

**2016 RAPTOR SURVEY REPORT  
WHITLOW RANCH DAM, DEVILS CANYON, AND  
MINERAL CREEK, PINAL COUNTY, ARIZONA**  
Resolution Copper

Prepared for:



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## I. INTRODUCTION AND BACKGROUND

At the request of Resolution Copper (Resolution), WestLand Resources, Inc. (WestLand) conducted passive survey for raptors in 2016 at four sites in the vicinity of the Resolution Copper Project (the Project), a proposed underground mine and ore processing operation with associated facilities and infrastructure near Superior, Arizona. Survey was conducted at the Whitlow Ranch Dam, two portions of Devils Canyon, and one segment of Mineral Creek, all in Pinal County, Arizona (Survey Transects; **Figure 1**). The raptor survey coincided with the 2016 Yellow-billed cuckoo (YBCU) survey, which was also conducted in these areas (WestLand 2016a).

The objective of the 2016 raptor survey was to document the presence of raptor species in the vicinity of the Project. In the following sections, we provide a description of the Survey Transects (**Section 2**), methods (**Section 3**), results (**Section 4**), and discussion (**Section 5**). References cited within the text are provided in **Section 6**.

## 2. SURVEY TRANSECT DETERMINATION AND DESCRIPTION

As described in **Section 1**, the 2016 raptor survey coincided with the 2016 YBCU survey conducted along the Survey Transects. These transects, therefore, were the same ones that were selected for YBCU survey in 2015, using YBCU habitat characteristics described by U.S. Fish and Wildlife Service (USFWS; 2014) and Halterman et al. (2015), aerial photography, and observations made during previous field studies in the Project vicinity. For more details regarding how the Survey Transects were selected, refer to the 2016 YBCU Survey Report (WestLand 2016a). A brief description of each transect is provided in **Sections 2.1 through 2.3**.

### 2.1. WHITLOW RANCH DAM TRANSECTS

The Whitlow Ranch Dam transects are located along Queen Creek upstream of the Whitlow Ranch Dam, approximately 10 miles west of Superior (**Figure 1**). Six parallel transects were established to cover the approximately 45 acres of land, the eastern portion managed by the USFS and the western portion managed by the Bureau of Land Management (BLM) (**Figure 2**). Elevation ranges from approximately 2,100 to 2,200 feet (ft; 640 to 671 meters [m]) above mean sea level (amsl).

Vegetation located within the vicinity of the Whitlow Ranch Dam transects is typical of the Sonoran Riparian Scrubland community as described by Minckley and Brown (1994b). Though exotic saltcedar is the dominant overstory species, large Goodding's willow (*Salix gooddingii*), and Fremont's cottonwood (*Populus fremontii*), are also present, particularly along the Queen Creek channel. The often-dense understory includes species such as baccharis (*Baccharis* spp.), lupine (*Lupinus* spp.), and unidentified grasses. Some trees that were charred in the June 2012 Comet Fire (the majority of which

are saltcedar) are still prevalent throughout the area; however, many of them appear to be regenerating. In general, the area in which the transects are located supports both living and dead tree species.

The Whitlow Ranch Dam transects provide potentially suitable habitat for nesting and foraging raptors. Tall riparian trees (i.e. Goodding's willow and Fremont's cottonwood) that are present along the Queen Creek channel, and interspersed throughout the vicinity of the Whitlow Ranch Dam transects, are potentially suitable for nesting, perching, and roosting raptors. Additionally, the dense understory and adjacent open areas of Sonoran desertscrub, as well as the surface water that is seasonally present east of the dam, likely support a sufficient prey base for raptor species. For more details about the Whitlow Ranch Dam transects and the environmental setting of the transect, refer to the 2016 YBCU Survey Report (WestLand 2016a).

