographic range but does not contain suitable habitat, as the PRA does not have large, mature trees or a perennial water source. Only transient individuals are likely to pass over the PRA. No known sightings within 1 mile (eBird 2020).
Golden Eagle (<i>Aquila chrysaetos</i>)	Occupies a wide variety of plant communities, including tundra, alpine meadows, coniferous forests, high- and mid-elevation pine forest, piñon-juniper woodlands, sagebrush and other shrub habitats, grassland, and agricultural habitats (CPW 2020, Tesky 1994). Species is known to construct its nest in areas with little to no human activity, in tall trees, cliffs, canyons, or rock ledges, near open areas where they forage for prey (Corman and Wise-Gervais 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Kochert et al 2002).	In North America, the species is found from Canada south to central Mexico (Tesky 1994). Within Colorado, golden eagles can be found year-round (CPW 2020).	Unlikely. The PRA is within the species' geographic range and contains possible suitable habitat, but lacks tall trees, cliffs or other such structural elements for nesting. Foraging or transient individuals are likely to only pass over the PRA. No known sightings within 1 mile (eBird 2020).

*Bald and Golden Eagle Protection Act

5.4 Wildlife

No large game animal movement routes through or close to the PRA have been identified (Figure 3). There are no records by CDOT maintenance crews of any animal strikes (roadkill) within the PRA since 2005 (Figure 3), with the nearest roadkill records consisting solely of deer; no elk strikes were recorded (OTIS 2020). These records suggest that large animals do not cross near this part of the roadway at a significant frequency.

All box culverts and bridges could be potential roosting sites for many common bat species as well as for bat species of concern such as Townsend's big-eared bat (*Corynorhinus townsendii*) or the fringed myotis (*Myotis thysanodes*). Removal of these types of structures requires prior inspection by an approved biologist to determine bat presence (See Attachment B: Preliminary Bat Assessment Guidelines for Bridges/Structures).

Lone Tree Arroyo is an ephemeral drainage which is crossed by Bridge M-21-B and does not have natural perennial surface flows that could maintain any fisheries; therefore, no fisheries concerns exist for this location. Any flows are erratic, storm event flows only.

The new structure will likely provide a similar opening to allow for continued cattle access via the underpass. Since the Project is a bridge replacement project that will not influence the amount of road use along US 350 after construction has been completed, the Project is not anticipated to affect terrestrial animal use of the PRA or movements in the vicinity of the PRA upon completion of the Project.

5.5 Floodplain

The FEMA Flood Map Service Center is a public source for flood hazard information produced in support of the National Flood Insurance Program. This mapping tool provides information on whether a project is being proposed within a floodplain, which has permitting implications if the project is within a 100-yr floodplain.

The FEMA Flood Insurance Rate Map (FIRM) has mapped portions of the PRA as occurring within the 1% annual chance flood hazard zone (Zone A, or the 100-year flood hazard zone; see Figure 4), but base flood elevations and flood hazard factors have not been determined. The bridge and road rebuild will be designed to meet CDOT construction performance standards established in collaboration with CDOT, FWHA, and the Otero County Floodplain Administrator. The hydraulics of the watershed are currently being assessed and further details regarding flood design capacity will be provided in the Bridge Bundle Preliminary Hydraulics Report.

5.6 Potential Waters of the U.S.

Section 404 of the CWA regulates the discharge of dredged or fill material into WOTUS and is administered by the USACE and EPA. The Project Impact Area (PIA; see Aquatic Resources Delineation Report, Appendix A) was surveyed for any potential wetlands or non-wetland WOTUS on August 26, 2020. All potential features were fully investigated and delineated if found to either satisfy all three parameters as defined by the USACE to be a wetland; or presented an ordinary highwater mark (OHWM)² indicating a potentially jurisdictional WOTUS. No surface water features were identified during the survey. Details and a mapping of the full delineation can be found in the Aquatic Resources Delineation Report.

Areas with potential WOTUS or wetland features located within the PRA but outside of the anticipated PIA (per communications with the Project engineers) are to be outlined as Avoidance Areas. In the event the proposed Project footprint would be extended into any such Avoidance Areas, these areas would require a formal delineation by a qualified specialist prior to any Project activities. However, no Avoidance Areas were delineated within the larger PRA.

5.6.1 Wetlands

During the survey, no wetlands were observed within the more restrictive PIA (and none within the larger PRA, see Figure 5 showing NWI mapping).

5.6.2 Non-wetland Waters

During the survey, no surface water features were identified containing an OHWM. Specific details are provided in the Aquatic Resources Delineation Report.

² As defined in RGL-05-05.

5.7 Stormwater

Stormwater Discharges for Construction Activities

The Colorado Department of Public Health and Environment (CDPHE) manages stormwater discharges through the Colorado Discharge Permit System, under Section 402 of the Clean Water Act and the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended). Runoff from construction activities that goes into or adjacent to any surface water in the state are regulated based on the area of land disturbance.

