

**Appendix H**  
**Biological Assessment, Biological Evaluation,**  
**and Biological Opinion**

**Biological Assessment**

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## List of Acronyms

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BA	Biological Assessment
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CNPS	Colorado Native Plants Society
CR	County Road
DDT	dichloro-diphenyl-trichloroethane
EIS	Environmental Impact Statement
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
MP	mile post
N	North
NDIS	Natural Diversity Information Source
R	Range
RIP	Recovery Implementation Program
ROW	right-of-way
SH	State Highway
SMP	Storm Management Plan
T	Township
TNC	The Nature Conservancy
US 160	United States Highway 160
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
W	West

## List of Acronyms

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In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 US Code [USC] 1531 et seq.), this Biological Assessment (BA) assesses impacts to species listed as threatened or endangered under the ESA that would be affected as a result of the proposed US 160/US 550 improvement project. Colorado Department of Transportation (CDOT) would like to request formal consultation with the US Fish and Wildlife Service (USFWS) as the proposed expansion of US 160 may adversely affect Southwestern willow flycatcher (*Empidonax traillii extimus*), the Colorado pikeminnow (*Ptychocheilus lucius*), and razorback sucker (*Xyrauchen texanus*). CDOT would also like concurrence from the USFWS that the proposed expansion may affect, but is unlikely to adversely affect bald eagle (*Haliaeetus leucocephalus*), Yellow-billed cuckoo (*Coccyzus americanus*), and Knowlton's cactus (*Pediocactus knowltonii*).

During Southwestern willow flycatcher surveys conducted in 1998 and 2002, a single Southwestern willow flycatcher was observed in a willow carr located north of US 160 and approximately 0.2 mile west of County Road (CR) 501 during the bird's breeding season (Sugnet 2001, 2002). This individual bird was observed on multiple occasions in July, indicating that it is a likely resident breeding bird occupying territory in the area. Roosting bald eagles have also been observed in the corridor, but are not expected to be adversely affected by the proposed expansion of US 160. Suitable habitat exists in the corridor for the Yellow-billed cuckoo and Knowlton cactus, but no individuals were located during field surveys. No other threatened, endangered, or candidate species or their habitats have been identified in the project area.



## 2.1 PROPOSED ACTION

CDOT, Region 5, is proposing to reconstruct and expand approximately 17.5 miles of United States (US) Highway 160 (US 160) between Durango and Bayfield, in La Plata County, Colorado. CDOT anticipates that improvements may include widening to four lanes, highway realignments in some segments, and the addition of consolidated access roads. Other safety improvements include creating wider shoulders, incorporating wildlife underpasses and deer fencing, and redesigning portions of the highway. CDOT, on behalf of the Federal Highway Administration (FHWA) is preparing an Environmental Impact Statement (EIS) to evaluate potential impacts of the proposed project.

Existing highway improvements for US 160 in La Plata County were constructed in the 1950s and 1960s. At that time, the population of La Plata County was less than 20,000 residents. Since then, the population has more than doubled and tourist activity has increased dramatically. As a result, traffic volumes along the US 160 corridor have increased significantly, and traffic volumes in the region almost double in the summer months with the influx of tourists. Accident rates along some stretches of US 160 have also risen to levels above state averages. Highway improvements in the project area over the past 40 years have consisted mainly of safety improvements at the US 160/US 550 south (Farmington Hill) intersection and the US 160/State Highway (SH) 172 intersection. The purpose of this project is to improve the conditions for the traveling public along US 160 in the project corridor. Specifically, the purpose of the project is to:

- Increase travel efficiency/capacity to meet current and future needs
- Improve safety for the traveling public by reducing the number and severity of accidents
- Control access

The need for this project is based on the projected increase in travel demands on highway capacity and efficiency, and the existing substandard design that contributes to accidents associated with roadway deficiencies.

The project is located in the Upper Colorado Drainage Basin and the San Juan River Watershed. The project corridor crosses three major river drainage basins (Animas, Florida, and Los Piños rivers from west to east). Numerous smaller streams, irrigation ditches, gulches, and wetlands are crossed in the project corridor. Elevations along the project corridor range from approximately 6,400 feet to 7,100 feet. The area assessed as part of the impact area includes the existing road surface, all areas within the CDOT right-of-way (ROW), and generally 300 feet out from the ROW on either side of the highway.

The project area is encompassed on the Bayfield, Gem Village, and Loma Linda, Colorado US Geologic Survey (USGS) 7.5' quadrangles (see Figure 1) in Township (T) 34 North (N), Range (R) 9 West (W) in Sections 1 through 4, 9 through 12, 16, 17, and 1U through 9U; T 34N, R 8W in Sections 1 through 18 and 1U through 5U; T 34N, R 7W, Sections 1-18, 3U-6U; and in T 34N, R 6W, in Sections 6 and 7.





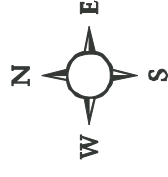
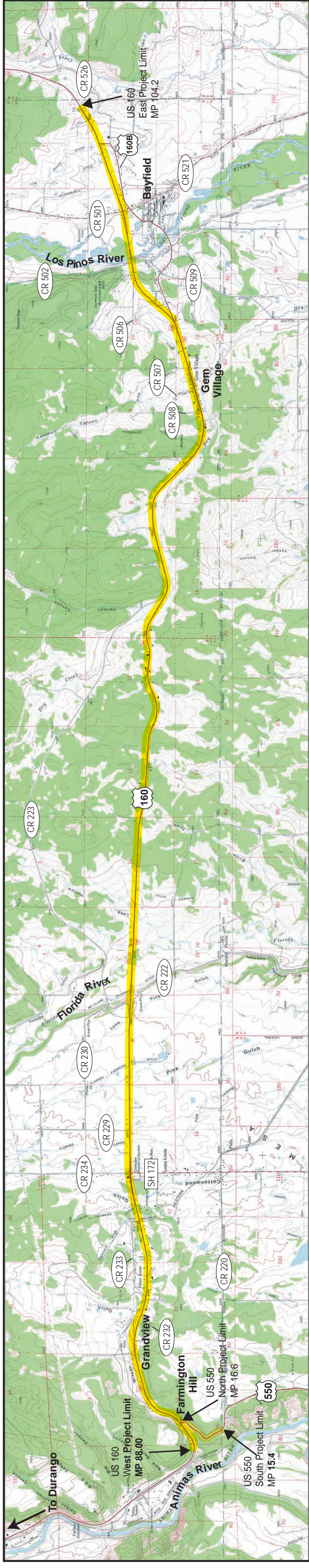
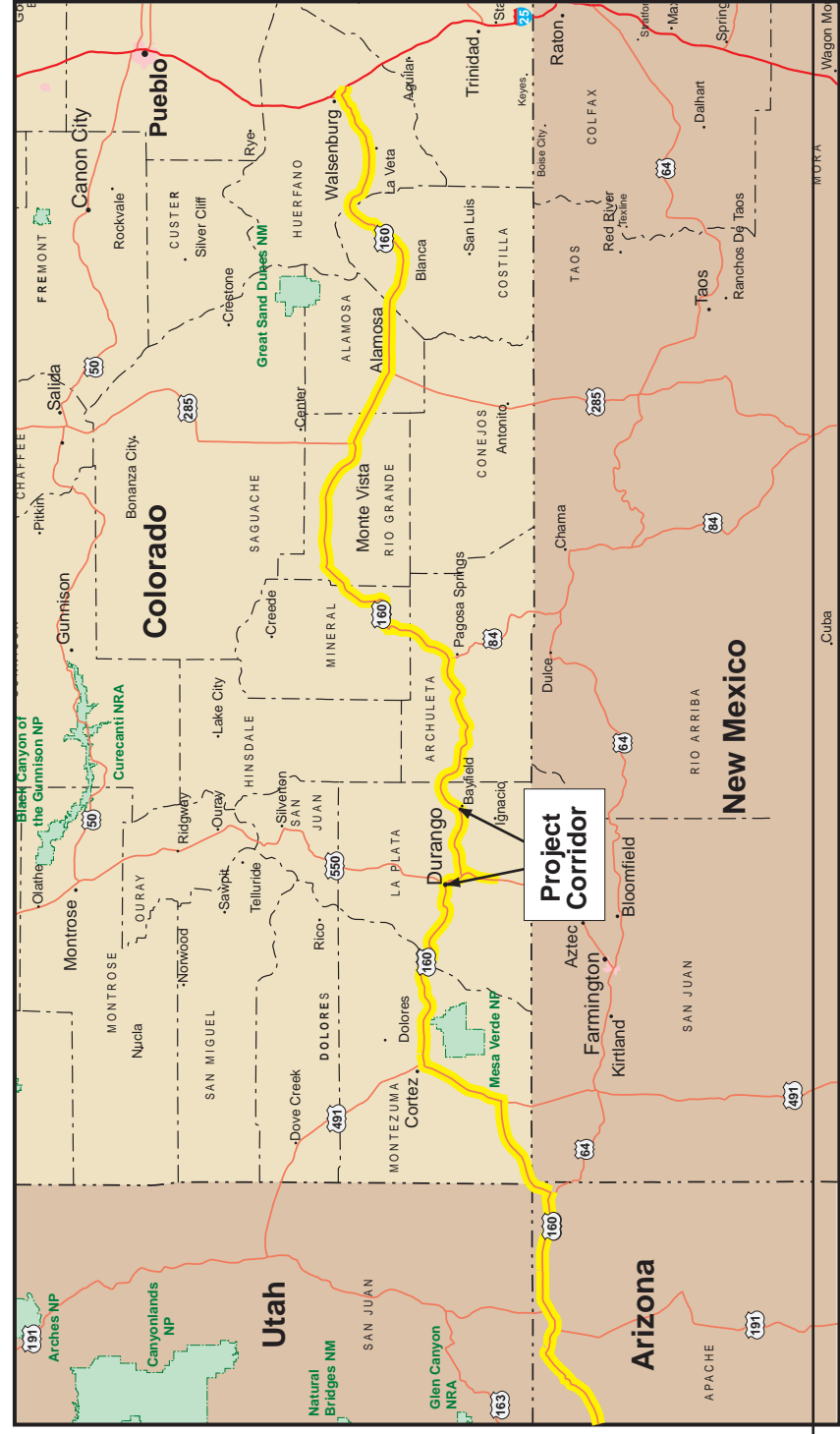


Figure 1  
Project Location



Loma Linda USGS Topo

Gem Village USGS Topo

Bayfield USGS Topo

## 2.2 PROJECT ALTERNATIVES

The EIS for US 160 divided the 17.5 miles of highway into 4 distinct sections to analyze impacts from the proposed project. Within each section, a No Action, Preferred Alternative, and Other Action Alternatives were evaluated. CDOT, FHWA, and the U.S. Army Corps of Engineers (USACE) conducted the identification, evaluation, and screening of the alternatives, with input from the reviewing agencies (Bureau of Land Management, US Environmental Protection Agency [EPA], USFWS). Two alternatives for each of the four sections were evaluated in the DEIS and are shown in Figures 2 and 3. This report will address impacts to federally threatened, endangered, or candidate species as a result of the Preferred Alternative for each of the four sections.

The Preferred Alternative will generally follow the existing alignment along the US 160 corridor; however, the highway will be realigned to bypass Gem Village to the south. In addition, US 550 south of US 160 will be realigned to the east of the existing highway where it meets US 160 at Farmington Hill. CR 222, CR 223, CR 502, and 501 will be realigned where they intersect with US 160, and grade-separated interchanges are proposed at US 160/US 550 south at Farmington Hill, CR 233 (Three Springs Boulevard), and SH 172. All the at-grade intersections with county roads will be upgraded to meet current design standards. Final design and construction of each section is expected to be completed in phases over the next 20 years, depending on funding availability.

The project will extend the four-lane highway from mile post (MP) 87.50 east to MP 104.0 where it will transition to a two-lane highway, completing this transition at MP 105.0. East of MP 105.0, existing and projected traffic volumes do not indicate a need for a four-lane highway. In addition, the project includes realignment of approximately 1.1 miles of US 550 south of MP 16.56 to provide a safe and improved intersection with US 160.

### 2.2.1 Description of Preferred Alternative by Section

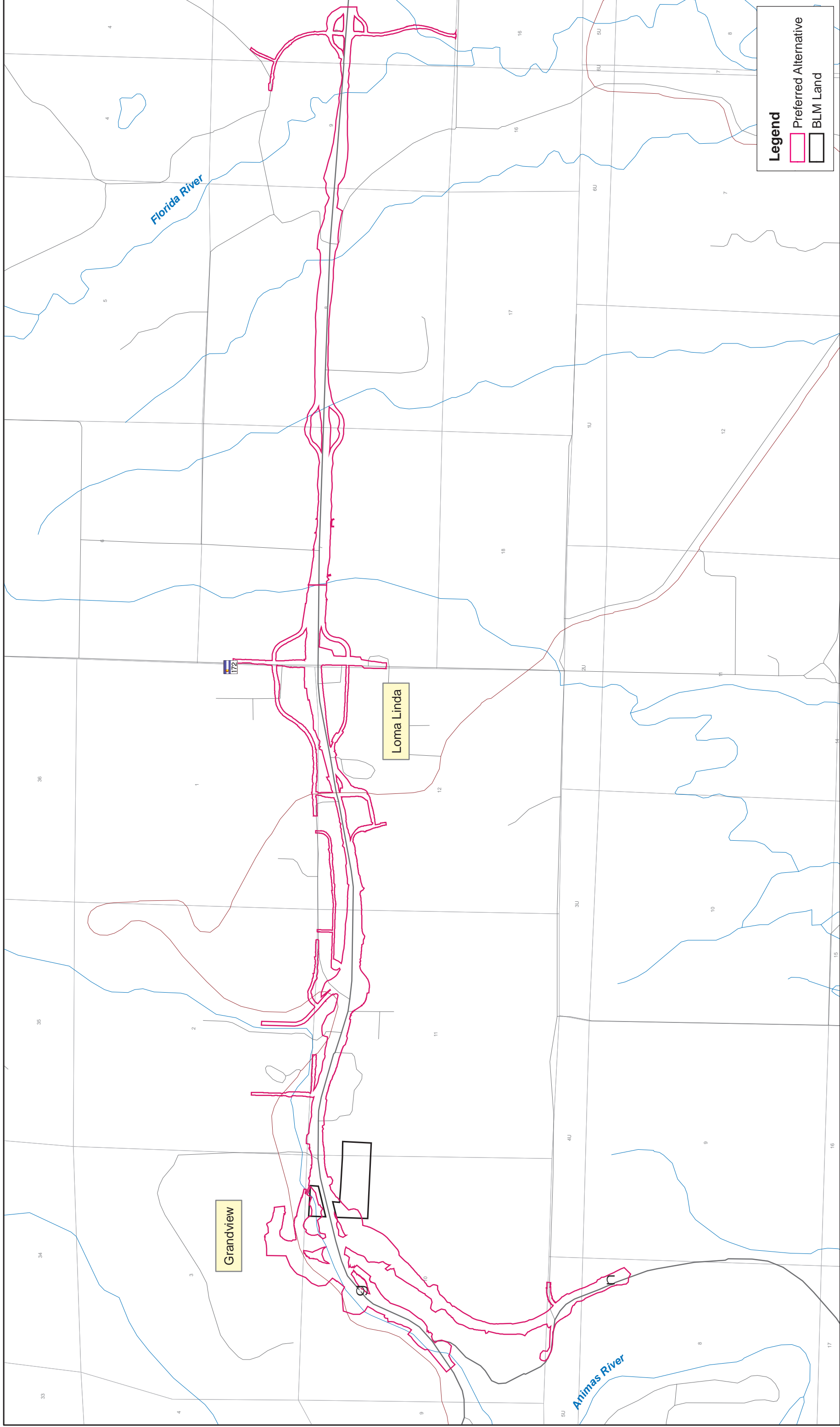
#### *Grandview Section*

Grandview (MP 87.50 to 91.80 on US 160) includes a small portion of US 550 south (MP 16.56 to MP 15.61), the highway that connects Durango with Farmington, New Mexico, from its junction with US 160 south to approximately 0.25 mile south of CR 220.

From the western project limit to the US 160/US 550 (south) intersection, US 160 would be four lanes with an eastbound climbing lane and a westbound auxiliary lane. From the US 550 (south) intersection to the intersection with SH 172/CR 234, US 160 would be four lanes. There would be single-point urban interchanges at CR 233 (west) and SH 172/CR 234. US 160 would remain on the existing alignment except near the SH 172/CR 234 intersection, where it would be shifted north to avoid Crestview Memorial Gardens.



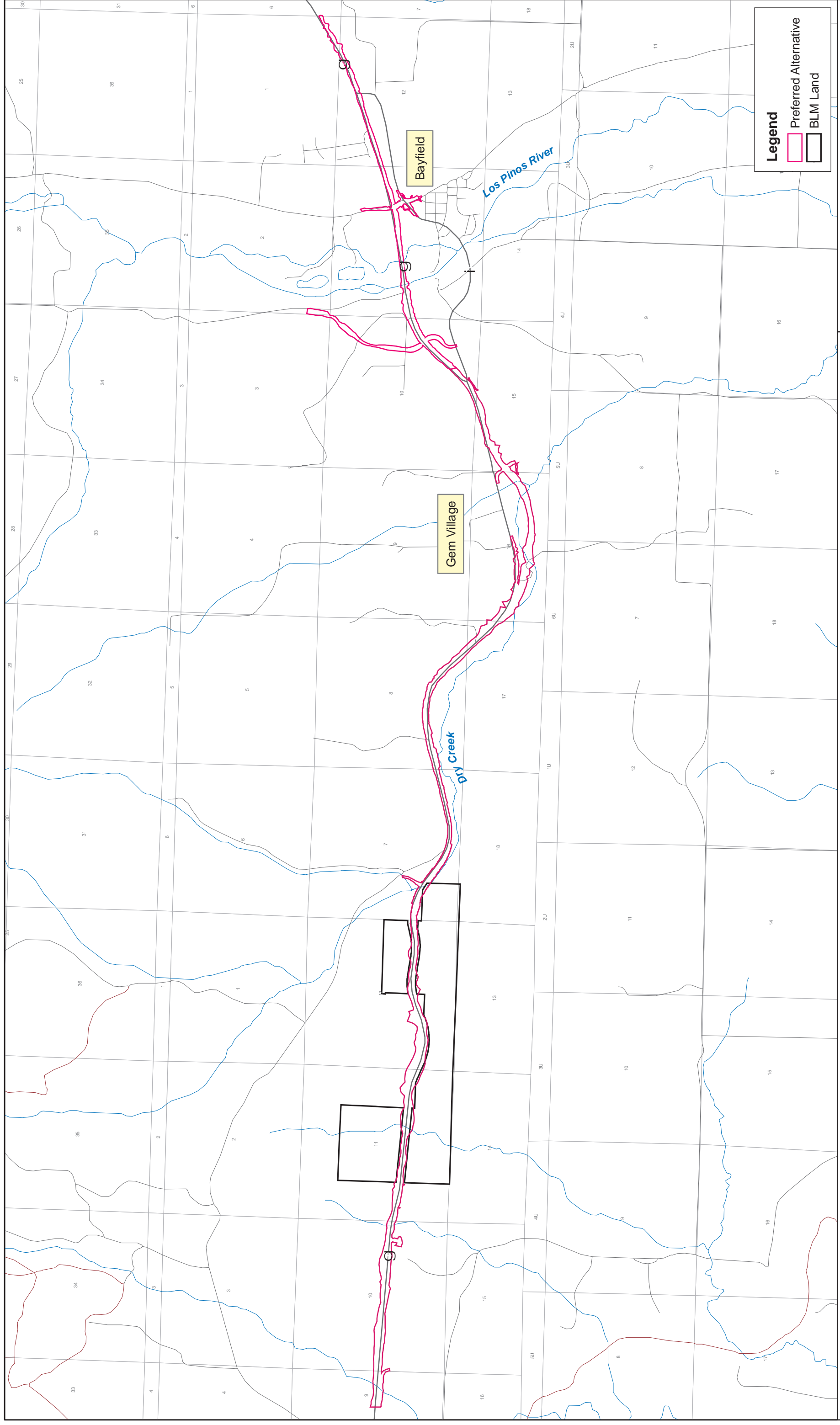




US 160 Biological Assessment and BD

Figure 2  
Preferred Alternative (G and C)  
Grandview to Florida River





**US 160 Biological Assessment and BD**  
 Figure 3  
 Preferred Alternative (H and B)  
 Florida River to Bayfield



US 550 would be four lanes from CR 220 to the intersection with US 160. US 550 would be realigned to the east of the existing US 550 and skirt the western edge of the Florida Mesa before connecting to US 160 with a trumpet interchange approximately 0.6 mile east of the existing US 160/US 550 (south) intersection.

Alternative G Modified is the Preferred Alternative because it provides less out-of-direction travel, fewer relocations, and two access points for traffic entering and exiting Grandview.

### *Florida Mesa and Valley Section*

The Florida Mesa and Valley section (MP 91.80 to MP 94.15) of US 160 runs east from SH 172/CR 234 to east of the Florida River.

US 160 would be four lanes and generally remain on the existing alignment, with slight shifts as necessary to avoid residential structures on the north side of US 160 and the Griffin Dairy Farm complex on the south side of US 160. Continuous access roads would be constructed both north and south of the highway. CR 222 and CR 223 would be realigned and connect to access roads on both sides of US 160. A new intersection with US 160 would be created approximately 4,500 feet east of the existing CR 222/CR 223 (west) intersection. Because this is on the east side of the Florida River, new roadway connections would be made to CR 510 on the south and CR 223 on the north.

Alternative C is the Preferred Alternative for this section because it would provide a better location for the CR 222/CR 223 (west) intersection with US 160. This alternative would be less expensive, is supported by the public, and is included in the *La Plata County Comprehensive Traffic Study, 1999*.

### *Dry Creek and Gem Village Section*

The Dry Creek and Gem Village section (MP 94.15 to MP 101.57) is sparsely developed from the Florida River to Gem Village. At Gem Village the corridor transitions into an unincorporated developed residential and commercial area.

US 160 would be four lanes and generally remain on the existing alignment with improvements for curvature, grades, and sight distance from the CR 222/CR 223 (west) intersection to the CR 223 (east) intersection. CR 223 would be realigned and connect to US 160 approximately 1,500 feet west of the existing US 160/CR 223 (east) intersection. To reduce impacts to high quality wetlands, a 36-foot median would be used from MP 98 to MP 99 to separate opposing travel lanes. A 46-foot median would be used in all other areas. Access roads are provided on both sides of US 160 between MP 94 and MP 95 and on the north side of US 160 between MP 96 and MP 97 to consolidate direct highway access and reduce out-of-direction travel. East of the US 160/CR 223 (east) intersection, US 160 would be realigned and bypass Gem Village to the south. The realigned US 160 would leave the existing US 160 on the west side of Gem Village near MP 100 and rejoin it near MP 101. No access roads would be constructed, but access would be provided at the east end of Gem Village. A one-way slip ramp would provide access for westbound traffic at the west end of Gem Village.

Alternative H is the Preferred Alternative for this section because it would have fewer impacts to residential and commercial properties in Gem Village. Although the environmental impacts

would be greater, Alternative C would have greater impacts to community cohesion. As a result, the community overwhelmingly supports Alternative H.

### *Bayfield Section*

The highway from Gem Village to east of Bayfield (MP 101.57 to MP 104.20) is a moderately developed residential and commercial area. US 160 would be four lanes and generally remain on the existing alignment with improvements for curvature, grades, and sight distance. Three closely spaced intersections with US 160 [US 160B (west), CR 506, and CR 502] would be consolidated into a single unsignalized intersection. CR 502 would be realigned and connect to US 160 approximately 1,500 feet west of the existing US 160/CR 502 intersection. The realigned CR 502 would intersect CR 506 north of US 160 and continue south of US 160 to intersect with US 160B. This realignment would eliminate both of the existing US 160 intersections with CR 502 and CR 506. Access to US 160B would be maintained through an access road on the south side of US 160. The US 160/CR 501 intersection would remain a signalized intersection at its present location. The intersections of US 160B/CR 501 and US 160B/CR 521 would be reconstructed as a roundabout.

Alternative B is the Preferred Alternative for this section because it would have fewer impacts to wetlands, irrigated farmland, and wildlife habitat. The public preferred this alternative and it is also the least expensive.

**Table 1**  
**Federally Listed Species Potentially Occurring in the**  
**US 160 Project Area and Their Federal Status**

Species	Status	Potential for Occurrence	Habitat
Colorado squawfish (pike minnow) <i>Ptychocheilus lucius</i>	Endangered	Not present in project area, but present in San Juan River Basin. May be affected by water depletions.	In Colorado, they are currently found in the Green, Yampa, White, Colorado, Gunnison, San Juan, and Dolores rivers. Do not occur in project area; populations occur downstream.
Razorback sucker <i>Xyrauchen texanus</i>	Endangered	Not present in project area, but present in San Juan River Basin. May be affected by water depletions.	Known habitat in the San Juan River Basin. Do not occur in project area; populations occur downstream.
Uncompahgre fritillary butterfly <i>Boloria acrocynema</i>	Endangered	Not present. Will not be evaluated further.	Snow willow ( <i>Salix nivalis</i> ) patches in high-elevation alpine meadows at 10,000 to 14,000 feet in the San Juan Mountains. No suitable habitat in project area.
<b>Plant Species</b>			
Knowlton's cactus <i>Pediocactus knowltonii</i>	Endangered	May occur, no known populations in project area.	Alluvial deposits that form rolling gravelly hills with pinyon-juniper and sagebrush. Elevations of known populations range from 6,800 to 7,550 feet. Suitable habitat is in project area, though none were found during field surveys. Nearest known population is south along the Los Piños River in San Juan County, New Mexico.
Mancos milkvetch <i>Astragalus humillimus</i>	Endangered	Not present. Will not be evaluated further.	Sparsely vegetated shale or adobe clay badlands at 4,000 to 5,000-foot elevations. No suitable habitat, project area is above known elevation range for species.
Mesa Verde cactus <i>Sclerocactus mesae-verdae</i>	Threatened	Not present. Will not be evaluated further.	Sandstone ledges or mesa tops often in association with pinyon-juniper woodlands, in cracks or sandy pockets at elevations of 5,500 to 5,850-feet. No suitable habitat in project area.



Based on the habitats available in the project area and the zone of influence of the proposed improvements to US 160, this BA evaluates the potential direct and indirect effects of the Preferred Alternatives on bald eagle, Southwestern willow flycatcher, Yellow-billed cuckoo, Colorado pikeminnow, razorback sucker, and Knowlton cactus. Impacts to critical habitats associated with these species were also evaluated.

## 4.1 BALD EAGLE

### 4.1.1 Natural History



The bald eagle (*Haliaeetus leucocephalus*) is a federally listed threatened species that is the only species of sea eagle native to North America. Bald eagles are distinguished by white head and tail feathers contrasting with a dark brown body. Bald eagles are large, long-lived raptors; females generally weigh up to 14 pounds and have a wingspan up to 8 feet. Males are smaller, weighing 7 to 10 pounds with a wingspan of 6.5 feet (USFWS 1999).

Bald eagles subsist mainly on fish, waterfowl, and carrion but are opportunistic feeders and often rely on rabbits and ground squirrels (Griffin et al. 1982). In Colorado and Wyoming, nest trees located in forest stands varied from old-growth ponderosa pine to linear groups of riparian woodland surrounded by rangeland (Kralovec et al. 1992). Nests and roosts are usually located in tall trees near water in areas free of human activity and development (Buehler et al. 1991, USFWS 1999, Steidl and Anthony 2000).