## 2.2. DEVILS CANYON TRANSECTS

Devils Canyon is a steep-walled, north-south trending canyon located approximately 4 miles east of Superior (**Figure 1**). Transects were located on State Trust Lands managed by the Arizona State Land Department (ASLD) (**Figures 3 and 4**). Elevations along the Middle Devils Canyon transect range from roughly 3,600 ft (1,097 m) amsl at the northern end of the transect to approximately 3,500 ft (1,067 m) amsl at the southern end of the transect. Along the Lower Devils Canyon transect, elevations range from roughly 3,200 ft (975 m) amsl at the northern end to approximately 2,500 ft (762 m) amsl at the southern end. Upland vegetation in the vicinity of the two Devils Canyon transects is an ecotone of the Arizona Upland subdivision of Sonoran desertscrub (Turner & Brown 1982) and Interior Chaparral biotic communities (Pase & Brown 1994).

Riparian vegetation typical of the Interior Riparian Deciduous Forest biotic community (Minckley and Brown 1994a) is present along each of the Devils Canyon transects. Dominant species found along the Middle Devils Canyon transect include Arizona alder (*Alnus oblongifolia*), velvet ash (*Fraxinus velutina*), Arizona sycamore (*Platanus wrightii*), and buttonbush (*Cephalanthus occidentalis*). Goodding's willow, Fremont's cottonwood, netleaf hackberry (*Celtis reticulata*), baccharis, and poison ivy (*Toxicodendron* spp.) are also present. The width of the riparian species along this portion of the canyon ranges from approximately 70 to 280 ft (21 to 85 m) in width, with small extensions up several side canyons. Canopy closure is consistent within this stretch (**Figure 3**), consisting of only a few small open areas.

Riparian vegetation along the Lower Devils Canyon transect (**Figure 4**) is much less dense than that which is present along the Middle Devils Canyon transect, ranging from approximately 40 to 300 ft (12 to 91 m) in width. Canopy closure is also much more fragmented than the Middle Devils Canyon transect. Dominant riparian species along this portion of the canyon include Arizona sycamore, Fremont's cottonwood, velvet ash, buttonbush, and baccharis. Goodding's willow, Arizona alder, and Arizona walnut (*Juglans major*) are also present.

The environmental conditions (i.e. surface water, vegetative structure, and topographic features) that are present along, and in the immediate vicinity of the Devils Canyon transects provide a diverse habitat that likely supports a sufficient prey base, as well as numerous nesting opportunities for raptor species. Potential nesting substrates include the high cliffs, canyon walls, and pinnacles surrounding the transects, as well as the tall, riparian trees and upland species that are present throughout. These habitat features are also suitable for perching, roosting, and hunting, as they provide unobstructed views of the canyon below. For more details about the Middle and Lower Devils Canyon transects and their environmental setting, refer to the 2016 YBCU Survey Report (WestLand 2016a).

### 2.3. MINERAL CREEK TRANSECT

Mineral Creek is a largely perennial creek that flows south from the Pinal Mountains and joins Devils Canyon at the Big Box Dam site in Pinal County, Arizona (**Figure 1**). The Mineral Creek transect is located on State Trust Lands managed by the ASLD (**Figure 5**). Elevations range from roughly 2,800 ft (853 m) amsl at the northern end of the transect to approximately 2,400 ft (732 m) amsl at the southern end. Relatively dense riparian vegetation typical of the Interior Riparian Deciduous Forest biotic community (Minckley & Brown 1994a) is present throughout most of the transect (**Figure 5**), with widths up to 240 ft (73 m), except in areas where the creek is constricted by steep canyon walls, where it can be as narrow as 30 ft (9 m).

Dominant species within the Mineral Creek transect include velvet ash, Goodding's willow, Fremont's cottonwood, and Arizona sycamore. Velvet mesquite (*Prosopis velutina*), Arizona walnut, baccharis, and Arizona alder are also present. Upland vegetation surrounding the transect is characteristic of the Arizona Upland Subdivision of Sonoran desertscrub vegetation biotic community (Turner & Brown 1994). Species observed include: saguaro, prickly pear, cholla, agave, catclaw acacia (*Senegalia greggii*), and ocotillo (*Fouquieria splendens*).

