

PROGRAMMATIC BIOLOGICAL ASSESSMENT

FOR THE CDOT BIOLOGICAL EVALUATION PROCESS

PREPARED AMONG

FEDERAL HIGHWAY ADMINISTRATION, COLORADO DIVISION
COLORADO DEPARTMENT OF TRANSPORTATION
US FISH & WILDLIFE SERVICE

NOVEMBER 2014

1.0 INTRODUCTION

1.1 BACKGROUND

Over the course of two years, the Programmatic Biological Assessment (PBA), the CDOT Biological Evaluation Process (Process) and its supporting documents and tools were developed through interagency consultation meetings among Federal Highway Administration (FHWA), Colorado Department of Transportation (CDOT), and US Fish and Wildlife Service (USFWS). The tools that the agencies jointly developed are based on consideration of the life histories and ranges of the federally listed Threatened, Endangered, Candidate, and Proposed species (T & E species) within Colorado, federally designated critical habitat, documented observations of the protected species (Colorado Natural Heritage Program), potential construction impacts from CDOT activities, and standardized reasonable minimization measures to be implemented into a construction project to avoid and minimize impacts.

1.2 BRIEF DESCRIPTION OF THE PROGRAMMATIC BIOLOGICAL ASSESSMENT

The PBA is the evaluation that documents the assessment of potential effects to federally listed species and their habitats within Colorado caused by typical CDOT activities, using an evaluation process, associated tools, and recommending conservation measures for eliminating or reducing those effects. Its purpose also includes expediting projects with insignificant or discountable effects to federally listed species, creating statewide consistency in making a “May Affect, Not Likely to Adversely Affect (NLAA)” determination.

1.3 AUTHORITY

Endangered, threatened, candidate, and proposed species are managed under the authority of the Endangered Species Act (ESA) (PL 93-205, as amended). Under provisions of the ESA, Federal agencies shall use their authorities to carry out programs for the conservation of listed species, and shall ensure any action authorized, funded, or implemented by the agency is not likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of listed or proposed species; or (3) adversely modify proposed critical habitat (16 USC 1536). Under Section 7 of the ESA federal agencies are required to consult with the USFWS for actions which may affect listed species.

Programmatic consultations can save valuable time for both the transportation and resource agencies through consistency and standardization. Programmatic consultation for T & E species is a method used to address an agency’s multiple actions, where review and approval procedures have been standardized and agreed upon. This PBA is the platform for fulfilling the requirements of the consultation process.

1.4 PROPOSED ACTION

The proposed action is to establish a programmatic consultation approach to address projects covering construction and improvement of highways, bridges, trails, enhancement projects, and other appurtenances using FHWA federal-aid highway funds and CDOT state funds (these projects are hereafter referred to as Transportation Projects). This provides a method for evaluating Transportation Projects. A matrix is used to evaluate potential impacts to Colorado T & E species, resulting in either a “No Effect (NE)”, “May Affect, but Not Likely to Adversely Affect (NLAA)”, or “May Affect, Likely to Adversely Affect (LAA)” determination. “LAA” determinations trigger formal consultation with the USFWS and fall outside of this PBA.

1.6 BRIEF DESCRIPTION OF THE CDOT BIOLOGICAL EVALUATION PROCESS

The CDOT Biological Evaluation Process is the evaluation method that uses the tools developed to support the PBA. Further discussion of the tools and how they are used may be found in Chapter 3.

Implementation of the PBA and associated tools will streamline the federal regulatory compliance process. The CDOT Biological Evaluation Process will allow CDOT to conduct expedited reviews and will facilitate making effect determinations in accordance with the ESA. The agreement is designed to streamline informal consultation by the FHWA with the USFWS. Formal Section 7 consultation will still be necessary when a project may adversely affect a listed species, may adversely modify federally designated critical habitat, or where minimization measures cannot be implemented. This PBA shall substitute for individual informal consultation in cases where there is a determination of “NLAA” for federally listed species.

Informal consultation is defined as “an optional process that includes all discussions and correspondence between the Services and a Federal agency or designated non-Federal representative, prior to formal consultation, to determine whether a proposed Federal action may affect listed species or critical habitat.” [50 CFR §402.02, 50 CFR §402.13]

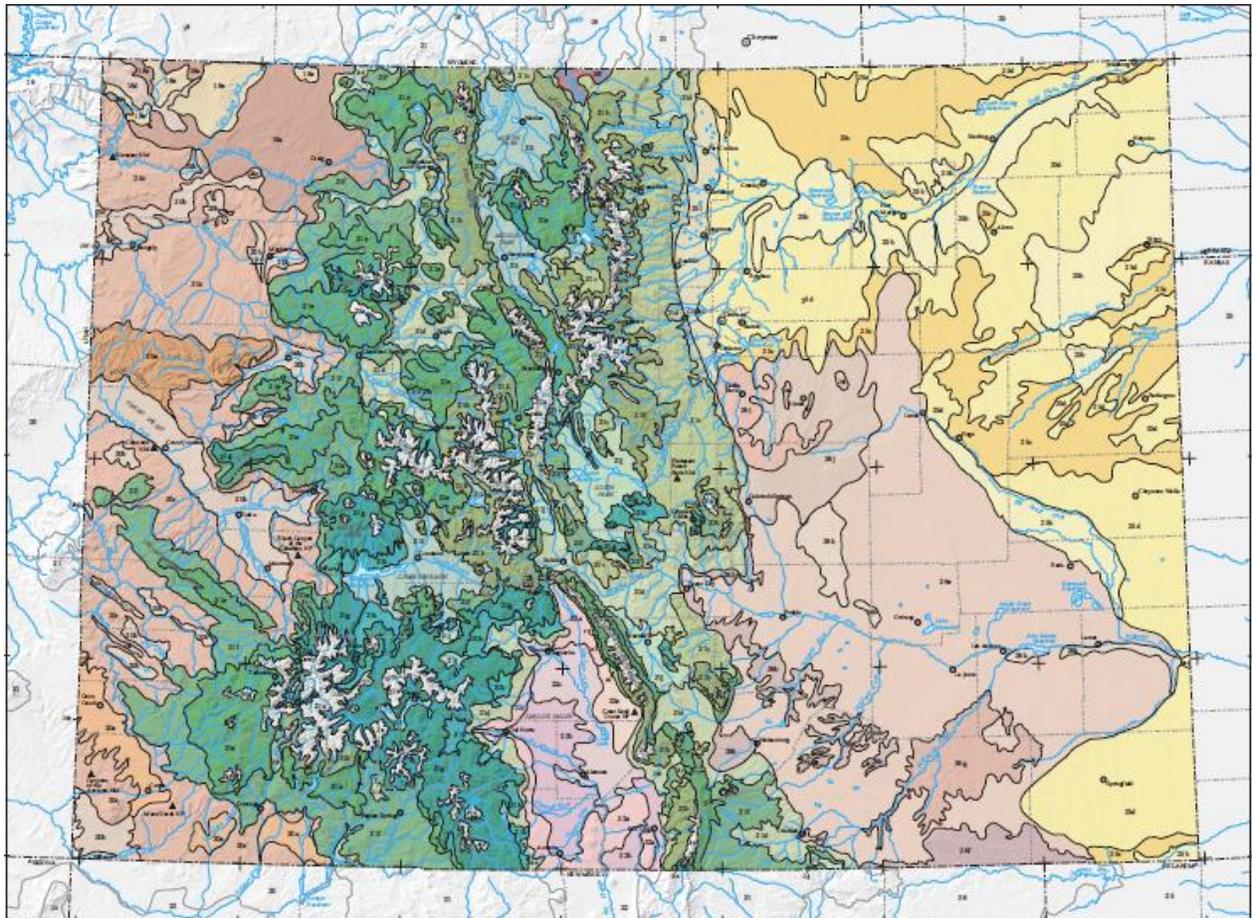
Formal consultation is defined as “a process between the Services and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's written request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by either of the Services.” [50 CFR §402.02, 50 CFR §402.14]

2.0 PROJECT LOCATION

2.1 ECOREGIONS

The project location is the State of Colorado. The state covers an area of 104,100 square miles ranging in elevation from a low of 3,315 feet mean sea level (msl) at the Arikaree River in Yuma County in the northeast portion of the state, to a high of 14,440 feet msl at Mount Elbert in Lake County in the central part of the state. The Colorado landscape extends across six ecoregions (**Figure 2.1**), defined by the US Environmental Protection Agency (EPA) (2006) and described below.