Bald eagles pair for life and typically return to the same breeding territory year after year. Eagles are territorial during the nesting season and will defend their nesting territory (1 to 2 square miles) from other eagles. Clutch size is usually 1 to 3 eggs (NatureServe 2002). Nests are in tall trees and are large; typically 5 feet wide by 3 feet deep and are used year after year. The most successful nests are situated below the crown of a live tree, where the young are sheltered from the elements and adults have easy aerial access.

### 4.1.2 Habitat Requirements

Bald eagle breeding habitat generally occurs within 2.5 miles of large lakes, reservoirs, major rivers, estuaries, and some coastal areas in which there are adequate prey, perching areas, and nesting sites to support the species. In winter, bald eagles often congregate at roost sites that are generally close to open water and offer good perch trees and night roosts, which are used for sleeping and protection from winter storms. Eagles usually leave the roost to hunt early in the morning and return in the evening. However, roosts may be used all day during severe weather conditions. Roosts are used by individual eagles, or small to large groups; a communal roost is defined as a tree or group of trees used by 15 or more eagles.

### 4.1.3 Designated Critical Habitat

No critical habitat has been designated for this species.

## 4.2 SOUTHWESTERN WILLOW FLYCATCHER

### 4.2.1 Natural History



The Southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally listed endangered species, and is one of four subspecies of the willow flycatcher. It is a small bird, approximately 6 inches long with a green-gray back and wings, a white throat, a light olive breast, a pale yellow belly, and two white wing bars. It has a light eye-ring and a long wide bill. The upper mandible is dark brown to black, and the lower mandible is pale orange. The willow flycatcher can be differentiated from other subspecies by its distinctive “fitz-bew” song.

Southwestern willow flycatchers are riparian obligates, nesting only in dense riparian habitats near surface water or saturated soil. The presence of water around the willows increases the forage basis by producing an abundance of insects (Sedgwick 1998; Andrews and Righter 1992). Southwestern willow flycatchers are gleaning and sallying insectivores; their diets consisting of wasps, bees, beetles, butterflies, and caterpillars (Finch and Stoleson 2000).

Open-cupped nests are built in a fork of a branch, 4 to 25 feet above ground, and are made from leaves, grass, feathers, and animal hair. Clutch size is typically 3 eggs that are buff colored with occasional spotting on the blunt end (Finch and Stoleson 2000). Southwestern willow flycatchers arrive in breeding territories as early as April but typically between mid-May and June; a bird observed from mid-June to July 20 can be assumed to occupy breeding territory. Juveniles fledge in late June to mid-August, while adults leave breeding territories in mid-August to mid-September (Finch and Stoleson 2000).

### 4.2.2 Habitat Requirements

In Colorado and other higher elevation sites, Southwestern willow flycatchers breed primarily in sandbar willows (*Salix exigua*) and Geyer willows (*S. geyeriana*) within approximately 100 feet of water (Finch and Stoleson 2000). Occupied habitat is generally associated with the presence of surface water and dominated by shrubs and small trees, 10 to 30 feet tall, that provide dense lower and mid-story vegetation.

Patch size is an important indicator of the birds’ productivity; therefore, USFWS has suggested minimum requirements for Southwestern willow flycatcher willow carr size. Willow carrs measuring 30 feet in width and length, and 6 feet in height are considered suitable habitat for the subspecies (Sugnet 2001 citing Ireland pers. comm. 2001). For purposes of this BA, it is assumed that all willow patches within the US 160 project area that fulfill these minimum size criteria are potentially suitable habitat and support, or potentially support, at least one Southwestern willow flycatcher territory. Territory size requirements are not well known; however, habitat patches as small as 1.2 acres were found to support one or two nesting pairs of the subspecies.

Habitat patches used for breeding and nesting exhibit large variation in size and shape. Breeding patches may be a relatively dense, linear, contiguous stand or irregularly shaped mosaic of dense vegetation that contains open areas (Finch and Stoleson 2000). Southwestern willow flycatchers

have not been observed nesting in narrow, linear riparian areas where the entire patch is less than 33 feet wide, although migrating individuals may utilize these linear areas. Research suggests that flycatchers cluster territories into small portions of riparian sites; major portions of the site may be occupied irregularly or not at all (Finch and Stoleson 2000).

#### 4.2.3 Designated Critical Habitat

In 1993, USFWS formally proposed listing the flycatcher as federally endangered and proposed to designate critical habitat for the species (USFWS 1993). In a 1995 ruling, USFWS found the Southwestern willow flycatcher population to be very low and facing extinction without protection. Therefore, the Southwestern willow flycatcher was listed as endangered, but designation of critical habitat was postponed (USFWS 1995a).

In 1997, USFWS designated 18 critical habitat units totaling 964 river kilometers (599 river miles) in Arizona, California, and New Mexico. In Colorado, critical habitat has been proposed in the San Luis Valley Management Unit, east of the project area (USFWS 2004a); however, no critical habitat is proposed within the vicinity of the project area. A Final Rule on the proposed critical habitat designations is expected in Fall 2005 (USFWS 2004b).

### 4.3 COLORADO PIKEMINNOW

#### 4.3.1 Natural History

The Colorado pikeminnow was listed as federally endangered on March 11, 1967. Colorado pikeminnow are long, slender fish with olive-green and gold backs, silver sides, and white belly. Adults attain a maximum size of approximately 6 feet in length and weighing up to 80 pounds. Though primarily a piscivorous fish, smaller individuals also eat insects and other invertebrates (Colorado Division of Wildlife [CDOW] 2004).

Colorado pikeminnow can migrate 200 miles to spawn (USFWS 2002b). During spring and early summer, adult Colorado pikeminnow inhabit areas inundated by spring flooding. These areas are considered important to renew energy reserves required for migration and spawning (USFWS 1994). Colorado pikeminnow spawn when they are 5 or 6 years old and at least 16 inches long.

Spawning occurs after spring runoff when water temperatures are approximately 64 to 73 degrees Fahrenheit (USFWS 2002b). Eggs are deposited onto a gravel or cobble bottom, and usually hatch in less than one week (CDOW 2004). Following spawning, adult Colorado pikeminnow inhabit eddies, backwaters, and shorelines and are most common in shallow, ice-covered shoreline areas in winter (USFWS 1994).

#### 4.3.2 Habitat Requirements

Colorado pikeminnow are endemic to the Colorado River Basin of the Southwestern United States. Colorado pikeminnow occupy warm-water reaches of the Colorado River mainstem and larger tributaries, and require uninterrupted stream passage for spawning migrations and dispersal of young (USFWS 2002b). They are long-lived, large-river fish that utilize a variety of substrates, depths, and velocities. Young prefer small, quiet backwaters, while adults require

pools, deep runs, and eddy habitats maintained by high spring flows (USFWS 2002b). High spring flows are necessary to maintain channel and habitat diversity, flush sediments from spawning areas to form gravel and cobble deposits used for spawning areas, rejuvenate food production, and rejuvenate backwater nursery habitats (USFWS 2002b).

### 4.3.3 Designated Critical Habitat

In 1978, USFWS proposed critical habitat for the Colorado pikeminnow on 623 miles of the Colorado, Green, Gunnison, and Yampa rivers, which was later withdrawn (USFWS 1994). In 1994, six reaches of the Colorado River system were designated as critical habitat for Colorado pikeminnow, totaling 1,848 miles. Critical habitat includes portions of the Colorado, Green, Yampa, White, and San Juan rivers (USFWS 1994).

## 4.4 RAZORBACK SUCKER

### 4.4.1 Natural History

The razorback sucker was first proposed for federal listing in 1978 but was withdrawn due to non-compliance with 1978 amendments of the ESA. The species was finally listed as endangered on October 23, 1991. Razorback suckers are one of the largest suckers in North America and can grow longer than 3 feet and to up to 13 pounds (USFWS 2004a). Razorback suckers have been documented to live 40 years or more. Individual razorback suckers have elongated bodies that are brownish-green with a yellow to white-colored belly with a bony, sharp-edged dorsal keel immediately posterior to the skull (USFWS 2002b). Breeding males turn gray-black up to the lateral line with a bright orange belly (CDOW 2004). Depending on age and habitat, razorback suckers consume insects, zooplankton, phytoplankton, algae, and detritus (USFWS 2002b).

Razorback suckers spawn at age 3 or 4, when they reach 14 or more inches long. Spawning in rivers occurs over bars of cobble, gravel, and sand substrates during spring runoff (USFWS 2002b). Razorbacks typically spawn between mid-April and mid-June, depending on water temperature. Razorback suckers migrate long distances to spawn and congregate in large numbers in spawning areas (CDOW 2004). Except during periods before and after spawning, adult razorback sucker are considered to be sedentary (USFWS 2002b).

### 4.4.2 Habitat Requirements

Razorback suckers are endemic to the Colorado River Basin of the Southwestern United States. Razorback suckers habitat requirements vary by season and location. Young razorback suckers require nursery environments with quiet, warm, shallow water such as tributary mouths, backwaters, or inundated floodplain habitats in rivers, and coves or shorelines in reservoirs (USFWS 2002b). Flooded bottomlands and other low-velocity shoreline habitats in alluvial reaches of the upper Colorado, Green, and San Juan rivers are important nursery areas for larval and juvenile razorback sucker (USFWS 2002b).

Adults require rivers with deep runs, eddies, backwaters, and flooded off-channel environments in spring; runs and pools, often in shallow water associated with submerged sandbars in summer; and low-velocity runs, pools, and eddies in winter (USFWS 2002b). However, in the San Juan

River, hatchery-reared, radio-tagged adults were found in swifter mid-channel currents during summer-autumn base-flow periods (USFWS 2002b). Adults left the main channel and moved into edge pools during low base flows in winter; edge pools were used exclusively in January, the coldest month of the study. During the other winter months, fish ventured into the main channel during the warmest part of the day, presumably to feed (USFWS 2002b).

#### 4.4.3 Designated Critical Habitat

Critical habitat was not designated for the razorback sucker until 1994 (USFWS 1994). Fifteen reaches of the Colorado River system, totaling 1,724 miles, were designated as critical habitat for razorback sucker, including portions of the Green, Yampa, Duchesne, Colorado, White, Gunnison, and San Juan rivers (USFWS 1994). Streamflow regulation, habitat modification, competition with and predation by non-native fish species, and pesticides and pollutants have contributed to the decline of razorback suckers (USFWS 2002b).

### 4.5 YELLOW-BILLED CUCKOO

#### 4.5.1 Natural History

The Yellow-billed cuckoo (*Coccyzus americanus*) is a federal candidate species. The Yellow-billed cuckoo is a gray and white, medium-sized bird (12 inches) with a down-curved, yellow-based bill and long tail. It is omnivorous, but feeds primarily on caterpillars. Other prey includes cicadas, grasshoppers, beetles, bugs, ants, wasps, frogs, lizards, and small fruits (Howe 1986). The Yellow-billed cuckoo winters in mature tropical forests, returning to the United States, northern Mexico and southern Canada for nesting (Kingery 1998).

#### 4.5.2 Habitat Requirements

The Yellow-billed cuckoo breeds in low to mid-elevation riparian woodlands, deciduous woodlands, and abandoned farms and orchards (Finch 1992). In Western Colorado, Yellow-billed cuckoo records of occurrence have come primarily from old-growth riparian woodlands with dense understories (Kingery 1998). Suitable nesting habitat is considered to be mature cottonwood-willow riparian habitat greater than 37 acres in extent and 325 feet in width (Laymon and Halterman 1989).

#### 4.5.3 Designated Critical Habitat

As a federal candidate, critical habitat has not been designated for the Yellow-billed cuckoo.

### 4.6 KNOWLTON CACTUS

#### 4.6.1 Natural History

The Knowlton cactus (*Pediocactus knowltonii*) is a federally listed endangered species. The Knowlton cactus is a small 1.5-inch tall, 1.0-inch diameter succulent with pink flowers that bloom in April and May [USFWS 1998, Spackman et. al 1997]. Areoles are 2.5 mm in diameter

CDOT contacted the USFWS in 1998 to request a list of federally endangered, threatened, proposed, and candidate species that potentially occur within the US 160 project area. Based on the length of time elapsed since the original letter from the USFWS was received, CDOT requested an updated list from the USFWS in February 2003 and again in March 2005. The USFWS responded to both requests with a list of species that are known to occur or have the potential to occur in the general vicinity of the project area or that may be otherwise affected by the proposed project. These species are listed in Table 1. Copies of the letters from the USFWS are included for review in Attachment A.

Species descriptions and natural history information were obtained through literature searches. Appropriate agency representatives, field guides, and on-line World Wide Web sources, such as the Natural Diversity Information System, provided information on distributions and documented occurrences for federally listed species that occur in La Plata County. General site assessments were conducted in 1998 and 1999 to determine vegetation communities and habitats present in the project area.

**Table 1**  
**Federally Listed Species Potentially Occurring in the**  
**US 160 Project Area and Their Federal Status**

Species	Status	Potential for Occurrence	Habitat
<b>Animal Species</b>			
Bald eagle <i>Haliaeetus leucocephalus</i>	Threatened	Present, winter roosting habitat exists in area. Occasionally nests in region.	Large lakes, reservoirs, major rivers, estuaries, and some coastal areas.
Southwestern willow flycatcher <i>Empidonax traillii</i>	Endangered	Present, breeding activity observed in 1998 and 2002 at one survey location near Bayfield.	In Colorado, breed primarily in sandbar willows ( <i>Salix exigua</i> ) and Geyer willows ( <i>S. geyeriana</i> ) within approximately 100 feet of water, usually distant from trees.
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Candidate	Potentially present. Suitable breeding habitat exists along Los Pinos and Florida rivers.	Breed in large areas of lowland, riparian cottonwood-willow habitats, and urban areas with tall trees. Historically occurred in the project vicinity, however, not known to currently nest in the US 160 corridor.
Mexican spotted owl <i>Strix occidentalis lucida</i>	Threatened	Presence unlikely. Will not be evaluated further.	Nests and roosts in caves or cliff ledges in steep canyons with old-growth Douglas fir and pinyon-juniper at elevations of 4,400 to 6,800 feet. No suitable nesting or roosting habitat in project area; marginal winter habitat.
Canada lynx <i>Lynx Canadensis</i>	Threatened	Not present. Will not be evaluated further.	High-elevation spruce/fir forests with deep snow. Use rock ledges, trees, fallen logs, and sometimes caves for denning. No suitable habitat in project area.
Black-footed ferret <i>Mustela nigripes</i>	Endangered	Not present. Will not be evaluated further.	Shortgrass and midgrass prairie to semi-desert shrublands in prairie dog colonies of sufficient size to support the species. No suitable habitat in project area.

with no central spine. *P. knowltonii* is the smallest member of the genus. It is endemic to northwestern New Mexico and occurs in only two small populations (La Boca and Reese Canyon).

#### 4.6.2 Habitat Requirements

Knowlton cactus grow on tertiary alluvial deposits that have formed gravely, dark, sandy loams overlying the San Jose Formation. These deposits form rolling, gravelly hills that are vegetated with pinyon pine (*Pinus edulis*), Rocky Mountain juniper (*Juniper scopulorum*), and big sagebrush (*Artemisia tridentata*) (Heil 1985). It is found under the shade of trees and shrubs and in open areas in dry pinyon-juniper woodlands (The Nature Conservancy [TNC] 1998). Surface material in areas where the species is found range from pea sized gravel to cobble (Heil 1985). The La Boca population grows on the slopes and top of a single hill at approximately 6,800 feet elevation. The Reese Canyon population is at 7,500 feet elevation. The annual precipitation of this region is approximately 30 centimeters (12 inches).

#### 4.6.3 Designated Critical Habitat

Critical habitat has not been designated for this species.

## 5.1 GENERAL HABITAT CONDITIONS

Wetlands occur throughout the study area, with their distribution closely linked to irrigation practices, soils, and topography. Irrigated agricultural areas with many small wetlands occur on Florida Mesa and east of Bayfield. Wetlands are also common in the valleys of perennial streams, including Wilson Gulch, Florida River Valley, Dry Creek, and Los Piños River Valley. The largest wetlands occur in broad valleys with high groundwater in Wilson Gulch, Upper Dry Creek, and between Gem Village and Bayfield. Scrub-shrub wetland species include sandbar willow (*Salix exigua*), Pacific willow (*Salix lasiandra*), and yellow willow (*Salix lutea*).

The majority of the riparian woodlands in the project area are dominated by narrowleaf cottonwood (*Populus sp.*) and have understories of non-native species, including some noxious weeds. These riparian woodlands occur along the Florida River, the west side of the Los Piños River Valley, Lower Wilson Gulch, Long Hollow, and on the west side of Gem Village. All of these woodlands occur on stream floodplains except for the one at Gem Village, which appears to be supported by seepage from a canal. Linear cottonwood stands also are present along some irrigation ditches.

In addition, pinyon-juniper-oak woodland occurs throughout the US 160 project area; discontinuous sagebrush-rabbitbrush habitats occur east of Florida River; and grasslands, including pastures, are scattered throughout the project corridor.

## 5.2 BALD EAGLE

Bald eagles historically ranged throughout North America, except extreme northern Alaska and Canada and central and southern Mexico. They nested on both coasts from Florida to Baja, California in the south, and from Labrador to the western Aleutian Islands, Alaska, in the north.

Bald eagles started to decline in the 19<sup>th</sup> century due to trophy hunting, feather collecting, shooting, the poisoning of bald eagle prey, and the loss of nesting habitat due to forest clearing and development in the early to mid-20<sup>th</sup> century (USFWS 1999). After World War II, bald eagles suffered severe effects from the widespread use of dichloro-diphenyl-trichloroethane (DDT). DDT accumulated in the fatty tissues of adult female bald eagles, impairing calcium release and causing thin egg shells and reproductive failure. This led to listing the southern population of bald eagles as endangered in 1967 and the banning of DDT in 1972. In 1978, eagles throughout the US were designated as endangered and downlisted to threatened in 1995.

USFWS proposed to remove the bald eagle from the Endangered Species List and declare the species fully recovered by July 2000, but the decision was delayed until USFWS decides on a management plan once the species is delisted. After USFWS delists the bald eagle, it will still be protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Bald eagles winter in the project area and nest at several locations in the region. Bald eagle nests have not been observed in the US 160 corridor, although nests are located south of the project area in the Southern Ute Indian Reservation. Bald eagle winter range occurs along the Florida River and Los Piños River valleys, and both the Florida and Los Piños rivers are considered winter concentration areas (CDOW 1996, Kloster 2003). No communal roost sites occur along the US 160 highway corridor, but known winter roost/perch trees are present near the Florida Canal and at the Florida and Los Piños rivers.



No bald eagle nests were observed during field reconnaissance of the project area. Due to the significant human presence along US 160 and in the project area, nests are unlikely to occur near the US 160 highway alignment.

### 5.3 SOUTHWESTERN WILLOW FLYCATCHER

The Southwestern willow flycatcher has declined during the past 100 years, primarily due to the loss, fragmentation, and modification of riparian habitats. Historically, Southwestern willow flycatchers were widespread throughout the southwest, with southwest Colorado being in the extreme northeast portion of the species' current range. Southwestern willow flycatchers currently occupy six states including Arizona, southern California, New Mexico, southern Nevada, southern Utah, and southwestern Colorado (Finch and Stoleson 2000, Paradzick et al. 2001). These birds winter in southern Mexico, Central America, and northern South America (USFWS 2001b).

The US 160 project area has approximately 21 discrete areas of suitable Southwestern willow flycatcher habitat. Sugnet conducted surveys in 1998, 1999, and 2002 for presence or absence of Southwestern willow flycatcher in suitable habitat along the US 160 corridor. The project area was grouped into four survey regions and surveyed region-by-region.

In 1998 and 1999 four areas were surveyed within the US 160 project area per existing USFWS survey requirements. One Southwestern willow flycatcher was observed on two occasions in 1998 near the proposed ROW in riparian shrub along an unnamed stream on the Los Piños River floodplain. No Southwestern willow flycatchers were observed in the 1999 survey (Sugnet 2002).

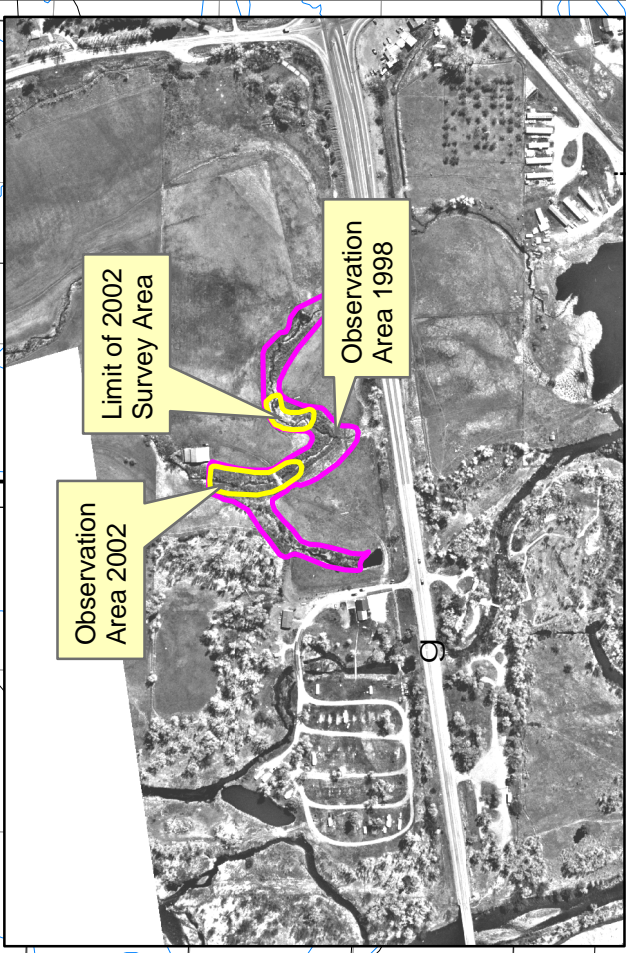
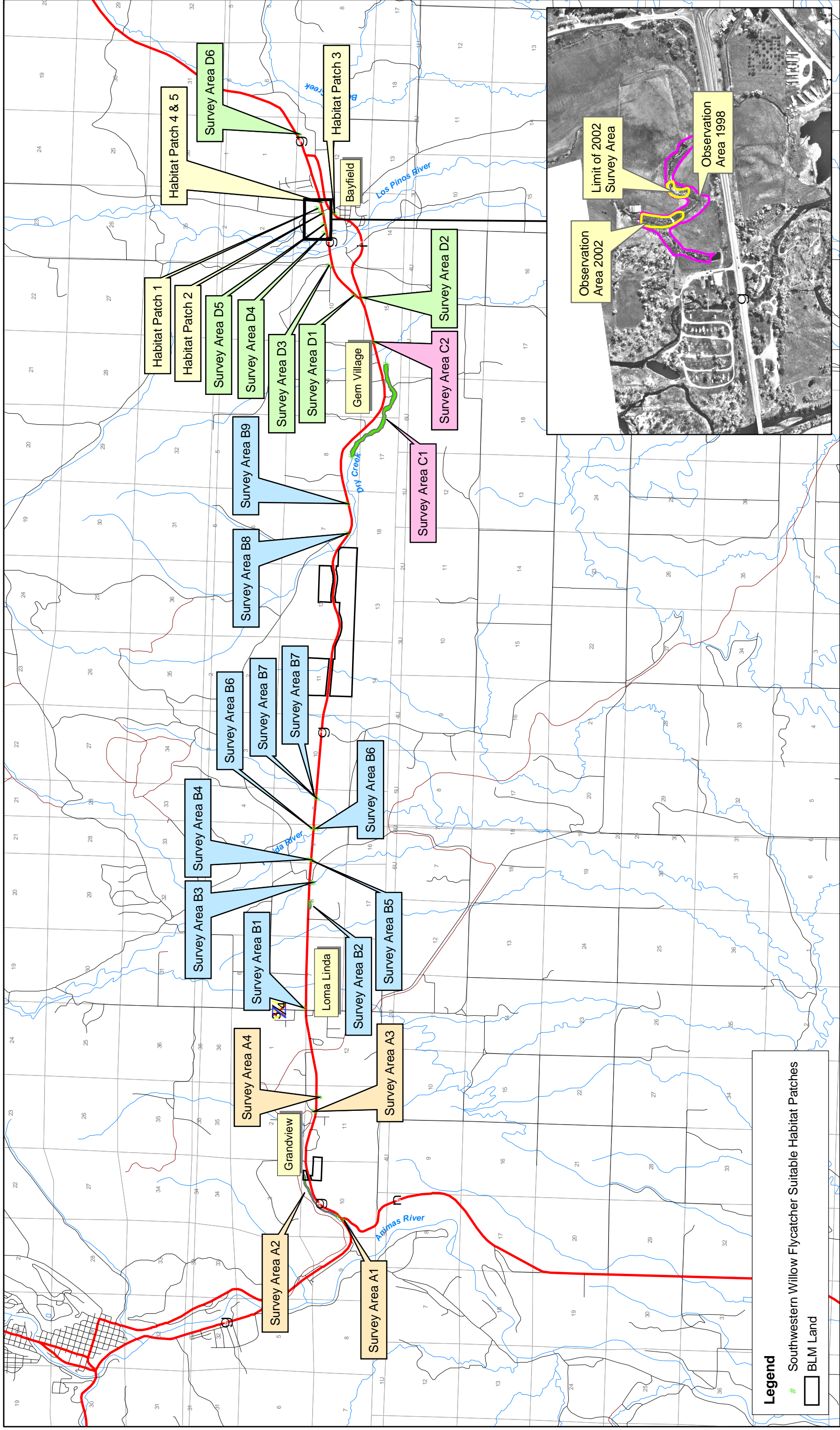
In 2000, USFWS provided new information regarding minimum patch size dimensions for willow carrs capable of supporting nesting Southwestern willow flycatchers. Willow carrs measuring 30 feet in width and length and 6 feet in height are considered suitable habitat for these birds. However, linear patches wider than 15 feet that cover at least 900 square feet should also be considered potential Southwestern willow flycatcher habitat (Sugnet 2002). Based on this new information, 21 sites were identified as suitable habitat and surveyed along the entire length of the project corridor in 2002. These survey regions and areas are described below.

**Survey Region A (Figure 4)** is located at the western end of the project corridor and has four survey areas within it. Brief descriptions of these areas follow.

Survey Area A1 consists of one patch approximately 60 feet by 60 feet and is dominated by sandbar willow (*Salix exigua*). The area is located due south of the intersection of US 160 and US 550 in Section 2 at the base of Farmington Hill.

Survey Area A2 is a complex of patches consisting of a series of linear willow patches north of US 160 along Wilson Gulch in Section 2, most measuring up to 30 feet in width. These patches are dominated by an understory of sandbar and other willows and a cottonwood (*Populus* sp.) overstory.

Survey Area A3 is located along a tributary to Wilson Gulch, both east and west of the intersection of US 160 and CR 233 in Section 3. The patches are linear in nature and measure up to approximately 150 feet in width. Patches are dominated by sandbar willow with an overstory of cottonwood and Gambel oak (*Quercus gambeli*), which overhangs from adjacent upland areas.



**Legend**  
 # Southwestern Willow Flycatcher Suitable Habitat Patches  
 □ BLM Land



Survey Area A4 is located south of US 160 in Section 3, just west of Silverview Lane. The survey area consists of one linear patch, measuring approximately 40 feet in width and is dominated by sandbar willow and cottonwood.

**Survey Region B (Figure 4)** is located immediately east of Survey Region A along the US 160 project corridor and has nine survey areas within it. Brief descriptions of all survey areas in Survey Region B follow.

Survey Area B1 is located northeast of the intersection of US Highway 160 and CR 234 (Elmore's Corner) in Section 4. This area consists of a single patch measuring approximately 50 feet by 30 feet and is dominated by sandbar willow.

Survey Area B2 is located along the fenceline, south of US 160, just west of the CR 222/CR 223 and US 160 intersection in Section 6. This area is a complex of patches dominated by sandbar willow, consisting of several linear patches up to 30 feet in width.