The Mineral Creek transect provides potentially suitable habitat for nesting and foraging raptors. Potential nesting substrates include the many tall, riparian trees found along Mineral Creek, nearby cliffs, and tall, upland species surrounding the transect. The vegetation structure found along, and in the vicinity of the transect, in addition to the perennial surface water found along the creek, provides a diverse habitat that likely supports a substantial prey base for raptors. For more details about the Mineral Creek transect and its' environmental setting, refer to the 2016 YBCU Survey Report (WestLand 2016a).

## 3. METHODS

### 3.1. SURVEY VISITS AND TIMING

The 2016 raptor survey was scheduled to coincide with the 2016 YBCU survey along the four Survey Transects. As such, WestLand planned to visit the Survey Transects a total of four times to survey for

raptors in 2016. With the exception of the Middle and Lower Devils Canyon transects, all of the Survey Transects were surveyed a total of four times. Unfortunately, due to a combination of unforeseen weather conditions,<sup>1</sup> rugged terrain, and remoteness of the Devils Canyon transects, only 2 of the 4 surveys could be conducted there (Table 1; WestLand 2016a).

**Table 1. 2016 Raptor Survey Dates Along the Whitlow Ranch Dam, Middle Devils Canyon, Lower Devils Canyon, and Mineral Creek Survey Transects, Pinal County, Arizona**

Survey Visit	Survey Dates(s) by Location			
	Whitlow Ranch Dam	Middle Devils Canyon	Lower Devils Canyon	Mineral Creek
Visit 1	June 22	--	--	June 23-24
Visit 2	July 8	July 8	July 6-7	July 6-7
Visit 3	July 21	July 21	July 19-20	July 19-20
Visit 4	August 5	--	--	August 6-7

### 3.2. SURVEY METHODS

WestLand biologists conducted passive survey for raptor species along the four Survey Transects while also actively surveying for YBCU. During each survey visit, WestLand surveyors used their binoculars to scan the sky, nearby rock outcrops and cliff faces, as well as the tops of trees and other vegetation, for raptor species and nests. Surveyors recorded both aural and visual detections of raptors, as well as any potential raptor nests observed while at, and while walking between YBCU calling points. Further details regarding the survey methods followed, and representative photographs of vegetation along each transect are provided in the 2016 YBCU Survey Report (WestLand 2016a).

## 4. RESULTS

Eight raptor species were observed opportunistically during the 2016 raptor survey. Two unidentified raptors (*Buteo* spp.), and three large stick nests were also observed. The nests, all of which were observed [REDACTED], were inactive; therefore, it is unknown whether these nests had been previously occupied by breeding raptors. A list of the raptor species recorded along the Survey Transects are presented in Table 2.

<sup>1</sup> Extreme temperatures during the first planned survey visit; heavy rain and flash flood warnings during the fourth planned survey visit.



**Table 2. Raptor Species Observed Along Each of the Survey Transects**

Species Name <sup>1</sup>	Survey Transect			
	Whitlow Ranch Dam	Middle Devils Canyon	Lower Devils Canyon	Mineral Creek
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	-	-	X	-
Common black-hawk ( <i>Buteogallus anthracinus</i> )				
Cooper's hawk ( <i>Accipiter cooperii</i> )	-	-	-	X
Elf owl ( <i>Micrathene whitneyi</i> )				
Harris' hawk ( <i>Parabuteo unicinctus</i> )	X	-	-	-
Turkey vulture ( <i>Cathartes aura</i> )	-	-	-	X
Raptor species ( <i>Buteo</i> spp.)	-	-	X	X
Western screech-owl ( <i>Megascops kennicottii</i> )	-	-	-	X
Zone-tailed hawk ( <i>Buteo albonotatus</i> )	-	X	X	-
<b>Total</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>6</b>

<sup>1</sup> Taxa were identified to the lowest taxonomic level possible.

## 5. DISCUSSION

All raptor species are afforded protection under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703-712, as amended), which prohibits the “take” of migratory birds. The regulatory definition of “take,” as provided in 50 CFR 10.12, means to “pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.” Brief species accounts for the eight identified raptor species are provided in **Sections 5.1 through 5.8**. No species listed as threatened or endangered under the Endangered Species Act (ESA; USFWS 2016) were observed.

