

**WESTERN YELLOW-BILLED CUCKOO
SURVEY 2011**

DEVILS CANYON AND MINERAL CREEK

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EXECUTIVE SUMMARY

WestLand Resources, Inc. (WestLand), conducted surveys for the Western Yellow-billed Cuckoo (WYBC; *Coccyzus americanus occidentalis*) in portions of Devils Canyon and Mineral Creek in the months of June through August, 2011 (*Figure 1*). These surveys were conducted in accordance with USFWS protocol. Habitat, similar to habitats known to support this species, occurs in Mineral Creek and a portion of Devils Canyon (the Study Area). WestLand detected up to six individual WYBC in Mineral Creek but there was only one unconfirmed sighting in Devils Canyon during surveys. Based on published criteria for determining breeding status for this species (Halterman et al. 2009), there appear to be up to six breeding pairs in Mineral Creek. The identification of the bird seen in Devils Canyon during the July 12, 2011 survey was unconfirmed, and it was not detected during subsequent surveys. Therefore, we cannot conclude that the WYBC was present in Devils Canyon in 2011.

1. INTRODUCTION

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Mining (RCM) to conduct surveys for the Western Yellow-billed Cuckoo (WYBC) in portions of Devils Canyon and Mineral Creek, Arizona. The WYBC was petitioned to be listed as endangered under the Endangered Species Act (ESA) in 1998 (Center for Biological Diversity 1998). In 2001, the U. S. Fish and Wildlife Service (FWS) issued a finding that the petitioned action was warranted but was precluded by higher listing priorities and added this bird to its list of candidate species (FWS 2001). A settlement agreement between the FWS and WildEarth Guardians filed in the United States District Court for the District Of Columbia (Case 1:10-mc-00377-EGS Document 31 Filed 05/10/11) outlined a timetable for resolving decisions on 251 species. The WYBC is one of 24 species in Arizona affected by the settlement agreement. In accordance with the requirements of the settlement agreement, the FWS must publish proposed rules to list for the WYBC or withdraw it from the candidate list in 2013. The WYBC is also a Tonto National Forest (TNF) sensitive species and is a wildlife species of special concern in Arizona (TNF 2011).

The FWS recognizes the WYBC as a distinct population segment (DPS) inclusive of all breeding Yellow-billed Cuckoos west of the Rocky Mountains (FWS 2001). Morphological data suggest that WYBC are significantly larger than their eastern counterparts (Franzreb and Laymon 1993). Additionally, these cuckoos migrate later, breed later, and demonstrate different habitat preferences than their eastern counterparts (Franzreb and Laymon 1993). Pruett et al. (2001) found genetic divergence between the eastern and western subspecies, consisting of four fixed base changes in the cytochrome b gene that resulted in conformational changes in the cytochrome b protein.

Some have argued that in western North America, the WYBC has experienced severe restrictions in its range during the twentieth century due to the destruction of riparian habitats and pesticide use (Hughes 1999). It is now extirpated from British Columbia, Washington, Oregon, Nevada, and most of its historical range in California (Laymon and Halterman 1987, Hughes 1999). However, results from the American Breeding Bird Survey demonstrate that this species (WYBC) has only had a 1.7% net reduction in its total population from 1966 to 2007 across all states (Sauer et al. 2007). In Sauer's 2007 report, there were limited data (n=3) reported from Arizona.

The WYBC is a habitat specialist that prefers continuous areas of dense riparian habitat dominated by native tree species, especially cottonwoods and willows, for breeding (Johnson 2009). This species may also use mesquite bosques and smaller stands or isolated cottonwoods mixed with mesquites (Arizona Game and Fish Department [AGFD] 2002). Within Arizona, this species ranges throughout the central and southern portions and the extreme northeastern corner of the state at elevations between 90 and 6,170 feet above mean sea level (AGFD 2002). Cuckoos have been reported along the Gila and San Pedro Rivers in Pinal County, on Pinal Creek, Pinto Creek, Tonto Creek, and the Salt River in Gila County, and on the Salt and Verde Rivers in Maricopa County (AGFD 2004, Johnson et al. 2006a).