FIGURE 2.1 ECOREGIONS OF COLORADO



<ul style="list-style-type: none"> Wyoming Basin Rolling Sagebrush Steppe Foothill Shrublands & Low Mountains Salt Desert Shrub Basins Laramie Basin 	<ul style="list-style-type: none"> Colorado Plateaus Uplands & Sagebrush Basins Shale Deserts & Sedimentary Basins Semiarid Benchlands & Canyonlands Arid Canyonlands Escarpments Uinta Basin Floor 	<ul style="list-style-type: none"> Southern Rockies Alpine Zone Crystalline Subalpine Forests Crystalline Mid-Elevation Forests Foothill Shrublands Sedimentary Subalpine Forests Sedimentary Mid-Elevation Forests Volcanic Subalpine Forests Volcanic Mid-Elevation Forests Sagebrush Parks Grassland Parks 	<ul style="list-style-type: none"> Arizona/New Mexico Plateau San Luis Shrublands and Hills San Luis Alluvial Flats and Wetlands Salt Flats Sand Dunes and Sand Sheets 	<ul style="list-style-type: none"> High Plains Rolling Sand Plains Moderate Relief Plains Flat to Rolling Plains Front Range Fans 	<ul style="list-style-type: none"> Southwestern Tablelands Piedmont Plains and Tablelands Mesa de Maya/Black Mesa Purgatoire Hills and Canyons Pinyon-Juniper Woodlands and Savannas Pine-Oak Woodlands Foothill Grasslands Sand Sheets
--	---	--	---	--	--

From United States Environmental Protection Agency, 2006

WYOMING BASINS ECOREGION This ecoregion encompasses over 33,000,000 acres in five states, Wyoming, Colorado, Utah, Idaho, and Montana. Approximately 54 percent of this acreage is sagebrush steppe. This ecoregion contains many important wildlife and vegetative habitats and populations. Among them are: large, intact sagebrush steppe habitat, the range margin populations of whitebark pine and portions of the headwaters of the Colorado, Platte, Missouri and Snake Rivers. Much of the region is used for livestock grazing, although many areas lack sufficient forage to adequately support this activity. It is also the location of some of the largest natural gas deposits found on public lands in the continental United States and important potential wind energy sites. The Wyoming Basins also has extensive coal deposits along with areas of trona, bentonite, clay, and uranium mining (USEPA 2006).

The Wyoming Basins ecoregion is home to numerous grassland birds (such as Brewer's sparrow, grasshopper sparrow, and mountain plover), identified as the nation's most endangered group. The prairie rangelands are also home to prairie dogs whose range has now been reduced to less than 2% of that they formerly occupied. Prairie dog colonies, in turn, are important to black-footed ferrets, ferruginous hawks, swift fox, mountain plovers and burrowing owls (USEPA 2006).

COLORADO PLATEAUS ECOREGION This ecoregion is located in Utah and Colorado with extensions in New Mexico and Arizona. It has an area of 32,387 square miles. The Colorado Plateau is an uplifted, eroded, and deeply dissected tableland. Its benches, mesas, buttes, salt valleys, cliffs, and canyons are formed in and underlain by thick layers of sedimentary rock. The ecoregion has a broad latitudinal range, from the Uinta Basin in the north to the arid canyonlands along the border of Arizona and New Mexico. Climatic influences on the ecoregion vary both with latitude and elevation. Precipitation amounts range from a low of 5-8 inches per year in the shale deserts and arid canyonlands, to almost 20 inches per year in the higher pinyon-juniper woodlands, northern Uinta Basin slopes, and escarpment areas such as the Book Cliffs. The southern part of the ecoregion differs from the north in having a summer monsoonal precipitation pattern (USEPA 2006).

In general, juniper-pinyon woodland communities dominate higher elevations and are far more extensive than in the Wyoming Basin, which is adjacent to the north. Saltbush-greasewood and blackbrush communities are common at lower elevations. Summer moisture from thunderstorms supports warm season grasses not found in the Central Basin and Range, which is adjacent to the west. Many endemic plants occur and species diversity is greater than in the Central Basin and Range (USEPA 2006).

The Colorado Plateau supports numerous species that are found nowhere else in the world. By far the richest taxonomic group of such species is the plants, with over 300 endemics known in the ecoregion. In addition, this ecoregion is known for its high species richness in several plant genera such as *Penstemon*, *Eriogonum*, and *Astragalus*. Examples of endemic vertebrates include the desert night lizard, Utah race and Gunnison sage grouse. Though the casual observer may view its landscapes as largely intact, the Colorado Plateau has experienced a number of species losses. More well-known are several prominent vertebrate species that have been extirpated from the Colorado Plateau and remain in various stages of imperilment throughout their ranges. Such species include the grizzly bear, gray wolf, black-footed ferret, lynx, wolverine, and wild populations of bison and river otter (USEPA 2006).

SOUTHERN ROCKIES ECOREGION This ecoregion is composed of high elevation, steep, rugged mountains. Although coniferous forests cover much of the region, as in most of the mountainous regions in the western United States, vegetation, as well as soil and land use, follows a pattern of elevational banding. The lowest elevations are generally grass or shrub covered and heavily grazed. Low to middle elevations are also grazed and covered by a variety of vegetation types including Douglas-fir, ponderosa pine, aspen, and juniper-oak woodlands. Middle to high elevations are largely covered by coniferous forests and have little grazing activity. The highest elevations have alpine characteristics. Elevation ranges from 3,746 ft near Orchard Mesa in Mesa County, Colorado to 14,431 ft on Mt. Elbert in Lake

County, Colorado. Colorado encompasses 73.5% of the ecoregion, New Mexico 18%, and Wyoming 8.5%. Glacial activity and resulting meltwaters have shaped much of the ecoregion into high rugged mountains, plateaus, alpine cirques, glacial moraines, and broad valleys. The Southern Rockies is the highest ecoregion in North America, based on average elevation (9,670 ft) and amount of land above 10,000 ft. Other notable topographic features include hogbacks, mesas, and rocky outcrops where the high mountains meet the plains on the eastern front, and rugged canyons and mesas where the mountains meet the high desert country to the west. The region includes the Colorado Mineral Belt, a broad area stretching northeast from the San Juan Mountains in southwestern Colorado to the Colorado Front Range near Boulder. Most of the historic mining camps of Colorado lie in this area (USEPA 2006).

At least 184 species and subspecies are known to be endemic to this ecoregion, including plants (118 endemics) and invertebrates (51 endemics), followed by mammals (12 endemics), birds (2 endemics), and amphibians (1 endemic). The relative ecological isolation, significant climate changes in the recent geological past, and the ecoregion's complex topographic and geologic features provide fertile ground for evolutionary change that often results in high endemism. The area is known for its high species richness in butterflies and moths, mammals, birds, and several plant groups (e.g., *Penstemon*, *Eriogonum*, and *Astragalus*). In the lower 48 states, only southeast Arizona has a higher species diversity for invertebrates, particularly butterflies and moths, than the lower foothills of Colorado's Front Range. New taxa are still being described from the ecoregion, e.g., the Gunnison sage grouse (*Centrocercus minimus*) and several moths (*Grammia*, *Gazryctra*, *Lycia*). Scientists believe that there are a number of other species not yet described, particularly invertebrates and fungi (USEPA 2006).