### 5.1. RAPTOR SPECIES DESCRIPTION, RANGE, HABITAT, AND STATUS

#### 5.1.1. American Peregrine Falcon

Adult peregrine falcons have a wingspan of approximately 39 to 46 inches (99 to 117 cm), weigh roughly 1 to 2 pounds (lbs; 454 to 907 grams; g) (AGFD 2002), and are approximately 14 to 16 inches (36 to 58 centimeters; cm) in length (White et al. 2002). The plumage of adult peregrines is variable in color and pattern; however, most adults are dark blue-grey or brownish on the back, with dark brown- to black-barring and streaking on a buffy-colored breast (Glinski 1998).

In Arizona, peregrines are believed to occur in suitable habitat throughout the state; typically, in elevations ranging from approximately 400 to 9,000 ft (122 to 2,743 m) amsl. Some individuals remain near breeding territories year-round, while others move to lowlands or migrate south to spend the winter (AGFD 2002; Corman and Wise-Gervais 2005). Optimum peregrine habitat is generally considered to be steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting

avian prey species in abundance. In Arizona, the species is most often found in forested regions from pinyon pine-juniper and evergreen oaks to ponderosa pine and mixed conifer, as well as from cold-temperate desertscrub and Sonoran desertscrub habitats (Luensmann 2010).

On August 25, 1999, the peregrine falcon, formerly an endangered species, was removed from the federal list of endangered and threatened species (USFWS 1999). The USFWS now considers the peregrine falcon a Species of Concern (AGFD 2016), and a bird of conservation concern (BCC) in Bird Conservation Regions (BCRs) 33 and 34 (USFWS 2008). The species is also designated as a Tier 1A Species of Greater Conservation Need (SCGN) by the AGFD (2016), and is considered Sensitive by the United States Forest Service (USFS) on Tonto National Forest (TNF 2014), as well as by the Arizona BLM (2010).

### 5.1.2. Common Black-Hawk

This medium- to large-sized raptor has broad, rounded wings, and a hooked beak. Adults typically weigh 1 to 3 lbs (635 to 1,315 g), and are approximately 20 to 22 inches (51 to 56 cm) in length, with a wingspan of approximately 40 to 50 inches (103 to 127 cm). Adults are uniformly black in color, except for a white band on their short, broad tail, which is the most distinctive identification mark for this species (AGFD 2013).

In Arizona, common black-hawks are migratory, and exhibit high site fidelity, returning to the same small breeding territories year after year. The species is known to breed from March-April in areas along remote streams draining the [REDACTED], the [REDACTED] [REDACTED] a, and the [REDACTED] (AGFD 2013). In October, most head south into Mexico to return to their wintering grounds, though occasional individuals have been reported overwintering in southern Arizona (Schnell 1994).

Throughout the state, these hawks are riparian obligate nesters; primarily dependent on mature, relatively undisturbed habitat along perennial drainages with mature gallery forests of broadleaf deciduous trees. Arizona sycamore-dominant drainages account for most Arizona records; though they also occur less frequently along intermittent streams with scattered pools, and along lower elevation streams where cottonwood (*Populus* spp.) is the dominant tree species (Corman and Wise-Gervais 2005).

The common black-hawk is currently designated by USFWS as a BCC in BCR 34 (USFWS 2008). The species is also listed as a Tier 1C SCGN by the Arizona Game and Fish Department (AGFD 2016), and a USFS Management Indicator Species (MIS) on TNF (TNF 2014).



### 5.1.3. Cooper's Hawk

Cooper's hawks are medium-sized woodland raptors with relatively short, rounded wings and long, rounded tails. Adults weigh approximately 1 lb (454 g), and are roughly 17 inches (42 cm) in length, with a wingspan of approximately 31 inches (80 cm) (Sibley 2000). Mature males are a uniform blue-gray in the crown and upper plumage, and have rufous transverse barring underneath. Adult females are mostly brown above with barring similar to that of males underneath (Snyder and Snyder 1998).

