



Technical Memorandum 27: 2013 Yellow-Billed Cuckoo Surveys

in support of the
Environmental Impact Statement

West Davis Corridor Project

Federal Highway Administration
Utah Department of Transportation



UDOT Project No. S-0067(14)0

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1.0 Purpose

The West Davis Corridor (WDC) Project could directly and indirectly affect riparian habitat. Although yellow-billed cuckoos (*Coccyzus americanus*) are rare in Utah, they might inhabit riparian areas. As described in the Draft Environmental Impact Statement (EIS) for the project, the Utah Department of Transportation (UDOT) in consultation with the U.S. Fish and Wildlife Service (USFWS) committed to conduct surveys for yellow-billed cuckoos (YBCU) during the appropriate season in 2013 and report the results in the Final EIS.

To help determine whether cuckoos are present in the WDC study area, biologists with HDR, Inc., evaluated riparian corridors throughout the WDC study area to select sites with potentially suitable habitat for cuckoos. Three sites were selected in which to conduct cuckoo surveys in 2013. Attachment A provides an overview of the survey site locations.

Species-specific yellow-billed cuckoo surveys were conducted in accordance with *Standard Operating Procedure (SOP) #3: Conducting Yellow-billed Cuckoo Surveys* (Halterman et al. 2010), which was provided by the USFWS Utah Ecological Services Field Office.

What is the WDC study area?

The WDC study area is the area bounded on the north by 3000 South in Hooper and West Haven, on the south by about Parrish Lane in Centerville, on the east by Interstate 15 (I-15), and on the west just east of the Great Salt Lake.

2.0 Species Description and Habitat Requirements

Yellow-billed cuckoos are about 12 inches long with a slim profile and a long tail (VRHCRP 2007). The bill is fairly thick and curves down at the tip. In adults, the lower half of the bill is yellow, while the upper half is blue to black. The top of the head and back is grayish-brown, while the neck and underside of the bird are mainly white. The underside of the long tail has a characteristic pattern of white, oval spots on a black background (VRHCRP 2007).

Although yellow-billed cuckoos are relatively abundant in the U.S. east of the Continental Divide and are considered a “species of least concern,” the western subspecies (*C. a. occidentalis*) has declined due to human development and reduction of suitable riparian habitat. Currently, the yellow-billed cuckoo is federally listed as a candidate species (USFWS 2013) under the Endangered Species Act and is listed as a sensitive species by the State of Utah (UDWR 2011).

Yellow-billed cuckoos have one of the most restrictive suites of habitat requirements of any bird species (Laymon 1998). Cuckoos typically breed in riparian habitat where vegetation is dominated by cottonwoods and willows (Laymon and Halterman 1987). A multistory habitat structure is important to the habitat’s suitability because nesting generally occurs in dense willow understories, while foraging occurs in the cottonwood canopy (Laymon and Halterman 1987). Known nest sites are characterized by high canopy closure (sites with

greater than 65% canopy closure are considered optimal, while sites with less than 40% canopy closure are considered unsuitable), high foliage volume, and intermediate basal area.

The size and width of riparian habitat also influence the abundance and distribution of yellow-billed cuckoos. Sites greater than 80 hectares in size and more than 600 meters wide are considered optimal; sites 41 to 80 hectares in size and wider than 200 meters are considered suitable; sites 20 to 40 hectares in size and 100 to 200 meters in width are considered marginal; and sites less than 15 hectares in size and less than 100 meters in width are considered unsuitable (Laymon and Halterman 1989).

3.0 Survey Methods

All surveys performed in 2013 were conducted in accordance with the 2010 SOP for detecting yellow-billed cuckoos (Halterman et al. 2010). The survey procedure included broadcasting an audio recording of a yellow-billed cuckoo *kowlp* call. Broadcast point locations were spaced about 100 meters apart to avoid broadcasting to an individual cuckoo twice. The number of broadcast points varied at each monitoring site depending on the locations of available habitat and the length of the site.

A total of 23 broadcast points were selected for the three survey sites. Attachment B provides maps of each survey site and the broadcast point locations. Ten broadcast points were selected for the Farmington Creek site (Attachment B-1), six for the Haight Creek site (Attachment B-2), and seven for the Howard Slough site (Attachment B-3).

At each broadcast point, the surveyor used a GPS (global positioning system) unit to record UTM (Universal Transverse Mercator) coordinates. Other data recorded included the time of broadcast, temperature, wind code (SOP Table 3.4), habitat structure, precipitation code (SOP Table 3.5), and noise code (SOP Table 3.6). Notes were taken at each point that included observations such as bird species detections, habitat type, vegetation, and other audio or visual occurrences.

In accordance with the 2010 SOP for detecting yellow-billed cuckoos, the surveyor waited 1 minute at each broadcast point before and after playing the audio recording. Each broadcast consisted of playing an audio recording of a yellow-billed cuckoo *kowlp* call at the highest volume possible without distortion. The 1-minute interval between calls was used to look for cuckoos. For more details, see Section 3.10 of the 2010 SOP.