The objective of these surveys was to determine the presence and abundance of WYBC along surveyed segments of Devils Canyon and Mineral Creek (*Figure 1*). The most likely locations within the vicinity of the Mine Area to support the WYBC are the stands of alders and cottonwoods in Devils Canyon and

the cottonwood/willow riparian forest along portions of Mineral Creek (the Study Areas). The reach of Devils Canyon surveyed in this study is dominated by Arizona alder (*Alnus oblongifolia*) and velvet ash (*Fraxinus velutina*), with some scattered Arizona sycamore (*Platanus wrightii*), and Fremont cottonwood (*Populus fremontii*). The riparian habitat along Mineral Creek includes Fremont cottonwood, Goodding willow (*Salix gooddingii*), Bonpland willow (*Salix bonplandiana*), velvet ash, and Arizona sycamore. No WYBC were found during point counts for birds in the Devils Canyon in 2008. These surveys were general avian surveys and not species specific (WestLand 2009). AGFD's Heritage Database Management System (HDMS) reports no records of WYBC within three miles of the riparian habitats of Devils Canyon and Mineral Creek (AGFD 2011).

2. METHODS

WestLand biologists surveyed for WYBC along a selected segment of Devils Canyon, [REDACTED] (measured from the confluence with Mineral Creek) (*Figure 1, 2 & 3*) and along the portion of Mineral Creek flowing through State land, [REDACTED] (measured from the confluence with Gila River) (*Figure 1, 4 & 5*). The reach of Devils Canyon [REDACTED] included in this survey was selected because the dense riparian forest seemed to be most suitable for this species. The available riparian habitat in this section of Devils Canyon is narrow enough that WYBC could be detected across the breadth of the riparian zone, so it could be covered in a single transect. Between [REDACTED] calling points were needed to cover the linear extent of the surveyed habitat in the Devils Canyon over the five survey periods (*Figure 2 & 3*).

The segment of Mineral Creek in our survey area is [REDACTED] in length beginning at the west boundary with Government Springs Ranch, traversing the State Trust land, and ending at the boundary with ASARCO property. Available riparian habitat along Mineral Creek is sufficiently narrow to allow calling points to be placed along a single transect. Surveys at Mineral Creek over the first three survey periods required between [REDACTED] calling points to cover the linear extent of the suitable habitat (*Figure 4 & 5*). During the fourth survey at Mineral Creek, data were collected at 23 calling points before potentially dangerous weather conditions required an early end to that survey. These 23 calling points covered most of the linear extent of the habitat, [REDACTED]

Each survey (five in Devils Canyon and four in Mineral Creek [*Table 1*]) was conducted on transects through the available riparian habitat, with calling points spaced about 110 yards (100 meters) apart. At each point, five calls were broadcast at one minute intervals, with the observers listening and watching for cuckoos during this period. If an unsolicited detection of a cuckoo was made while walking between points or in response to playbacks at a sample point, the next calling point was located approximately 330 yards (300 m) away from the detection to reduce the risk of drawing a bird away from its nest area. Therefore, the number of calling points varied between surveys if birds were detected. UTM coordinates (NAD83) of all calling points were recorded during each survey. During repeat surveys we used these data to avoid calling from identical points. Calling surveys began at sunrise and continued until noon or until the temperature reached 104°F (40°C), whichever came first.

The WYBC protocol calls for four survey periods for each site, with a specific schedule of survey times between mid-June and mid-August (Haltermann et al. 2009) (*Table 1*). The protocol goes on to require that there must be a minimum of 12 days and no more than 20 days between surveys. Two optional survey protocols are also identified: A pre-survey (late May to mid-June) and a fifth survey (mid-August to mid-September).

Table 1. Western Yellow-billed Cuckoo Survey Periods

Time Period	Devils Canyon 2011 Survey Dates	Mineral Creek 2011 Survey Dates
Pre-Survey – Late May to mid-June (Optional)	None	None
Survey 1 – Mid-June to late June (Required)	June 14	June 15-16
Survey 2 – Late June to mid-July (Required)	June 27	June 28-29
Survey 3 – Mid-July to late July (Required)	July 12	July 13-14
Survey 4 – Early August to mid-August (Required)	July 25-26	July 27
Survey 5 – Mid-August to mid-September (Optional)	August 12	None

3. RESULTS AND DISCUSSION

The single potential WYBC detection in Devils Canyon during the 2011 survey season is unconfirmed, since the bird observed was seen only briefly through dense foliage and did not respond vocally to the playback (*Table 2; Figure 2 & 3*). WYBC was not detected during any of the other three visits and was not detected during the optional late season survey effort conducted on August 12, 2011.