In Arizona, this species is present year-round throughout the state, where it is predominantly found in low- to mid- elevation riparian woodlands along drainages and canyons, and sometimes near isolated desert foothill springs. Vegetation in these areas is often characterized by large deciduous trees including cottonwood, willow (*Salix* spp.), ash (*Fraxinus* spp.), and mesquite (*Prosopis* spp.). Cooper's hawks are also often found along sycamore-dominant drainages and forested areas including pinyon-juniper woodlands, ponderosa pine forests, and evergreen oak woodlands (Corman and Wise-Gervais 2005).

With the exception of the MBTA (**Section 5**), this raptor species has been afforded no protection in the state of Arizona.

### 5.1.4. Elf Owl

Elf owls are the smallest owls worldwide (Corman and Wise-Gervais 2005). Adults weigh approximately 0.1 lb (35 to 55 g), are typically 5 to 6 inches (12 to 14 cm) in length (Henry and Gehlbach 1999), and have a wingspan of approximately 13 inches (33 cm) (Sibley 2000). Adults are also grayish-brown in color, with buff mottling on their backs, and a grayish-colored breast with gray-to-brown vertical streaks. Distinct white "eyebrow" marks and lack of ear tufts are indicative of this species (Henry and Gehlbach 1999).

In Arizona, this species is most commonly found breeding in suitable habitat throughout the southern and central portions of the state. Its' northern limits within the state are from [REDACTED], and [REDACTED] (Corman and Wise-Gervais 2005). The species' wintering range is in Mexico, though it is poorly documented (Henry and Gehlbach 1999).

Elf owls are commonly found in open Sonoran Desert landscapes in areas with an abundance of saguaros and scattered thorny trees, though the species can also be found along densely wooded dry washes, in lowland riparian woodlands, canyon riparian forest, and less frequently at lower elevations where saguaros are sparse or absent. In southeastern Arizona, the species has also been documented along sycamore drainages containing Madrean Evergreen Woodland on the lower slopes. Cavities in saguaros or trees are required for nest sites (Corman and Wise-Gervais 2005; Henry and Gehlbach 1999).

This species is currently designated by USFWS as a BCC in BCRs 33 and 34 (USFWS 2008).

#### **5.1.5. Harris' Hawk**

This medium- to large-sized raptor has relatively long legs and a long tail. Adult Harris' hawks weigh approximately 1 to 4 lbs (515 to 1,630 g), and are typically 18 to 23 inches (46 to 59 cm) in length with a wingspan of approximately 40.6 to 46.9 inches (103 to 119 cm). The species' plumage is a bold chocolate brown to almost black color, with rusty red-colored upper wing coverts, wing lining, and flanks, and white upper and lower tail coverts (Dwyer and Bednarz 2011).

In Arizona, this species' distribution closely follows the more densely-vegetated Sonoran Desert regions found throughout the south-central portion of the state. Harris' hawks are primarily resident, and can be found year-round in a variety of arid, open country environments including Sonoran desertscrub communities, specifically where paloverde and saguaros are prevalent; in semiarid grasslands along washes and near earthen tanks where taller and denser vegetation is often present, along perennial rivers and streams in desert landscapes, and less commonly in and around rural and urban communities (Corman and Wise-Gervais 2005).

With the exception of the MBTA (**Section 5**), this raptor species has been afforded no protection in the state of Arizona.

#### **5.1.6. Turkey Vulture**

Adult turkey vultures typically weigh around 4 lbs (2,000 g), are approximately 25 to 32 inches (64 to 81 cm) in length, and have a wingspan of approximately 59 to 79 inches (150 to 200 cm). Adults have an unfeathered and red-colored head, and blackish-brown plumage (Kirk and Mossman 1998).

During the breeding season, this large, long-winged vulture is found throughout Arizona, though they are considered to be more sparsely distributed in the northeast portion of the state. In winter, the species is considered an uncommon resident in southern Arizona, primarily found below 1,000 ft (305 m) elevation. In Arizona, turkey vultures are most commonly observed in Sonoran desertscrub and pinyon pine-juniper habitats, however, can be seen soaring above all habitat types, at most elevations throughout the state. Within these habitats, the species favors rocky outcrops, cliffs, canyon walls, tall trees, transmission towers, and telephone poles for perching and roosting (Corman and Wise-Gervais 2005).