Disturbances (including construction activity, borrow or fill sites within ¼ mile of a construction site, and dedicated asphalt or concrete batch plants and masonry mixing stations) that are less than 1 acre do not require any coverage. Disturbances exceeding 1 acre require authorization under CDPHE, either through a General Permit or an Individual Permit. Activities qualifying for a general permit include the following criteria:

- Construction sites that will disturb one acre or more; or
- Construction sites that are part of a common plan of development or sale; or
- Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:
 - Contributes to a violation of a water quality standard; or
 - is a significant contributor of pollutants to state waters.

Applicants must submit an application for a General Permit that includes a Stormwater Management Plan (SWMP) in accordance with Part 1.C of the CDPS General Permit, at least 10 days prior to commencing Project activities. If activities are not covered under the scope of the General Permit, an Individual Permit will be required through the CDPHE.

5.8 Hazardous Waste

Although there is a nearby railroad located northwest of the PRA, it is far enough away from the CDOT ROW that contaminants from the railroad are not a concern (Attachment C).

5.9 Cultural Resources

The review of archaeological, historic, and paleontological resources is being conducted by CDOT and will be prepared under separated cover.

6. Discussion/Recommendations

6.1 Potential Impacts

The degree of potential impacts will be dictated by the exact approach of the design-builder. However, the range of potential impact could include: temporary disruption of the Lone Tree Arroyo, which extends under Bridge M-21-B; some temporary loss of vegetation and habitat area in the surrounding area during constructions; and some minor permanent loss of vegetation immediately surrounding placement of new bridge abutments/wing walls and possibly other bridge or culvert elements. During construction, local wildlife may be temporarily disturbed by noise and movement of the equipment.

Depending on the final design and construction plans with their corresponding impacts, various permits would likely be needed and could include consultation with the USFS and/or CPW, and various stormwater (SWPPP) and construction permits.

6.2 Avoidance and Mitigation Measures

As a part of the design process, since this work is in an environmentally sensitive area, proof of avoidance or minimization efforts will need to be shown to the regulatory agencies as a part of the permit process. As a result, mitigation measures will need to be developed and implemented by the design-build team and approved by the applicable agencies. These mitigation measures may include items such as construction BMPs (stormwater silt fencing, construction procedures, etc.), wildlife mitigation (such as adjustment of construction to avoid breeding seasons), floodplain mitigation, and cultural/historic mitigation.

6.2.1 MBTA

In order to avoid violating the Migratory Bird Treaty Act of 1918, all vegetation and/or nest removal timing and procedures must be conducted outside of the breeding season (April 1-August 31) unless the required steps outlined in CDOT Section 240 Protection of Migratory Birds During Structure Work are met. If any trees or shrubs are to be removed or work on/under bridges is to be completed between April 1 and August 31, a survey must be completed for active nests. If an active nest(s) is found no work may be done within 50 ft of the nest(s) until the nest(s) becomes inactive. To avoid the survey requirement, it is recommended that vegetation removal occurs after August 31 and before April 1.

6.2.2 Wildlife

There is some potential for bat species to roost within the bridge or the vicinity of the bridge. Per CDOT guidance, removal of the structure requires prior inspection by an approved biologist to determine bat presence (Attachment B). If evidence of previous bat roosting is observed but no current roosting individuals are present, then installation of roosting preventative measures, such as the use of approved netting, is advised prior to bridge work. If active bat roosting is observed during inspection, then coordination with the CDOT Wildlife Biologist is required prior to any further bridge work.

Once a final design is selected and anticipated impacts are known, the ESA-listed species should be reassessed for their potential to occur within an Action Area, meaning “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02(d)).

The Project is not located within a USFS special management area, and therefore USFS sensitive species with the potential to occur within the PRA are not subject to specific conservation strategies. In the absence of specific conservation strategies, best management practices would be determined by the selected design and potential impacts to species and may require approval or concurrence by the USFS.

In the event the project has the potential to impact a listed species, consultation with the USFWS, USFS, and/or CPW may be required. As part of the consultation process, species-specific surveys may be required to determine presence/absence.

6.2.3 Shortgrass Prairie Initiative

As a CDOT project, the Project must comply with the Shortgrass Prairie Initiative (SGPI), a Memorandum of Agreement between CDOT, FHWA, USFWS, state natural resource agencies, and The Nature Conservancy to mitigate environmental impacts to the Central Shortgrass Prairie from improvements on the existing transportation corridor network and existing bridges in eastern Colorado.

The 8.5 acres of temporary impacts for Bridge M-21-B were estimated based on current preliminary design and the Potential Impact Area (see Section 6.2); however, the final design would likely be different and will be updated when that design is completed. No significant permanent impacts to shortgrass prairie are anticipated with the Project as the bridge structure will be replaced with a similarly sized structure, but some temporary impacts are anticipated. Temporary impacts to areas outside of the CDOT ROW include temporary installation of the shoofly traffic detour and any construction equipment movement outside the ROW for either the bridge construction or shoofly installation.

No mitigation will be needed at this bridge location.

6.2.4 Hazardous Materials

The investigation has not identified any recognized environmental conditions that could impact the project area, and additional sampling is not recommended for the site. Prior to any underground digging or soil disturbance, a utility locate should be called to prevent damage to any existing utilities within the PRA.