Survey Area B3 is located south of US 160 at the intersection of CR 222 and US 160 in Section 6. The area is one patch dominated by sandbar willow and measuring approximately 100 feet by 120 feet.

Survey Areas B4 and B5 are linear patches located north (B4) and south (B5) of US 160 along the McClure-Murray Ditch in Section 6. Both patches are dominated by sandbar willow and measure up to 30 feet in width.

Survey Area B6 is located north and south of US 160 where it crosses the Florida River in Section 6. The area is dominated by an understory of sandbar and other willows and an overstory of cottonwoods.

Survey Area B7 is located north and south of US 160 at the Long Hollow crossing in Section 6. The area is within a contiguous riparian area from approximately 30 feet to 60 feet wide. The area is dominated by sandbar and other willows, as well as cottonwoods.

Survey Area B8 is located north of US 160 just west of the intersection of US 160 and CR 223 in Sections 7, 8, and 9. B8 is a patch complex consisting of several 30 feet by 30 feet patches dominated by sandbar willow and other willow species.

Survey Area B9 is located north of US 160, just west of the US 160 intersection with Fox Fire Road in Sections 7, 8, and 9. The area consists of several linear patches dominated by sandbar willow and up to 30 feet in width.

**Survey Region C (Figure 4)** is located immediately east of Survey Region B and includes two survey areas:

Survey Area C1 is a patch complex consisting of numerous patches measuring up to 50 feet in width and is dominated by sandbar willow. The complex is located south of US 160 and runs along the Dry Creek drainage from Gem Village to approximately 1.3 miles to the west in Sections 7, 8, 9, and 10.

Survey Area C2 is a single patch located south of US 160, on the eastern side of Gem Village in Section 10. The patch is dominated by sandbar willow and measures approximately 30 feet by 30 feet.

**Survey Region D (Figure 4)** is located at the easternmost end of the project corridor and includes six survey areas:

Survey Area D1 is located north of US 160A, approximately 600 feet northeast of the US 160A/US 160B intersection in Section 10. The area consists of a single patch dominated by sandbar willow and other willow species and measures approximately 30 feet by 50 feet.

Survey Area D2 is located south of US 160B, just east of US 160/US 160B intersection in Section 10. The area is a single linear patch dominated by sandbar willow and measuring approximately 30 feet in width.

Survey Area D3 is located just west of the US 160/CR 506 intersection in Sections 11 and 12. The area consists of two linear patches bisected by CR 506, which may measure up to 30 feet in width if measured as a single unit. The area is dominated by sandbar willow and other willow species as well as cottonwood.

Survey Area D4 is located northeast of the US 160 intersection with the Los Piños River in Sections 11 and 12. This is a complex of patches of various sizes located adjacent to the Los Piños River. Patches are dominated by willow and cottonwood species.

Survey Area D5 is located north of US 160 and is approximately 600 feet east of the Los Piños River (Figure 4 – inset) in Sections 11 and 12. The patch is linear and runs along an unnamed natural stream channel used for irrigation. Patches range in size from 30 feet to 60 feet in width and is dominated by sandbar willow. A single Southwestern willow flycatcher was observed at this survey area in 1998 and multiple times in 2002 surveys (Sugnet 2002).

Survey Area D6 is located north and south of US 160 where it crosses an unnamed tributary of Beaver Creek in Sections 11 and 12.

A single Southwestern willow flycatcher was observed in Survey Area D5 in both the 1998 and 2002 surveys; Survey Region D is located in Sections 6, 10, and 11; T 34 N, R 7 W (Figure 4). This individual bird was observed on multiple occasions in July, indicating that it is a likely resident breeding bird occupying a territory in the area.

No Southwestern willow flycatchers were observed in any of the other survey areas during surveys conducted in 1998, 1999, and 2002 (Sugnet 2002). Absence of Southwestern willow flycatcher observations in these survey areas does not preclude the subspecies from utilizing these areas for migration and/or nest sites in the future.

Five additional patches were identified and discussed in the *Eight Corners BA* (Sugnet 2001). No Southwestern willow flycatchers were observed in these patches, and surveys were not conducted. The *Eight Corners BA* determined that the proposed Eight Corners project “may affect, and is likely to adversely affect Southwestern willow flycatcher territories” (Sugnet 2001). The five patches considered in the *Eight Corners BA* are as follows:

- P-1 is located west of CR 501, north of US 160, and is a complex of willow stands.
- P-2 is located north of US 160 and west of the US 160B/CR 501 intersection and measured 80 feet by 7 feet.
- P-3 is located directly east of the US 160B/CR 521 intersection.
- P-4 and P-5 are located directly north of US 160 and east of CR 501. The westernmost willow carr, P-4, measures 18 feet by 500 feet. The easternmost willow car, P-5, measures 20 feet by 200 feet.

#### **5.4 COLORADO PIKEMINNOW**

Historically, Colorado pikeminnow were considered abundant in the Green and upper Colorado rivers and their tributaries (USFWS 2002b). Wild, reproducing populations occur in the Green River and Upper Colorado River sub-basins of the Upper Colorado River Basin (i.e., upstream of Glen Canyon Dam, Arizona), and there are small numbers of wild individuals (with limited reproduction) in the San Juan River sub-basin. In Colorado, they are currently found in the Green, Yampa, White, Colorado, Gunnison, Dolores, and San Juan rivers (CDOW 2004). Colorado pikeminnow in the San Juan River are a small (19 to 50 adults) reproducing population that occurs 130 miles downstream from Shiprock, New Mexico, to Lake Powell (USFWS 2002b).

More than 300,000 hatchery-produced Colorado pikeminnow have been released in the San Juan River as part of the San Juan River Basin Recovery Implementation Program (RIP) (USFWS 2002b). None are known to exist in the US 160 project area.

Recovery goals consist of downlisting the species over a 5-year period from federally endangered to threatened when a target number of 1,000 individuals aged 5 or more years old (and approximately 11.8 inches long) is established through augmentation and/or natural reproduction in the San Juan River sub-basin and target numbers of reproducing populations are reached in the Green River and the Upper Colorado River sub-basin (USFWS 2002b).

Additional recovery goals for the species include removal of non-native fish, connectivity of populations through bypass construction around in-stream barriers, and protection of habitat, including primary migration routes, required stream flows, and water quality (USFWS 2002b).

#### **5.5 RAZORBACK SUCKER**

Historically, razorback suckers were widely distributed in warm-water reaches of larger rivers of the Colorado River Basin from Mexico to Wyoming (USFWS 2002b). In the Upper Colorado River Basin, the razorback sucker has declined in distribution and abundance until it is now found in small numbers in widely distributed locations. Remaining wild populations are in serious jeopardy as extant populations are small with little or no recruitment (USFWS 2002b). Razorback sucker are currently found in small numbers in the Green River, Upper Colorado River, and San Juan River sub-basins; Lower Colorado River between Lake Havasu and Davis Dam; reservoirs of Lakes Mead and Mohave; and in small tributaries of the Gila River sub-basin (Verde River, Salt River, and Fossil Creek). None are known to exist in the US 160 project area.

Two recovery units exist for the species, the Upper Colorado River Basin (includes the Green, Upper Colorado, and San Juan river sub-basins) and the Lower Colorado River Basin (mainstem Colorado River and its tributaries from Glen Canyon Dam downstream to the Mexico border (USFWS 2002b). Recovery goals include downlisting over a 5-year period and delisting within 3 years after downlisting, if self-sustaining populations are maintained in the Green River sub-basin and either the Upper Colorado River sub-basin or the San Juan River sub-basin (USFWS 2002b). For razorback sucker populations to be considered self-sustaining, adults must be reproducing and recruitment of young fish into the adult population must occur at a rate to maintain the population at a minimum of 5,800 adults. Downlisting would not be initiated until self-sustaining populations are established, which is expected by 2015 (USFWS 2002b).

No wild razorback suckers were found during a 1991 to 1997 research project conducted by the San Juan River Basin Recovery Implementation Program (USFWS 2002b). Hatchery-reared razorback sucker introduced into the San Juan River in the 1990s have survived and reproduced (USFWS 2002b).

## 5.6 YELLOW-BILLED CUCKOO

Historically, the western form of the Yellow-billed cuckoo was a fairly common breeding species throughout the river bottoms of the western U.S. and southern British Columbia (Gaines and Laymon 1984). The range of this bird has contracted, and populations have declined dramatically due to loss of mature closed-canopy riparian forests (Laymon and Halterman 1987). The western form was extirpated from British Columbia in the 1920s, Washington in the 1930s, and Oregon in the 1940s (Kingery 1998). In Colorado, it is an uncommon local summer resident in western valleys, primarily from Mesa County southward. It occurs in mountain parks (four records) and in foothills and lower mountains (four records). Numbers of this form fluctuate widely from year to year (Natural Diversity Information Source [NDIS] 2005). No Yellow-billed cuckoos have been observed in the project area, but suitable riparian woodland habitat exists along the Florida and Los Pinos River floodplains that bisect the project corridor, running generally perpendicular to US 160.

## 5.7 KNOWLTON CACTUS

The type locality for the Knowlton cactus is south of La Boca, Colorado, in San Juan County, New Mexico. This locality contains the only viable population of *P. knowltonii* and in 1985 was estimated to contain 7,000 plants. A second population, consisting of two plants, is located in Reese Canyon in San Juan County, New Mexico. It is unknown whether this population is natural or is the result of transplantation by the New Mexico Cactus and Succulent Society in 1960 (Heil 1985).

This species was virtually driven to extinction by cactus collectors within two decades of its discovery: starting from an estimated population size of more than 100,000 plants in 1958, the population was reduced to less than 100 plants by 1978. That population was given protection by The Nature Conservancy (TNC), and natural germination of seeds remaining in the soil has since brought the population up to current levels (TNC 1998).

No Knowlton cactus have been identified in the project area, but suitable habitat in terms of soil, elevation, and vegetation exists.

**6.1 BALD EAGLE**

Construction of the Preferred Alternative may affect, but is unlikely to adversely affect bald eagles. No known nests or communal roost sites will be impacted by construction of the Preferred Alternative. Direct impacts may occur as potential individual perch/roost trees are eliminated in Sections 5 and 6 at the Florida River. Riparian woodland containing trees that could be used for perching will also be removed near the Los Piños River in Section 12. This may change the local distribution of bald eagles, but is not anticipated to reduce the size or overall distribution of the wintering population. Any potential roost trees removed will be replaced at a 2:1 ratio.

Indirect and cumulative effects to bald eagles may occur from increased traffic and increased residential and commercial development activities along the US 160 corridor. Increased traffic volumes and vehicle speeds that result in an increase in the amount of roadkill could increase the number of bald eagles hit by vehicles while preying on roadkill. The incorporation of wildlife underpasses and deer fencing into the project design should reduce the potential for increased collisions due to increased traffic volume and vehicle speeds. Additional perch and roost trees are likely to be affected by residential and commercial development expansion along the corridor. Hunting opportunities will also be affected as rural agricultural lands are converted to urban uses.

**6.2 SOUTHWESTERN WILLOW FLYCATCHER**

**6.2.1 Direct and Indirect Effects**

The proposed US 160 improvements will not result in direct impacts to the Southwestern willow flycatcher as no known occupied habitat will be removed. However, the project may adversely affect the species indirectly through loss of suitable breeding habitat, and the loss of habitat that could potentially become suitable habitat for the bird in the future. Table 2 summarizes the direct impacts to potentially suitable habitat patches in the US 160 project area. Figures 5 through 13 show the habitat patches in relation to the limits of disturbance.

**Table 2  
Permanent Impacts to Potentially Suitable  
Southwestern Willow Flycatcher Habitat Patches  
from the Preferred Alternative**

Survey Area	Acres of Impact
A-1	0.06
A-2	3.52
A-3	1.25
A-4	0.21
B-1	0.10
B-2	0.00
B-3	0.15
B-4	0.08



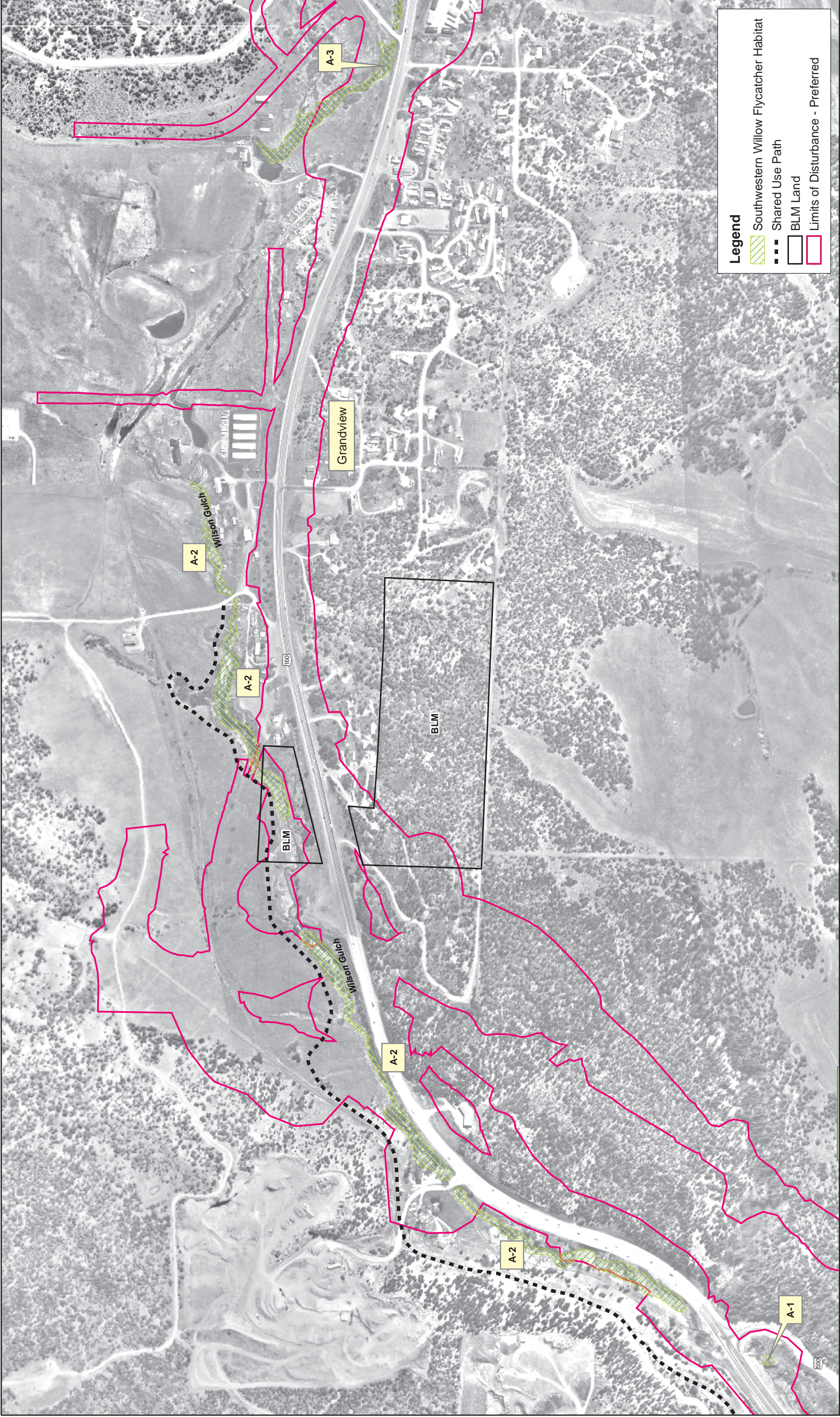
**Table 2**  
**Permanent Impacts to Potentially Suitable**  
**Southwestern Willow Flycatcher Habitat Patches**  
**from the Preferred Alternative**

Survey Area	Acres of Impact
B-5	0.10
B-6	2.12
B-7	0.43
B-8	0.05
B-9	0.00
C-1	0.50
C-2	0.00
D-1	0.10
D-2	0.12
D-3	0.00
D-4	0.61
D-5	0.00
D-6	0.21
P-1	0.29
P-2	0.00
P-3	0.17
P-4	0.00
P-5	0.11
<b>TOTAL ACRES OF IMPACT</b>	<b>10.18</b>





Three willow patches (P-1, P-2, and P-3; Figure 12) that were not surveyed for presence of Southwestern willow flycatchers (because they were part of the *Eight Corners BA 2001*) will be impacted by the reconstruction of US 160. These patches are located in the town of Bayfield, and are considered potentially suitable nesting habitat for the species (Figure 12). The project design and EIS mitigation call for these patches to be surveyed prior to construction, and for formal consultation to be initiated if these habitat patches are found to be occupied.

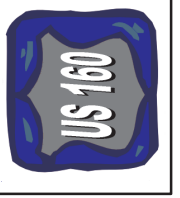
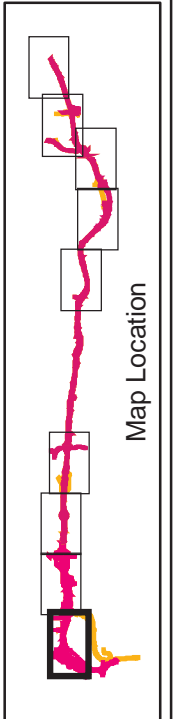
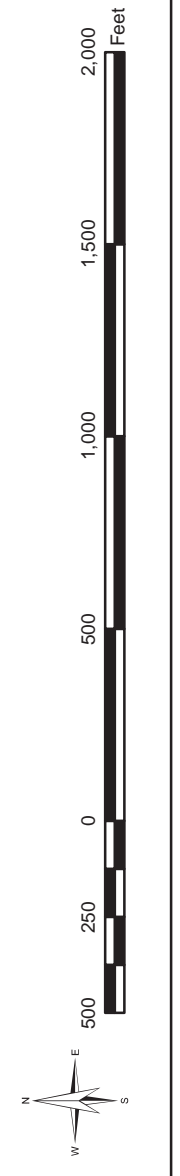
Survey Area D5 (Figure 12), where an individual Southwestern willow flycatcher was observed on multiple occasions during surveys, will not be directly impacted by reconstruction of US 160 (Sugnet 2002). US 160 construction activities adjacent to this occupied survey area may indirectly cause displacement and/or adversely affect nest success in Survey Area D5 due to its proximity to the roadway and construction activities (less than 0.25 mile). The EIS currently requires annual preconstruction surveys to determine if Survey Area D5 is occupied, and provides for construction buffers during the breeding season (May 1 to August 15) for documented occupied habitat and nest sites. Increased traffic volume and reduced proximity to the roadway may also indirectly cause displacement and/or affect nest success in Survey Area D5 post-construction.



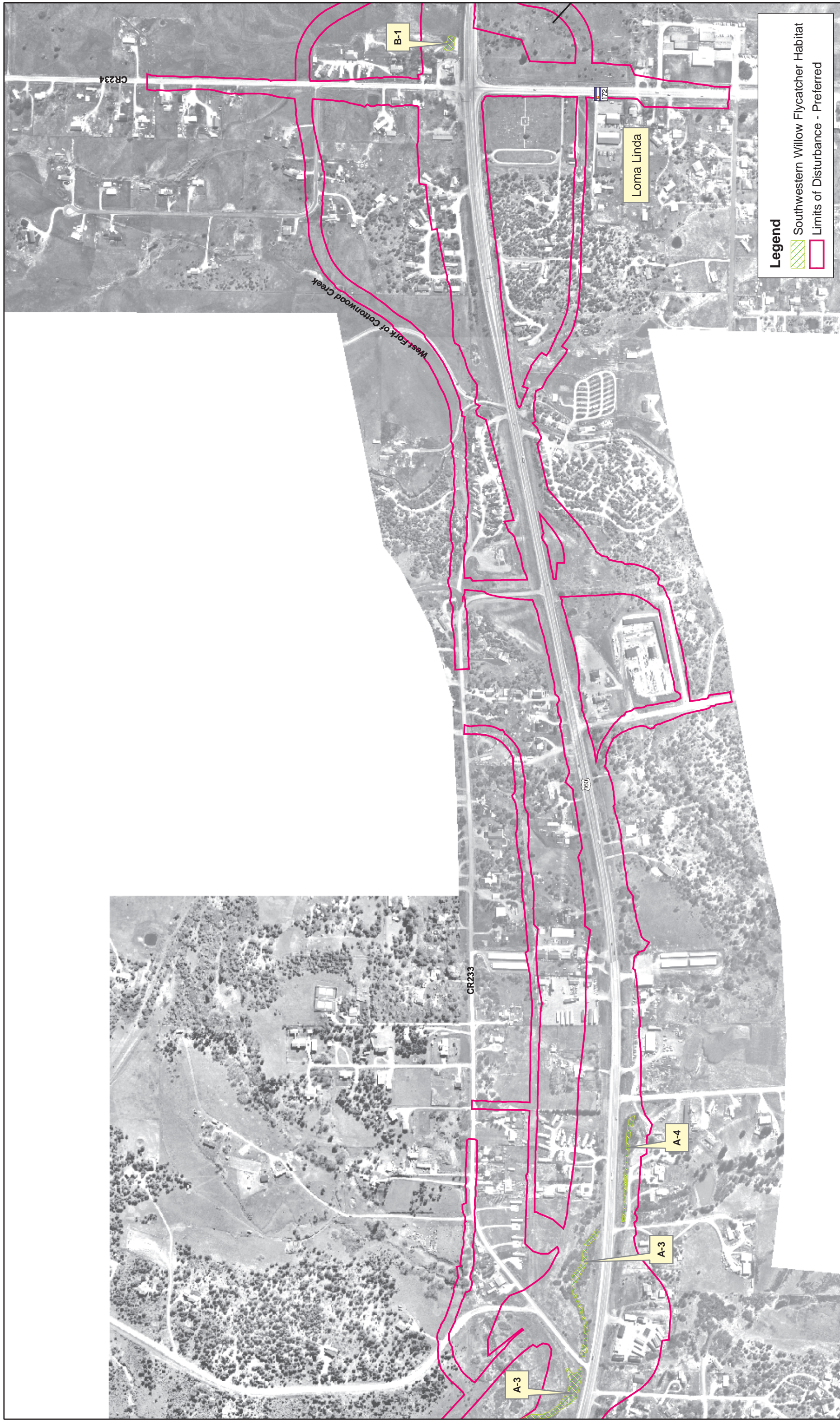


**Legend**

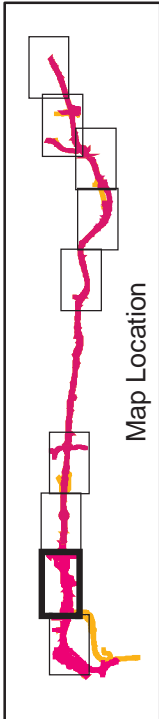
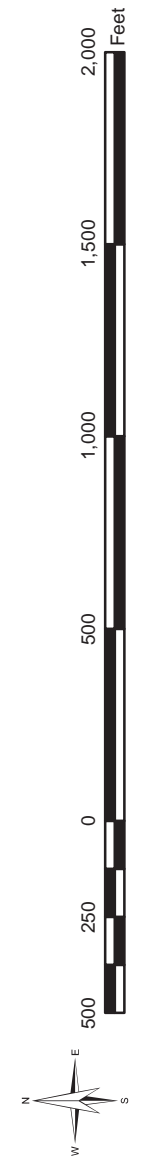
-  Southwestern Willow Flycatcher Habitat
-  Shared Use Path
-  BLM Land
-  Limits of Disturbance - Preferred



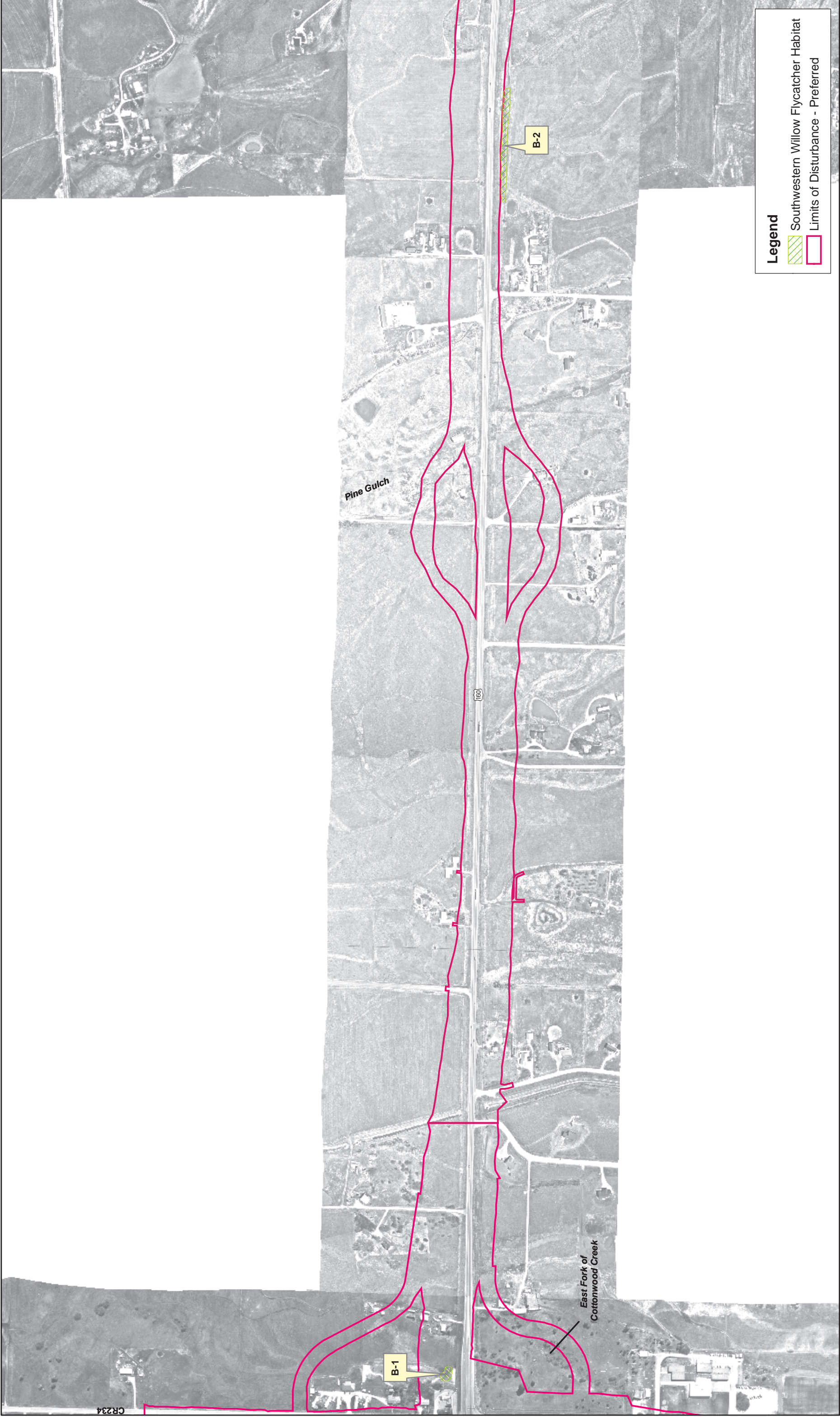






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 Limits of Disturbance - Preferred

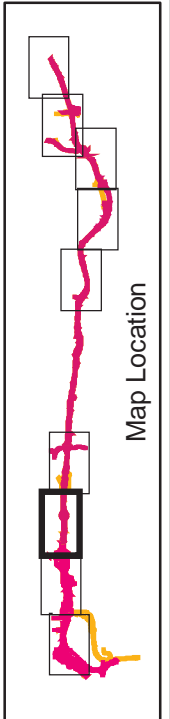
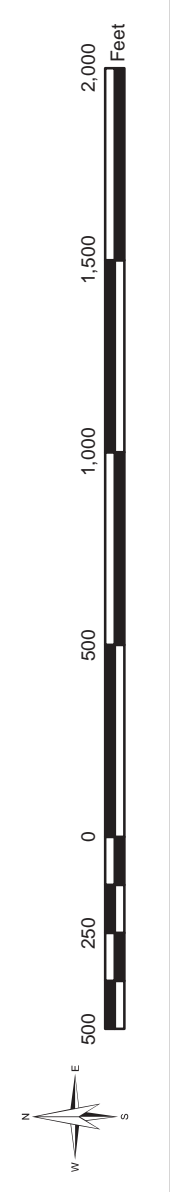