ARIZONA/NEW MEXICO ECOREGION This ecoregion represents a large transitional region between the semiarid grasslands and low relief tablelands of the Southwestern Tablelands ecoregion in the east, the drier shrublands and woodland-covered higher relief tablelands of the Colorado Plateaus in the north, and the lower, hotter, less vegetated Mojave Basin and Range in the west and Chihuahuan Deserts in the south. Higher, forest-covered, mountainous ecoregions border the region on the northeast and southwest. Local relief in the Colorado portion is relatively low, but in other parts of the ecoregion relief can be well over 1,000 feet. The region in Colorado known as the San Luis Valley forms part of the upper end of the Rio Grande Valley. It is flanked by the Sangre de Cristo Range on the east and the San Juan Mountains on the west. This ecoregion has the lowest annual precipitation in the state, mostly 6 to 12 inches. However, surface runoff from the surrounding mountains and groundwater migrate toward the low point at San Luis Lake, providing a good water supply to the region. Desert and wetlands exist side by side. A large part of the north San Luis Valley is a closed basin with no surface outlet to the Rio Grande. The high water table has created many ephemeral lakes, wetlands, springs, and flowing wells, and supports considerable irrigation in the valley. At the western edge of the Central Flyway, the valley wetlands historically provided crucial migratory bird habitat. Water-use issues are a continuing concern as the demand for water grows. Excessive use of surface and groundwater has led to waterlogged soils in some parts of the valley, causing alkaline soils and highly mineralized groundwater from the concentration of salts (USEPA 2006).

The ecoregion contains more species of birds and mammals than any other ecoregion in the Southwest. Natural communities typical of the ecoregion are Ponderosa Pine and White Fir forest types above 5,500 feet and piñon pine / juniper savannas at lower elevations, although the ecoregion also includes grasslands, and shrublands. The mountains contain the headwaters for a number of important streams and rivers including the Little Colorado, the Gila, the Mimbres, and the Verde. Ecologically, the ecoregion is an area of big trees and is home to more than 200 rare plants and animals, more than 30 of them listed as T & E by the federal or state governments (USEPA 2006).

HIGH PLAINS ECOREGION This ecoregion occurs in the eastern portions of Colorado, New Mexico, and Wyoming as well as the western portions of Texas, Oklahoma, Kansas, and Nebraska. It consists of smooth to slightly irregular plains that have a high percentage of cropland. In the three states of Colorado, New Mexico, and Wyoming, this ecoregion covers about 40,953 mi² (106,068 km²) and includes the second largest grassland ecoregion in North America. Grama and buffalo grass dominate the natural vegetation in this region, which includes grama-buffalo grass prairie, bluestem-grama prairie, sandsage-bluestem prairie, and wheatgrass-bluestem-needlegrass prairie. This ecoregion is higher and drier than the Central Great Plains to the east, and in contrast to the irregular, mostly grassland or grazing land of the Northwestern Great Plains to the north, much of the High Plains comprises smooth to slightly irregular plains having a high percentage of cropland. The northern boundary of this ecological region is also the approximate northern limit of winter wheat and sorghum and the southern limit of spring wheat. In Colorado, gas and oil fields are scattered throughout the region, with the greatest concentration found in the Denver Basin area (USEPA 2006).

SOUTHWESTERN TABLELANDS ECOREGION This ecoregion flanks the High Plains with red hued canyons, mesas, badlands, and dissected river breaks. Unlike most adjacent Great Plains ecological regions, little of the Southwestern Tablelands is in cropland. Much of this region is in sub-humid grassland and semiarid rangeland. The boundary to the east in Colorado represents a transition from the more extensive cropland within the High Plains to the generally more rugged and less arable land within the Southwestern Tablelands ecoregion. The natural vegetation in the Colorado portion of this region is mostly grama-buffalograss, with some juniper-scrub oak-grass savanna on escarpment bluffs (USEPA 2006).

2.2 COLORADO ROADWAY SYSTEMS

The project location occurs along the roadway network in Colorado that is managed by CDOT or utilizes federal funding for implementation of local municipal road improvements. CDOT routinely oversees many projects that have a federal nexus, but are implemented by local municipalities. These municipalities can use this PBA in the implementation of those projects. In total, these roadways make up a system of 88,259 miles, including:

- 9,146 miles on the Federal-aid and State Routes System, shown in Figure 2.2
- 58,675 miles of County roads
- 15,611 miles of municipal roads
- 4,827 miles of other roads including E-470 and Northwest Parkway

2.3 PROJECT AREA TERMINOLOGY

Throughout this PBA, the following terms apply:

Project Limits. The Project Limits are defined as the area between the project beginning and end points, from right-of-way boundary to right-of-way boundary, as marked on the construction plans, including temporary construction easements, detours, and any designated waste, staging, stockpile or material sites.

Environmental Study Area. This is the area that may be directly or indirectly impacted by the construction activities of the project (including alternatives), plus areas containing environmental resources that may be affected by proximity to the project.

Project Vicinity. This term is used to denote a more expansive landscape context surrounding a given project.

2.4 ROADWAY ENVIRONMENT

Habitats within roadway rights-of-way vary considerably, ranging from highly disturbed environments (for example, cut and fill slopes) to relatively undisturbed natural vegetation, typical of the ecoregion and similar to that found on properties adjacent to the roadway right-of-way.

In general, roadway right-of-way habitat reflects major modifications caused by construction activities. Because of soil-moving activities, native soil profiles commonly are co-mingled, removing the original layered structure. Cut and fill areas result in engineered slopes, leaving little in the form of microhabitats, at least initially. Re-vegetation for stabilization and aesthetic purposes uses both a seed mixture and the soil seed bank for re-colonization. Maintenance activities such as mowing, tree removal, and weed control alter the roadside vegetation after it becomes established. Over time, roadside environments tend to become similar to the vegetation typical of the ecoregion.

The right-of-way corridor is affected not only by precipitation that falls on it directly, but also by received surface water runoff from adjacent properties. This runoff may be irrigation water or storm flow from adjacent crop fields, or surface runoff from developed or residential properties. This water also has the potential to contain toxic deicing fluids and other contaminants which are present in the environment. Water drains from the right-of-way via slopes, ditches, and pipes.

Typical habitat conditions and features within roadway rights-of-way include:

Foreslope, Ditch, and Backslope -

Rural highway rights-of-way include paved or turf shoulders, with vegetated foreslopes and backslopes and a ditch that may convey water periodically. Shoulders are typically mowed during the growing season. Rural, non-state operated rights-of-way might not be mowed on a scheduled basis. In mountainous areas of the state, shoulders and slopes can be affected by traction sand and deicing activities during winter months. Additional features within this setting may include guard rails, median barriers, and signs.

Urban roadsides in cities and towns have a more manicured appearance because of frequent mowing and landscaping at community entrances. Also, Municipal Separate Storm Sewer System (MS4) regulations may require permanent Best Management Practices for the post-construction setting. These may include detention basins, grassed swales, infiltration trenches, or bio-retention areas to allow storm water infiltration. Additional features in urban rights-of-way include message boards, light poles, and cross-walks, in addition to guard rails, median barriers and signs.

Woodlands - Woodland habitats are possible within the highway right-of-way. Likely, most trees were cleared at the time of original road construction. However, some re-colonization by tree species may have taken place. Woodland edge habitat is common along these rights-of-way.

Trees and shrubs are planted periodically in the roadside environment, but because of safety and maintenance concerns, never at densities approaching that of a woodland.

Mitigation Sites - When wetland and channel impacts are allowed by permit, project proponents frequently construct mitigation sites to offset those losses. These constructed sites may be located near the highway or may be separate, larger properties owned by CDOT, city or a county strictly for mitigation purposes. In many cases, the mitigation site is in a rural area and is accessible via local roads. Nonetheless, the property is transportation right-of-way. Habitats within these mitigation sites range from open water to moist soil to upland buffer, with vegetation reflecting the soil moisture conditions.

While channel and wetland mitigation sites are the most common for transportation projects, occasionally other natural resource mitigation may be warranted. This could include listed species habitat protection.

Streams and Rivers - Colorado highways cross streams and rivers using culvert pipes, box culverts and bridges. Bridge abutments, riverbanks, and streambanks feature vegetated areas with moisture gradients terminating at the upland roadway fill. Habitats near box culverts and culvert pipes may also include habitats that vary in soil moisture, and may include herbaceous wetlands, riverbank fringe wetlands, sand bars, and backwater areas. Waterway flows may be permanent enough to run all year, or may be ephemeral. Transportation agencies may also use culverts to direct the flow of run-off and run-on water, independently from mapped stream and river crossings.