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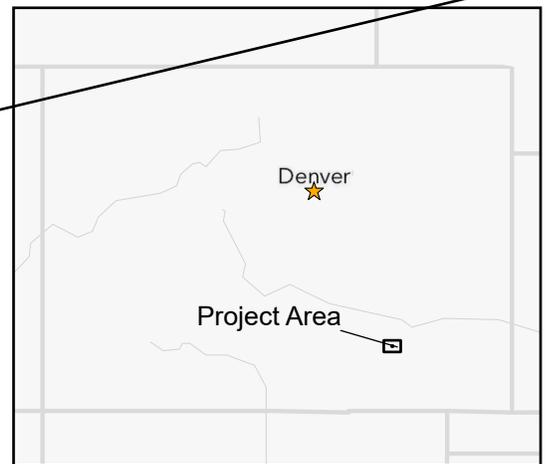
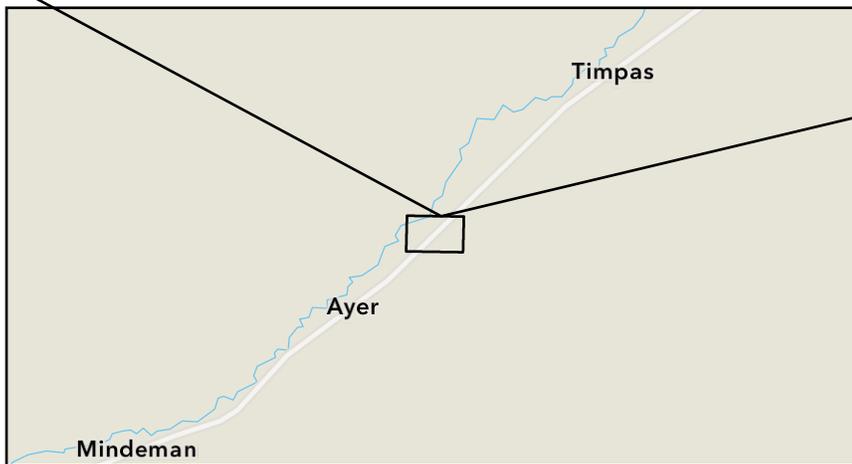
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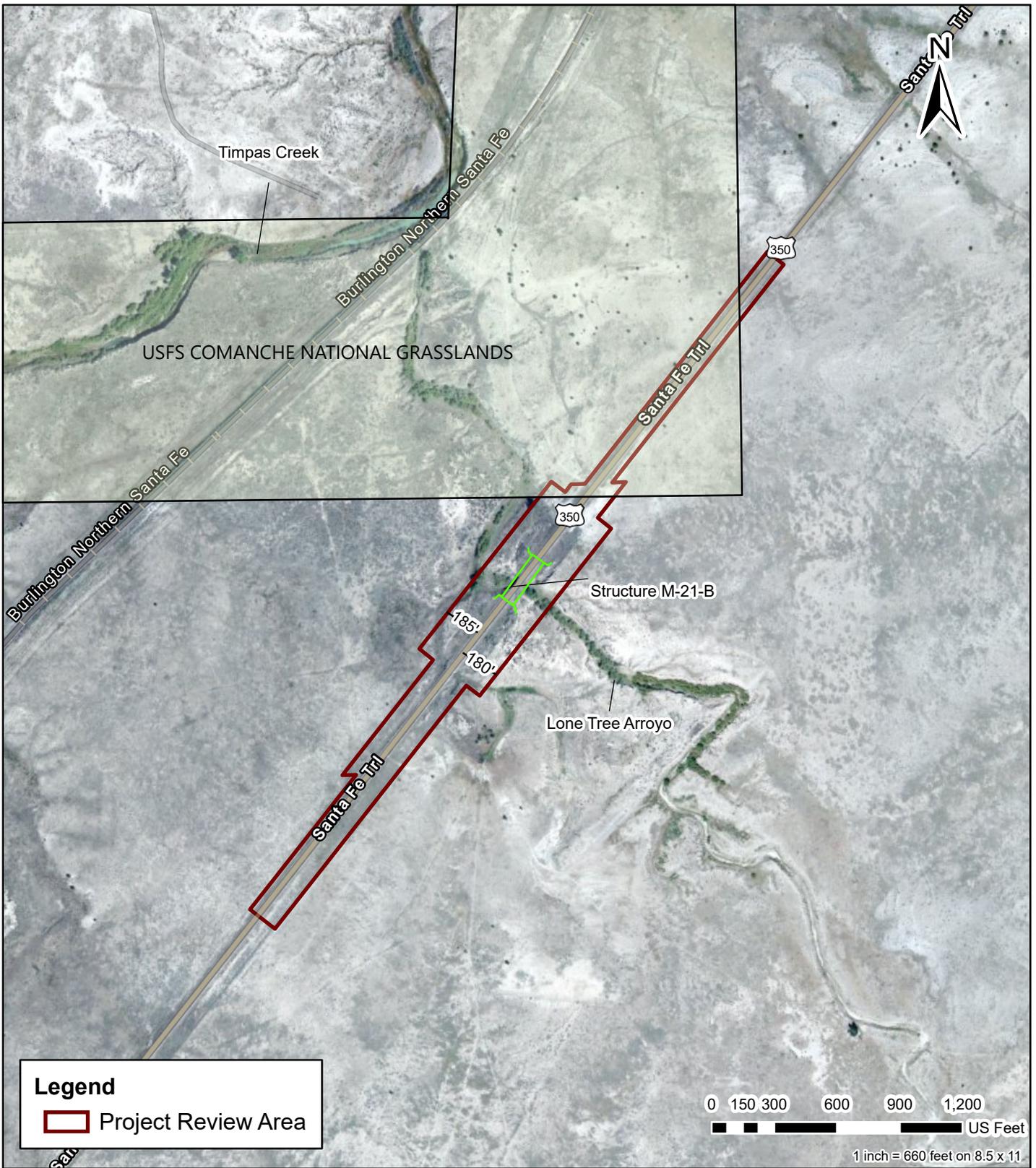
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Figures