With the exception of the MBTA (**Section 5**), this raptor species has been afforded no protection in the state of Arizona.

#### **5.1.7. Western Screech-Owl**

The western screech-owl is a small, stocky, cryptically colored bird with a large head, a short body, and long wings. Adults are typically between 8 to 10 in (19 to 26 cm) in length. Their weight, which

often fluctuates throughout the year, ranges from approximately 0.2 to 0.7 lbs (100 to 305 g) (Cannings and Angell 2001), and wingspan is typically 20 inches (51 cm) (Sibley 2000). Like many small owls, the western screech-owl has conspicuous “ear tufts,” feathers that sprout vertically from the top of their head. These tufts are typically erect only during the day; at night, the bird’s head appears round (Bowers 1998).

This species is nonmigratory, and is considered a common resident throughout most of Arizona. It is found primarily from 180 to 6,500 ft (55 to 1,951 m) amsl, though has been documented locally in suitable habitat to just above 7,500 ft (2,286 m). Western screech-owls more common in the southern and central regions of the state than they are in the areas north of the Mogollon Rim, and are considered scarce in the northeast portion of the state (Corman and Wise-Gervais 2005).

Western screech-owls have been documented in numerous habitat types, though they are most commonly associated with low-elevation deserts and woodlands. In Arizona, western screech-owls are most often documented in the Sonoran Desert uplands of saguaro, ironwood, and paloverde, and in lowland wooded drainages dominated by cottonwood, willow, sycamore, and mesquite. The species has also been recorded in pinyon-juniper woodlands, in the lower open edges of Madrean evergreen oak woodlands, and less commonly in woodlands with scattered ponderosa pine (Corman and Wise-Gervais 2005). Within these areas, it nests within cavities found in trees, large cacti, hollow stumps, and crevasses in rocks or buildings, and preys primarily on rodents, but also on small birds, amphibians, reptiles, fish, and invertebrates (Bowers 1998; Cannings and Angell 2001).

With the exception of the MBTA (**Section 5**), this raptor species has been afforded no protection in the state of Arizona.

#### **5.1.8. Zone-Tailed Hawk**

These mid-sized hawks have long, narrow wings that extend to the tip of their tail when perched. Adults are a slaty black color overall, except for the tail, which has bands that are grayish-white in color. These tail bands vary between sexes. Adult females have 1 wide and 2 narrow tail-bands, while adult males have 1 wide and 1 narrow tail-band. The weight of an adult zone-tailed hawk is typically 1 to 2 lbs (610 to 940 g). Length ranges from approximately 18 to 22 inches (45 to 56 cm), and wingspan from approximately 18 to 22 inches (119 to 140 cm) (Johnson et al. 2000).

In Arizona, zone-tailed hawks are considered fairly common summer residents of the northwestern, central, south-central, and southeastern portions of the state (Corman and Wise-Gervais 2005). In winter, the species is considered rare and local in the southern portion of the state, where few individuals have been documented in Yuma and Maricopa Counties, as well as from the Tucson region (Johnson et al. 2000). The species is found breeding in a variety of habitats including high elevation ponderosa pine forests, Madrean pine oak woodlands, and mixed conifer forests, lowland riparian

areas dominated by Arizona sycamore and/or Fremont cottonwood, and even locally along dry desert washes where large paloverde and velvet mesquite are the dominant species. Foraging often occurs in adjacent habitats such as grasslands, deserts, and along cliff faces and rocky ridges (Corman and Wise-Gervais 2005).

With the exception of the MBTA (**Section 5**), this raptor species has been afforded no protection in the state of Arizona.