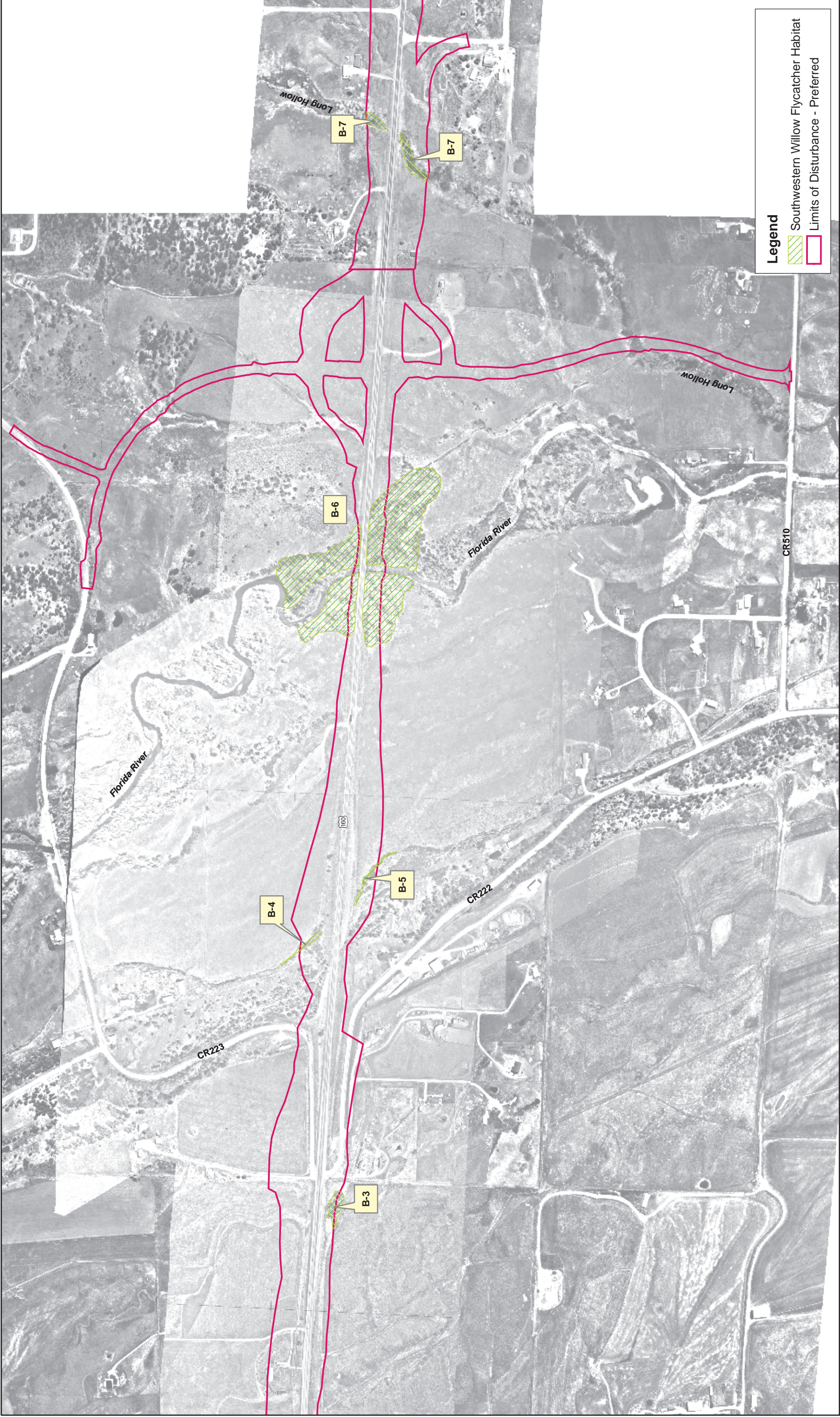
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-  Southwestern Willow Flycatcher Habitat
-  Limits of Disturbance - Preferred





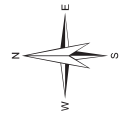
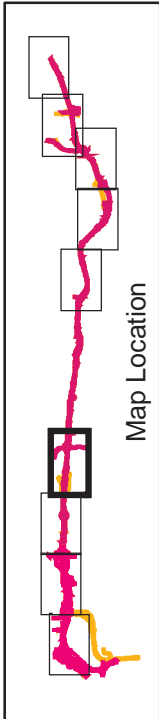
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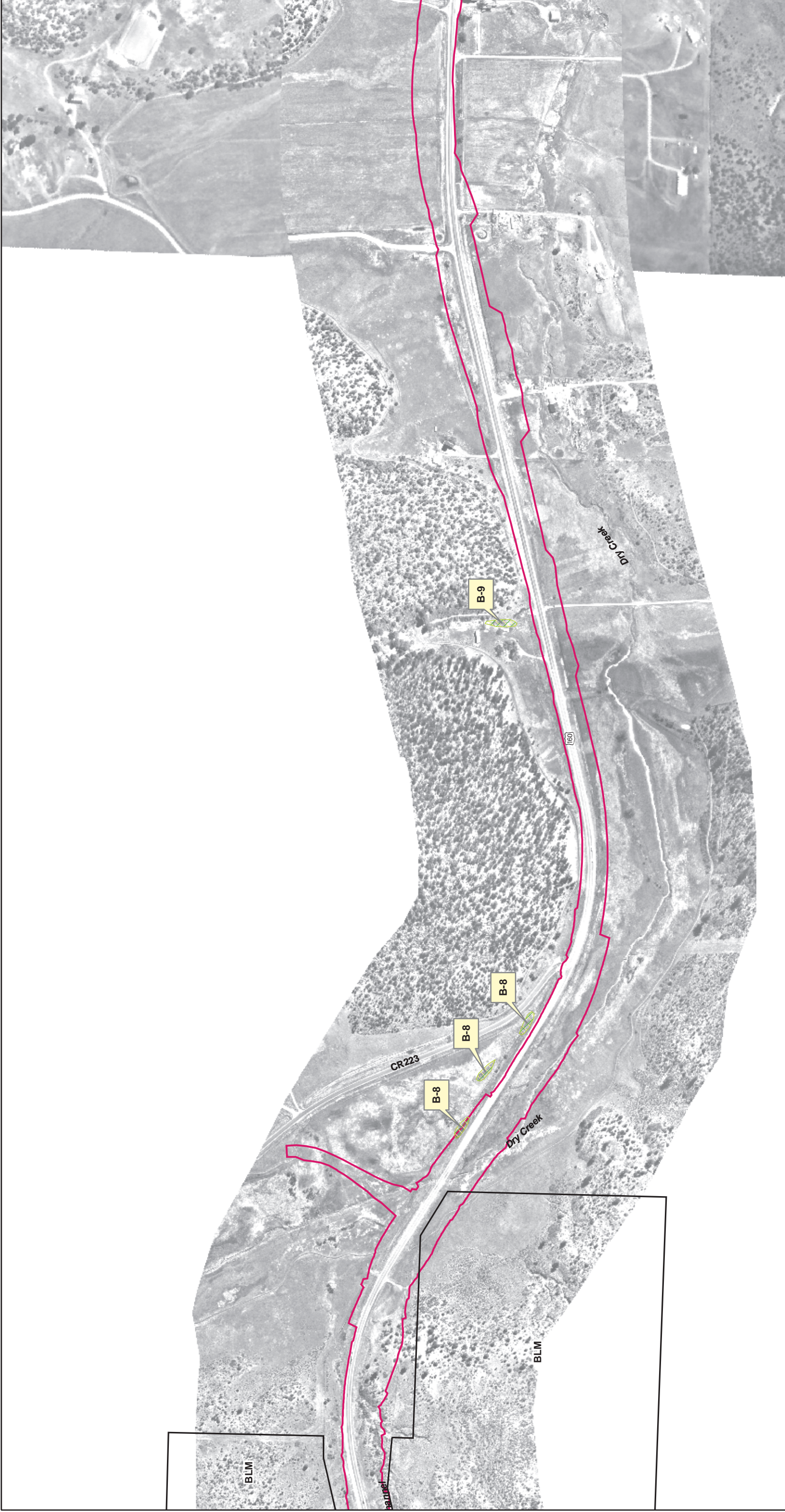


**Legend**



-  Southwestern Willow Flycatcher Habitat
-  Limits of Disturbance - Preferred

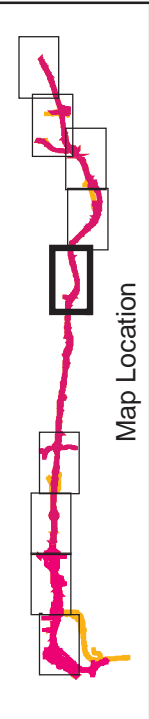
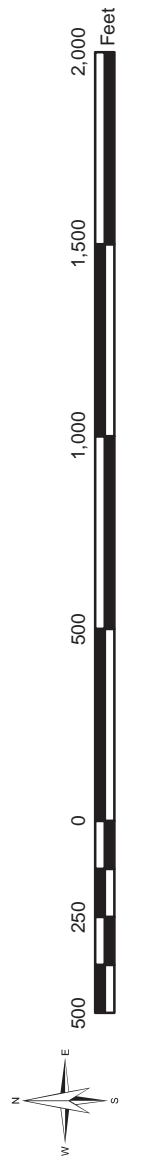




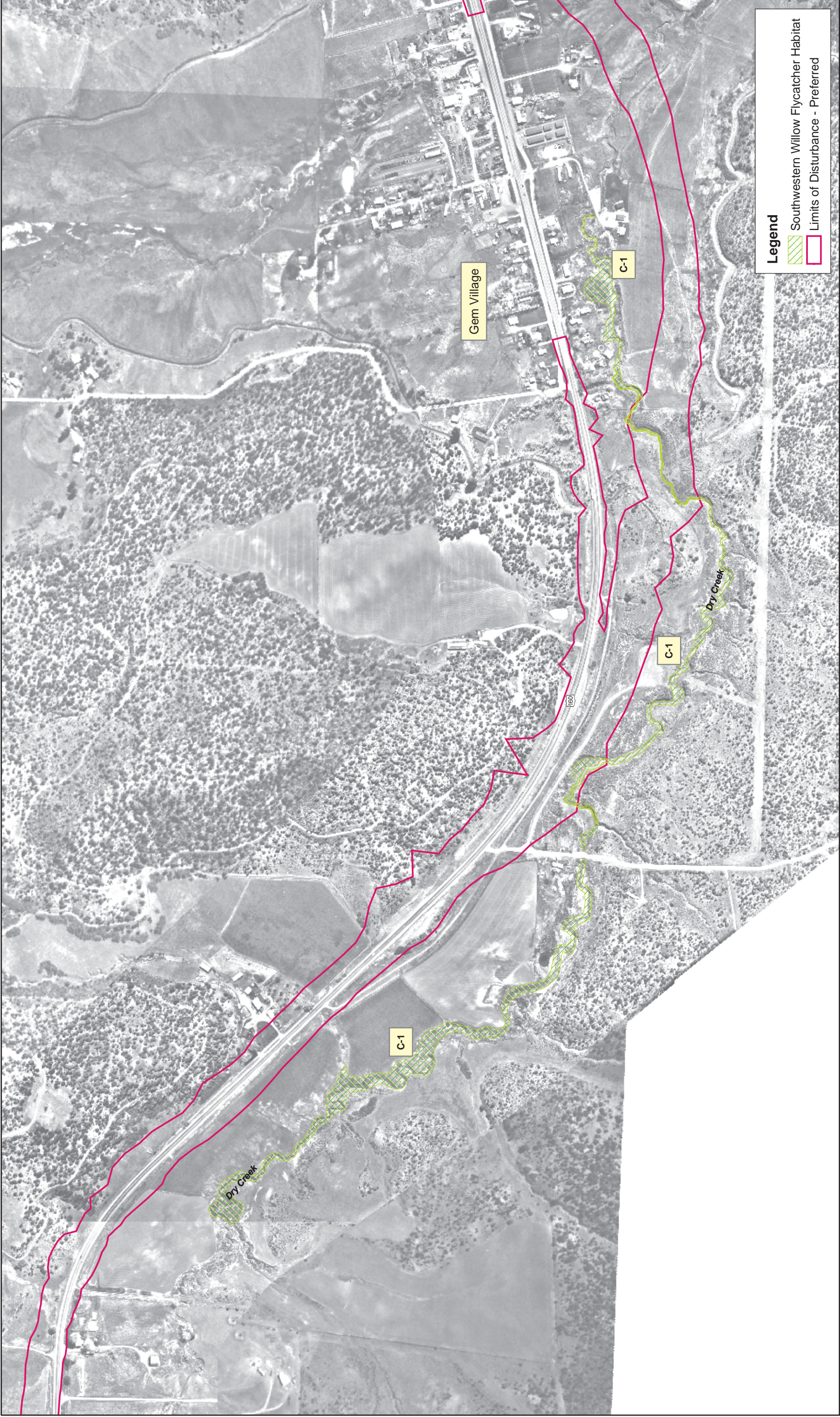


**Legend**

-  Southwestern Willow Flycatcher Habitat
-  BLM Land
-  Limits of Disturbance - Preferred

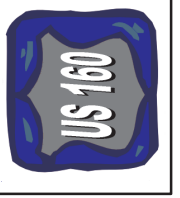
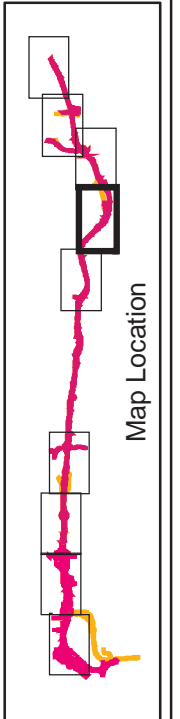
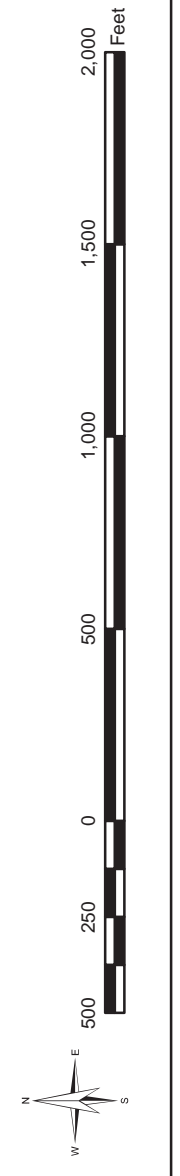




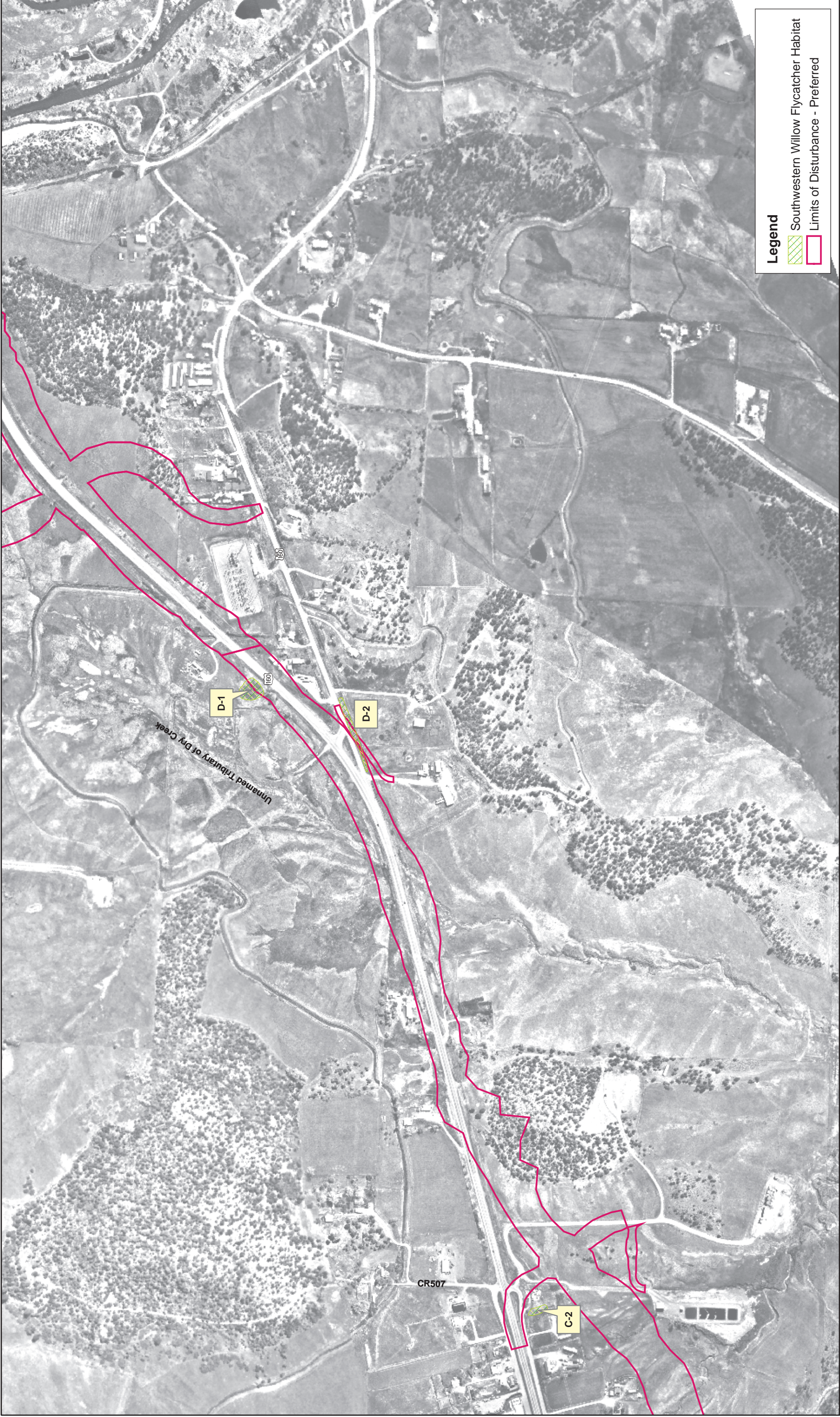


**Legend**

- Southwestern Willow Flycatcher Habitat
- Limits of Disturbance - Preferred

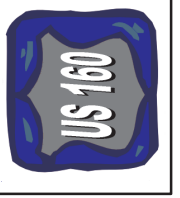
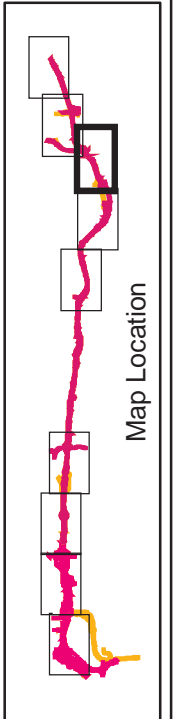
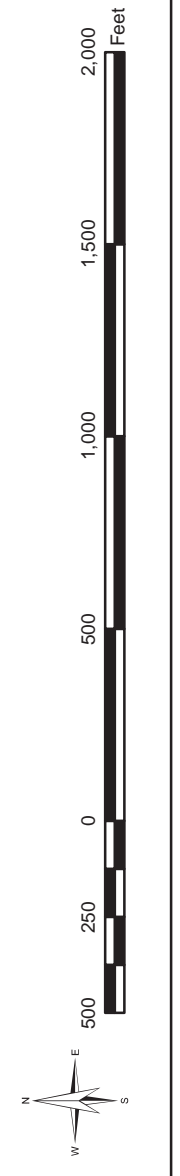




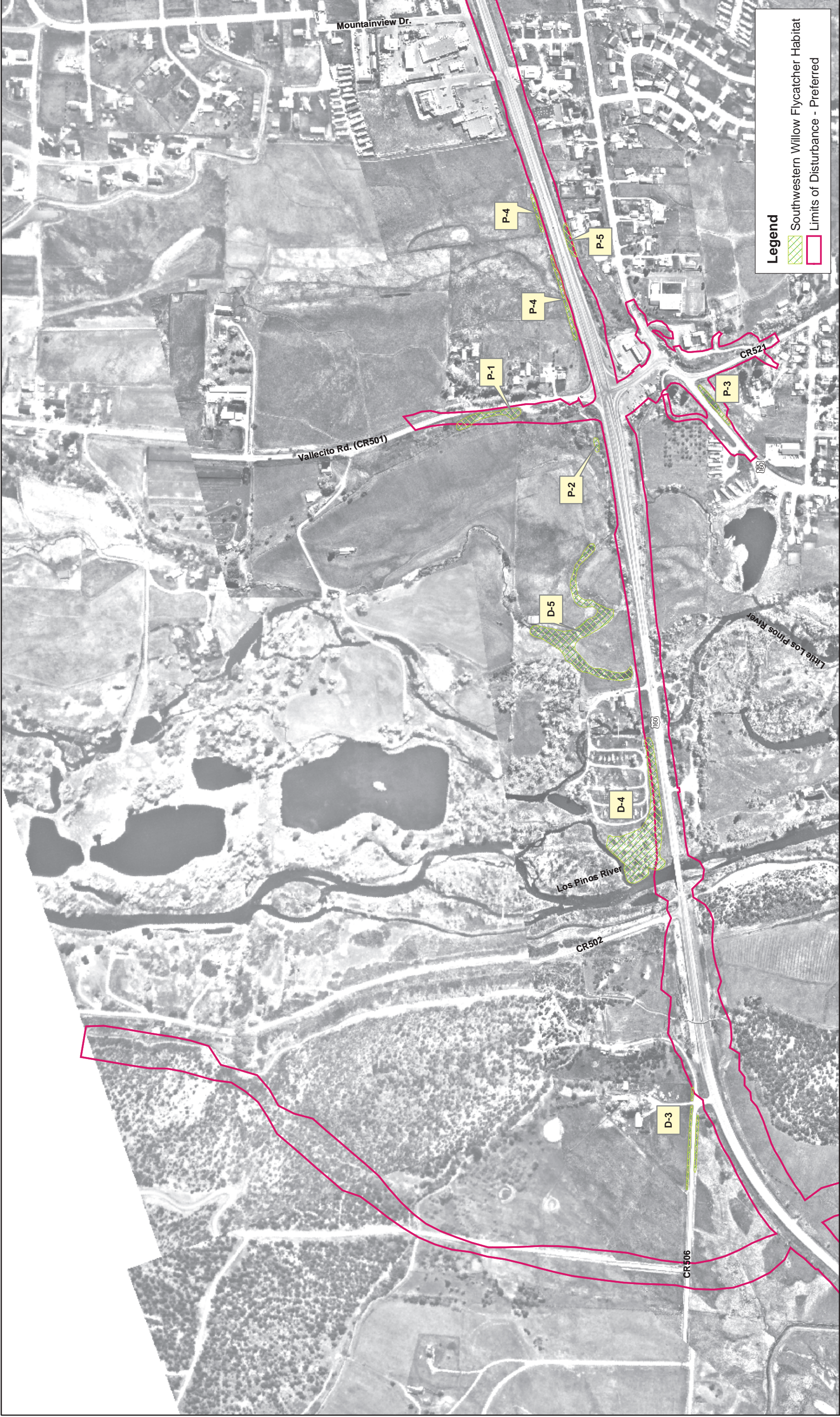


**Legend**

- Southwestern Willow Flycatcher Habitat
- Limits of Disturbance - Preferred

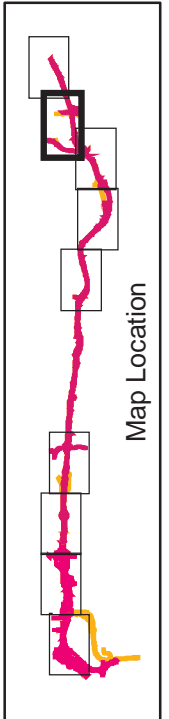
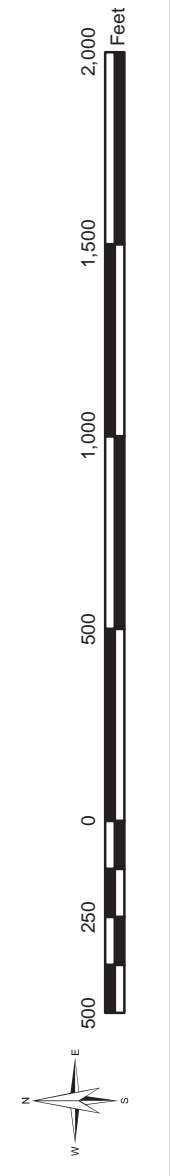




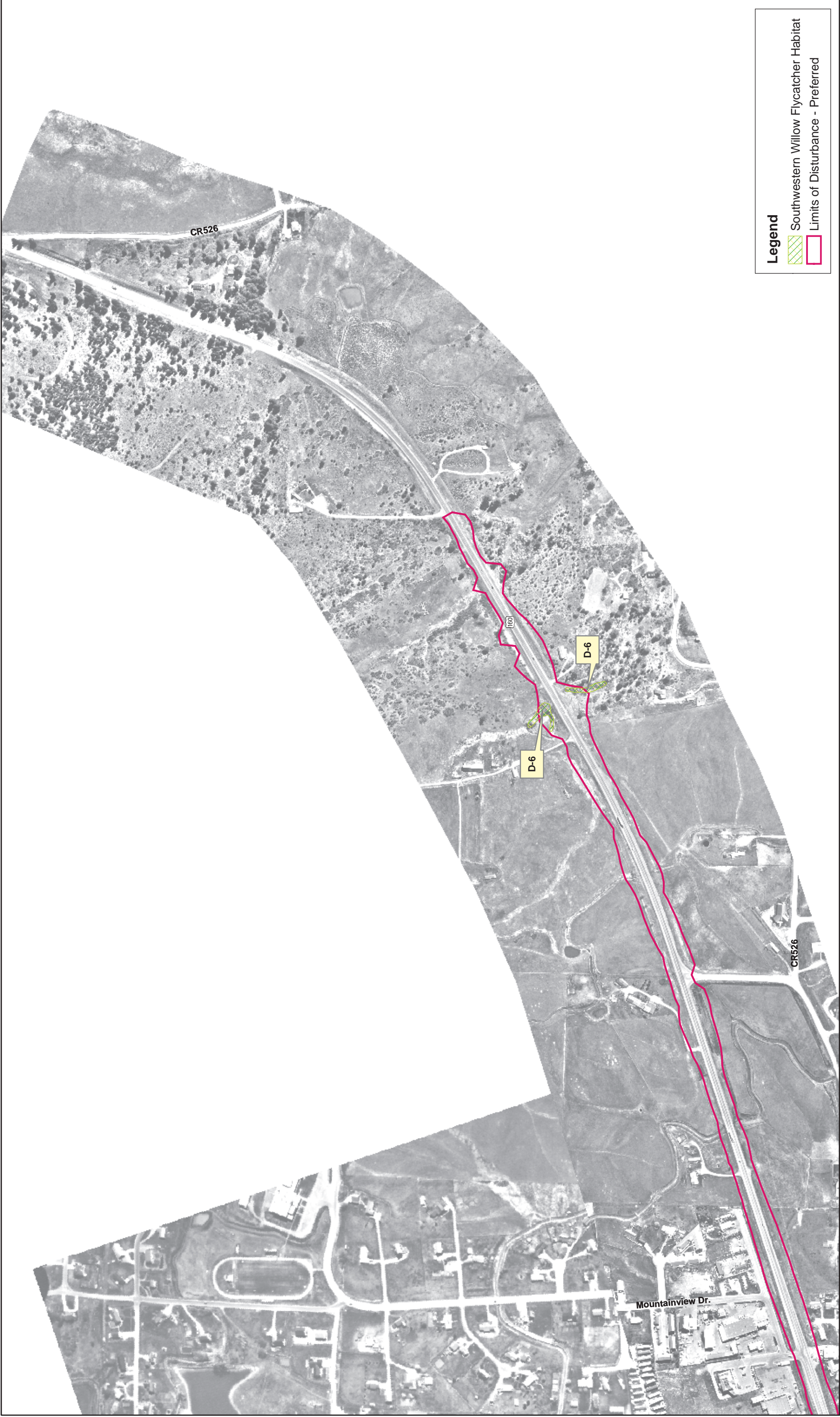


**Legend**



- Limits of Disturbance - Preferred
- Southwestern Willow Flycatcher Habitat

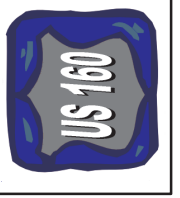
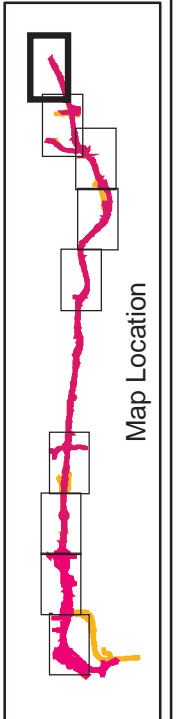
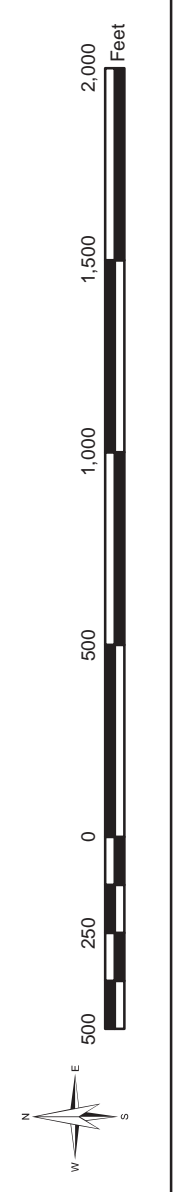






**Legend**

-  Southwestern Willow Flycatcher Habitat
-  Limits of Disturbance - Preferred





### 6.2.2 Cumulative Effects

Threats to the persistence of populations of Southwestern willow flycatchers throughout their range include high levels of nest predation, cowbird parasitism, and possibly drought. Furthermore, substantial habitat losses as a result of fire, loss, modifications, and fragmentation of riparian habitat due to water development, agricultural clearing, and construction of roads and bridges have impacted Southwestern willow flycatcher populations (Finch and Stoleson 2000).