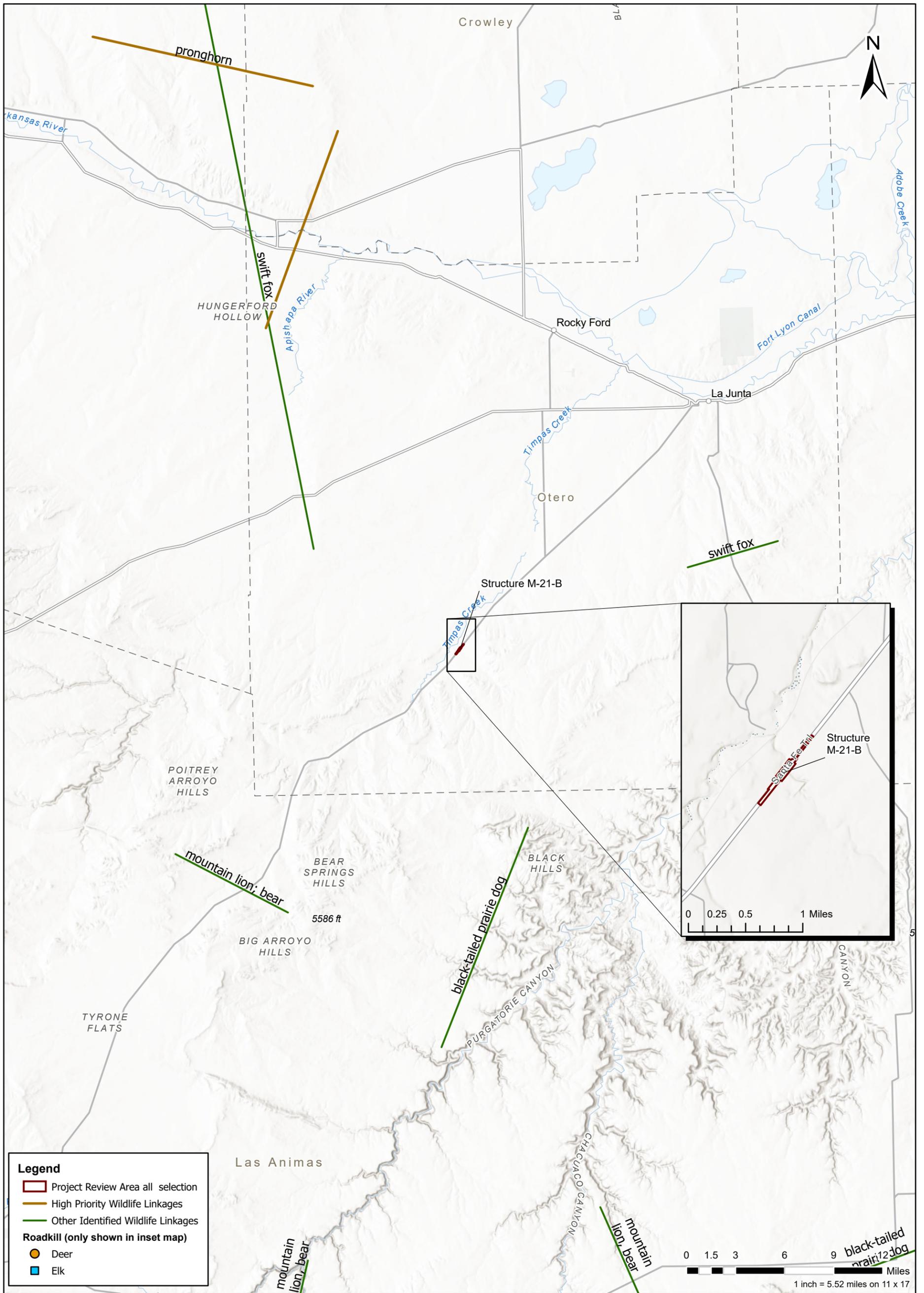
COLORADO DEPARTMENT OF TRANSPORTATION
Region 2 Bridge Rebuild Project - Bridge M-21-B
Desktop Analysis for Sensitive Environmental Resources

Figure 1
Vicinity Map



COLORADO DEPARTMENT OF TRANSPORTATION
 Region 2 Bridge Rebuild Project - Bridge M-21-B
 Desktop Analysis for Sensitive Environmental Resources