Table 2. Western Yellow-billed Cuckoo Detections in Devils Canyon

Survey Period	Survey Dates	Detection Location (NAD83 UTM Zone 12S)	Visual Detection	Call-back Detection
1	June 14, 2011		No	No
2	June 27, 2011		No	No
3	July 12, 2011		Unconfirmed	No
4	June 25/26, 2011		No	No
Optional	August 12, 2011		No	No

There are sections of Devils Canyon that were not surveyed this year (*Figure 2*). [REDACTED]
 [REDACTED]
 [REDACTED] We conducted a one-time opportunistic survey of a middle section of this segment in which we did not detect any WYBC. However, observations suggested that perennial water resumes farther downstream and there is some riparian vegetation that might be suitable for WYBC. Further north, there is an approximately [REDACTED]
 [REDACTED] below the south end of our survey area that is difficult to access because of waterfalls and steep canyon walls (*Figure 2*). Some of this section is dry and the width of riparian habitat may be too narrow in some areas to support WYBC. About half-way along its length, riparian vegetation becomes wider and denser. Above our survey area, for approximately [REDACTED]
 [REDACTED]

there is less dense riparian vegetation and creek flow is intermittent. In general, this upper portion of Devils Canyon does not appear to provide suitable habitat for WYBC.

Western Yellow-billed Cuckoos were detected in the riparian corridor along Mineral Creek on the first three of the four survey dates (*Table 3; Figure 4 & 5*). Eight visual observations of cuckoos were made along Mineral Creek on five separate days. One was seen on June 16, 2011, another on June 28, 2011, three on June 29, 2011, one on July 13, 2011, and two on July 14, 2011. Cuckoos were heard calling in response to taped calls in Mineral Creek three times: once on June 28, 2011 and twice on July 13, 2011 (*Table 3; Figure 4 & 5*).

Table 3. Western Yellow-billed Cuckoo Detections in Mineral Creek. Entries indicate if WYBC were detected using each method on specified dates and the UTM locations of the detections.

Survey Period	Survey Date	Detection Location	Visual Detection	Call-back Detection
1	June 16, 2011		Yes	No
2	June 28, 2011		No	Yes
	June 28, 2011		Yes	No
	June 29, 2011		Yes	No
	June 29, 2011		Yes	No
	June 29, 2011		Yes	No
3	July 13, 2011		No	Yes
	July 13, 2011		No	Yes
	July 13, 2011		Yes	No
	July 14, 2011		Yes	No
	July 14, 2011		Yes	No
4	July 27, 2011		No	No

The survey results in Mineral Creek suggest up to six cuckoos were detected (*Figure 4 & 5*). According to the survey protocol (Halterman et al. 2009), detections more than 330 yards (300 m) apart are considered detections of separate cuckoos. Conversely, detections less than 330 yards (300 m) of each other should be considered detections of the same cuckoo, even if they were made on different days. Visual inspection of *Figure 3* shows that there is some overlap between detections, but there are six distinct groups of detections that do not overlap. Thus, according to the guidance for interpreting results provided in the survey protocol, up to six individual birds were likely detected along Mineral Creek. Additionally, given the proximity of some detections, three birds along Mineral Creek were likely observed repeatedly on different dates (two on two separate dates and one on three separate dates), and one bird was likely observed twice on July 14, 2011. These data suggest that there were as many as six breeding pairs along this segment of Mineral Creek.

Little is known about the breeding behaviors of the WYBC and determining the breeding status of cuckoos encountered is usually not possible (Halterman et al. 2009). However, breeding status can be determined using behavior and can be estimated by repeated observations and the timing of observations. In particular, Halterman et al. (2009) point out that most cuckoos detected during the third survey period are mated. In this survey, none of the cuckoos detected displayed any behaviors that definitively indicated breeding.

Based on this study, Mineral Creek appears to provide suitable habitat for WYBC along most of the surveyed reach, and it is likely that this location supports breeding pairs, though no nests were found. Only one unconfirmed sighting of WYBC was made during the five surveys for WYBC conducted in 2011 (*Figure 2 & 3*) along the surveyed portions of Devils Canyon.

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FIGURES