Rest Areas - Vegetation and landscaping features in rest areas are generally manicured to provide a visually pleasing oasis. Lawns near the building(s) and parking areas are mowed frequently. Plantings including trees may be native or horticultural selections and may depend on irrigation for success. Some CDOT rest areas include walking paths and picnic areas. Edge-of-woodland habitats and areas of seeded native grasses may also be part of some rest areas.

Operation and Maintenance Facilities - The roadside environment includes operation and maintenance facilities, such as office complexes and storage areas for supplies to support highway maintenance. These developments generally are vegetated by either lawn or early-successional volunteer species. Parking areas for fleet and employee vehicles, as well as maintenance equipment and supplies may surround any buildings at these facilities.

3.0 DESCRIPTION OF THE CDOT BIOLOGICAL EVALUATION PROCESS

3.1 PURPOSE OF THE CDOT BIOLOGICAL EVALUATION PROCESS

The purpose of the CDOT Biological Evaluation Process is to provide an efficient, uniform, streamlined approach to regulatory compliance for federally listed fish, wildlife, and plant resources in Colorado. Implementing a standardized analysis, documentation, and concurrence procedure will allow the construction and improvement of transportation facilities within the jurisdiction of CDOT to proceed in a more timely and consistent manner.

A matrix is used to evaluate potential impacts to Colorado T & E species, resulting in either a “NE”, “NLAA”, or a “LAA” determination. “LAA” determinations trigger formal consultation with the USFWS.

The following types of projects are not covered by the PBA, and require an Individual Biological Assessment and Section 7 consultation with the USFWS:

- new roadways on new alignments
- new traffic interchanges that would open new areas for development

3.2 SUPPORTING MATERIALS

The Process consists of the following materials.

CDOT ACTIVITY DEFINITIONS describes the construction activities and other related activities associated with Transportation Projects. The construction activities are listed in **Table 3.1**, Sources of Impacts.

CHECKLIST OF CDOT ACTIVITIES / SOURCES OF IMPACTS is a list of the activities (sources of impacts) that will be required as part of a proposed project. The checklist is completed by the project designer or engineer, and is used by the project biologist to conduct the T & E species review (Table 3.1 in PBA).

SPECIES LIFE HISTORIES AND SPECIES RANGE MAPS

This section provides background on each of the Colorado T & E species, including physical description, photograph, life history, distribution and habitat, status and limiting factors, management and recovery and references. This information was used to develop the habitat evaluation portion of the Species Evaluation Parameters form, Minimization Measures, and the effects and justifications in the Effects Analysis Tables.

Species Range Maps illustrate the distribution of the species within the state based on the best available information. This information was used to develop the habitat evaluation portion of the Species Evaluation Parameters form.

COARSE HABITAT SCREEN FORM provides an evaluation process for (1) determining if a project is within 1 mile of a record of a Colorado T & E species or is on the county list of occurrences for the species, which are listed on the USFWS Information, Planning, and Conservation (IPaC) website at <http://ecos.fws.gov/ipac/>, and (2) identifying potential suitable species habitat within the Project Limits of that project.

FEDERALLY LISTED SPECIES MINIMIZATION MEASURES (MM) provides measures to avoid or minimize project impacts so that the resulting project will have insignificant or discountable effects on the Colorado T & E species.

STATEWIDE IMPACT FINDING TABLES (SWIFT) identify the sources of impacts and establish the determination of effect on the listed T & E species. Minimization Measures for selected species are applied where appropriate.

INDIVIDUAL PROJECT LEVEL EVALUATION (IPLE) is the document prepared for species and activities with determinations of “LAA” or of “NLAA” where the minimization measures cannot be met, or clearly do not apply to the circumstances. This document provides a template and guidance for preparation of an IPLE.

TABLE 3.1
SOURCES OF IMPACTS

Asphalt Patching	Guardrail Repair with Soil Disturbance
Bank Stabilization	Guardrail Repair without Soil Disturbance
Blasting	In-Stream Diversions
Bridge Deck Repair	Landscaping
Bridge Deck Replacement	Lighting
Bridge over Uplands/RR/Road	Material Stockpiling
Bridge Painting	Microsurfacing
Bridge Rail Repair/Replacement	Milling and/or In-place Recycling
Bridge Substructure New, Replacement, or Repair-Ephemeral	Nighttime Work
Bridge Substructure New, Replacement, or Repair-Intermittent	Noise Walls
Bridge Substructure New, Replacement, or Repair-Perennial	Overhead Utility Conduit (New)
Bridge Superstructure New, Replacement, or Repair-Ephemeral	Pavement Marking
Bridge Superstructure New, Replacement, or Repair-Intermittent	Pavement Removal
Bridge Superstructure New, Replacement, or Repair-Perennial	Paving
Channel Grade Stabilization Structures	Piers
Channelization-Ephemeral	Pile Driving, Impact Method
Channelization-Intermittent	Pile Driving, Vibratory Method
Channelization-Perennial	Pile/Pier Encasement
Clearing	Pipe Jacking and Casing
Cofferdams	Pre-watering
Concrete Pavement Repair	Removal of Structures and Obstructions
Crack Sealing and Joint Sealing	Replacing a Bridge with a Culvert
Culvert New, Replacement, Extension, Repair-Ephemeral	Resurfacing-Fog/Slurry Seal, Armor Coat/Chip Seal
Culvert New, Replacement, Extension, Repair-Intermittent	Retaining Walls (in water/wetlands)
Culvert New, Replacement, Extension, Repair-Perennial	Retaining Walls (not in water/wetlands)
Curb and Flume	Rock or Gravel Surfacing
Curb and Gutter	Rubbilization
Detention Basin	Shouldering- Earth
De-watering	Shouldering- Paved
Drilled Shafts	Sidewalks and Bikeways
Dust Control/ Compactions	Signs with Soil Disturbance
Equipment Staging/Maintenance	Signs without Soil Disturbance
Erosion Control-Barriers	Stream Channel Impact-Ephemeral
Erosion Control-Erosion Checks	Stream Channel Impact-Intermittent
Erosion Control-Inlet/Outlet Protection	Stream Channel Impact-Perennial
Erosion Control-Mulching	Survey and Staking
Erosion Control-Post-construction Erosion Control	Temporary Crossing, Causeway, Work Platforms
Erosion Control-Rolled Erosion Control	Temporary Road
Erosion Control-Slope Interruption	Traffic and Pedestrian Signals, Message Signs w/ soil disturbance
Erosion Control-Traps and Basins	Traffic and Pedestrian Signals, Message Signs w/out soil disturbance
Erosion Control-Vegetation	Underground Utility Conduit Installation- Boring
Fencing	Underground Utility Conduit Installation- Trenched
Grading- Major, beyond existing hinge Point	Wetland Mitigation
Grading- Minor, edge of pavement to hinge Point	Wildlife Ramp
Grubbing	
Guardrail Installation (New) (W-Beam style)	
Guardrail Installation (New) (Cable Rail only)	
Guardrail Installation (New) (Concrete only, i.e., Jersey Barriers)	