Figure 2
 Project Review Area



COLORADO DEPARTMENT OF TRANSPORTATION
 Region 2 Bridge Rebuild Project - Bridge M-21-B
 Desktop Analysis for Sensitive Environmental Resources

Figure 3
 Wildlife Linkages and Roadkill Records



KEY TO MAP

SPECIAL FLOOD HAZARD AREA

ZONE A
ZONE B

Base Flood Elevation Line With Elevation In Feet**
 Base Flood Elevation in Feet Where Uniform Within Zone** (EL 987)
 Elevation Reference Mark RM7X
 Zone D Boundary
 River Mile +M1.5
 **Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
NOVEMBER 22, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NOVEMBER 8, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:
AUGUST 19, 1985

CDOT R2 Bridge Rebuild Project - M-21-B
Desktop Analysis for Sensitive Environmental Resources
Figure 4: FEMA FIRM Map

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

OTERO COUNTY, COLORADO
 (UNINCORPORATED AREAS)

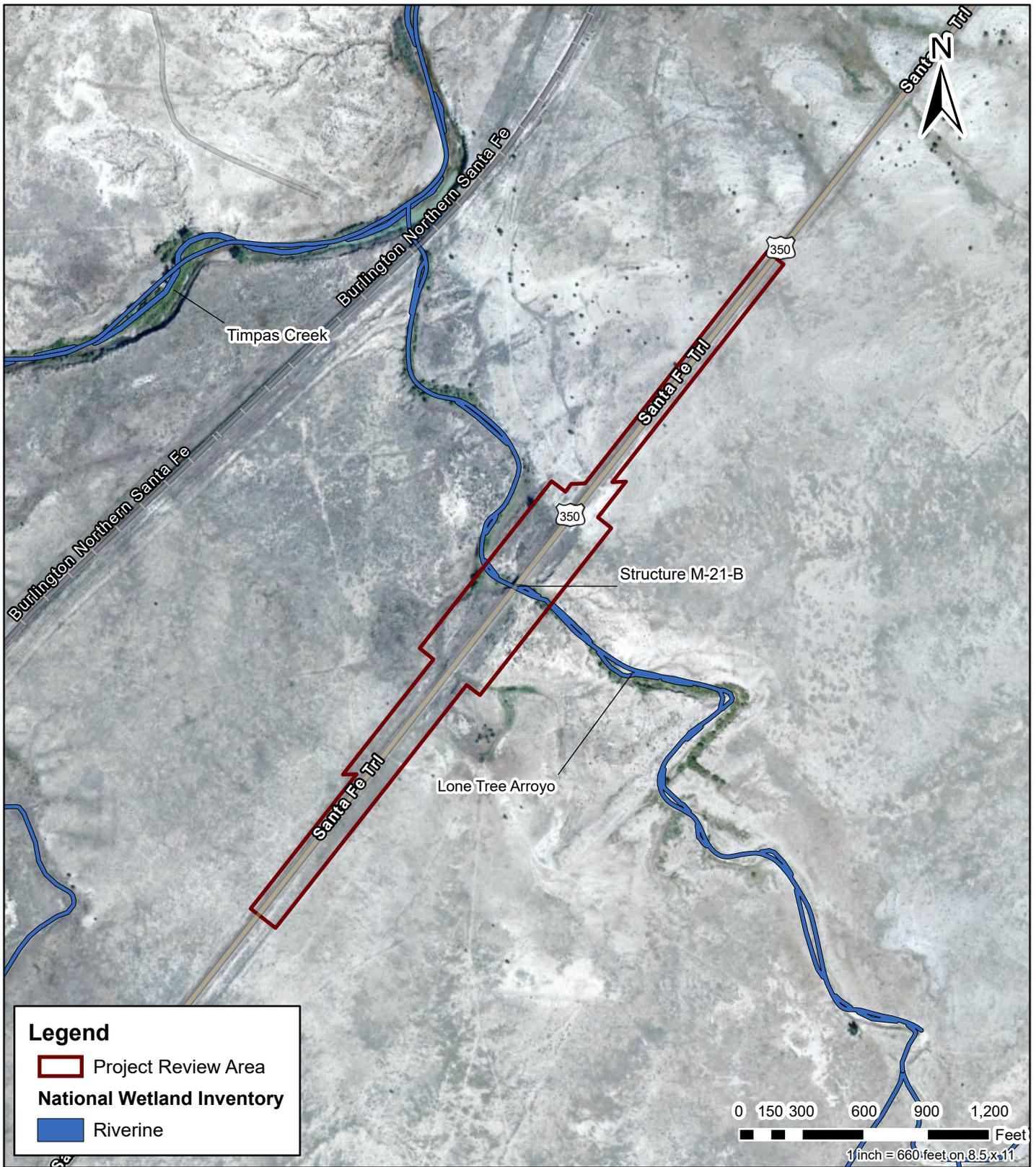
PANEL 225 OF 325
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
 080132 0225 B

EFFECTIVE DATE:
 AUGUST 19, 1985



Federal Emergency Management Agency



COLORADO DEPARTMENT OF TRANSPORTATION
 Region 2 Bridge Rebuild Project - Bridge M-21-B
 Desktop Analysis for Sensitive Environmental Resources