## **5.2. PREVIOUS SURVEYS CONDUCTED ALONG THE SURVEY TRANSECTS**

WestLand has conducted baseline avian studies in the vicinity of the Project since 2003. These studies include several surveys for breeding raptors, some of which were conducted in Devils Canyon (WestLand 2009; 2012a) and Mineral Creek (WestLand 2012a). Opportunistic observations of raptors were also recorded during wildlife camera monitoring studies in Devils Canyon (WestLand 2012b; 2014; 2016b).

Many of the raptor species that have been previously observed by WestLand in Devils Canyon and Mineral Creek were also documented during the 2016 raptor survey; though, not all. In Devils Canyon, five additional species have been recorded by WestLand that were not documented during the 2016 Raptor Survey: Cooper's hawk, golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (WestLand 2009; 2012a). Four additional species, zone-tailed hawk, red-tailed hawk, golden eagle, and great horned owl (*Bubo virginianus*) were previously recorded in Mineral Creek (WestLand 2012a). No additional raptor species have been recorded by WestLand at Whitlow Ranch Dam, as the 2016 survey is the first WestLand has conducted for raptors in the area.

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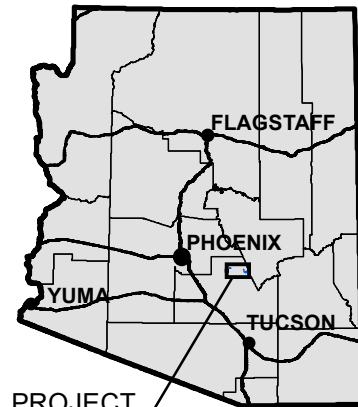


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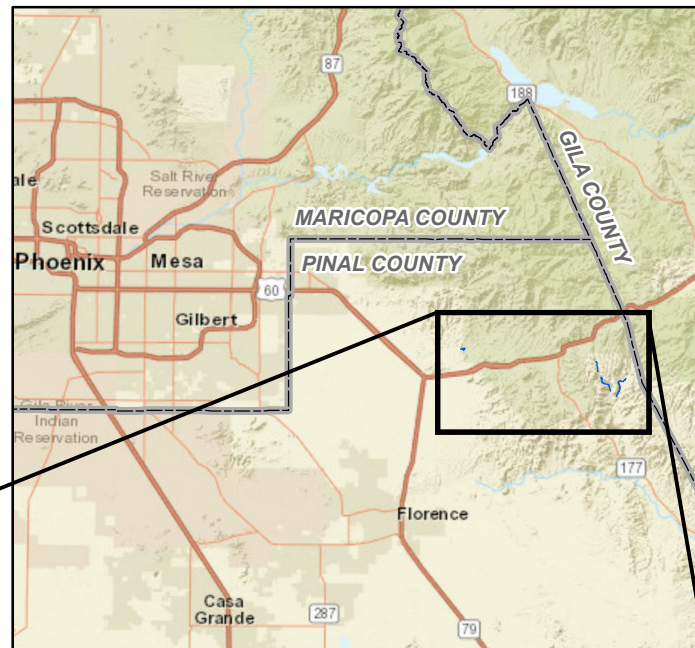
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## FIGURES