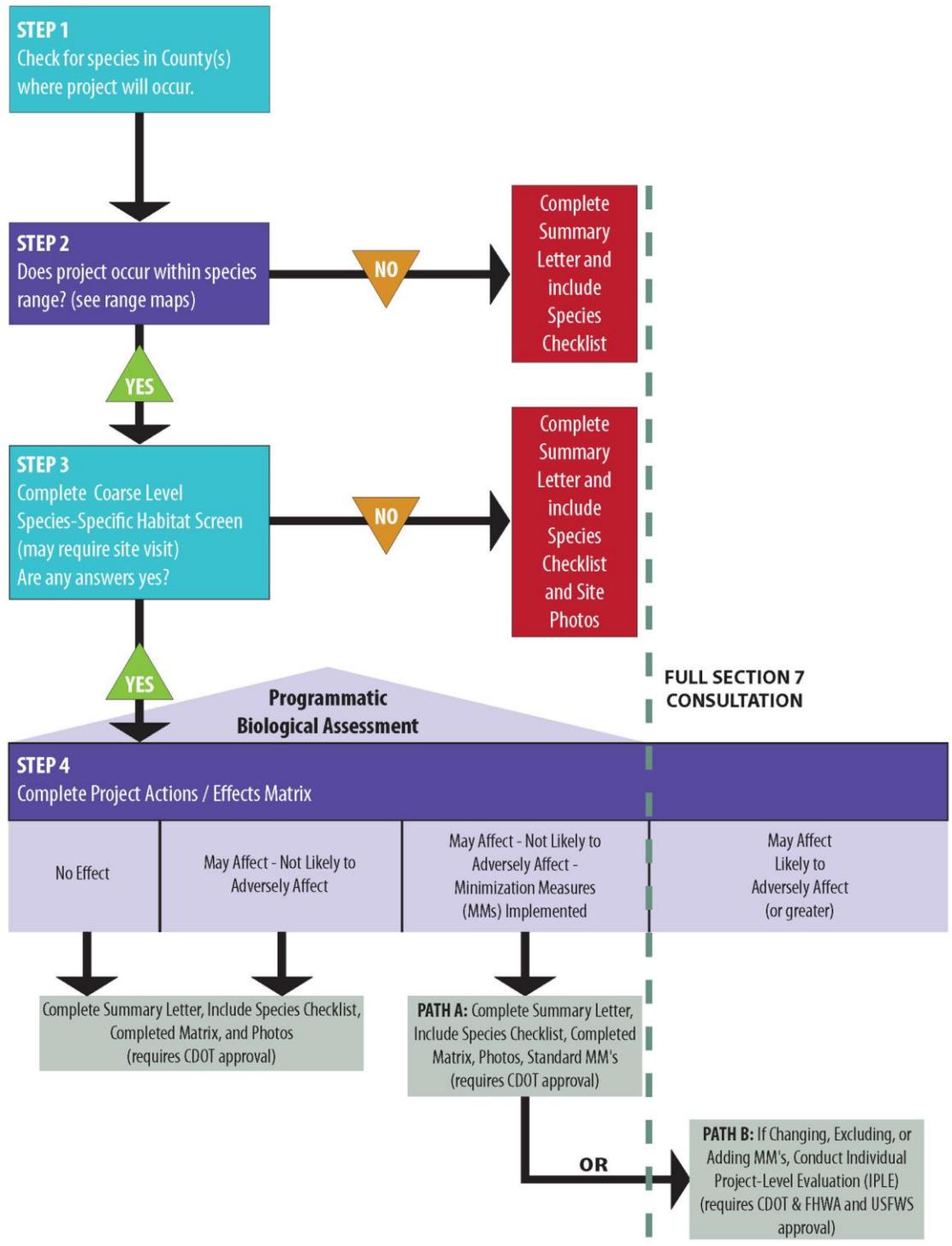
3.3 STEPS OF THE BIOLOGICAL ASSESSMENT (PROJECT LEVEL REVIEW)

For each individual project, the use of the Process tools results in the preparation of documentation referred to as the **Biological Assessment** (BA). The steps are summarized in **Figure 3.1, Colorado Biological Assessment Flowchart**. CDOT is the responsible party for the completion of project level BAs. Qualified CDOT biologists will either directly complete the BA, or will provide guidance, oversight, and quality review of the BA completed by a local government or consultant. Upon receipt of project information, including the Project Description, Checklist of Activities / Sources of Impacts, and Location Map, the following steps are completed:

1. For projects that fit the PBA, the first step in the Process is to complete the **Coarse Habitat Screen** form to identify the species that require further evaluation, based on the Range and Occurrence Evaluation and Habitat Evaluation.
 - A “No Effect” determination is made for species which do not occur in the county or within 1 mile of the project.
 - If the species does occur in the county or within 1.0 mile, but no suitable habitat will be affected, then a “No Effect” determination is made for that species.
 - If it is determined that suitable habitat does not exist for any T & E Species, then a “No Effect” determination is made for the project as a whole. The Coarse Habitat Screen form is kept as part of the administrative record to document ESA compliance. No other forms or written analyses are required for compliance, and no further consultation is required with the FHWA or the USFWS.
2. If suitable habitat is identified in the project area for some species, then those species will be carried forward and evaluated using the **State Wide Impact Finding Tables (SWIFT)**. The SWIFT provides effect determinations for each species, based on each activity identified as part of the scope of the project. These activities are described in **Sources of Impacts Definitions**. The SWIFT determinations are: “NE”; “NLAA with Minimization Measures”; and “LAA”.
 - For species and activities with determinations of “NE” or “NLAA with Minimization Measures”, for which all the standard minimization measures for that species/activity can be met by the project proponent, the analysis is complete. The Coarse Habitat Screen form is kept as part of the administrative record to document ESA compliance. No other forms or written analyses are required for compliance, and no further consultation is required with the FHWA or the USFWS.
 - For species and activities with determinations of “NLAA” for which the standard minimization measures cannot be implemented, or for species and activities with determinations of “LAA”, either an Individual Project Level Evaluation (IPLE) or an Individual Biological Assessment (IBA) shall be prepared. FHWA initiates consultation with the USFWS.
 - If minimization measures for a specific project appear contradictory, the CDOT Biologist will either stipulate where within the project limits each apply, or will only include the most restrictive MM. Within the summary memo, the CDOT Biologist will document which condition was dropped, and the reason why, if applicable. In this instance, an IPLE is not needed.
 - Any species for which an occurrence has been identified within 1.0 mile of the project through a survey, Natural Heritage Database or other source, indirect effects and cumulative effects of the activity will need to be analyzed and documented. The indirect and cumulative effects analysis will be attached to the Coarse Habitat Evaluation. If any indirect effects are

- identified that are not captured elsewhere in the Matrix, then either an individual IPLE or IBA shall be prepared. FHWA initiates consultation with USFWS.
- This includes the consideration of indirect effects that CDOT activities will have on water depletion on federally listed species downstream that depend on the river for their survival. CDOT, as a state agency, is participating in the South Platte Water Related Activities Program (SPWRAP). CDOT is cooperating with the Federal Highway Administration (FHWA) which provides a federal nexus for the project. In response to the need for formal consultation for the water used from the South Platte River basin, FHWA has prepared a South Platte Programmatic Biological Assessment (SPPBA) dated 02/22/2012 that estimates total water usage until 2019. The SPPBA addresses the following species: Least Tern (interior population) (*Sternula antillarum*), pallid sturgeon (*Scaphirhynchus albus*), Piping Plover (*Charadrius melodus*), western prairie fringed orchid (*Platanthera praeclara*), and the Whooping Crane (*Grus americana*). On 04/04/2012, the USFWS signed a Biological Opinion which concurs with this approach and requires a yearly reporting of water usage. The water used for projects within the South Platte Water Basin will be reported to the USFWS at the year's end after the completion of the project as per the aforementioned consultation.

FIGURE 3.1
COLORADO BIOLOGICAL ASSESSMENT FLOWCHART



3.4 REPORTING AND MONITORING

Twice a year, or as determined to be an appropriate frequency by the USFWS, CDOT will prepare a report listing all federal and state funded projects, including Local Public Agency projects that have received programmatic concurrence through the Process.

For projects meeting the criteria of "NE", the report will include project name, federal-aid number, control number, location of project, and project proponent.

For projects meeting the criteria of "NLAA", the report will include project name, federal-aid number, control number, location of project, and project proponent, as well as the species that the project "NLAA" and the Minimization Measures that were applied.

The report will be submitted to the FHWA and the USFWS, each of whom will conduct a review to determine if the Process is working. The reviewing agencies may request copies of the BAs for projects listed in the reports, or additional clarifications from CDOT if needed. If issues are identified that need to be addressed, this document includes provisions for resolving the issue.