Figure 5
 Aquatic Resources

Attachment A

Information for Planning and Consultation

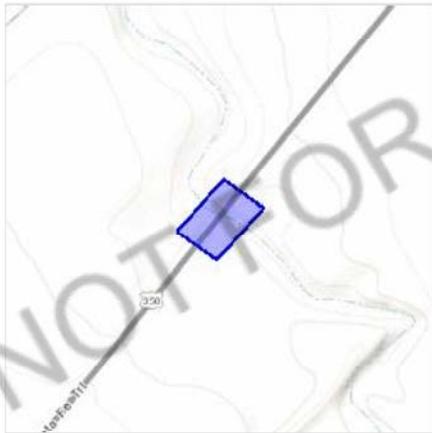
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Otero County, Colorado



Local office

Colorado Ecological Services Field Office

☎ (303) 236-4773

📠 (303) 236-4005

MAILING ADDRESS

Denver Federal Center

P.O. Box 25486

Denver, CO 80225-0486

PHYSICAL ADDRESS

134 Union Boulevard, Suite 670

Lakewood, CO 80228-1807

<http://www.fws.gov/coloradoES>

<http://www.fws.gov/platteriver>

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
 2. [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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Least Tern <i>Sterna antillarum</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover <i>Charadrius melodus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangelwide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBA](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Attachment B

Preliminary Bat Assessment Guidelines for Bridges/Structures

FHWA/State DOT/FRA

Preliminary Bat Assessment Guidelines for Bridges/Structures

DOT Environmental Division

Adapted from the Indiana Department of Transportation 2010 Bridge Inspection Manual and the Bernardin, Lochmueller and Associates 2007 document.

The guidelines in this document describe favorable characteristics of bridges/structures that may provide habitat for many bat species and preliminary indicators intended to determine if any bat species are using bridges/structures.

Individuals conducting reviews for bats must use the Bridge Assessment Form and must include a copy of the completed form in their project file. Individuals assessing bridges/structures should employ appropriate safety measures in conducting these reviews and avoid touching any bats. Recommended equipment include a flashlight (preferably a headlamp), hard hat, binoculars or spotting scope, digital camera, check list and a fine- to medium-point permanent marker or pen. It is advisable that individuals also consider having a dust mask, cellular phone, and boots if access beneath structures is desired. Easily removed, protective coveralls may be advisable if access requires crawling.

Bridge/Structure assessments conducted pursuant to the range-wide programmatic consultation are valid for one year from the date of the assessment. If a mist net or acoustic survey is used in place of the Bridge/Structure assessment protocols those surveys are typically valid for two years, but agencies should verify with the appropriate U.S. Fish and Wildlife Service (Service) Field Office. There is no requirement for a follow-up evaluation seven days prior to beginning construction provided the assessment or survey follows the required protocols.

Favorable Characteristics

Cracks in Concrete

Cracks in the concrete are used by bats as a foothold in roosting (Photo 1). In addition, some bats may be hidden from sight in wider cracks in the concrete and behind deteriorating concrete sections in the ceiling or walls. Look for cracking along support beams and inner walls especially below a fillet (a concrete filling between ceiling and vertical beam). During inspection, sounds may be heard coming from behind such cracks and/or expansion joints.

Expansion Joints (Bridges)

Expansion joints can provide protected cover for bats (Photos 2 and 3), but do not always provide habitat, depending upon whether they are obstructed by road debris or other blockages to use. If possible during the assessment, individuals should look into expansion joints or in other cracks with a flashlight. If joints are used by bats, often there will be guano under the joints (Photos 4-6), but not always, since the joint may be located over water.

Cave-like Environment

While assessing bridges or structures, look for dark environments that mimic cave-like conditions such as under the deck in the case of a bridge (Photos 12 and 13) or an attic in the case of a structure. This may involve crawling under low areas so a hard hat is recommended. Such places (e.g., a concrete bunker secreted into a hillside with an open front) provide protection from wind, rain, sleet, hail and predators. Bats do not roost near the ground where predators (cats, raccoons, etc.) can reach them. Roosting is usually at least 4 feet from the ground.

Large Rivers in Wide Floodplains (Bridges)

Many concrete bridges that span larger rivers in wide floodplains offer excellent areas for roosting, although bats are not restricted to using these sites. These areas tend to have an ample food supply and may also serve as historic flyways for bats during migration (i.e., March-May and September-November). These bridges may also offer opportunities for mating in late fall.

Preliminary Indicators of Bat Presence

The four indicators presented here document physical observations that can easily be made for individual structures. Each of these indicators should be considered on its own merits and the presence of even one of these on a bridge is enough documentation to confirm bat usage. If questions arise regarding interpretation of these indicators, individuals should contact the District Environmental Manager for clarification or assistance. (NOTE: Some of these indicators, visual and sound, will not be present during normal hibernation periods, as bats do not hibernate under bridges. Hibernation usually occurs between September and May, but contact your local USFWS Field Office for exact dates.)