Past, present, and future cumulative impacts to the Southwestern willow flycatcher include the following:

- Population depressions or local extinctions of small populations due to habitat fragmentation and loss
- Habitat loss from water management activities, which may change vegetative communities
- Habitat loss from land use practices including bank stabilization, agricultural development, livestock grazing, and urban development
- Detrimental changes to habitat from increased fire and invasive plant species such as Saltcedar (*Tamarix* sp.)
- Direct effects from cowbird nest parasitism, predation, and environmental toxins (Finch and Stoleson 2000)
- Collisions with vehicles in areas where bridges or overpasses bisect occupied habitat

The principal activity that has and may result in cumulative effects on the Southwestern willow flycatcher is community expansion, including growth in the residential population and related development of commercial operations and roads. Such developments may result in habitat loss and increased fragmentation of riparian habitat. Most riparian habitat is likely to remain intact, and there may be compensating increases in habitat where agricultural lands are abandoned and are invaded by willows.

The increased number of rural residences is likely to lead to an increase in predation on songbirds from larger numbers of house cats. Other nest predators such as raccoons, magpies, crows, grackles, and rats may also increase due to urbanization. The potential for nest parasitism by brown-headed cowbirds will increase if there is an increase in cowbird populations. Factors that might lead to increased cowbirds are favorable changes in habitat such as increases in lawns, other areas of short grass, and in food supply from sources such as bird feeders and horse corrals.

The only known occurrence of the Southwestern willow flycatcher in the project area is in the Bayfield section, which is also a focal area for current and future residential and commercial development. More than 1,500 new residences are expected in Bayfield and north along CR 501 by the year 2020, resulting in three times as many residences as are currently present. In addition to loss of habitat, increased urbanization in the surrounding area may decrease the suitability of the riparian habitat in this area and increase the potential for nest parasitism and predation of Southwestern willow flycatcher. Construction of a proposed 14-foot-wide multiple use trail in Bayfield will result in the permanent loss of a portion of 0.02 acre of P-4. This will result in the removal of one potential Southwestern willow flycatcher territory; however, the majority of the patch will not be directly impacted by construction (Sugnet 2001).

### **6.3 COLORADO PIKEMINNOW AND RAZORBACK SUCKER**

The primary threats to Colorado pikeminnow populations are streamflow regulation and habitat modification (including cold-water dam releases, habitat loss, and blockage of migration corridors); competition with and predation by nonnative fish species; and pesticides (USFWS 2002b).

Construction of the Preferred Alternative would affect, and is likely to adversely affect Colorado pikeminnow and razorback sucker populations occurring in downstream reaches of the San Juan River sub-basin. Construction of the Preferred Alternative would utilize approximately 44.42 acre-feet of water annually from the San Juan River Basin for fill compaction, dust suppression, and post-construction landscape establishment. Although any depletion would have some detrimental affect to the Colorado pikeminnow and razorback sucker inhabiting waters downstream in the San Juan River Basin, the 44.42 acre-feet depletion associated with this project fits within the depletion limits established by a 1999 Biological Opinion issued by USFWS. On May 21, 1999, USFWS issued a Biological Opinion determining that depletions of 100 acre-feet or less in the San Juan River Basin would not limit the provision of flows identified for the recovery of the Colorado pikeminnow and razorback sucker and, thus, not be likely to jeopardize the endangered fish species or result in the destruction or adverse modifications of their critical habitat. This Biological Opinion relies heavily on the RIP for Endangered Fish Species in the San Juan River Basin that was initiated in October 1992. The RIP was intended to provide mitigation and be the reasonable and prudent alternative to avoid jeopardy to the endangered fishes by depletion from the San Juan River. Provided that the RIP continues to be implemented and continues to provide the flows identified for recovery in a timely manner, construction of the Preferred Alternative would not be anticipated to jeopardize the Colorado Pikeminnow and razorback sucker or result in the destruction or adverse modifications of their critical habitat.

### **6.4 YELLOW-BILLED CUCKOO**

Construction of the Preferred Alternative may affect, but is unlikely to adversely affect, Yellow-billed cuckoos (a federal candidate species). Suitable habitat is restricted to cottonwood-willow riparian habitat greater than 37 acres in extent and 325 feet in width (Laymon and Halterman 1989). Suitable habitat occurs throughout the riparian woodlands of the Florida River and Los Pinos River, which run perpendicular to the project corridor. Direct impacts would occur to suitable habitat as road widening would remove approximately 2.1 acres of potential habitat within approximately 100 feet of the proposed ROW adjacent to the Florida River, and an additional 1.1 acres adjacent to the Los Pinos River. To ensure no direct impacts would occur to breeding individuals, two years of surveys for the presence or absence of Yellow-billed cuckoo will be conducted to determine presence or absence of the bird in the project corridor prior to construction. Additionally, the EIS currently requires 0.25 mile construction buffers around occupied habitat (May 1 to September 15).

The direct loss of approximately 3.2 total acres of habitat within the Florida and Los Pinos river drainages is not anticipated to reduce the overall size or distribution of Yellow-billed cuckoo populations due to the extent of suitable habitat that exists throughout the Florida and Los Pinos river valleys. Construction activities and related disturbances occurring adjacent to suitable habitat during the Yellow-billed cuckoo's breeding season may indirectly impact breeding

activities and nesting success in these areas, but this impact should be avoided by the implementation of preconstruction presence/absence surveys and construction buffers.

Potential cumulative impacts to Yellow-billed cuckoo nesting areas include water projects that alter riparian habitats, agricultural activities, pesticides and other contaminants, livestock grazing, and off-road vehicle use.

## **6.5 KNOWLTON CACTUS**

The project may affect, but is not likely to adversely affect Knowlton cactus (federally listed as endangered). No populations are known to occur in the US 160 study area, and none were observed during field surveys; however, suitable habitat for Knowlton cactus exists in the study area. Since some construction activities are unlikely to begin for several growing seasons, there is a possibility that construction activities may affect Knowlton cactus in future years should individuals become established in the project area. The EIS currently requires annual preconstruction surveys and avoidance of any Knowlton cactus encountered.



## 7.1 DETERMINATIONS

The proposed US 160 highway improvement project may affect, but is not likely to adversely affect bald eagles, Yellow-billed cuckoos, and Knowlton cactus. Southwestern willow flycatcher, Colorado pikeminnow, and razorback sucker are likely to be adversely affected by the proposed expansion and realignment of US 160 due to direct, indirect, and cumulative effects as a result of the construction of the proposed project. The other six species assessed in this report (Table 1) are not expected to be affected as a result of the US 160 expansion project.

## 7.2 CONSERVATION MEASURES

Standard construction practices that would be implemented to minimize biological impacts before or during construction activities are listed below.

### 7.2.1 Bald Eagle

Raptor nest surveys will be conducted within 0.5 mile of construction activities prior to starting construction of specific highway segments. If an active or inactive bald eagle nest is identified, a 0.5-mile seasonal construction buffer (November 15 to July 31) will be required around the nest, and restrictions on construction activities in the area will be implemented. No human encroachment will occur within a 0.5-mile radius of the nest during the nesting season (November 15 to July 31).

Nocturnal roost surveys will be conducted on specific highway segments prior to starting construction activities between November 15 and March 15. Construction activity will be restricted within a 0.25-mile buffer of active nocturnal roost sites between November 15 and March 15.

Bald eagle perch and roost trees removed during construction will be replaced at a 2:1 ratio with an appropriate tree species such as cottonwood (*Populus* sp.).

### 7.2.2 Southwestern Willow Flycatcher

Pre-construction surveys will be required to determine presence or absence of Southwestern willow flycatchers if suitable willow habitat (30 feet in width and length, and 6 feet in height) will be directly affected by construction activities, or when construction activities will occur within 0.25 mile of suitable willow habitat. Since the duration of construction is estimated at or beyond 15 years, surveys will be required annually to determine the presence or absence of Southwestern willow flycatchers prior to construction of each particular segment of roadway. Surveys will be conducted during the Southwestern willow flycatcher breeding season (May 1 to August 15) following protocol outlined in Sogge (2000).

Direct impacts to occupied Southwestern willow flycatcher habitat will be avoided. Seasonal construction buffers (May 1 to August 15) will be required within 0.25 mile of active nest areas and within 0.25 mile of occupied habitat (Powell 2003). During and after construction, CDOT will delineate sensitive habitats to avoid direct impacts from maintenance activities.

Construction activities that begin prior to May 1 in documented unoccupied habitat will not adversely affect Southwestern willow flycatcher nesting location choice. To minimize potential

impacts to breeding birds, removal of documented unoccupied suitable nesting habitat located within proposed disturbance areas will occur outside of the breeding season (before May 1 and after August 15). Removal of documented unoccupied suitable nesting habitat will be replaced at a 2:1 ratio. The replaced habitat will be monitored annually for at least three years or until revegetation has been deemed successful by the U.S. Fish and Wildlife Service. To be successful, the following criteria must be met:

- 70% foliar cover
- 80% of plantings are established and growing without signs of stress
- Noxious weeds are less than 5% of foliar cover

Potential Southwestern willow flycatcher habitat in and adjacent to the project area will be avoided to the extent practicable and will be clearly marked on project maps and flagged in the field by CDOT prior to construction. The contractor and all subcontractors will be fully informed of the locations of these areas prior to construction activity.

### 7.2.3 Yellow-billed Cuckoo

Surveys will be conducted annually for two years prior to each phase of construction to confirm presence or absence of Yellow-billed cuckoos in potential habitats along the Los Pinos and Florida rivers. Surveys for Yellow-billed cuckoo will follow protocol outlined by Arizona Game and Fish (Corman and Magill 2000; Powell 2003).

If surveys determine that Yellow-billed cuckoos are present, seasonal restrictions will be implemented on construction activities to avoid removing nesting habitat or disturbing nesting Yellow-billed cuckoos (May 1 to September 15). Buffers will be required around active nest areas or within 0.25 mile of habitat (Powell 2003). CDOT will coordinate with USFWS and CDOW to determine an appropriate buffer distance from an active nest. Construction activities that begin in an area prior to May 1 will not adversely affect Yellow-billed cuckoo nesting location choice.

### 7.2.4 Knowlton Cactus

Annual field surveys will be conducted in suitable habitat for Knowlton cactus to document any individuals or populations and to avoid impacts to Knowlton cactus, if present. If documented individuals or populations cannot be avoided, consultation with USFWS will be reopened to address impacts to this species. If construction will not begin within one year of the previous survey for this species, then an additional survey is necessary prior to construction.

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### *Photo Credits*

- Bald eagle photo obtained from <http://community.webshots.com/album/13787407EzqrTYyzEk>.
- Southwestern willow flycatcher photo obtained from <http://www.usgs.nau.edu/swwf/wiffllook.html> by Bill Maynard.

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**Attachment A**  
**Letters of Correspondence from USFWS**



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
755 Parfet Street, Suite 361  
Lakewood, Colorado 80215-5599

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APR 04 2005  
PROGRAM INT.

IN REPLY REFER TO:  
ES/CO: T&E/Species List  
MS 65412 LK

MAR 30 2005

Kerrie Neet  
Colorado Department of Transportation  
3803 North Main Avenue, Suite 300  
Durango, Colorado 81301

Dear Ms. Neet:

Based on the authority conferred to the U.S. Fish and Wildlife Service (Service) by the Fish and Wildlife Act of 1956 (916 U.S.C. 742(a)-754); Fish and Wildlife Coordination Act (FWCA - 16 U.S.C. 661-667(e)); National Environmental Policy Act of 1969 (NEPA - 42 U.S.C. 4321-4347); Department of Transportation Act (49 U.S.C. 1653(f)), and; Endangered Species Act of 1973, as amended (ESA - 50 CFR §402.14), as well as multiple Executive Orders, policies and guidelines, and interrelated statutes to ensure the conservation and enhancement of fish and wildlife resources (e.g., Migratory Bird Treaty Act (MBTA - 16 U.S.C. 703), and Bald and Golden Eagle Protection Act (BGEPA - 16 U.S.C. 668)), the Service reviewed your March 24, 2005, request for an updated species list and other information regarding the effects of the **U.S. Highway 160 from Junction U.S. 160/U.S. 550, Durango east to Bayfield highway improvement project in La Plata County, Colorado**, on the Service's trust resources.

### Threatened and Endangered Species

Following is a list of Federal endangered, threatened, proposed and candidate species for La Plata County, which may be used as a basis for determining additional listed species potentially present in the project area. While other species could occur at or visit the project area, endangered or threatened species most likely to be affected include:

- Birds:        Bald eagle (*Haliaeetus leucocephalus*), Threatened  
              Mexican spotted owl (*Strix occidentalis lucida*), Threatened  
              Southwestern willow flycatcher (*Empidonax traillii extimus*), Endangered
- Mammals:    Black-footed ferret (*Mustela nigripes*), Endangered  
              Canada lynx (*Lynx canadensis*), Threatened
- Fishes:       \*Colorado pikeminnow (*Ptychocheilus lucius*), Endangered  
              \*Razorback sucker (*Xyrauchen texanus*), Endangered

Plants: : Knowlton's cactus (*Pediocactus knowltonii*), Endangered

Invertebrates: Uncompahgre fritillary butterfly (*Boloria acrocema*), Endangered

\* Water depletions in the Upper Colorado River and San Juan River Basins may affect the species and/or critical habitat in downstream reaches in other states.

The Service also is interested in the protection of species which are candidates for official listing as threatened or endangered (Federal Register, Vol. 61, No. 40, February 28, 1996). While these species presently have no legal protection under the Act, it is within the spirit of this Act to consider project impacts to potentially sensitive candidate species. It is the intention of the Service to protect these species before human-related activities adversely impact their habitat to a degree that they would need to be listed and, therefore, protected under the Act. Additionally, we wish to make you aware of the presence of Federal candidates should any be proposed or listed prior to the time that all Federal actions related to the project are completed. If any candidate species will be unavoidably impacted, appropriate mitigation should be proposed and discussed with this office.

Birds: Gunnison sage-grouse (*Centrocercus minimus*)  
Yellow-billed cuckoo (*Coccyzus americanus*)

#### Migratory Birds

Under the MBTA, construction activities in grassland, wetland, stream, and woodland habitats, and those that occur on bridges (e.g., which may affect swallow nests on bridge girders) that would otherwise result in the take of migratory birds, eggs, young, and/or active nests, should be avoided. Although the provisions of MBTA are applicable year-round, most migratory bird nesting activity in eastern Colorado occurs during the period of April 1 to August 15. However, some migratory birds are known to nest outside of the aforementioned primary nesting season period. For example, raptors can be expected to nest in woodland habitats during February 1 through July 15. If the proposed construction project is planned to occur during the primary nesting season or at any other time which may result in the take of nesting migratory birds, the Service recommends that the project proponent (or construction contractor) arrange to have a qualified biologist conduct a field survey of the affected habitats and structures to determine the absence or presence of nesting migratory birds. Surveys should be conducted during the nesting season. In some cases, such as on bridges or other similar structures, nesting can be prevented until construction is complete. It is further recommended that the results of field surveys for nesting birds, along with information regarding the qualifications of the biologist(s) performing the surveys, be thoroughly documented and that such documentation be maintained on file by the project proponent (and/or construction contractor) for potential review by the Service (if requested) until such time as construction on the proposed project has been completed. The Service's Colorado Field Office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests that cannot be avoided by the planned construction activities. Adherence to these guidelines will help avoid the unnecessary take of migratory birds and the possible need for law enforcement action.

Wetlands

FWCA provides the basic authority for the Service's involvement in evaluating impacts to fish and wildlife "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever...by any department or agency of the United States, or by any public or private agency under Federal permit or license," including water crossings and wetland impacts, whether or not those wetlands are under the jurisdiction of the U.S. Army Corps of Engineers [16 U.S.C. 661(1), emphasis added]. It requires that fish and wildlife resources "receive equal consideration...to other project features...through the effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation and rehabilitation," and requires Federal agencies to consult with the Service during the planning process to help "prevent the loss of or damage to such resources as well as providing for the development and improvement thereof" (16 U.S.C. 661 *et seq.*). Full consideration is to be given to Service recommendations.

We have been working with you as a consulting agency on this project regarding wetland impacts per the Section 404/NEPA merger agreement between CDOT, FHWA, and the Corps, and look forward to continuing to do so.

If the Service can be of further assistance, please contact Alison Deans Michael of my staff at 303 275-2378.

Sincerely,



Susan C. Linner  
Colorado Field Supervisor

pc: CDOT (Jeff Peterson)  
Michael

ref: Alison\H:\My Documents\CDOT 2005\Region 5\US160 DEIS\US160 EIS spplist.wpd



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
Colorado Field Office  
755 Parfet Street, Suite 361  
Lakewood, Colorado 80215

IN REPLY REFER TO:

ES/CO:T&E  
Mail Stop 65412

FEB - 7 2003

Jerry Powell  
Colorado Department of Transportation  
4201 East Arkansas Avenue, Empire Park B-400  
Denver, Colorado 80222

Dear Mr. Powell,

The U.S. Fish and Wildlife Service (Service) received a request January 22, 2003, from Kim Cornelisse at URS Corporation in Denver, regarding the proposed highway project on U.S. Highway 160 from junction U.S. 160/U.S. 550, Durango to Bayfield in La Plata County, Colorado. URS requested an updated list of Federal endangered and threatened species that may exist in the project area. Their previous list is from 1999. These comments have been prepared under the provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et. seq.).

Following is a list of Federal endangered, threatened, proposed and candidate species for La Plata County, which may be used as a basis for determining additional listed species potentially present in the project area. While other species could occur at or visit the project area, endangered or threatened species most likely to occur include:

- Birds:** Bald Eagle (*Haliaeetus leucocephalus*), Threatened  
Mexican Spotted Owl (*Strix occidentalis lucida*), Threatened  
Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Endangered
- Mammals:** Black-footed ferret (*Mustela nigripes*), Endangered  
Canada lynx (*Lynx canadensis*), Threatened
- Fish:** Colorado pikeminnow (*Ptychocheilus lucius*), Endangered (Please note that any water depletions to the San Juan River drainage may affect this species.)  
Razorback sucker (*Xyrauchen texanus*), Endangered (Please note that any water depletions to the San Juan River drainage may affect this species.)
- Invertebrates:** Uncompahgre fritillary butterfly (*Boloria acrocneuma*), Endangered
- Plants:** Knowlton's cactus (*Pediocactus knowltonii*), Endangered

The Service also is interested in the protection of species which are candidates for official listing as threatened or endangered (Federal Register, Vol. 61, No. 40, February 28, 1996). While these species presently have no legal protection under the ESA, it is within the spirit of this Act to consider project impacts to potentially sensitive candidate species. It is the intention of the Service to protect these species before human-related activities adversely impact their habitat to a degree that they would need to be listed and, therefore, protected under the ESA. Additionally, we wish to make you aware of the presence of Federal candidates should any be proposed or



Powell, Durango to Bayfield

Page 2

listed prior to the time that all Federal actions related to the project are completed. If any candidate species will be unavoidably impacted, appropriate mitigation should be proposed and discussed with this office.

While the Service has no specific knowledge of the presence of these species within the project area, the following may occur in or visit the project area.

Birds: Yellow-billed cuckoo (*Coccyzus americanus*)

Herpetofauna: Boreal toad (*Bufo boreas boreas*)

If the Service can be of further assistance, please contact Alison Deans Michael of this office at (303) 275-2370.

Sincerely,



LeRoy W. Carlson  
Colorado Field Supervisor

pc: Michael

Ref:Alison\CDOT2003\Reg5



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, Colorado 81506-3946



IN REPLY REFER TO:

ES/CO:CDOT  
MS 65412 GJ

December 17, 1999

William R. Killam, Project Manager  
URS Greiner Woodward Clyde  
Stanford Place 3  
4582 South Ulster Street  
Denver, Colorado 80237

Dear Mr. Killam:

The U.S. Fish and Wildlife Service has received your November 19, 1999, correspondence requesting a list of Federally threatened, endangered and candidate species. The purpose of the request is for project planning to prepare an Environmental Assessment for widening and reconstruction of State Highway 160, east of Durango Colorado to Bayfield Colorado. Species lists are valid for 90 days only and should be updated by telephone or in writing when they have expired. We are providing you with the following list of species which may be present in the concerned area.

### FEDERALLY LISTED SPECIES

Bald eagle	<i>Haliaeetus leucocephalus</i>
Mexican spotted owl	<i>Strix occidentalis lucida</i>
Southwestern willow flycatcher	<i>Empidonax trailii extimus</i>
Black-footed ferret	<i>Mustela nigripes</i>
Colorado pikeminnow	<i>Ptychocheilus lucius</i>
Razorback sucker	<i>Xyrauchen texanus</i>
Pediocactus knowltonii	Knowlton's cactus

Historically, the black-footed ferret occurred throughout Colorado. Literature and recent field studies document a close association between prairie dogs and black-footed ferrets. The standard that is used by the Service for determining possible project effects to black-footed ferrets is the disturbance of currently occupied prairie dog habitat. Should any of the activities associated with this project result in an impact to prairie dogs, black-footed ferret surveys may be necessary. As black-footed ferret surveys are considered valid for one year, prairie dog towns surveyed more than one year prior to construction may have to be resurveyed. Contact this office prior to scheduling any ferret searches.

We would like to bring to your attention species which are candidates for official listing as threatened or endangered species (Federal Register, Vol. 62, No. 182, September 19, 1997). While these species presently have no legal protection under the Endangered Species Act, it is within the spirit of the Act to consider project impacts to potentially sensitive candidate species. Additionally, we wish to make you aware of the presence of Federal candidates should any be proposed or listed prior to the time that all Federal actions related to the project are completed.

**PROPOSED TO BE LISTED**

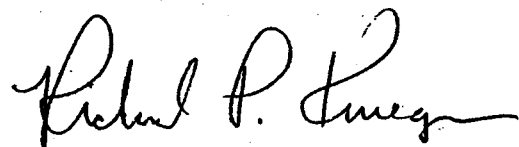
Canada lynx

*Felis lynx canadensis*

On July 8, 1998, the Service published a proposed rule to list the Canada Lynx population in the contiguous United States as a distinct population segment with a status of threatened throughout its range. A listing decision is pending and will be published in January 2000. We are concerned about actions that may adversely or positively affect this species. It is the responsibility of the lead Federal agency to make a determination on projects that could affect species that are Federally listed or proposed to be listed.

If the Service can be of further assistance, please contact Kurt Broderdorp at the letterhead address or (970) 243-2778.

Sincerely,



Richard P. Krueger  
Acting Assistant Colorado Field Supervisor

cc: FWS/ES, Lakewood  
CDOW, Grand Junction  
CDOW, Durango



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, Colorado 81506-3946



IN REPLY REFER TO:

ES/CO: FHWA/CDOT  
MS 65412 GJ

April 9, 1999

Sean Moore  
Sugnet and Associates  
1060 Main Avenue, #20  
Durango, Colorado 81301

Dear Mr. Moore:

This letter was written to record the Fish and Wildlife Service's recommendations for the Highway 160 widening near Bayfield, Colorado. A southwestern willow flycatcher (*Empidonax traillii extimus*) was seen near the proposed road construction site during the second and third survey periods confirming the bird as a resident willow flycatcher. The birds inhabited the area with the existing road but the Service recommends that widening of the road does not occur any closer to the flycatcher's habitat. Additionally, the Service recommends that surveys be conducted again, prior to construction which may be performed in a couple of years, to determine if construction timing restrictions need to be followed.

If the Service can be of further assistance, please contact Terry Ireland at the letterhead address or (970) 243-2778.

Sincerely,

Susan T. Moyer  
Assistant Colorado Field Supervisor

pc: FWS/ES, Lakewood  
CDOW, Durango

**Biological Evaluation**

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## List of Acronyms

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BA	Biological Assessment
BCR	bird conservation regions
BE	Biological Evaluation
BLM	Bureau of Land Management
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CR	County Road
EO	Executive Order
FHWA	Federal Highway Administration
MBTA	Migratory Bird Treaty Act
MP	milepost
ROW	right-of-way
SH	State Highway
URS	URS Corporation
US	United States
US 160	United States Highway 160
USFWS	U.S. Fish and Wildlife Service



## List of Acronyms

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## 1.1 PROJECT

This Biological Evaluation (BE) was prepared for US Highway 160 (US 160) from Durango to Bayfield (Colorado Division of Transportation [CDOT] proposed improvements).

## 1.2 LOCATION

The proposed project is located in La Plata County, Colorado. The project length on US 160 is 16.2 miles, extending from milepost (MP) 88.0, located east of Durango, to MP 104.2, located just east of Bayfield. The current alignment of US 160 bisects two parcels of land managed by the Bureau of Land Management (BLM). Highway improvements would require additional land from these parcels (see Figure 1, BLM Parcels).

The project would also involve 1.2 miles on US 550, extending from MP 16.6, located at the US 160/US 550 (south) intersection, to MP 15.4, located south of the US 550/ County Road (CR) 220 intersection. There are no BLM parcels that would be impacted by the project along US 550.