3.5 NEED FOR RE-ASSESSMENT BASED ON CHANGED CONDITIONS

The findings of this PBA are based on the best current (2013) data and scientific information available. The PBA will be re-evaluated if (1) the sources of impacts as defined in this consultation are added to or subsequently modified in a manner that causes an effect which was not evaluated in this assessment, (2) new species information is revealed that changes the effect on the Colorado T & E species in a manner or to an extent not covered by this assessment, (3) a new species is listed or critical habitat is designated that was not evaluated in this assessment, or (4) implementation of the agreed-upon minimization measures becomes consistently problematic.

A review of this PBA and the CDOT Biological Evaluation Process will be performed on an annual basis, or as needed, by a review team. Members of this review team will include CDOT biologists, the FHWA, and the USFWS. Amendments and additions to the PBA and CDOT Biological Evaluation Process materials will be revised as agreed upon by all parties.

4.0 SPECIFIC PROJECT REVIEW USING THE PROCESS

The specific project review includes an analysis of the effects of proposed FHWA and CDOT Transportation Projects on Colorado T & E Species, including designated critical habitat. Disturbances are those associated with a variety of federal-aid projects in Colorado. Activities include new construction, maintenance and/or repair of roads, bridges, abutments, culverts, signs, fencing, and other associated features (see **Table 3.1**).

This analysis evaluates the degree to which the species/habitat will be affected by direct and indirect impacts, together with the effects of other activities that are interrelated or interdependent with the specific activity. This includes considerations of context, intensity, duration, and timing. The action area, as defined by the ESA, includes all areas to be affected directly or indirectly by the Federal action and is not limited merely to the immediate area involved in the action [50 CFR §402.02]. Likewise, interdependent actions are actions having no independent utility apart from the proposed action. Interrelated actions are part of a larger action and depend on the larger action for their justification [50 CFR §402.02].

For each of the Colorado T & E species, habitat evaluation and determination of effects are evaluated in same manner, as follows in Sections 4.1 through 4.7:

4.1 SPECIES TO BE EVALUATED INDIVIDUALLY

The species to be evaluated are those federal listed species in Colorado. In addition, to ensure efficient transportation program delivery in the event new species are listed as T & E, candidate and proposed species are also addressed through this consultation process. As of the date of this document, the species are those listed in Table 4.1.

In the event a new species is listed, becomes a candidate or is proposed for listing as threatened or endangered, or if critical habitat is designated, the PBA has provisions for adding the species and/or critical habitat to the consultation process.

TABLE 4.1

COLORADO T & E SPECIES

Common Name	Scientific Name	Federal Status
Arapahoe snowfly	<i>Capnia arapahoe</i>	Candidate
Arkansas darter	<i>Etheostoma cragini</i>	Candidate
Black-footed ferret	<i>Mustela nigripes</i>	Endangered
Bonytail chub	<i>Gila elegans</i>	Endangered
Canada lynx	<i>Lynx canadensis</i>	Threatened
Clay-loving wild buckwheat	<i>Eriogonum pelinophilum</i>	Endangered
Colorado butterfly plant	<i>Guara neomexicana</i> var. <i>coloradensis</i>	Threatened
Colorado hookless cactus	<i>Sistrurus catenatus</i>	Threatened
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered
Debeque phacelia	<i>Phacelia submutica</i>	Threatened
Dudley Bluffs bladderpod	<i>Lesquerella congesta</i>	Threatened
Dudley Bluffs twinpod	<i>Physaria obcordata</i>	Threatened
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Candidate
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Threatened
Gunnison Sage-grouse	<i>Centrocercus minimus</i>	Threatened
Humpback chub	<i>Gila cypha</i>	Endangered
Knowlton's cactus	<i>Pediocactus knowltonii</i>	Endangered
Least Tern**	<i>Sterna antillarum</i>	Endangered
Lesser Prairie-chicken	<i>Tympanuchus pallidicinctus</i>	Threatened
Mancos milkvetch	<i>Astragalus humillimus</i>	Endangered
Mesa Verde cactus	<i>Sclerocactus mesae-verdae</i>	Threatened
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Threatened
New Mexico meadow jumping mouse	<i>Zapus hudsonius luteus</i>	Endangered
North Park phacelia	<i>Phacelia formosula</i>	Endangered
Osterhout milkvetch	<i>Astragalus osterhoutii</i>	Endangered
Pagosa skyrocket	<i>Ipomopsis polyantha</i>	Endangered
Pallid sturgeon**	<i>Scaphirhynchus albus</i>	Endangered
Parachute beardtongue	<i>Penstemon debilis</i>	Threatened
Pawnee montane skipper		Threatened
Penland alpine fen mustard (Mosquito Range mustard)	<i>Eutrema penlandii</i>	Threatened
Penland beardtongue	<i>Penstemon penlandii</i>	Endangered
Piping Plover**	<i>Charadrius melodus</i>	Threatened
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Threatened
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Rio Grande cutthroat trout	<i>Oncorhynchus clarki virginalis</i>	Candidate
Schmoll milkvetch	<i>Astragalus schmolliae</i>	Candidate
Skiff milkvetch	<i>Astragalus microcymbus</i>	Candidate

Common Name	Scientific Name	Federal Status
Sleeping Ute milkvetch	<i>Astragalus tortipes</i>	Candidate
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Uncompahgre fritillary butterfly	<i>Boloria acrocne</i>	Endangered
Ute ladies'-tresses orchid	<i>Spiranthes diluvialis</i>	Threatened
Western prairie fringed orchid**	<i>Platanthera praeclara</i>	Threatened
Whooping Crane**	<i>Grus americana</i>	Endangered
Yellow-billed Cuckoo*	<i>Coccyzus americanus</i>	Threatened

*Critical habitat also listed for this species.

** South Platte River Downstream Depletion Species

4.2 HABITAT EVALUATION AND SUITABILITY

For each individual project, habitat evaluation and suitability are assessed during completion of the **Coarse Habitat Screen** form. This form requires the preparer to provide information on habitats within the project area and to review known range and occurrence records, using the following procedures:

1. Step 1 of the process is to collect species information from the USFWS Information, Planning, and Conservation System (IPaC) site.

Navigate to the USFWS IPaC Website: <http://ecos.fws.gov/ipac/> to determine if any listed, proposed or candidate species may be present in the project study area. Following the directions in IPaC, use the initial project scoping tool to generate a species list by selecting the map tool and drawing the delineated Project Study Area. After selecting the appropriate project type, click on the Official Species List. The Official Species List will include all species that may occur in the vicinity of the project study area and includes a map of the action area. IPaC will also generate a list of National Wildlife Refuges in the vicinity of your Project Study Area. Save a copy and print the PDF version of this Official Species List and add it to your project review package. It is important that you do not use the state/county list tool for this review since it will list **all** species that may occur in that county(ies) and will not provide site specific information. After completing the steps in IPaC, exit that website and continue to **Step 1(A) or 1(B)**.

(A) If the Official Species List species list indicates that there are no listed, proposed or candidate species found in the Project Study Area, fill out the species checklist and continue to **Step 2**. Until the proposed project is implemented, check IPaC every 90 days to ensure that listed, proposed or candidate species information for the Project Study Area is current. If any changes to the species list occur, you must complete this process for the newly identified species.

(B) If the Official Species List indicates that listed, proposed or candidate species may be present in the Project Study Area, fill out the species checklist and continue to **Step 2**.

2. **Step 2** of the process is to check if a specific project is in a species range. Range maps are provided for all species. Some range information is already integrated into the IPaC. Professional judgment by a biologist will be necessary when a project falls on the edge of or adjacent to a species range.
3. **Step 3** involves completing a coarse-level habitat screen to determine whether listed/candidate/proposed species may occur based on the habitat present within the project study area for each species checked above in the checklist table. To complete the evaluation, a site visit is required, in addition to reviewing the species information provided in IPaC, the species life history fact sheets, and any other available sources of information (e.g., previous biological assessments conducted in the area). The coarse-level habitat evaluation must be conducted by a CDOT approved biologist. The Coarse Habitat Screen defines specific habitat parameters that, if present (a "Yes" answer on the Coarse Habitat Screen form), the project is considered to have potential habitat for that species and project activities must be identified and SWIFT must be completed.
4. The project is also reviewed for records of species occurrence within 1.0 mile of the project limits. If occurrences are documented within 1-mile of the project, then indirect and cumulative effects are analyzed for the project. The 1-mile threshold was determined to be adequate for an indirect and cumulative effect analysis because the close proximity of the species could lead to a higher likelihood for impacts to that species later in time (indirect impact), and a higher likelihood of cumulative impacts resulting from other activities within the project vicinity.