Visual

Look for bats flying or roosting (hanging) during the assessment (Photo 1, 2, & 8). A flashlight or headlamp will be needed and binoculars may be necessary when viewing higher areas. If bats are present; record numbers as best as possible and their locations. Note any dead or injured bats. A sketch map would be helpful (can use bridge plan sheet as base for sketch). Thermal infrared cameras or emergence surveys can be used to document bat use.

Use of presence/absence summer surveys may also be used if the following apply:

- A presence/absence summer survey is already necessary because there will be tree removal associated with the project. The results of the presence/absence summer survey for a near-by project is not sufficient. The survey should be specific for the project in question.
- Survey points over water/edge of water (if there is a small stream) should be incorporated in the study plan.
- Survey points should be identified first based on the habitat on site then, if a point is not within 0.25 miles of a bridge, an additional level-of-effort is necessary. Either a survey point should be added within 0.25 miles, or the previous mentioned techniques (bridge inspection, emergence survey, thermal infrared cameras) should be used.
- The Service Field Office is required to review the survey SOW.
- If the bridge is within a known maternity colony home range a bridge assessment is required.

Sound

Listen for high pitched squeaking or chirping during the assessment and identify location(s) for later examination by DOT staff. This may be helpful in locating bats within deep cracks or open joints. A sketch map would be helpful.

Droppings (Guano)

Bat droppings are small (mouse-like in appearance but less regular) brown or black pellets (Photos 6 - 8). Older droppings may be gray in color. These droppings will accumulate on the ground, floor of a covered bridge or on structural components below where bats roost. Droppings may also adhere to support beams and walls below roosts.

Note bat droppings and their location. Check under likely roosting spots such as cracks, cave-like areas, and expansion joints. If guano is present, the inspector may wish to wear a dust mask. Also, it is advisable to wear rubber boots to minimize tracking of any guano into vehicle(s) and other places.

Staining

Stains may appear wet and are usually found in dark places. Look for four to six inch wide dark stains located on concrete support beams and walls immediately below the ceiling of the bridge, and beneath joints (Photos 8 - 11).

Literature Cited

Bernardin, Lochmueller, and Associates, Inc. 2007. Bridge Inspection Checklist for Bats. Unpublished. Evansville, Indiana.

Indiana Department of Transportation. 2012. INDOT Bridge Inspection Manual. Indiana. Available from: http://www.in.gov/dot/div/contracts/standards/bridge/inspector_manual/index.htm.

Keeley, Brian W. and Merlin D. Tuttle. 1999. Bats in American Bridges. Bat Conservation International, Inc., Austin, TX. Resource Publication No. 4, 41 pp.

Photos *



Photo 1: Bats hanging from cracks along Support beams



Photo 2: Visible bats within an expansion joint



Photo 3: Example of open concrete joint used by bats



Photo 4: Guano deposits visible from bridge deck, on top of pier



Photo 5: Guano deposit on pier, obscuring structural features.



Photo 6: Bat Guano on Riprap

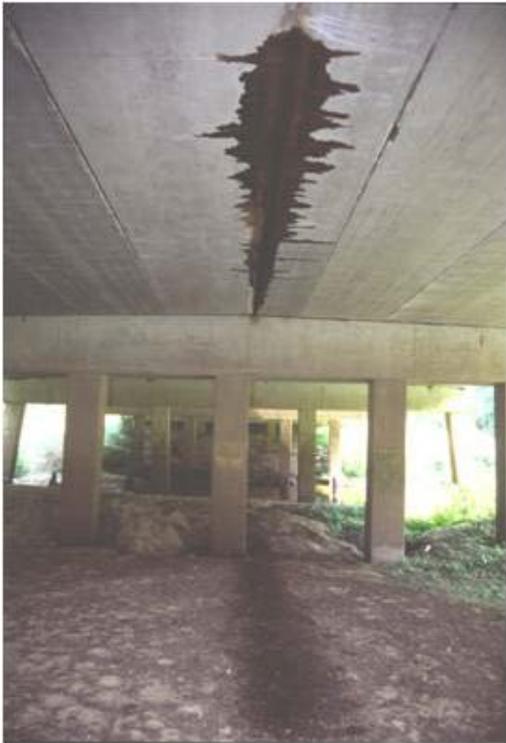


Photo 7: Staining along longitudinal joint. Note guano deposits on the ground. Photo 8: Staining on underside of expansion joint from bat use.



Photo 9: Staining on sides of pier caps



Photo 10: Guano staining on side of pier



Photo 11: Bats Roosting & Associated Staining



Photo 12 and 13: Bridge Design Mimicking “Cave-like” Atmosphere



Photo 14: NLEBs Roosting Under a Timber Decked Bridge

* Photos courtesy of Tom Cervone, Bernardin, Lochmueller and Associates, Jeff Gore, Florida Fish and Wildlife Conservation Commission, Rick Reynolds, Virginia Department of Game and Inland Fisheries, and Kraig McPeck, U.S. Fish & Wildlife Service.

APPENDIX D: Bridge/Structure Assessment Form

Bridge Assessment Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside, from activities above that bore down to the underside, or that could impact expansion joints, from deck removal on bridges, or from structure demolish. Each bridge/structure to be worked on must have a current bridge inspection. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the US Fish and Wildlife Service, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing structures prior to allowing any work to proceed.