## 1.3 BACKGROUND

CDOT and its federal partner, the Federal Highway Administration (FHWA), are proposing to improve sections of US 160 between Durango and Bayfield. On US 160, the proposed project would extend the existing four-lane highway from Grandview east to Bayfield where it would transition to a two-lane highway. In Gem Village, from MP 100 to MP 101, US 160 would be realigned to the south. From the west project limit to the proposed US 160/US 550 (south) intersection, a westbound auxiliary lane and an eastbound climbing lane would be required. In addition, the project would realign approximately 1.2 miles of US 550 south of US 160. The realigned portion of US 550 would be improved to a four-lane highway.

The proposed project would include reconstruction of the US 160/US 550 (south) intersection as an interchange. Grade separation of this intersection would provide the best option to address the reconnection of US 160 and US 550 due to terrain and traffic volume. The proposed project would also include reconstruction of the US 160 intersections with CR 233 (west) and State Highway (SH) 172/CR 234 as interchanges. The US 160 intersections with CR 233 (east), CR 232 (west), and CR 232 (east) would be eliminated, with CR 233 passing beneath US 160. The CR 222/CR 223 (west) intersection with US 160 would be signalized. Improvements would be made to the existing US 160/CR 501 intersection. Numerous direct access points to US 160 for businesses, neighborhoods, and facilities would be consolidated or improved to provide access control.

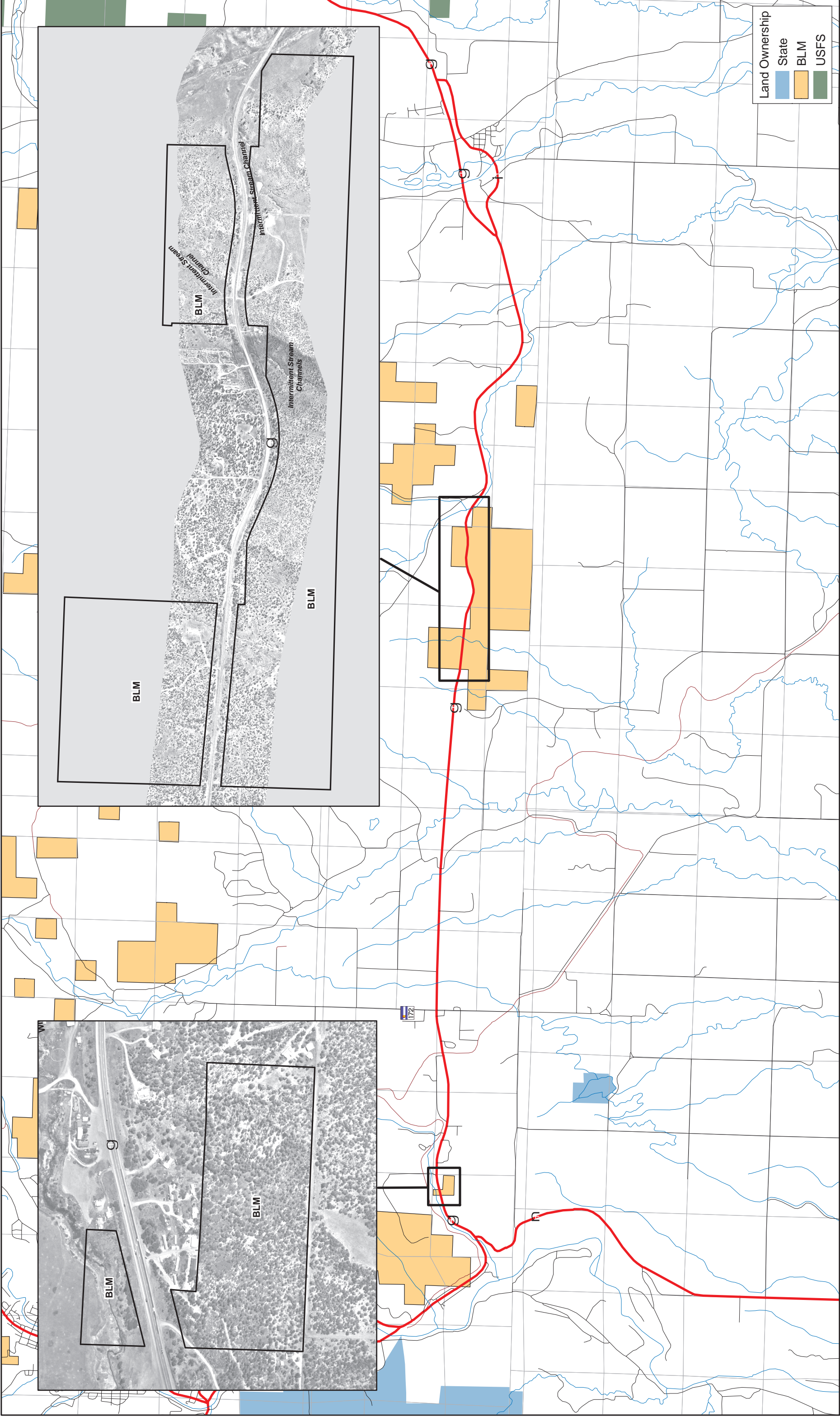
## 1.4 PROPOSED ACTION

The BLM proposed action is the approval of request for additional road right-of-way (ROW) to expand the travel surface and shoulder of US 160 on BLM-administered federal lands in several locations: T34N R9W, Section 10, NENE (approximately 1,200 linear feet ranging from 0 to 300 feet in width), T34N R8W, portions of Sections 10, 11, and 12 (approximately 400 linear

feet ranging from 0 to 150 feet in width), and T34N R7W, Section 7, SESE (approximately 500 linear feet ranging from 0 to 100 feet in width).

This request would permit the applicant to construct an improved roadway along with any necessary clearing of roadside vegetation within the road prism. Some non-merchantable trees, generally pinon pine and piñon-juniper, will be cleared along the roadside to maintain a road prism clear of obstructions and improve site distances.

This project is proposed for construction as soon as funding allows, but may be delayed for a number of years. Once complete, maintenance of the road may occur at any time of the year.



**2.1 SURVEY RESULTS**

Table 1 presents the fish and wildlife survey results.

**Table 1. Survey Results**

Applicable	Survey Results
X	A field survey was completed by Sugnet Associates, consulting biologists, during spring-summer 1998, and by Jeff Dawson, URS Corporation (URS) consulting biologist, on July 17 and 18, 1999.
	No field survey is required.
	A field survey is needed, but cannot be completed by required date due to: <ul style="list-style-type: none"> <li>• Inappropriate season</li> <li>• Inadequate lead time</li> <li>• Higher priorities</li> </ul>

A review of records and biological files was conducted February 6, 2006, by Jon Holst, CDOT Wildlife Biologist.

**2.2 BLM SENSITIVE SPECIES**

**2.2.1 Species Evaluated**

Table 2 presents species and habitat information for the San Juan Resource Area, based on Information Bulletin No. CO-2000-14 (April 2000).

**Table 2. Colorado BLM San Juan Field Office Sensitive Fish and Wildlife Species**

Species	Habitat Present in Project Area?	Species Impacted?
Allens big-eared bat	Yes – foraging habitat only. US 160 is adjacent to piñon-juniper woodland habitat, the species is not known to occur in La Plata County (NDIS 2006), but could be present based on habitat affinities.	No. Project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.
American peregrine falcon	Yes – foraging habitat only. No suitable cliffs near riparian zones in project area.	No. Project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.
Big free-tailed bat	Yes – foraging habitat only. US 160 is adjacent to piñon-juniper woodlands. No known breeding populations in Colorado, and no known records from La Plata County. Could be present based on habitat affinities.	No. This species has not been documented in the project area. Project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.

**Table 2. Colorado BLM San Juan Field Office  
Sensitive Fish and Wildlife Species**

Species	Habitat Present in Project Area?	Species Impacted?
Black tern	No, no reservoirs, lakes, or open water in project area.	No, habitat not present in the project area.
Bluehead sucker	No, no suitable watercourses in project area.	No, habitat not present in the project area.
Colorado River cutthroat trout	No, no suitable watercourses in project area.	No, habitat not present in the project area.
Desert spiny lizard	No, project area is too high in elevation (6,500 – 7,000 feet).	No, habitat not present in the project area.
Ferruginous hawk	Yes, but the Colorado Breeding Bird Atlas (Kingery 1998) shows no records for this species in La Plata County. According to the Colorado Division of Wildlife (CDOW) the species is known to exist in La Plata County (NDIS 2006).	No, this species has not been documented in project area and the proposed project would cause only minor loss to potential foraging habitat.
Flannelmouth sucker	No, no suitable larger streams or rivers in project area.	No, habitat not present in the project area.
Fringed myotis	Yes – foraging habitat only. Highway is adjacent to piñon-juniper woodland habitat and oakbrush shrubland. Fringed myotis is known to occur in La Plata County (NDIS 2006).	No, project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.
Gunnison sage grouse	No, no suitable sagebrush shrublands in area impacted by project.	No, habitat not present in the project area.
Long-nosed leopard lizard	No, no greasewood/sagebrush canyon habitat in project area. Not known to occur in La Plata County.	No, habitat not present in the project area.
Northern goshawk	No, no suitable coniferous forest habitat in project area.	No, habitat not present in the project area.
Roundtail chub	No, no suitable watercourse in project area.	No, habitat not present in the project area.
Spotted bat	Yes – foraging habitat only. Highway is adjacent to piñon-juniper woodlands. No known records from La Plata County (NDIS 2006).	No. This species has not been documented in the project area. Project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.
Townsend's big-eared bat	Yes – foraging habitat only. US 160 is adjacent to piñon-juniper woodland. Townsend's big-eared bat is known to occur in La Plata County (NDIS 2006).	No, project would cause minor loss of potential foraging habitat, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.
White-faced ibis	No, no wet meadows or reservoir shorelines in project area.	No, habitat not present in the project area.
Yellow-billed cuckoo	Yes – see Biological Assessment (BA).	Yes – see BA.



**Table 2. Colorado BLM San Juan Field Office  
Sensitive Fish and Wildlife Species**

Species	Habitat Present in Project Area?	Species Impacted?
Yuma myotis	Yes – this species is associated with riparian habitats, and may roost under bridges and in swallow nests. Roadway improvements will require bridge replacement and affect Wilson gulch which provides suitable foraging habitat. Yuma myotis is known to occur in La Plata County (NDIS 2006).	No, project proponent will survey potential roost sites prior to construction and has committed to developing a mitigation strategy if roosting Yuma myotis are found (US 160 Draft Environmental Impact Statement [DEIS], Section 4.12, Threatened, Endangered, and Sensitive Species). The project would cause minor loss of potential foraging habitat for Yuma myotis, but is not expected to affect populations of this species due to the extent of suitable foraging habitat in the area.

BLM sensitive species with habitat in the project area are discussed in the sections below.

### 2.2.2 Bats Associated with Piñon-Juniper Woodlands

Five sensitive species of bats have a general habitat affinity for piñon-juniper woodlands and/or oakbrush shrublands. These species include: Allens big-eared bat (*Idionycteris phyllotis*), Big free-tailed bat (*Nyctinomops macrotis*), Fringed myotis (*Myotis thysanodes*), Spotted bat (*Euderma maculatum*), and Townsend’s big-eared bat (*Plecotus townsendii*).

These species emerge from roost sites after dark to forage on a variety of insects. The Spotted bat is unique among the species listed in that it shows a preference for rocky cliff crevices and cracks for day roosting. The remainder of these species typically roost in caves, mines, or buildings during the day.

The project would potentially affect only foraging habitat for these species, as no cliffs, caves, mines, or buildings suitable for roosting or hibernating would be impacted by the proposed project. Only Fringed myotis and Townsend’s big-eared bat are known to occur in La Plata County.

#### *Direct and Indirect Effects*

The proposed project will not remove nor alter existing roosting habitat for these species. Foraging habitat for these species would be affected. Approximately 6.11 acres of piñon-juniper woodlands would be removed from BLM-administered lands for construction of the proposed roadway improvements. In total, 140.5 acres of piñon-juniper woodlands would be impacted by the proposed project. A direct loss of foraging habitat of this magnitude is not anticipated to affect the viability of populations of these species due to the extent of piñon-juniper woodlands suitable for foraging nearby.

The use of heavy earth-moving equipment and other nighttime construction activities may temporarily displace bat species from using the project area for foraging. Due to the level of existing roadway activities along US 160, additional temporary displacement of foraging activities from construction activities should be minimal. Habitat similar to that occurring in and

immediately adjacent to the proposed project area may serve as an alternate foraging area if necessary.

### *Interrelated/Interdependent Effects*

The private lands along the US 160 corridor are currently undergoing rapid residential and light industrial development, and the anticipated land development trend with or without the proposed highway improvements is additional urbanization and loss of suitable wildlife habitats in this area, including habitats for the bat species discussed. The potential for additional habitat disturbance and habitat loss attributed to the granting of the ROW and proposed highway expansion is not measurable due to the rapid growth trend in the area. There may be a slight positive effect immediately adjacent to the proposed highway improvements due to CDOT creating controlled and limited access points to the improved highway. Thus, there should be a reduction over the long-term in the number of access points to US 160 and the associated disturbance of suitable habitat.

### *Cumulative Effects*

There are no measurable direct or indirect effects of the proposed project to these species. Therefore, there are no measurable cumulative effects attributable to the project.

### *Effects Determination*

The proposed project will not remove or impact potential roosting habitat for the bat species associated with piñon-juniper woodlands, and is not anticipated to cause a direct loss of individuals. Given the availability of suitable foraging habitat in the area, the loss of 6.11 acres of foraging habitat on BLM-administered lands (140.5 acres total), would not cause a measurable change in the viability of their populations. Consequently, the proposal will have “no impact” to Allens big-eared bat (*Idionycteris phyllotis*), Big free-tailed bat (*Nyctinomops macrotis*), Fringed myotis (*Myotis thysanodes*), Spotted bat (*Euderma maculatum*), and Townsend’s big-eared bat (*Plecotus townsendii*).

### **2.2.3 Yuma Myotis (*Myotis yumanensis*)**

Yuma myotis is associated with riparian habitats in the western United States (US). This species roosts in rock crevices, buildings, caves, mines, in swallow’s nests, and under ledges. Nursery colonies are usually in buildings or caves. Yuma myotis is known to occur in La Plata County, but has not been documented in the project area.

### *Direct and Indirect Effects*

The proposed project could potentially affect roosting habitat as several bridges would be replaced. However, the project proponent (CDOT) will survey potential roost sites prior to construction, and has committed to developing a mitigation strategy if roosting Yuma myotis are found (US 160 DEIS, Section 4.12, Threatened, Endangered, and Sensitive Species). Foraging habitat for this species would be affected to a limited degree, as approximately 1.27 acres of riparian vegetation would be removed on BLM-administered lands for construction of the



proposed roadway improvements. In total, 9.1 acres of riparian woodland would be affected for the entire project. A direct loss of foraging habitat of this magnitude is not anticipated to affect the viability of populations of Yuma myotis due to the extent of suitable foraging habitat nearby.

The use of heavy earth-moving equipment and other nighttime construction activities may temporarily displace Yuma myotis from using the project area for foraging. Due to the level of existing roadway activities along US 160, additional temporary displacement of foraging activities from construction activities should be minimal. Riparian woodland habitat similar to that occurring in and immediately adjacent to the proposed project area may serve as an alternate foraging area if necessary.

### *Interrelated/Interdependent Effects*

The private lands along the highway US 160 corridor are currently undergoing rapid residential and light industrial development, and the anticipated land development trend with or without the proposed highway improvements is additional urbanization and loss of suitable wildlife habitats in this area, including habitats for Yuma myotis. The potential for additional habitat disturbance and habitat loss attributed to the granting of the ROW and proposed highway expansion is not measurable due to the rapid growth trend in the area. There may be a slight positive effect immediately adjacent to the proposed highway improvements due to CDOT creating controlled and limited access points to the improved highway. Thus, there should be a reduction over the long term in the number of access points to US 160 and the habitat disturbance associated with those accesses.

### *Cumulative Effects*

There are no measurable direct or indirect effects of the proposed project to this species. Therefore, there are no measurable cumulative effects attributable to the project.

### *Effects Determination*

The proposed project will not remove or impact known roosting habitat for Yuma myotis, and is not anticipated to cause a direct loss of individuals. Potential roosting habitat will be surveyed prior to construction and measures taken to mitigate impacts to any Yuma myotis discovered roosting in the project area. Given the availability of suitable foraging habitat in the area, the loss of 1.27 acres of riparian foraging habitat on BLM-administered lands for this species (9.1 acres total) will not cause a measurable change in the viability of its population. Consequently, the proposal will have “no impact” to Yuma myotis (*Myotis yumanensis*).

## **2.2.4 Ferruginous Hawk (*Buteo regalis*)**

Ferruginous hawks inhabit grasslands and semi-desert shrublands, and occasionally piñon-juniper woodlands. This species nests in isolated tress, on rock outcrops, on man-made structures, such as windmills and powerpoles, or on the ground. Nests are usually located adjacent to open grasslands in areas that provide a panoramic view. Hunting areas for this species includes open grasslands. Small mammals, including prairie dogs and rabbits, comprise 90 percent of their diet.

*The Colorado Breeding Bird Atlas* (Kingery 1998) shows no records for this species in La Plata County. According to the CDOW (NDIS 2006) the species is known to exist in La Plata County.

### *Direct and Indirect Effects*

No known or likely suitable nest sites for Ferruginous hawk are located in the project area. Suitable hunting habitat occurs in more open areas of sage and grasslands. These areas are limited and dispersed throughout the project area. Approximately 2.5 acres of sagebrush-rabbitbrush habitat would be removed on BLM-administered lands in the project area, and a total of 62.9 acres would be removed for the entire project. A direct loss of foraging habitat of this magnitude is not anticipated to affect the viability of populations of ferruginous hawks (if present) due to the extent of suitable foraging habitat nearby.

The use of heavy earth-moving equipment and other construction activities may temporarily displace Ferruginous hawks, if present, from using the project area for foraging. Due to the level of existing roadway activities along US 160, additional temporary displacement of foraging activities from construction activities should be minimal. Habitat similar to that occurring in the proposed project area and immediately adjacent may serve as an alternate foraging area if necessary.

### *Interrelated/Interdependent Effects*

The private lands along the US 160 corridor are currently undergoing rapid residential and light industrial development, and the anticipated land development trend with or without the proposed highway improvements is additional urbanization and loss of suitable wildlife habitats in this area, including habitats for Ferruginous hawks. The potential for additional habitat disturbance and habitat loss attributed to the granting of the ROW and proposed highway expansion is not measurable due to the rapid growth trend in the area. There may be a slight positive effect immediately adjacent to the proposed highway improvements due to CDOT creating controlled and limited access points to the improved highway. Thus, there should be a reduction over the long term in the number of access points to US 160 and associated habitat disturbance.

### *Cumulative Effects*

There are no measurable direct or indirect effects of the proposed project to this species. Therefore, there are no measurable cumulative effects attributable to the project.

### *Effects Determination*

The proposed project will not remove or impact known nesting habitat for Ferruginous hawks. Given the lack of existing records of this species in the project area, and the availability of suitable foraging habitat in the area, the loss of 2.5 acres of BLM-administered potential foraging habitat for this species (62.9 acres total) will not cause a measurable change in the viability of Ferruginous hawks in the area. Consequently, the project will have “no impact” to the Ferruginous hawk (*Buteo regalis*).

**2.2.5 Conclusions**

Table 3 presents conclusions for the BLM sensitive fish and wildlife species.

**Table 3. Conclusion for BLM Sensitive Fish and Wildlife Species**

Applicable	Conclusions																		
X	The proposed action will have “ <b>no impact</b> ” on the following BLM sensitive species because habitats for these species are not present in the project area or are not affected by the proposed action: <table border="0" style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 33%;">Allens big-eared bat</td> <td style="width: 33%;">Ferruginous hawk</td> <td style="width: 33%;">Spotted bat</td> </tr> <tr> <td>Big free-tailed bat</td> <td>Flannelmouth sucker</td> <td>Texas horned lizard</td> </tr> <tr> <td>Black tern</td> <td>Fringed myotis</td> <td>Townsend’s big-eared bat</td> </tr> <tr> <td>Bluehead sucker</td> <td>Gunnison sage grouse</td> <td>White-faced ibis</td> </tr> <tr> <td>Colorado River cutthroat trout</td> <td>Northern goshawk</td> <td>Yuma myotis</td> </tr> <tr> <td>Desert spiny lizard</td> <td>Roundtail chub</td> <td></td> </tr> </table>	Allens big-eared bat	Ferruginous hawk	Spotted bat	Big free-tailed bat	Flannelmouth sucker	Texas horned lizard	Black tern	Fringed myotis	Townsend’s big-eared bat	Bluehead sucker	Gunnison sage grouse	White-faced ibis	Colorado River cutthroat trout	Northern goshawk	Yuma myotis	Desert spiny lizard	Roundtail chub	
Allens big-eared bat	Ferruginous hawk	Spotted bat																	
Big free-tailed bat	Flannelmouth sucker	Texas horned lizard																	
Black tern	Fringed myotis	Townsend’s big-eared bat																	
Bluehead sucker	Gunnison sage grouse	White-faced ibis																	
Colorado River cutthroat trout	Northern goshawk	Yuma myotis																	
Desert spiny lizard	Roundtail chub																		
	The proposed action may adversely impact individuals but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability for the following species:																		
X	The no action alternative will have <b>no impact</b> to all BLM sensitive species.																		

**2.3 CDOW STATE ENDANGERED OR THREATENED SPECIES**

**2.3.1 Species Evaluated**

CDOW State listing of Endangered or Threatened Species (last updated April 2003) with habitat in the project area is presented in Table 4.

**Table 4. CDOW State Endangered or Threatened Species**

Species Group	Status	Habitat Present in Project Area?	Species Affected by Proposed Action?
<b>Mammals</b>			
Black-footed ferret	Endangered	See Biological Assessment (BA).	See BA.
Canada lynx	Endangered	See BA.	See BA.
River otter	Endangered	No, adequate watercourses absent in project area.	No, no habitat in project area.
North American wolverine	Endangered	No, no boreal forest or tundra in project area.	No, no habitat in project area.
<b>Birds</b>			
Bald eagle	Threatened	See BA.	See BA.
Burrowing owl	Threatened	Yes, there are scattered Gunnison’s prairie dog colonies in the project area.	Possible, but no documented occurrences of burrowing owls in project area.

Table 4. CDOW State Endangered or Threatened Species

Species Group	Status	Habitat Present in Project Area?	Species Affected by Proposed Action?
Mexican spotted owl	Threatened	See BA.	See BA.
Southwestern willow flycatcher	Endangered	See BA.	See BA.
<b>Fish</b>			
Bonytail	Endangered	No, adequate watercourses absent in project area.	No, no habitat in project area.
Colorado pikeminnow	Threatened	See BA.	See BA.
Humpback chub	Threatened	No, adequate watercourses absent in project area.	No, no habitat in project area.
Razorback sucker	Endangered	See BA.	See BA.
<b>Amphibians</b>			
Boreal toad	Endangered	No, project outside elevation limits for this species.	No, no habitat in project area.

### 2.3.2 Western Burrowing Owl (*Athene cunicularia*)

Western burrowing owls typically inhabit grasslands in or near prairie dog colonies. This species nests primarily in rodent burrows located in grasslands, shrublands, and deserts. Occasionally, burrowing owls nest in grassland urban areas such as golf courses and airports. They favor prairie dog colonies that provide burrows for nesting, mounds for perching, and close-cropped vegetation for a clear view of potential predators.

*The Colorado Breeding Bird Atlas* (Kingery 1998) shows one record for this species in southeastern La Plata County, but it is uncommon in the region. It has not been documented in the project area. According to the CDOW (NDIS 2006), the species is known to exist in La Plata County.

#### *Direct and Indirect Effects*

The project area contains small numbers of scattered Gunnison's prairie dog colonies that would be impacted by the proposed highway improvements. Although no western burrowing owls have been documented in the project area and it is uncommon in the region, removal of these prairie dog towns has the potential to directly affect nesting burrowing owls if they are present during construction.

The use of heavy earth-moving equipment and other construction activities may temporarily displace burrowing owls from using the project area for nesting and foraging. Prairie dog colonies immediately adjacent and south of the project area may serve as an alternate nesting and foraging area for displaced burrowing owls.

### *Interrelated/Interdependent Effects*

The private lands along the US 160 corridor are currently undergoing rapid residential and light industrial development, and the anticipated land development trend with or without the proposed highway improvements is additional urbanization and loss of suitable wildlife habitats in this area, including prairie dog habitats suitable for burrowing owls. The potential for additional habitat disturbance and habitat loss attributed to the granting of the ROW and proposed highway expansion is not measurable due to the rapid growth trend in the area. There may be a slight positive effect immediately adjacent to the proposed highway improvements due to CDOT creating controlled and limited access points to the improved highway. Thus, there should be a reduction over the long term in the number of access routes to US 160 and associated habitat disturbance.

### *Cumulative Effects*

The loss of the scattered Gunnison's prairie dog colonies in the project area would add to the overall loss of Gunnison's prairie dog habitats in the region. The rate of loss of this habitat type throughout La Plata County and the region has not been measured, but is thought to be dramatic due to rapid expansion of residential, agricultural, and light industrial development. Due to the uncommon presence of burrowing owls in La Plata County, the effects of this cumulative development and habitat loss on the species is unknown, but unlikely to cause a measurable change in the viability of burrowing owls in the area.

### *Effects Determination*

No burrowing owls have been documented in the project area. Nevertheless, the proposed project will remove scattered Gunnison's prairie dog colonies that may provide suitable habitat for nesting burrowing owls. Consequently, the proposal may affect individual nesting burrowing owls, but is not anticipated to cause a measurable change to the viability of the burrowing owl population in the area.

## **2.4 MIGRATORY BIRDS**

### **2.4.1 Species Evaluated**

An Executive Order (EO 13186) enacted in 2001 requires federal agencies to consider the effect of projects on migratory birds, particularly those species for which there may be conservation concern. This document reviews likely potential effects of the proposed action on migratory bird species for which there may be conservation concerns; birds that have habitat in the proposed project area and are likely to occur in the project area. Migratory bird species of concern that are also threatened, endangered, or candidate species are addressed in the Biological Assessment (BA). Migratory bird species of concern that are also on the BLM's Sensitive Species List, are addressed earlier in this Wildlife Clearance Report.

Birds of Conservation Concern are those bird species of the US identified by the U.S. Fish and Wildlife Service (USFWS 2002) that, due to population decline, naturally small range, small population size, threats to habitat, or other factors, are candidates for pro-active conservation action. This list is intended to focus conservation attention on species that may be declining or

have special habitat needs, and promote the long-term conservation of bird diversity in the US. The Birds of Conservation Concern list partitions North America into 37 bird conservation regions (BCRs). The San Juan Field Office is included in BCR 16, the Southern Rockies/Colorado Plateau. Birds of Conservation Concern in BCR 16 with habitat in the project area and not addressed earlier in this document, are addressed below (see Table 5).

Note that the project proponent, CDOT, has committed to: 1) remove vegetation in proposed disturbance areas outside of the nesting season for migratory birds, or conduct preconstruction hazing and migratory bird nest surveys, and 2) conduct a preconstruction raptor nest survey and observe CDOW-recommended seasonal buffer zones around active raptor nests (US 160 DEIS, Section 4.11.7, Wildlife and Fisheries Mitigation).