5. If the project limits do not contain potential habitat for a certain species, then the project is considered to have “NE” on that species. This is because based on the best scientific and commercial data available (known habitat needs, known range information, or listing information), little potential exists for the species to occur in the project vicinity or be impacted by the project itself.

4.3 TYPES OF EFFECTS AND THEIR ANALYSES

Three types of effects are analyzed as part of the Process: direct, indirect and cumulative.

Direct Effects - Direct effects are impacts resulting from the proposed action at the same time and in the same place as the action. For example, grading associated with a new road removes soil and vegetation at the site and, if a listed species is present, destroys the species and its habitat. Additional examples include construction noise disturbance, loss of habitat, or sedimentation that may result from the construction activity.

For the Process, direct effects are analyzed and documented by using the **SWIFT**, which list activities and the determination of their effects on the Colorado T & E species with consideration given to application of the Minimization Measures.

Indirect Effects - Indirect effects are those effects that are caused by or will result from the proposed action later in time, but are still reasonably certain to occur [50 CFR §402.02].

Examples include changes to ecological systems, such as predator/prey relationships, long-term habitat changes or anticipated changes in human activities, including changes in land use. These are “downstream” impacts, future impacts, or the impacts of reasonably expected connected actions (e.g., discharging sediments into a river would affect the water quality and aquatic species beyond the actual site of the release; land development of an area after a highway is completed).

For the Process, indirect effects are analyzed and documented in three steps. First, indirect effects are evaluated as part of the **Coarse Habitat Screen** form, which includes a box for describing indirect and cumulative effects. Indirect effects are analyzed for the project, if occurrences of a given species are documented within 1 mile of a project or if the effects are not captured elsewhere in the Process. If CDOT believes that there may be indirect impacts, then it will be determined if those effects are negligible or discountable. If so, they will be given a “NLAA” determination; otherwise, they will be given a “LAA” determination if the effects are deemed to be adverse.

In the second step, indirect effects are evaluated using the **SWIFT**. The **SWIFT** lists construction activities and other related activities and the determination of their effects on the Colorado T & E Species. The determination of effects is based on the assumption that the Minimization Measures, as appropriate, will be implemented for the project.

The Process’s third step involves evaluating South Platte River downstream depletions, which could have indirect effects on water-dependent species in the Platte River basin.

In order to address the effects this depletion will have on federally listed species downstream that depend on the river for their survival, CDOT, as a state agency, is participating in the South Platte Water Related Activities Program (SPWRAP). CDOT is cooperating with the Federal Highway Administration (FHWA) which provides a federal nexus for the project. In response to the need for formal consultation for the water used from the South Platte River basin, FHWA has prepared a South Platte Programmatic Biological Assessment (SPPBA) dated 02/22/2012 that estimates total water usage until 2019. The SPPBA addresses the following species: Least Tern (interior population) (*Sterna antillarum*), pallid

sturgeon (*Scaphirhynchus albus*), Piping Plover (*Charadrius melodus*), western prairie fringed orchid (*Platanthera praeclara*), and the Whooping Crane (*Grus americana*). On 04/04/2012, the USFWS signed a Biological Opinion which concurs with this approach and requires a yearly reporting of water usage. The water used for projects within the South Platte Water Basin will be reported to the USFWS at the year's end after the completion of the project as per the aforementioned consultation.

Cumulative Effects - Cumulative effects are the effects of future State, tribal or private activities (non-Federal activities), that are reasonably certain to occur within the action area of the Federal action subject to consultation [50 CFR §402.02]. This definition applies only to Section 7 analyses and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws. Cumulative effects include the overall effect of the project combined with effects from future non-federal activities that are reasonably certain to occur in the foreseeable future.

For the Process, cumulative effects are analyzed and documented as part of the *Species Evaluation Parameters* form, which includes a box for describing indirect and cumulative effects. Cumulative effects are analyzed for the project if occurrences of a given species are documented within 1 mile of a project, or if the effects are not captured elsewhere in the Process. For example, if during the review process for a federal-aid project, occupied habitat for a species is identified within 1 mile of the project limits, the reviewer would look for other known activities occurring by other entities, independent of the road activity, within the project vicinity. Examples include farm expansions, parking lot construction, mining, developments, etc. The reviewer would then determine if the combination of activities could create an adverse effect to that species. If CDOT determines that the combination of these activities may adversely affect the species (cumulative impacts), then the activity will be given a "LAA" determination and formal consultation with the USFWS shall occur.

4.4 MINIMIZATION MEASURES

Minimization Measures are actions to be taken to avoid or minimize impacts. Minimization Measures are implemented when a project activity has been identified as having an impact on a listed species or critical habitat. The Minimization Measures were developed for specific actions on specific species. These are considered standard Minimization Measures for species and implementation of these minimization measures for specific species will result in a reduction of impacts from the threshold of a "LAA" determination to a "NLAA" determination.

It should be noted that there are no Minimization Measures for the Arapahoe snowfly, Pawnee montane skipper, and Uncompahgre fritillary butterfly because the habitat for these species is so specific and if this habitat is present in the known range of these species, specific consultation with the USFWS is required.

Additionally, no Minimization Measures were developed for the grey wolf and grizzly bear because there are no known permanently occupied or seasonally used habitats for these species in Colorado, it has not been possible to determine appropriate Minimization Measures.

4.5 DETERMINATION OF EFFECTS

If the project limits contain potential habitat for certain species, then those species are further evaluated using the **SWIFT**. The **SWIFT** considers the effects of project activities on individual species with the implementation of the Minimization Measures. The justification for these effect determinations is also contained in the **SWIFT**. The Matrix can have three possible outcomes.

1. If the **SWIFT** indicates a "NE" determination for a species under evaluation, then the proposed project will be covered by a programmatic concurrence. The proposed actions can proceed once

the appropriate documentation is in place and there is a commitment to implement the appropriate minimization measures.

2. If the **SWIFT** indicates a “NLAA” determination for a species under evaluation, then the proposed project will be covered by a programmatic concurrence. The proposed actions can proceed once the appropriate documentation is in place and there is a commitment to implement the appropriate minimization measures.
3. If the **SWIFT** indicates a “LAA” determination for any species, then programmatic concurrence will not apply for that species, and coordination with FHWA and the USFWS is required.

Due to the complexities of habitat fragmentation, the matrix identifies any habitat fragmentation as a “LAA” condition. CDOT shall review individual projects to determine if habitat fragmentation concerns, or opportunities to improve connectivity, may exist, based on suitable habitat of a listed species occurring within the project area, the scope of the project, and the life history of the species in question. If CDOT determines there may be a habitat connectivity concern for a project under review, a consultation with FHWA and the signatory agencies will occur. Upon future reviews of the tools and PBA, the concept of habitat connectivity may be re-addressed and clarified, as appropriate.

4.6 IMPLEMENTATION OF MINIMIZATION MEASURES

The Process provides for implementation of Minimization Measures by requiring them to be:

1. Listed in the Summary Memo for the Process with the Responsible Party for the measure identified;
2. Carried into the NEPA decision document;
3. Repeated in project design sheets and/or specifications, as appropriate; and
4. Implemented in the field.

5.0 EVALUATION OF IMPACTS TO T & E SPECIES THROUGH PROCESS IMPLEMENTATION

At the project level, the CDOT Biological Evaluation Process focuses on the standardization of impact assessments, minimization measures that could be applied on a per-project basis, and documentation of the project-level evaluation. Direct effects at the project implementation level are identified, and methodologies are developed to formalize when project-level indirect and cumulative effect analyses are needed. The intent of this section is to take a holistic look at the implementation of the Process to determine what effects, if any, would occur to protected species and critical habitat.