DOT Project #	Water Body	Date/Time of Inspection
---------------	------------	-------------------------

Route:	County:	Federal Structure ID:	Bat Indicators				Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)
Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.							
			Visual	Sound	Droppings	Staining	

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures		Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	excellent

All guardrails				Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints							
Spaces between concrete end walls and the bridge deck							
Vertical surfaces on concrete I-beams							

Assessment Conducted By: _____ _____	Signature(s): _____
District Environmental Use Only:	Date Received by District Environmental Manager: _____

DOT Bat Assessment Form Instructions

1. Assessments must be completed a minimum of 1 year prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Informal Consultation, regardless of whether assessments have been conducted in the past. **Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that structure in subsequent years.**
2. Legible copies of this document must be provided to the District Environmental Manager within two (2) business days of completing the assessment. Failure to submit this information will result in that structure being removed from the planned work schedule.
3. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the USFWS, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
4. Estimates of numbers of bats observed should be place in the Notes column.
5. Any questions should be directed to the District Environmental Manager.

Attachment C

Hazardous Waste Memorandum

Potential Environmental Concerns on the immediate project area or directly adjacent to it
 (Select from dropdown menu – Yes, No, Expected, or Unknown)

Potential Environmental Concern	Project Area	Adjacent Area	Potential Environmental Concern	Project Area	Adjacent Area
Barrel(s), drum(s), container(s)	No	No	Painted/preserved material(s)	No	No
Stockpile, surface trash, debris	No	No	Odor	No	No
Exposed/buried landfill	No	No	Chemical storage	No	No
Batteries	No	No	Suspect asbestos containing material	No	No
Surface staining	No	No	Suspected methamphetamine lab	No	No
Stressed vegetation	No	No			

Findings/Conclusions:

Are known hazardous or other waste sites on or adjacent to the project area, which may affect the project? **No**
 Explain: **No known hazardous waste sites are located on or adjacent to the project area.**

Recommendations:

Materials Management Plan
 Force Account
 Modified CDOT Specification(s)
 Additional Assessment/Investigation*
 Explain: **No additional work is recommended. Prior to any underground disturbance, a utility locate should be conducted to determine if any utilities are in the area.**

***Additional work must be approved by CDOT.**

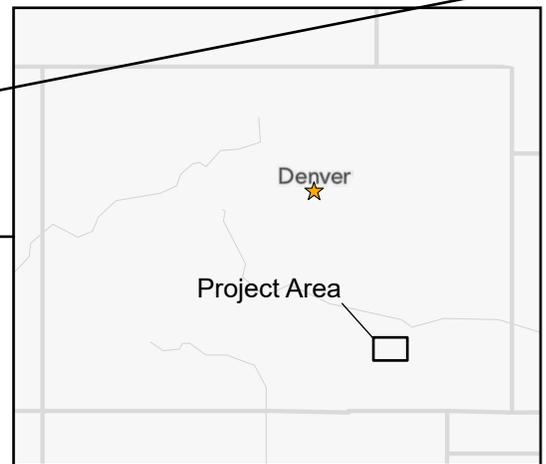
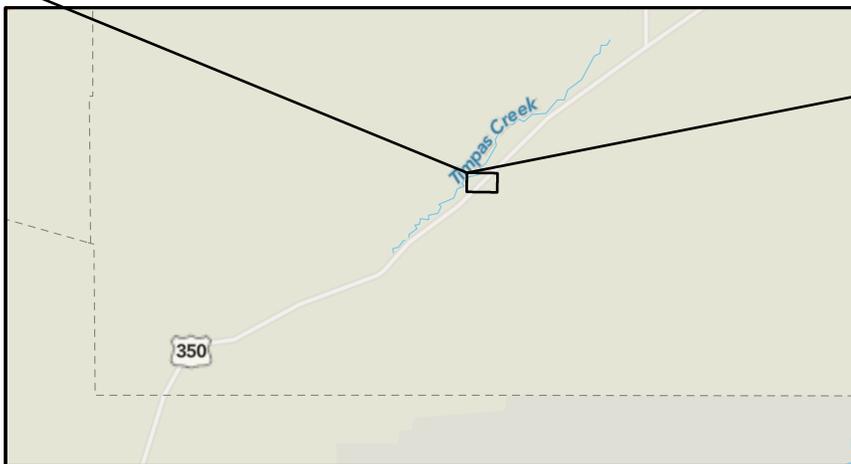
Attachments:

<input type="checkbox"/> Environmental Database Map	No environmental concerns were identified in the environmental map search
<input type="checkbox"/> Modified CDOT Specification(s)	
<input type="checkbox"/> General Plan Note(s)	Historic Topographic Maps, site location map
<input checked="" type="checkbox"/> Maps & Figures	
<input type="checkbox"/> Agency File Data	

Completed by (Name and Title): **Jimmy Wiesbrock - Environmental Scientist**

Signature: _____ Date: _____ Revised (if necessary): _____

CDOT Environmental Project Manager Approval: _____ Date: _____



COLORADO DEPARTMENT OF TRANSPORTATION
 Region 2 Bridge Rebuild Project - Bridge M-21-B
 Desktop Analysis for Sensitive Environmental Resources

Figure 1
Site Location Map