**Table 5. USFWS Birds of Conservation Concern for BCR 16 Known from the San Juan Field Office and the Anticipated Influences of the Proposed Action**

Species	General Habitat	Occurrence in Project Area	Effects of the Proposed Action
American peregrine falcon	Cliffs	No.	No effect.
Black swift	Waterfalls/wet cliffs	No.	No effect.
Black-throated gray warbler	Oak scrub/riparian	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Burrowing owl	Plains/grasslands	Possible.	See above.
Ferruginous hawk	Prairie	Unlikely, see Table 2.	See above.
Flammulated owl	Ponderosa pine/snags	No.	No effect.
Golden eagle	Cliffs/grasslands	Possible – foraging only.	No effect on nesting adults or young as no nesting habitat for this species occurs in project area.
Grace's warbler	Ponderosa pine	No.	No effect.
Gray vireo	Oak woodlands/scrub	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Gunnison sage-grouse	Sagebrush	No.	No effect.
Lewis's woodpecker	Riparian cottonwood/ponderosa pine	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.

**Table 5. USFWS Birds of Conservation Concern for BCR 16 Known from the San Juan Field Office and the Anticipated Influences of the Proposed Action**

Species	General Habitat	Occurrence in Project Area	Effects of the Proposed Action
Northern harrier	Grasslands	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Pinyon jay	Piñon-Juniper	Yes.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Prairie falcon	Cliffs	No.	No effect.
Sage sparrow	Sagebrush	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Short-eared owl	Parks/grasslands	No.	No effect.
Swainson's hawk	Grasslands	Possible.	No effect on nesting adults or young. Pre-construction raptor nest survey will be conducted and seasonal buffer zones observed.
Virginia's warbler	Riparian scrub	Possible.	No effect on nesting adults or young. Vegetation removal in construction areas will occur outside the normal nesting season, or preconstruction hazing and migratory bird nest surveys will be conducted.
Williamson's sapsucker	Montane forests/snags	No.	No effect.
Wilson's phalarope	Waterbodies/shorelines	No.	No effect.
Yellow-billed cuckoo	Riparian scrub	Possible, see Biological Assessment (BA).	See BA.

## 2.4.2 Effects

### *Direct and Indirect Effects*

There is no direct "take" expected on any Birds of Conservation Concern that may have habitat present in the project area since vegetation removal will occur outside the normal nesting season, or preconstruction hazing and nest surveys will be conducted. However, attention to potential early breeding Pinyon jay pairs should be noted since this species is usually nesting by April and has been documented nesting in Colorado during February. These nests would occur as a bulky

framework of twigs and shredded bark supporting a cup-like structure that should be readily detectible due to their size and placement in larger-sized brush and trees. Pinyon jays also often nest in small colonies, which should add to the conspicuous nature of their nests. Attention should also be given to the possible presence of Sage sparrows since this species is known to arrive on its breeding grounds in western Colorado by early March. However, this species does not usually begin nesting until April and the small size of the sagebrush community in this area may prohibit occupancy since most Sage sparrows in Colorado prefer large expanses of sage habitat.

### *Cumulative Effects*

The proposed action should pose no risk for take of adult birds or young due to the timing of vegetation removal and other avoidance measures proposed (hazing). Therefore, the proposed action is consistent with the Migratory Bird Treaty Act (MBTA) and the conservation measures set forth in Section 3 of the EO.



### 3.1 PLANT SURVEY RESULTS

Table 6 presents plant survey results for the project area. A review of records, biological files, and pertinent information was conducted on September 16, 2005.

**Table 6. Plant Survey Results**

Applicable	Survey Results
	A field survey was completed on <date> by <name of specialist>.
X	No field survey is required because there is no habitat at the site of the proposed project.
	A field survey is needed but cannot be completed by required date due to: <ul style="list-style-type: none"> <li>• Inappropriate season</li> <li>• Inadequate lead time</li> <li>• Higher priorities</li> </ul>

### 3.2 FEDERALLY LISTED PLANT SPECIES

Table 7 presents the federally listed plant species for the San Juan BLM Resource Area based on July 14, 2005 list from USFWS.

**Table 7. Federally Listed Plant Species for the San Juan BLM Resource Area**

Species	Status	Habitat Present?	Species Affected?
<i>Astragalus humillimus</i>	Endangered	No	No
<i>Pediocactus knowltonii</i>	Endangered	No	No
<i>Sclerocactus mesae-verdae</i>	Threatened	No	No
<i>Astragalus tortipes</i>	Candidate	No	No
<i>Ipomopsis polyantha</i> var. <i>polyantha</i>	Candidate	No	No

### 3.3 BLM SENSITIVE PLANT SPECIES

Table 8 presents the BLM sensitive plant species for this project. This information is based on sensitive plant species known to occur within the BLM lands administered by the San Juan Field Office identified in Information Bulletin No. CO-2000-14 (April 2000).

**Table 8. Colorado BLM Sensitive Plant Species**

Species	Habitat Present?	Species Impacted?
<i>Amsonia jonesii</i>	No	No
<i>Astragalus cronquistii</i>	No	No
<i>Astragalus naturitensis</i>	No	No
<i>Carex viridula</i>	No	No
<i>Cryptantha rollinsii</i>	No	No
<i>Cryptogramma stelleri</i>	No	No
<i>Erigeron kachinensis</i>	No	No
<i>Eriogonum clavellatum</i>	No	No
<i>Eriophorum altaicum</i> var. <i>neogaeum</i>	No	No
<i>Ipomopsis polyantha</i> var. <i>polyantha</i>	No	No
<i>Lesquerella pruinosa</i>	No	No
<i>Mimulus eastwoodiae</i>	No	No
<i>Pediomelum aromaticum</i>	No	No
<i>Salix candida</i>	No	No

3.4 CONCLUSIONS

Table 9 presents conclusions for BLM sensitive plant species related to the project area. Table 10 presents overall conclusions for threatened and endangered plant species in the project area.

**Table 9. Conclusions for BLM Sensitive Plant Species**

Applicable	Conclusion
X	The Proposed Action would have <b>no impact</b> on BLM sensitive species and their associated habitats.
	The Proposed Action <b>may impact individuals but is not likely to cause a trend to federal listing or loss of viability</b> on BLM or FS sensitive species and their associated habitats.
	The Proposed Action <b>may impact individuals and is likely to cause a trend toward federal listing or loss of viability</b> on BLM or FS sensitive species and their associated habitats.

Table 10. Conclusions for Threatened and Endangered Plant Species

Applicable	Conclusion
X	There are no federally listed or proposed plant species known to occur within the project area.
X	The Proposed Action would have <b>no impact</b> on the federally listed or proposed plant species.
	The Proposed Action would have <b>no impact</b> on designated or proposed Critical Habitat.
	The Proposed action <b>may impact</b> the continued existence of a federally listed or proposed species and its habitat or potential habitat.

The above determinations were made because there are no known federally listed plant species, plant species proposed to be listed, or BLM sensitive plant species that occur in the project area, and no habitat for these species in the project area.



The following individuals contributed to the development of this BE:

- Jon Holst, CDOT Wildlife Biologist
- Jeff Redders, U.S. Forest Service (USFS) Ecologist/Botanist
- Jeff Dawson, URS Wetland Biologist
- Kim Sandoval, URS Wildlife Biologist
- Sugnet Associates



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- Seidel, J.; B. Andree; S. Berlinger; K. Buell; G. Byrne; B. Gill; D. Kenvin; and D. Reed. 1998. Draft strategy for the conservation and reestablishment of lynx and wolverine in the Southern Rocky Mountains. Colo. Div. Wild. Denver, CO. 116 pp.
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**Biological Opinion**





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
Colorado Field Office  
P.O. Box 25486, DFC (MS 65412)  
Denver, Colorado 80225-0486

IN REPLY REFER TO:  
ES/LK-6-CO-06-F-011  
Mail Stop 65412

**FEB - 3 2006**

David A. Nicol, Division Administrator  
Colorado Federal Aid Division  
U.S. Department of Transportation  
Federal Highway Administration  
12300 West Dakota Avenue, Suite 180  
Lakewood, Colorado 80228

Dear Mr. Nicol:

In accordance with section 7 of the Endangered Species Act (Act) as amended (16 U.S.C. 1531 et seq.) and the Interagency Cooperative Regulations (50 CFR 402), this is the U.S. Fish and Wildlife Service's (Service) final biological opinion on impacts to federally-listed endangered and threatened species associated with Federal Highway Administration (FHWA) funding of the reconstruction of US160 for approximately 17.5 miles between Durango and Bayfield, La Plata County, Colorado. Your request for formal consultation was received by the Service on September 28, 2005.

This biological opinion is based on the project proposal as described in the September 2005, report by entitled "Biological Assessment for US160/US550 from Junction US160/US550 Durango East to Bayfield, La Plata County, Colorado" (Biological Assessment) and on supplemental impact information received on November 21, 2005, via email. The Service concurs with FHWA's determination that the project is not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*), yellow-billed cuckoo (*Coccyzus americanus*), and Knowlton cactus (*Pediocactus knowltonii*) based on survey results as well as measures to avoid impacts during construction. These species will not be considered further in this biological opinion. We also concur with your determination that the project is likely to adversely affect the endangered southwestern willow flycatcher (*Empidonax traillii extimus*).

In addition, we have reviewed the project's impacts on endangered Colorado River fishes (Colorado pikeminnow [*Ptchocheilus lucius*] and razorback sucker [*Xyrauchen texanus*]). The proposed action will cause a one-time total depletion to the San Juan River of approximately

44.42 acre-feet and is addressed by the Service's May 21, 1999, biological opinion as described below.

A Recovery Implementation Program for Endangered Fish Species in the San Juan River Basin was initiated in October 1992. The Recovery Program was intended to be the reasonable and prudent alternative to avoid jeopardy to the endangered fishes by depletions from the San Juan River.

On May 21, 1999, the Service issued a biological opinion determining that depletions of 100 acre-feet or less would not limit the provision of flows identified for the recovery of the Colorado pikeminnow and razorback sucker and, thus, not be likely to jeopardize the endangered fish species or result in the destruction or adverse modifications of their critical habitat.

The Federal Highway Administration (FHWA) should condition its approval documents to retain jurisdiction in the event that the Recovery Program is unable to implement the flows identified for recovery in a timely manner. In that case, as long as the FHWA has discretionary authority over the project, reinitiation of section 7 consultation may be required.

#### **CONFERENCE/CONSULTATION HISTORY**

On February 27, 1995, the flycatcher was listed as endangered under the Act. Full protection became effective on March 29, 1995. Critical habitat was designated on July 18, 1997, and became effective on August 21, 1997. A correction notice was published in the Federal Register on August 20, 1997. Critical habitat was re-designated October 19, 2005. A final recovery plan for the southwestern willow flycatcher was signed by the U.S. Fish and Wildlife Service's Region 2 Director on August 30, 2002.

In 1998 and 1999, four areas were surveyed within the project corridor for presence/absence of the flycatcher. In 1998, one southwestern willow flycatcher was observed on two occasions in a survey area near the proposed right-of-way (ROW) in riparian shrub along an unnamed stream in the Los Piños River floodplain. No southwestern willow flycatchers were observed during the 1999 survey.

In 2000, minimum patch size for suitable habitat was redefined. Based on this new information, 21 sites were identified as suitable habitat and surveyed during 2002. A single southwestern willow flycatcher was observed in the same survey area in 1998 and 2002.

Your request for formal consultation, including the Biological Assessment, was received by the Service on September 28, 2005. On November 21, 2005, you emailed a table of impacts to southwestern willow flycatcher habitat by patch that will be an appendix to the Environmental Impact Statement (EIS) for the project.

## **BIOLOGICAL OPINION**

### **Description of the Proposed Action**

US160 was last improved in the 1950s and 1960s. At that time, the population of La Plata County was less than 20,000, and since then, the population has more than doubled and tourist activity has also increased. As a result, traffic volumes along US160 have increased and are almost double during the summer months when tourist visitation peaks. On some reaches of the corridor, accident rates are higher than the state average for similar facilities.

The Colorado Department of Transportation (CDOT) is proposing to reconstruct and expand approximately 17.5 miles of US160 between Durango and Bayfield. Reconstruction will include widening to four lanes, highway realignments through some segments, and addition of consolidated access roads. Safety improvements include building wider shoulders, incorporating wildlife underpasses and fencing, and redesigning portions of the highway.

The Environmental Impact Statement (EIS) that was conducted for the study divided the 17.5 mile corridor into four segments: Grandview, Florida Mesa and Valley, Dry Creek and Gem Village, and Bayfield. In general, US160 will be widened to four lanes from milepost 87.5 eastward to milepost 104.0 where it will transition to a two-lane highway. For the most part, US 160 will remain on the existing alignment however, it will be realigned to the south to bypass Gem Village. In addition, US550 south of US160 will be realigned to the east of the existing highway where it meets US160 at Farmington Hill. County Roads (CR) 222, 223, 502, and 501 will be realigned where they intersect with US160, and grade separated interchanges are proposed at US160/US550 south at Farmington Hill, CR233 (Three Springs Boulevard), and SH172. All at-grade intersections with county roads will be upgraded to meet current design standards. Final design and construction of each section is expected to be completed in phases over the next 20 years, depending on funding availability.

All sections contained surveyed patches of southwestern willow flycatcher habitat. The Grandview section is between US160 mileposts 87.5 and 91.8. It also includes a short section of US550 from its intersection with US160 southward for approximately 0.9 miles. The Florida Mesa and Valley section runs east from SH172/CR234 (milepost 91.8) to east of the Florida River (milepost 94.15). US 160 through this section will be four lanes and generally remain on the existing alignment except where necessary to avoid residential structures. The Dry Creek and Gem Village section is between US160 mileposts 94.15 and 101.57. This section is sparsely developed toward its eastern end and contains high quality wetlands. US160 will be four lanes and generally remain on the existing alignment with improvements for curvature, grades, and sight distance. The Bayfield section is between mileposts 101.57 and 104.20 and is moderately developed residential and commercial area. US160 will be four lanes and generally remain on the existing alignment with improvements for curvature, grades, and sight distance. The alternative chosen for this section will have the least impact to wetlands and wildlife habitat. Southwestern willow flycatchers were observed in wetlands in this section.

No habitat known to be currently occupied by the southwestern willow flycatcher will be removed for project construction. The proposed construction will permanently remove approximately 11.11 acres of southwestern willow flycatcher habitat. The habitat occurs in patches within 300 feet of the centerline of the highway all along the corridor. Some patches will be removed in their entirety, others will be only partially affected.

More details of the project are provided in the Biological Assessment and the EIS. As part of this project, the following conservation measures were proposed in the Biological Assessment to reduce potential for impacts to the flycatcher:

- Pre-construction surveys of suitable habitat will be conducted to determine presence or absence of southwestern willow flycatchers if that habitat will be directly affected by construction activities or if construction activities will occur within 0.25 miles of the habitat.
- Direct impacts to occupied southwestern willow flycatcher habitat will be avoided by implementing seasonal construction buffers. Construction will not occur from May 1 through August 15 within 0.25 mile of active nest areas or occupied habitat. During and after construction, CDOT will delineate sensitive habitats to avoid direct impacts from maintenance activities.
- Removal of documented unoccupied southwestern willow flycatcher habitat located within proposed disturbance areas will occur either prior to May 1 or after August 15.
- Removed documented unoccupied southwestern willow flycatcher habitat will be replaced at a 2:1 ratio. The replaced habitat will be monitored annually for at least three years or until revegetation has been deemed successful by the Service. To be successful, the following criteria must be met:
  - A. 70 percent foliar cover
  - B. 80 percent of plantings are established and growing without signs of stress
  - C. Noxious weeds are less than 5 percent of foliar cover
- Potential southwestern willow flycatcher habitat in and adjacent to the project area will be avoided to the extent practicable and will be clearly marked on project maps and flagged in the field by CDOT prior to construction. The contractor and all subcontractors will be fully informed of the locations of these areas prior to construction.

## **STATUS OF THE SPECIES**

### **Description**

The southwestern willow flycatcher is a small grayish-green passerine bird (Family Tyrannidae) measuring approximately 5.75 inches. It has a grayish-green back and wings, whitish throat,

light gray-olive breast, and pale yellowish belly. Two white wingbars are visible (juveniles have buffy wingbars). The eye ring is faint or absent. The upper mandible is dark, and the lower is light yellow grading to black at the tip. The song is a sneezy fitz-bew or a fit-a-bew, the call is a repeated whitt.

The southwestern willow flycatcher is one of four currently recognized willow flycatcher subspecies (Phillips 1948, Unitt 1987, Browning 1993). It is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). The historic breeding range of the southwestern willow flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

### **Listing and critical habitat**

The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (U.S. Fish and Wildlife Service 1995). Critical habitat was later designated on July 22, 1997 (U.S. Fish and Wildlife Service 1997a). A correction notice was published in the Federal Register on August 20, 1997 to clarify the lateral extent of the designation (U.S. Fish and Wildlife Service 1997b).

On May 11, 2001, the 10th circuit court of appeals set aside designated critical habitat in those states under the 10th circuit's jurisdiction (New Mexico). The Fish and Wildlife Service decided to set aside critical habitat designated for the southwestern willow flycatcher in all other states (California and Arizona) until it can re-assess the economic analysis.

On October 19, 2005, the Fish and Wildlife Service re-designated critical habitat for the southwestern willow flycatcher (U.S. Fish and Wildlife Service 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain. The primary constituent elements of critical habitat include riparian plant species in a successional riverine environment (for nesting, foraging, migration, dispersal, and shelter), specific structure of this vegetation, and insect populations for food.

A final recovery plan for the southwestern willow flycatcher was signed by the U.S. Fish and Wildlife Service's Region 2 Director on August 30, 2002; it was released to the public in March 2003. The Plan describes the reasons for endangerment, current status of the flycatcher, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals.

### Reasons for endangerment

Reasons for decline have been attributed to primarily loss, modification, and fragmentation of riparian breeding habitat, along with a host of other factors including loss of wintering habitat and brood parasitism by the brown-headed cowbird (Sogge *et al.* 1997, McCarthey *et al.* 1998). Habitat loss and degradation are caused by a variety of factors, including urban, recreational, and agricultural development, water diversion and groundwater pumping, channelization, dams, and livestock grazing. Fire is an increasing threat to willow flycatcher habitat (Paxton *et al.* 1996), especially in monotypic saltcedar vegetation (DeLoach 1991) and where water diversions and/or groundwater pumping desiccates riparian vegetation (Sogge *et al.* 1997). Willow flycatcher nests are parasitized by brown-headed cowbirds (*Molothrus ater*), which lay their eggs in the host's nest. Feeding sites for cowbirds are enhanced by the presence of livestock and range improvements such as waters and corrals; agriculture; urban areas; golf courses; bird feeders; and trash areas. When these feeding areas are in close proximity to flycatcher breeding habitat, especially coupled with habitat fragmentation, cowbird parasitism of flycatcher nests may increase (Hanna 1928, Mayfield 1977a,b, Tibbitts *et al.* 1994).

### Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to approximately 8,500 feet in Arizona and southwestern Colorado. Historic egg/nest collections and species' descriptions throughout its range, describe the southwestern willow flycatcher's widespread use of willow (*Salix* spp.) for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987, San Diego Natural History Museum 1995). Currently, southwestern willow flycatchers primarily use Geyer willow (*Salix geyeriana*), Coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolia*), and live oak (*Quercus agrifolia*) for nesting. Other plant species less commonly used for nesting include: buttonbush (*Cephalanthus* sp.), black twinberry (*Lonicera involucrata*), cottonwood (*Populus* spp.), white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), and stinging nettle (*Urtica* spp.). Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated, and mixed native/exotic (Sogge *et al.* 1997).

Tamarisk is an important component of the flycatchers' nesting and foraging habitat in Arizona and other parts of the bird's range. In 2001 in Arizona, 323 of the 404 (80 percent) known flycatcher nests (in 346 territories) were built in a tamarisk tree (Smith *et al.* 2002). Tamarisk had been believed by some to be a habitat type of lesser quality for the southwestern willow flycatcher, however comparisons of reproductive performance (U.S. Fish and Wildlife Service 2002), prey populations (Durst 2004) and physiological conditions (Owen and Sogge 2002) of flycatchers breeding in native and exotic vegetation has revealed no difference.

Open water, cienegas, marshy seeps, or saturated soil are typically in the vicinity of flycatcher territories and nests; flycatchers sometimes nest in areas where nesting substrates were in

standing water (Maynard 1995, Sferra *et al.* 1995, 1997). However, hydrological conditions at a particular site can vary remarkably in the arid Southwest within a season and among years. At some locations, particularly during drier years, water or saturated soil is only present early in the breeding season (i.e., May and part of June). However, the total absence of water or visibly saturated soil has been documented at several sites where the river channel has been modified (e.g., creation of pilot channels), where modification of subsurface flows has occurred (e.g., agricultural runoff), or as a result of changes in river channel configuration after flood events (Spencer *et al.* 1996).

The flycatcher's habitat is dynamic and can change rapidly: nesting habitat can grow out of suitability; saltcedar habitat can develop from seeds to suitability in five years; heavy runoff can remove/reduce habitat suitability in a day; or river channels, floodplain width, location, and vegetation density may change over time. The flycatcher's use of habitat in different successional stages may also be dynamic. For example, over-mature or young habitat not suitable for nest placement may be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial southwestern willow flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005). That same habitat may subsequently grow or cycle into habitat used for nest placement. Because of those changes, flycatcher "nesting habitat" is often defined as either suitable or potential (U.S. Fish and Wildlife Service 2002). This demonstrates that areas other than existing locations where nests are located can be "occupied flycatcher habitat," and as a result, essential to the survival and recovery of the flycatcher (U.S. Fish and Wildlife Service 2002). The development of flycatcher habitat is a dynamic process involving, maintenance, recycling, and regeneration of habitat. Flycatcher habitat can quickly change and vary in suitability, location, use, and occupancy over time (Finch and Stoleson 2000).

### **Breeding biology**

Throughout its range the southwestern willow flycatcher arrives on breeding grounds in late April and May (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Maynard 1995, Sferra *et al.* 1995, 1997). Nesting begins in late May and early June and young fledge from late June through mid-August (Willard 1912, Ligon 1961, Brown 1988a,b, Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Muiznieks *et al.* 1994, Whitfield 1994, Maynard 1995). Southwestern willow flycatchers typically lay three to four eggs per clutch (range = 1 to 5). Eggs are laid at one-day intervals and are incubated by the female for approximately 12 days (Bent 1960, Walkinshaw 1966, McCabe 1991). Young fledge approximately 12 to 13 days after hatching (King 1955, Harrison 1979). Typically one brood is raised per year, but birds have been documented raising two broods during one season and reneesting after a failure (Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Whitfield 1994, Whitfield and Strong 1995). The entire breeding cycle, from egg laying to fledging, is approximately 28 days.

Southwestern willow flycatcher nests are fairly small (3.2 inches tall and 3.2 inches wide) and its placement in a shrub or tree is highly variable. Nests are open cup structures, and are typically placed in the fork of a branch. Nests have been found against the trunk of a shrub or tree (in

monotypic saltcedar and mixed native broadleaf/saltcedar habitats) and on limbs as far away from the trunk as 10.8 feet (Spencer *et al.* 1996). Typical nest placement is in the fork of small-diameter (e.g., 0.4 inch), vertical or nearly vertical branches (U.S. Fish and Wildlife Service 2002). Occasionally, nests are placed in down-curving branches. Nest height varies considerably, ranging from approximately 2 feet to nearly 60 feet, and may be related to height of the nest plant, overall canopy height, and/or the height of the vegetation strata that contain small twigs and live growth (U.S. Fish and Wildlife Service 2002). Most typically, nests are relatively low, 6.5 to 23 feet above ground (U.S. Fish and Wildlife Service 2002). Flycatchers nesting in habitat dominated by box elder nest the highest (to almost 60 feet) (U.S. Fish and Wildlife Service 2002).

The southwestern willow flycatcher is an insectivore, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands. The bird typically perches on a branch and makes short direct flights, or sallies to capture flying insects. Drost *et al.* (1998) found that the major prey items of the southwestern willow flycatcher (in Arizona and Colorado), consisted of true flies (Diptera); ants, bees, and wasps (Hymenoptera); and true bugs (Hemiptera). Other insect prey taxa included leafhoppers (Homoptera: Cicadellidae); dragonflies and damselflies (Odonata); and caterpillars (Lepidoptera larvae). Non-insect prey included spiders (Araneae), sowbugs (Isopoda), and fragments of plant material.

Brown-headed cowbird parasitism of southwestern willow flycatcher broods has been documented throughout its range (Brown 1988a,b, Whitfield 1990, Muiznieks *et al.* 1994, Whitfield 1994, Hull and Parker 1995, Maynard 1995, Sferra *et al.* 1995, Sogge 1995b). Where studied, high rates of cowbird parasitism have coincided with southwestern willow flycatcher population declines (Whitfield 1994, Sogge 1995a,c, Whitfield and Strong 1995) or, at a minimum, resulted in reduced or complete nesting failure at a site for a particular year (Muiznieks *et al.* 1994, Whitfield 1994, Maynard 1995, Sferra *et al.* 1995, Sogge 1995a,c, Whitfield and Strong 1995). Cowbird eggs hatch earlier than those of many passerine hosts, thus giving cowbird nestlings a competitive advantage (Bent 1960, McGeen 1972, Mayfield 1977a,b, Brittingham and Temple 1983). Flycatchers can attempt to renest, but it often results in reduced clutch sizes, delayed fledging, and reduced nest success (Whitfield 1994). Whitfield and Strong (1995) found that flycatcher nestlings fledged after July 20th had a significantly lower return rate and cowbird parasitism was often the cause of delayed fledging.

### **Territory and home range size**

Southwestern willow flycatcher territory size likely fluctuates with population density, habitat quality, and nesting stage. Estimated territory sizes are 0.59 to 3.21 acres for monogamous males and 2.72 to 5.68 acres for polygynous males at the Kern River (Whitfield and Enos 1996), 0.15 to 0.49 acres for birds in a 1.48 to 2.22 acre patch on the Colorado River (Sogge 1995c), and 0.49 to 1.24 acres in a 3.71 acre patch on the Verde River (Sogge 1995a). Territories are established within a larger patch of appropriate habitat sufficient to contain several nesting pairs of flycatchers.



Cardinal and Paxton (2005) found that the home ranges of telemetered flycatchers at Roosevelt Lake, AZ, varied from 0.37 to 890 acres. Bird movements just prior to and following nesting were the greatest, while movements while incubating and with nestlings were the most confined. Movements following fledging of young indicated possible pre-migration staging and the targeting of local increases in insect prey populations. Birds were found using a variety of riparian habitat in a variety of conditions (open, young mature, exotic, mixed, etc.) and the distances moved indicate that birds can occupy a larger area and used more different types of habitat than previously believed (Cardinal and Paxton 2005).

### **Movements**

The site and patch fidelity, dispersal, and movement behavior of adult, nestling, breeding, non-breeding, and migratory southwestern willow flycatchers are just beginning to be understood (Kenwood and Paxton 2001, Koronkiewicz and Sogge 2001). From 1997 through 2000, 66 to 78 percent of flycatchers known to have survived from one breeding season to the next returned to the same breeding site; conversely, 22 to 34 percent of returning birds moved to different sites (Luff *et al.* 2000). A large percentage (75 percent) of known surviving 2000 adults returned in 2001 to their same breeding site (Kenwood and Paxton 2001). Just considering Roosevelt Lake in its entirety, all but three surviving birds (n=28) banded at Roosevelt Lake returned to Roosevelt Lake (Kenwood and Paxton 2001). Although most southwestern willow flycatchers return to former breeding sites, flycatchers can regularly move among sites within and between years (Kenwood and Paxton 2001). Within-drainage movements are more common than between-drainage movements (Kenwood and Paxton 2001). Year-to-year movements of birds have been detected between the San Pedro/Gila river confluence and Roosevelt Lake, the Verde River near Camp Verde and Roosevelt Lake, and the Little Colorado River near Greer and Roosevelt Lake (Kenwood and Paxton 2001). Typical distances moved range from 1.2 to 18 miles. However, long-distance movements of up to 137 miles have been observed on the lower Colorado River and Virgin River (McKernan and Braden 2001). Breeding groups of southwestern willow flycatchers act as a meta-population (Busch *et al.* 2000).