5.1 PROGRAM LEVEL IMPACT EVALUATION OF PROCESS IMPLEMENTATION

The minimization measures developed as part of the Process follow a three-tier approach: (1) general minimization measures that apply to all projects, (2) minimization measures that apply within the range of specific species, and (3) minimization measures that apply according to the effect determinations in the **SWIFT**. The general minimization measures act as programmatic best management practices to prevent unanticipated direct or indirect impacts to species during construction. The minimization measures that programmatically apply to all projects within certain species ranges are in place to manage unanticipated construction impacts. By anticipating possible construction-related actions that might occur (but that may

not have been identified during project planning) and by putting programmatic conditions in place to address them, the Process reduces the impacts of possible construction actions to a discountable level.

The PBA commits all consulting parties to implement this CDOT Biological Evaluation Process in good faith and to uphold the agreed-upon conditions. The proper implementation of the CDOT Biological Evaluation Process using the PBA will prevent adverse effects to species and critical habitat. As outlined in the PBA, reviews and required reporting will serve as a check-and-balance to ensure the commitments made in the PBA are being adhered to, and will ensure that unanticipated impacts to species have not occurred through the use of the CDOT Biological Evaluation Process. If unanticipated impacts are identified during these annual reviews, modifications to the CDOT Biological Evaluation Process will be made. If modifications to the CDOT Biological Evaluation Process cannot be made to the agreement of all parties, the CDOT Biological Evaluation Process may be discontinued, if agreed upon by all signatory parties, and individual project level consultations will resume.

5.2 SPECIES LEVEL IMPACT EVALUATION OF PROCESS IMPLEMENTATION

The information below describes the CDOT Biological Evaluation Processes impact to Colorado T & E species by grouping like species into one assessment. Species groupings are aquatic species, plants, mammals, reptiles, birds and insects.

FISH AND AMPHIBIANS - Implementation of the minimization measures and CDOT policies makes the risk of impacts to species, habitat or water quality negligible and/or discountable. Degradation of water quality through roadway runoff or construction-related sedimentation/erosion is a concern with transportation projects. In addition, bridge and culvert construction/reconstruction efforts may affect aquatic species through impeding movement or altering stream flow. However, through the application of Clean Water Act Section 404 and 401 permitting requirements and implementation of Storm Water Management Plan (SWMP) requirements, these types of effects to aquatic species are avoided, the residual level of impact being so slight that it cannot be measured.

When advancing through the Process, actions with a greater potential to impact aquatic species, such as channelization activities, bank stabilization, and work within channels, are assigned "LAA" determinations and are addressed through a project-specific formal consultation with the resource agencies.

In summary, the implementation of this CDOT Biological Evaluation Process *may affect, but is not likely to adversely affect* listed aquatic species in Colorado.

PLANTS - The primary concerns for plant species are direct impact to individuals and indirect modification of suitable habitat during construction. Indirect impacts may include land use changes, ground disturbances, soil contamination, or hydrologic changes. CDOT policies and state laws ensure that hydrologic studies occur during the design process and hydrologic changes are avoided. In addition, general minimization measures are implemented through the Process and SWMP requirements to avoid soil contamination. Also, direct impacts to listed plants are avoided because the matrix minimization measures require that a survey be conducted when ground disturbance occurs within suitable habitat. If survey results are positive, then formal consultation is required. Surveying, documenting presence/absence, and formal consultation when the species is found makes the risk of impacts to individuals negligible.

In summary, the implementation of this CDOT Biological Evaluation Process *may affect, but is not likely to adversely affect* the listed plant species in Colorado.

MAMMALS - Implementation of the minimization measures and CDOT policies reduces the risk of impacts to species, habitat or water quality. The primary concern for mammals is direct impact to individuals through mortality, or impacts to breeding, feeding and sheltering. Indirect impact concerns

may include modification of suitable habitat during construction through land use changes, impeding movements, modification of behavior, and hydrologic changes. Surveying, documenting presence/absence, and consultation when the species is found makes the risk of impacts to individuals negligible.

When advancing through the Process, actions with a greater potential to impact mammals, such as channelization activities, grading below the hinge point, or activities that create barriers to movement, are assigned "LAA" determinations, and are addressed through a project-specific formal consultation with the resource agencies.

The gray wolf and grizzly bear have no known permanently occupied or seasonally occupied habitats in Colorado. Adverse CDOT Biological Evaluation Process effects to gray wolf and grizzly bear are not anticipated due to the extensive home range and transient nature of this species.

There are currently experimental populations of the black-footed ferret in Colorado and adverse CDOT Biological Evaluation Process effects to black-footed ferret are not anticipated because consultation is required if project activities occur in an area of suitable habitat (large prairie dog complex). The main concern for the black-footed ferret is the destruction or fragmentation of potential reintroduction sites.

In summary, the implementation of this CDOT Biological Evaluation Process *may affect, but is not likely to adversely affect* listed mammal species in Colorado.

INSECTS- Implementation of the species-specific minimization measures reduces the risk of impacts to insect species (Arapahoe snowfly, Pawnee montane skipper, Uncompahgre fritillary butterfly) and their habitat. The primary concern for insects is direct impact to individuals through mortality, or impacts to breeding, feeding, and sheltering areas. Indirect impact concerns may include modification of suitable habitat during construction through land use changes, and changes in hydrology. Direct impacts to insects are not anticipated because any ground disturbance that is planned to occur within suitable habitat requires formal consultation with the USFWS. This is because the suitable habitat is so small and specialized that any disturbance activities require project specific considerations.

In summary, the implementation of this CDOT Biological Evaluation Process will have *no effect* on insects (Arapahoe snowfly, Pawnee montane skipper, Uncompahgre fritillary butterfly) in Colorado.

BIRDS - Implementation of the minimization measures and CDOT Policies makes the risk of impacts to listed bird species, habitat, or water quality negligible and/or discountable. Degradation of habitat and direct habitat removal (trees and grasses) are concerns for transportation projects where listed birds occur.

When advancing through the Process, actions with a greater potential to impact bird species, such as grading activities, bank stabilization, channelization activities, habitat fragmentation, and work within channels, are assigned "LAA" determinations and are addressed through a project-specific formal consultation with the resource agencies. For most other activities, the minimization measures either allow avoidance of nesting or migration seasons, or follow survey protocols to determine if the species is present within the project area. If the species is present, formal consultation occurs and any activities with potential to disturb the species are halted until the consultation is complete.

In summary, the implementation of this CDOT Biological Evaluation Process *may affect, but is not likely to adversely affect* the listed bird species in Colorado. It should be noted that no SWIFT was prepared for the interior population of the Least Tern, the Piping Plover and the Whooping Crane as they have been previously addressed through the Shortgrass Prairie Initiative and/or the South Platte River Programmatic Consultation. Both documents are available at the CDOT Environmental Programs Branch.

6.0 SUMMARY DETERMINATION FOR ALL COLORADO T & E SPECIES

Findings of this PBA indicate that implementation of the CDOT Biological Evaluation Process may affect, but is not likely to adversely affect the Colorado federally listed species and their habitats, or federally designated critical habitats.

7.0 COORDINATION

This Biological Assessment was developed by the following Core Development Team:

For Colorado Department of Transportation:

- Aaron Eilers
- Francesca Tordonato
- Gabriel Cosyleon
- Jeff Peterson
- Jim Eussen
- Mark Lawler
- Patrick Hickey
- Rob Frei
- Yates Opperman

For Federal Highway Administration:

- Stephanie Gibson

For US Fish and Wildlife Service

- Alison Michael

For Felsburg Holt & Ullevig

- Alex Pulley
- Laura Haas
- Amy Sobol
- Keith Hidalgo
- Jake Lloyd
- Todd Lebov

8.0 SIGNATURES

The following agencies have reviewed this document, and agree with the recommended effect determinations:

For Colorado Department of Transportation

_____	_____	_____	_____
Signature	Printed Name	Title	Date

For US Fish and Wildlife Service

_____	_____	_____	_____
Signature	Printed Name	Title	Date