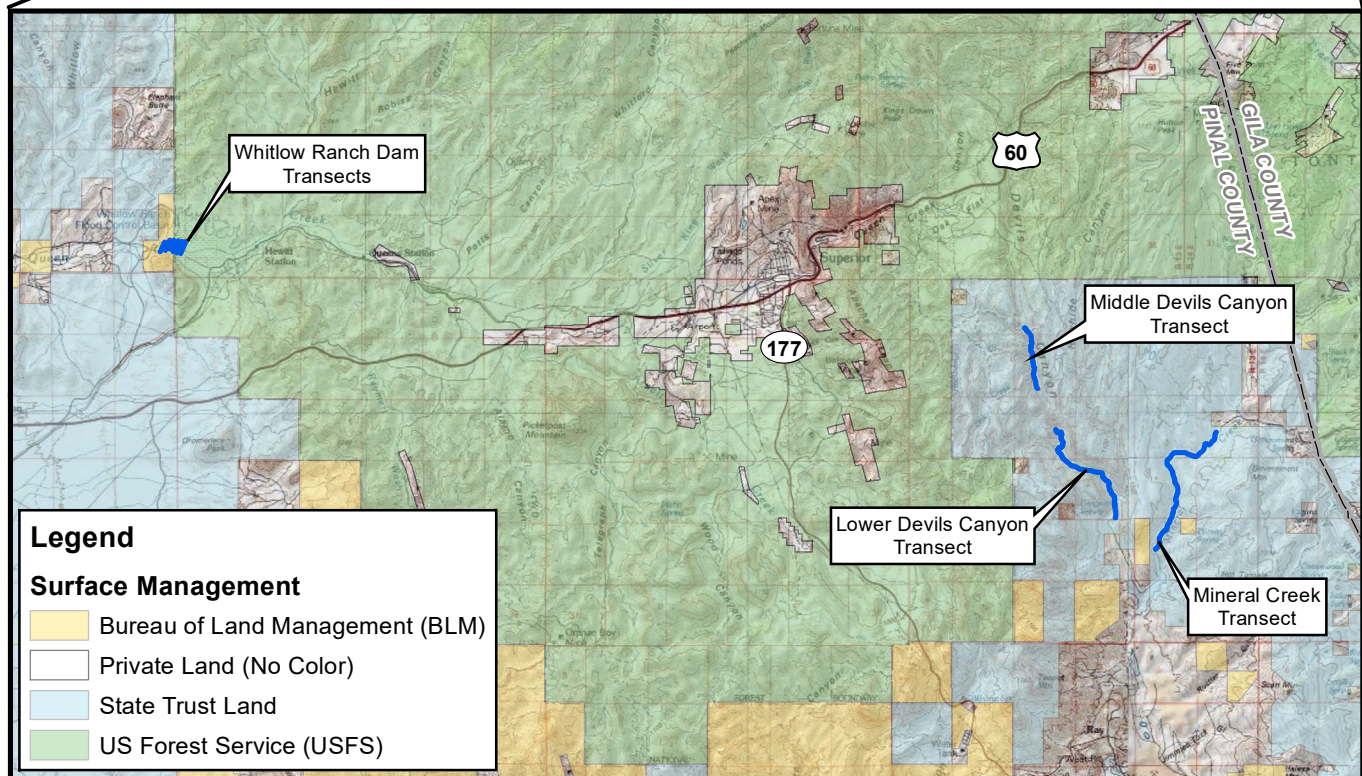
## ARIZONA

PROJECT  
LOCATION

## PORTION OF PINAL COUNTY



Approximate Scale 1 Inch = 20 Miles



Survey Transects in:  
 T1S, R10E, Portion of Section 36  
 T1S, R11E, Portions of Protracted Blocks 51 and 52 (Sections 31 and 32)  
 T2S, R13E, Portions of Sections 4, 9, 13, 14, 16, 21-23, and 26,  
 Pinal County, Arizona,  
 Mesa and Globe 1:100,000 USGS Quadrangles  
 Image Source: ArcGIS Online USA Topo, and World Street Map  
 Surface Management: BLM 2012 (WRI modified 2015)

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 2016 Raptor Survey Report  
 Whitlow Ranch Dam, Devils Canyon,  
 and Mineral Creek, Pinal County, Arizona

VICINITY MAP

Figure 1

  
 WestLand Resources


0 1.5 3 Miles  
 0 2.5 5 Kilometers









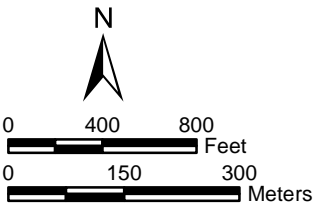
**Legend**

Transect

**Surface Mangement**

State Trust Land

Survey Transects in:  
T2S, R13E, Portions of Sections 4 and 9,  
Pinal County, Arizona,  
Superior USGS 7.5' Quadrangle (2014)  
Surface Mangement: BLM 202 (WRI modified 2015)  
Image Source: 2015 USDA NAIP Orthophoto



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MIDDLE DEVILS CANYON TRANSECT

Figure 3