### **Rangewide distribution and abundance**

Unitt (1987) documented the loss of more than 70 southwestern willow flycatcher breeding locations rangewide (peripheral and core drainages within its range) estimating the rangewide population at 500 to 1,000 pairs. Since 1993, a total of 122 sites once known to have breeding flycatchers, are no longer occupied by nesting birds. There are currently 265 known southwestern willow flycatcher breeding sites in California, Nevada, Arizona, Utah, New Mexico, and Colorado (all sites from 1993 to 2004 where a resident flycatcher has been detected) holding an estimated 1,256 territories (Durst *et al.* 2005). It is difficult to arrive at a grand total of flycatcher territories because not all sites are surveyed annually to determine the actual abundance of birds. Also, sampling errors may bias population estimates positively or negatively (e.g., incomplete survey effort, double-counting males/females, composite tabulation methodology, natural population fluctuation, and random events) and it is likely that the total breeding population of southwestern willow flycatchers fluctuates. Numbers have increased

since the bird was listed and some habitat remains unsurveyed; however, after nearly a decade of intense surveys, the existing numbers are just past the upper end of Unitt's 1987 estimate. About 40 percent of the 1,256 territories (Table 1) are currently estimated throughout the subspecies range are located at three locations (Cliff/Gila Valley - NM, Roosevelt Lake - AZ, San Pedro/Gila confluence - AZ).

Descriptions of flycatcher distribution can be difficult to understand due to the use of different terms. The territory is the most universal and least confusing term, due to it representing a singing male during the breeding season (Sogge *et al.* 1997). However, the words breeding "site," "location," or "group" are not necessarily defined the same throughout the bird's range. In Arizona, sites tend to represent a discreet patch of vegetation that contain flycatcher territories. Therefore, a "location" like the Gila/San Pedro confluence at Winkelman, Arizona, is comprised of many "sites." "Breeding groups" tend to describe a general geographic location where flycatcher territories exist, similar to a "location." Other states may define "sites" a little differently, and a larger "location" may be more synonymous with a "site."

Rangewide, the population is comprised of extremely small, widely-separated breeding groups including unmated individuals. Rangewide, 83 percent of all sites from 1993 to 2004 had 0 to 5 flycatcher territories present (Durst *et al.* 2005). Removing the extirpated sites, the percentages are similar, 69 percent of all sites have between 1 and 5 territories. Conversely, across the bird's range, there are only 3 percent of all sites with greater than 50 territories (Durst *et al.* 2005).

The distribution of breeding groups is highly fragmented, often separated by considerable distance. In Arizona, about a 55 mile straight-line distance exists between breeding flycatchers at Roosevelt Lake, Gila County, and the next closest territories on the San Pedro River, Pinal County or Verde River, Yavapai County.

Large distances between breeding groups and small size of those populations reduces meta-population stability and increases the risks of local extirpation due to stochastic events, predation, cowbird parasitism, and other factors (U.S. Fish and Wildlife Service 2002). Conversely, having about 40 percent of the entire subspecies at just three locations can also create great instability should catastrophic events occur that would remove or significantly reduce habitat suitability at those places.

Willow flycatchers no longer occur (based upon most recent years survey data) at 122 of the 265 sites located and/or tracked rangewide since 1993 (Durst *et al.* 2005). All but two of these sites had less than 5 flycatcher territories present. The two exceptions (PZ Ranch on San Pedro River and Colorado River Delta at Lake Mead) were destroyed by fire and lake inundation, respectively. However, more than 5 territories were temporarily lost at Roosevelt Lake due to inundation in 2005.

The survival and recovery of the flycatcher is not dependent on having a few locations with large numbers of birds, but rather properly distributed populations placed close together (U.S. Fish and Wildlife Service 2002). Southwestern willow flycatchers are believed to function as a group of

meta-populations (U.S. Fish and Wildlife Service 2002). Esler (2000) describes Levins' meta-population theory as that which addresses the demography of distinct populations (specifically extinction probabilities), interactions among sub-populations (dispersal and recolonization), and ultimately persistence of the aggregate of sub-populations, or the meta-population. Meta-population theory has been applied increasingly to conservation problems, in particular those cases where species' ranges have been fragmented by habitat alteration by humans. An incidence function analysis completed for the southwestern willow flycatcher incorporated a spatial component to estimate probabilities of habitat patch extinction and colonization (Lamberson *et al.* 2000). Modeling indicated that persistence of flycatcher populations is reduced when populations are small and widely distributed. Conversely, meta-populations are more stable when sub-populations are large and close together. However, where populations exceed 10 pairs, it is best to colonize a new site, rather than risk the effects of catastrophic events (fire, disease, flood, etc.). In other words, there needs to be considerable progress to reach greater meta-population stability through developing larger sites in closer proximity to each other (U.S. Fish and Wildlife Service 2002).

Table 1. Rangewide population status for the southwestern willow flycatcher based on 1993 to 2004 survey data for Arizona, California, Colorado, New Mexico, Nevada, Utah, and Texas <sup>1</sup> .				
State	Number of sites with WIFL territories 1993-2004 <sup>2</sup>	Percentage of sites with WIFL territories 1993-2004	Number of territories <sup>3</sup>	Percentage of total territories
Arizona	112	43.3 %	544	43.3 %
California	91	34.3 %	200	15.9 %
Colorado	5	3.8 %	65	3.2 %
Nevada	13	4.9 %	68	5.4 %
New Mexico	36	13.6 %	372	29.6 %
Utah	3	1.1 %	7	0.6%
Texas	?	?	?	?
Total	265	100 %	1,256	100 %

<sup>1</sup>Durst *et al.* 2005.  
<sup>2</sup>Site boundaries are not defined uniformly throughout the bird's range.  
<sup>3</sup>Total territory numbers recorded are based upon the most recent year's survey information from that site between 1993 and 2004.

### Arizona distribution and abundance

Unitt (1987) concluded that "...probably the steepest decline in the population level of *E.t. extimus* has occurred in Arizona..." Historic records for Arizona indicate the former range of the

southwestern willow flycatcher included portions of all major river systems (Colorado, Salt, Verde, Gila, Santa Cruz, and San Pedro) and major tributaries, such as the Little Colorado River and headwaters, and White River.

In 2004, 522 territories were known from 40 sites along 12 drainages in Arizona (Munzer *et al.* 2005). The lowest elevation where territorial pairs were detected was 98 feet along the Lower Colorado River; the highest elevation was in eastern Arizona in the White Mountains (8,329 feet).

As reported by Munzer *et al.* (2005), the largest concentrations of breeding willow flycatchers in Arizona in 2004 were at the Salt River and Tonto Creek inflows to Roosevelt Lake (374 flycatchers, 209 territories); near the San Pedro/Gila river confluence (352 flycatchers, 186 territories); Gila River, Safford area (6 flycatchers, 3 territories); Alamo Lake on the Bill Williams River (includes lower Santa Maria and Big Sandy river sites) (51 flycatchers, 31 territories); Topock Marsh on the Lower Colorado River (57 flycatchers, 34 territories); Big Sandy River, Wikieup (54 flycatchers, 28 territories); Horseshoe Lake, Verde River (28 flycatchers, 19 territories), and Alpine/Greer on the San Francisco River/Little Colorado River (7 flycatchers, 4 territories). Combined, Roosevelt Lake and the San Pedro/Gila confluence make up 395 (76 percent) of the 522 territories known in the state.

Soon after listing, following the 1996 breeding season, 145 territories were known to exist in Arizona. In 2001, the known statewide population was 346 territories and in 2004, 522 territories were detected. From 1996 to 2004, there was a statewide increase of 377 territories. Over this 9-year period, some sites became unoccupied or had reductions in number of territories, other new sites were detected, and some sites grew in numbers and better surveys provided more comprehensive information on actual abundance (Durst *et al.* 2005). Since 1996, the increase of 320 territories (75 to 395) at Roosevelt Lake and at San Pedro/Gila River confluence represents 85 percent of the statewide growth. Survey effort was initially a factor in detecting more birds at San Pedro/Gila river confluence (more recently, habitat growth has occurred), but the Roosevelt population grew as a result of increased habitat development and bird reproduction in the conservation pool of the reservoir.

While numbers have significantly increased in Arizona, overall distribution of flycatchers throughout the state has not changed much. Note that 85 percent of the growth of flycatchers in Arizona since listing has occurred at two locations. Recovery and survival of the flycatcher depends not only on numbers of birds, but territories/sites that are well distributed (U.S. Fish and Wildlife Service 2002). Currently, population stability in Arizona is believed to be largely dependent on the presence of two large populations (Roosevelt Lake and San Pedro/Gila River confluence). Therefore, the result of catastrophic events or losses of significant populations either in size or location could greatly change the status and survival of the bird. Conversely, expansion into new habitats or discovery of other populations, would improve the known stability and status of the flycatcher.

### *Fire*

The evidence suggests that fire was not a primary disturbance factor in southwestern riparian areas near larger streams (U.S. Fish and Wildlife Service 2002). Yet, in recent time, fire size and frequency has increased on the lower Colorado, Gila, Bill Williams, and Rio Grande rivers. The increase has been attributed to increasing dry, fine fuels and ignition sources. The spread of the highly flammable plant, tamarisk, and drying of river areas due to river flow regulation, water diversion, lowering of groundwater tables, and other land practices is largely responsible for these fuels. A catastrophic fire in June of 1996, destroyed approximately a half mile of occupied tamarisk flycatcher habitat on the San Pedro River in Pinal County. That fire resulted in the forced dispersal or loss of up to eight pairs of flycatchers (Paxton *et al.* 1996). Recreationists cause over 95 percent of the fires on the lower Colorado River (U.S. Fish and Wildlife Service 2002). Brothers (1984) attributed increased fire along the Owens River in California to increased use of the riparian zones by campers and fishermen in the past 30 years.

### *Mortality and Survivorship*

There are no extensive records for the actual causes of adult southwestern willow flycatcher mortality. Incidents associated with nest failures, human disturbance, and nestlings are typically the most often recorded due to the static location of nestlings, eggs, and nests. As a result, nestling predation and brood parasitism are the most commonly recorded causes of southwestern willow flycatcher mortality. Also, human destruction of nesting habitat through bulldozing, groundwater pumping, and aerial defoliants has been recorded in Arizona (T. McCarthy, AGFD, pers. comm.). Human collision with nests and spilling the eggs or young onto the ground have been documented near high use recreational areas (U.S. Fish and Wildlife Service 2002). A southwestern willow flycatcher from the Greer Town site along the Little Colorado River in eastern Arizona, was found dead after being hit by a vehicle along SR 373. This route is adjacent to the breeding site (T. McCarthy, AGFD, pers. comm.).

### *Reproductive success*

Intensive nest monitoring efforts in California, Arizona, and New Mexico have shown that cowbird parasitism and/or predation can result in the following: failure of the nest; reduced fecundity in subsequent nesting attempts; delayed fledging; and reduced survivorship of late-fledged young. Cowbirds have been documented at more than 90 percent of sites surveyed (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Camp Pendleton 1994, Muiznieks *et al.* 1994, Sogge and Tibbitts 1994, Whitfield 1994, Tomlinson 1997, Griffith and Griffith 1995, Holmgren and Collins 1995, Kus 1995, Maynard 1995, McDonald *et al.* 1995, Sferra *et al.* 1995, Sogge 1995a, b, San Diego Natural History Museum 1995, Stransky 1995, Whitfield and Strong 1995, Griffith and Griffith 1996, Skaggs 1996, Spencer *et al.* 1996, Whitfield and Enos 1996, Sferra *et al.* 1997, McCarthy *et al.* 1998). The probability of a southwestern willow flycatcher successfully fledging its own young from a cowbird parasitized nest is low (i.e., <5 percent). Also, nest loss due to predation appears consistent from year to year and across sites, generally in the range of 30 to 50 percent. Documented predators of southwestern willow flycatcher nests

identified to date include common king snake (*Lampropeltis getulus*), gopher snake (*Pituophis melanoleucos affinis*), Cooper's hawk (*Accipiter cooperii*), yellow-breasted chat (*Icteria virens*), and western screech owl (*Otus kennicottii*) (Paxton *et al.* 1997, McCarthy *et al.* 1998, Paradzick *et al.* 2000, Smith *et al.* 2002). These willow flycatcher predators were documented by video nest surveillance, as well as Clark's spiny lizard (*Sceloporus clarkii*) and a spotted skunk (*Spilogale putorius*) on other nesting surrogate passerines. These limited, but thorough observations of nests, demonstrate a wide variety of willow flycatcher nest predators. It is expected that other common predators of passerines, such as grackles and cowbirds (Woodward and Stoleson 2002), also kill or eat flycatcher eggs and nestlings.

Cowbird trapping has been demonstrated to be an effective management strategy for increasing reproductive success for the southwestern willow flycatcher in certain areas as well as for other endangered passerines (e.g., least Bell's vireo [*Vireo bellii pusillus*], black-capped vireo [*V. atricapillus*], golden-cheeked warbler [*Dendroica chrysoparia*]). It may also benefit juvenile survivorship by increasing the probability that parents fledge birds early in the season. Expansion of cowbird management programs may have the potential to not only increase reproductive output and juvenile survivorship at source populations, but also to potentially convert small, sink populations into breeding groups that contribute to population growth and expansion.

### **Past Consultations**

Since listing in 1995 to 2005, at least 137 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range (Table 2, 3). Six actions have resulted in jeopardy decisions. Many activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Stochastic events also continue to adversely affect the distribution and extent of flycatcher habitat.

Anticipated, actual, and/or temporary loss of flycatcher habitat due to Federal or federally permitted projects (i.e., modification of Roosevelt Dam, operation of Lower Colorado River dams, etc.) has resulted in biological opinions and Habitat Conservation Plans that led to acquisition, development, and protection of property specifically for the southwestern willow flycatcher to remove jeopardy, and mitigate, reduce and/or minimize take or adverse effects. A small portion of the lower San Pedro River was acquired by the Bureau of Reclamation as a result of raising Roosevelt Dam and is now currently under the management of The Nature Conservancy. Commitments to acquire and manage unprotected habitat specifically for breeding flycatchers have been made for loss of flycatcher habitat along the Lower Colorado River (Operations of Colorado River dams and 4.4 Plan/Change in Points of Diversion, Lower Colorado River MSCP), Tonto Creek and Salt River (raising of Roosevelt Dam, operation of Roosevelt Dam) in AZ, and Lake Isabella, CA (operation of dams). The Roosevelt Lake HCP completed by Salt River Project (SRP) has resulted in acquisition of over 1,000 acres along the Verde River, San Pedro River, and Gila River. The Army Corps of Engineers has acquired

approximately 1,000 acres along the South Fork Kern River as a result of operations of Isabella Dam. Various Regional HCPs have been developed in southern California that have protected southwestern willow flycatcher habitat (San Diego MSCP, Western Riverside County HCP, Carlsbad HMP).

### **Summary**

Historically, the southwestern willow flycatcher declined in extent of range occupied and population size as a result of habitat loss, modification, and fragmentation. Known numbers of flycatcher territories have increased to just over 1,200 throughout its range since the bird was listed in 1995, but have just surpassed the high end of the 1,000 estimated by Unitt (1987). Approximately half of all the known breeding pairs are found at three locations throughout the subspecies' range (Cliff/Gila Valley, New Mexico; Roosevelt Lake and Gila/San Pedro river confluence, Arizona). Water diversions, agriculture return flows, groundwater pumping, habitat clearing, flood control projects, development, livestock grazing, dam operations, and changes in annual flows due to off stream uses of water have affected the ability of the aquatic habitats to support native fish, plants, and wildlife. Riparian habitats by nature are dynamic, with their distribution in time and space governed mostly by flood events and flow patterns. Current conditions along southwestern rivers and streams are such that normal flow patterns have been greatly modified, flood events are more catastrophic as a result of degraded watershed conditions, stream channels are highly degraded, floodplains and riparian communities are reduced in extent, wildfires in riparian habitats are increasing, and the species composition of riparian communities is modified with exotic plant species. Habitat loss and fragmentation can lead to increased brood parasitism and nest predation. These conditions have significantly diminished the potential for southwestern rivers and streams to develop suitable habitat for the southwestern willow flycatcher and for those habitats to remain intact and productive for nesting flycatchers.

### **Environmental Baseline**

The environmental baseline includes the past and present impacts of all Federal, State, and private actions and other human activities in the action area; the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal section 7 consultation; and the impact of State or private actions contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat to provide a platform from which to assess the effects of the action now under consultation.

The project is located in the Upper Colorado Drainage Basin and San Juan River watershed. The project corridor crosses three major river drainage basins (Animas, Florida, and Los Piños rivers, from west to east). Many smaller streams, irrigation ditches, gulches, and wetlands cross the project corridor. Elevations within the project corridor range from approximately 6,400 feet to 7,100 feet. Wetland distribution throughout the project area is closely linked to irrigation practices, soils, and topography. Many small wetlands occur in association with irrigated agricultural areas on Florida Mesa and east of Bayfield. Perennial streams such as Wilson Gulch, the Florida River, Dry Creek, and the Los Piños River, support wetlands in the project corridor.

Riparian woodlands occur along the Florida River, the west side of the Los Piños River valley, lower Wilson Gulch, Long Hollow, and on the west side of Gem Village, and are dominated by narrowleaf cottonwood (*Populus* spp.) with understories of non-native species, including some noxious weeds. They all occur on stream floodplains except for the one at Gem Village, which is likely supported by seepage from a canal.

Pinyon-juniper-oak woodland occurs throughout the project area as do discontinuous sagebrush-rabbitbrush habitats east of the Florida River. Grasslands and pastureland are scattered throughout the project area.

Because of the broad geographic range of the southwestern willow flycatcher and high variability in breeding sites, its range has been divided into six Recovery Units which have been further divided into Management Units. The project area lies within the Upper Colorado Recovery Unit which covers much of the four corners area of southwestern Colorado, southern Utah, northeastern Arizona, and northwestern New Mexico. Its northern boundary is delineated by the northern range boundary of the flycatcher. Only 24 flycatcher territories (3 percent of the rangewide total) are known, distributed among only eight widely scattered sites. Most sites include only one territory. All occupied sites occur in native willow habitats. The Upper Colorado Recovery Unit contains four Management Units, and the project area occurs within the San Juan Management Unit. Within this unit, the flycatcher has been found near Bayfield, Colorado, and further north of the project area along the Los Piños River on Southern Ute Tribal lands.

A single individual southwestern willow flycatcher was observed on two occasions in 1998 near the proposed ROW in riparian shrub along an unnamed stream on the Los Piños River floodplain. No southwestern willow flycatchers were observed in the 1999 survey.

### **Effects of Action**

In formulating this opinion, the Service considered adverse and beneficial effects likely to result from cumulative effects of future State and private activities that are reasonably certain to occur within the project area, along with the direct and indirect effects of the project and impacts from actions that are part of the environmental baseline (50 CFR 402.02 and 402.14 (g)(3)).

Roads and bridges bisecting flycatcher habitat can have direct and long-term impacts on individuals as well as populations (Marshall and Stoleson 2000). A road-killed *Empidonax* flycatcher was documented on a rural road bisecting flycatcher habitat in Arizona. In addition to loss of individuals, loss of habitat due to fragmentation can result in long-term and disproportionate loss of territories thus affecting local populations. During construction of a bridge across the Gila River in New Mexico, one-third of the flycatcher habitat was lost to the bridge but the number of territories was reduced from four to one. Fragmentation may lead to increased predation by brown-headed cowbirds and other predators, further affecting a flycatcher population.



No known occupied habitat will be removed by the proposed project. However, approximately 11.11 acres of suitable breeding habitat and habitat that could potentially become suitable in the future will be permanently removed. All habitat will be surveyed prior to construction and the amount of habitat affected by the project will be verified and the amount of mitigation will be adjusted accordingly.

Affected habitat will be replaced at a 2:1 ratio as part of the project. Incidental take of flycatcher nesting and migrating habitat is likely. Take of individual birds is unlikely due to project timing and construction buffers during breeding season and because most of the habitat is probably not occupied. An increase in vehicle noise and vibration will occur. Construction and completion of the project may result in displacement of birds and/or adversely affect nest success because the area in which flycatchers were observed is situated within 0.25 miles of the project.

Habitat creation will take place to offset project impacts. Habitat created will improve the amount available for nesting or migration stopover.

Much of the appropriate habitat in the project area is likely inhabited by the flycatcher during migration. It is also possible that the willow patches removed by the project are also used during the nesting season. The project could directly affect the flycatcher through temporary or permanent loss of habitats. Additional effects of the proposed work include increased noise, vibration, and human presence during construction as well as following project completion. Work near documented occupied habitat and nest sites is scheduled to occur while the flycatcher is on its wintering grounds (August 15 - May 1).

The area to be affected represents a small portion of the potential flycatcher habitat present within the San Juan River drainage. The willow habitat to be affected is likely to be used during migration as a temporary stopover, and potentially for nesting. Created habitat will increase the amount available to flycatchers.

### **Cumulative Effects**

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The flycatcher invariably nests near surface water or saturated soil (Phillips *et al.* 1964; Muiznieks *et al.* 1994). Surface water is usually present within 328 feet (100 meters) of any active nest throughout the nesting season (Muiznieks *et al.* 1994). Riparian habitats not selected for either nesting or singing are generally narrower, with greater distances between willow patches and individual willow plants (Sedgwick and Knopf 1992). Appropriate hydrology, natural flood regimes (periodic flooding), and a stable, high water table are essential to creating and maintaining flycatcher habitat.

Activities that disturb, remove, or modify the primary southwestern willow flycatcher habitat characteristics may adversely affect the flycatcher. Land use changes are occurring all along the project corridor with substantial urban and recreational development. A number of land use changes may occur with potential direct or secondary impacts to the southwestern willow flycatcher. If the area were to be developed, secondary effects could include an increase in impervious surfaces and subsequent changes in stream hydrology leading to downcutting and loss of hydrology to support adjacent wetlands; and increases in noise, traffic, pollution, human activity, and domestic animals.

The area near Bayfield where southwestern willow flycatchers are known to occur is also a focal area for current and future residential and commercial development. More than 1,500 new residences are expected in Bayfield and north long CR501 by the year 2020, resulting in three times as many residences as are currently present. In addition to loss of habitat, increased urbanization in the surrounding area may decrease the suitability of the riparian habitat in this area and increase the potential for nest parasitism and predation.

### **Conclusion**

This biological opinion is based on information regarding cumulative effects, conditions forming the environmental baseline, the status of the southwestern willow flycatcher, and the importance of the project area to the survival and recovery of the species. The data used in this biological opinion constitute the best scientific and commercial information currently available.

It is the Service's biological opinion that neither the direct nor indirect effects of the proposed project (which includes the implementation of conservation measures agreed to during informal consultation and outlined in this biological opinion) will jeopardize the continued existence of the southwestern willow flycatcher. Although the project will likely adversely affect the flycatcher and its habitat in the San Juan River drainage, the proposed action and conservation measures will avoid the likelihood of jeopardy to the species.

### **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulations pursuant to 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as

part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the FHWA so that they become binding conditions of any project approval issued to CDOT for the exemption in section 7(o)(2) to apply. The FHWA has the continuing duty to regulate the activity covered by this incidental take statement. If the FHWA fails (1) to assume and implement the terms and conditions or (2) to require CDOT to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the project approval, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, CDOT and La Plata County must report the progress of the action or its impact on the species to the Service as specified in the incidental take statement.

Incidental take is considered given the project description, and cumulative effects. The Service does not anticipate that the proposed US160 improvements project will result in the incidental take of southwestern willow flycatchers in the form of either death or injury of individuals. Furthermore, the Service considers that any take that results in the death of any southwestern willow flycatcher threatens the continued existence of the species in Colorado. **Consequently, no take of southwestern willow flycatchers resulting in death or injury is authorized.** The Service anticipates that southwestern willow flycatchers could be “taken” in the form of harm as a result of the proposed action.

“Take” could also potentially occur under the definition of “harm” as a result of loss or modification of essential habitat features associated with construction of the bridge and road. Habitat modification could alter or remove habitat essential to the nesting and security of birds using the area. By removing or degrading essential habitat elements, the function of the habitat could cease to exist for 1 pair of southwestern willow flycatchers, thereby constituting a “take.”

**The Service anticipates that 1 pair of southwestern willow flycatchers may be taken in the form of “harm” as a result of the loss or deterioration of essential habitat elements through modification of habitat, as analyzed in this opinion.**

### **Reasonable and Prudent Measures**

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the southwestern willow flycatcher:

1. The FHWA will monitor the extent of habitat affected to assure that it does not exceed the authorized area.
2. Measures shall be taken to avoid impacts to southwestern willow flycatcher habitat during the migration period, breeding season, and duration of occupancy of the habitat. This period is from May 1 through August 15.

3. The FHWA will monitor all aspects of the proposed restoration to assure project completion and success.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/ monitoring. These terms and conditions are non-discretionary.

1. Workers onsite will be informed by CDOT/FHWA as to the reason for and importance of limiting impacts to habitat outside the work area. Potential flycatcher habitat adjacent to the project area will be identified on project plans and the contractor and all subcontractors will be notified of these locations prior to construction.
2. All sensitive habitat areas to be avoided will be identified on project plans and will be flagged or fenced in the field prior to construction.
3. CDOT/FHWA shall ensure that pre-construction surveys for the southwestern willow flycatcher are conducted in suitable habitat if that habitat will be directly affected by construction activities, or if construction will occur within 0.25 miles of that habitat.
4. FHWA shall contact the Service if a southwestern willow flycatcher is found, and consultation may be reinitiated.
5. CDOT/FHWA shall ensure that construction occurring within 0.25 mile of active nest areas or occupied southwestern willow flycatcher habitat does not take place between May 1 and August 15.
6. Removal of documented unoccupied suitable nesting habitat located within proposed disturbance area will occur either before May 1 or after August 15.
7. CDOT/FHWA shall ensure that affected habitat will be replaced on a 2:1 basis.
8. The FHWA shall include as a binding condition of project approval that CDOT conduct annual monitoring of restoration efforts. Monitoring will extend for at least three growing seasons (or until such time as the FHWA and the Service determine that proposed restoration has been successfully completed and is self-sustaining). Monitoring reports shall be forwarded to the FHWA and the Service after each growing season and prior to December 1.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take (1,750 square feet of southwestern willow flycatcher habitat) is exceeded, such incidental take represents new

information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

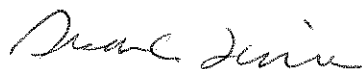
The Service recommends that as a condition of the permit, the applicant be required to conduct post-construction surveys for southwestern willow flycatchers within the project and the mitigation areas. Surveys must be conducted by individuals that have been properly trained in approved survey protocol. Surveyors must be familiar with and adhere to the general survey techniques and guidelines in Sogge *et al.* (1997). Flycatcher survey training must be completed prior to being permitted to conduct surveys. All reporting requirements must be followed. The Service also recommends that CDOT and FHWA pursue improving and/or enlarging Patch D5, the occupied habitat area, as part of their mitigation strategy.

### **REINITIATION NOTICE**

This concludes formal consultation on proposed Federal actions related to the proposed highway improvements. As required by 50 CFR 402.16, reinitiation of formal consultation is required if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an adverse effect to the listed species or critical habitat that was not considered in this opinion, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where incidental take exceeds the authorized, any operations causing such take must cease pending reinitiation. In addition, if any of the Terms and Conditions are not met, reinitiation of formal consultation will become necessary.

If the Service can be of further assistance, please contact Alison Deans Michael of my staff at (303) 236-4758.

Sincerely,



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