3.1 Monitoring Schedule

The 2010 SOP for detecting yellow-billed cuckoos requires that monitoring sites be visited four times during the breeding season in order for an annual survey to be considered complete. The second and subsequent visits must occur 12 to 20 days after the previous visit. The monitoring dates for the WDC surveys were:

- Survey 1 – June 19, 2013
- Survey 2 – July 9, 2013
- Survey 3 – July 26, 2013
- Survey 4 – August 7, 2013

Monitoring began near sunrise and finished before temperatures reached 104 degrees Fahrenheit or at 12:00 noon, whichever came first, as required by the 2010 SOP. Sites were visited in reverse order every other survey to ensure that the sites were visited at different times of the day.

4.0 Monitoring Sites

This section describes the habitat characteristics of each of the three survey sites. Attachment D provides representative photographs of each survey site.

4.1 Farmington Creek

The Farmington Creek site is mainly located just north of the location where WDC Alternatives A1, A2, B1, and B2 (which use the Glovers Lane option) cross Farmington Creek. The reach of Farmington Creek that was surveyed is bordered by agricultural fields and residential developments (see Attachment B-1). Based on the initial habitat evaluation and in comparison with the other two survey sites, the Farmington Creek site appeared to contain habitat with characteristics that most closely approximate suitable habitat criteria for yellow-billed cuckoos.

Vegetation at this site is dominated by native riparian species, mainly crack willow (*Salix fragilis*), Fremont cottonwood (*Populus fremontii*), and box elder (*Acer negundo*). While the composition of vegetation species is somewhat variable along the site corridor, it is generally 60% to 80% willow, 5% to 20% cottonwood, and 10% to 40% box elder. Tree height averages 40 to 60 feet, and the canopy is 50% to 85% closed. The substory and understory are limited with few small trees and shrubs and little herbaceous ground cover in the site interior and mostly pasture grasses and cultivated crops toward the habitat edges. The width of the habitat area (by canopy cover) ranges from about 27 to 57 meters.

4.2 Haight Creek

The Haight Creek site is mainly located within the footprints of WDC Alternatives A3, A4, B3, and B4 (which use the Shepard Lane option) toward I-15 (see Attachment B-2). The site is bordered on the south and to the west by residential developments and agricultural areas and on the north by I-15.

The site consists of a mixture of native and exotic vegetation. The southern end of the site consists of a few large cottonwood and box elder trees that average 40 to 60 feet tall scattered around an open marshy area dominated by common reed (*Phragmites australis*) and clusters of shrubby vegetation (about 10 to 15 feet tall) dominated by Douglas hawthorn (*Crataegus douglasii*). Although the hawthorn and other shrubs at the southern end of the site create patches of fairly dense woody understory, the spacing among these patches and larger trees results in a relatively open canopy (about 10% to 15% closed canopy).

The middle part of the site is also relatively open (about 10% closed canopy), just north of where the site is intersected by the Denver & Rio Grande Western (D&RGW) Railroad rail trail.

The northern part of the site, which is intersected by Shepard Lane, is dominated by Fremont cottonwood and box elder that average 40 to 60 feet tall and scattered Gambel oak (*Quercus gambelii*) and big-tooth maple (*Acer grandidentatum*) that form a woody substory in some places. The canopy in most of this part of the site is relatively closed (about 40% to 70%), while the understory includes saplings, grasses, litter, and common reed near the creek.

4.3 Howard Slough

The Howard Slough site is west of Alternatives A1, A2, A3, and A4 (west of Clinton) toward the northern end of the WDC study area (see Attachment B-3). Howard Slough is surrounded by agricultural fields.

The riparian zone vegetation is mainly exotic, dominated by Russian olive (*Elaeagnus angustifolia*) with a few scattered Siberian elm (*Ulmus pumila*) and box elder. Russian olive trees average 25 to 40 feet tall and create a relatively dense layer of vegetation from near the ground to the top of the canopy (about 60% to 85% closed canopy).

5.0 Results

No yellow-billed cuckoos were detected during the surveys conducted in 2013. Attachment C provides the survey detection forms, and Appendix E provides a list of bird species documented during the surveys. Based on our evaluation of the characteristics of the survey sites and consideration of the species' habitat requirements, yellow-billed cuckoos might not inhabit these areas because the areas do not appear to contain suitable habitat for this species.

The Farmington Creek site is the only site that both is dominated by native tree species and has a relatively closed canopy. However, the band of woody vegetation along the creek is quite narrow (27 to 57 meters), and the vegetation is not considered to be multistory. The main part of the survey area north of Glovers Lane is 1,958 meters long, and a small segment south of Glovers Lane is 350 meters long. The extent of total habitat area (by canopy cover) is 6.3 hectares. Sites less than 15 hectares in size and less than 100 meters in width are generally considered unsuitable for this species.

The composition and structure of woody vegetation along the Haight Creek site is quite variable. Based on the 2010 SOP habitat classification, the southern and middle parts of this site are classified as a "mixed native habitat" class, but the relatively open canopy in this area is not considered suitable for yellow-billed cuckoos. The northern part of this site can be classified as "native habitat" and contains a relatively closed canopy with somewhat multistoried structure. However, the extent of woody riparian habitat for the entire site is only 2.3 hectares. Additionally, the northern part of this site is intersected by Shepard Lane and abuts I-15 on the north end.

The Howard Slough site is dominated by Russian olive trees that are about 25 to 40 feet tall. This site is classified as "exotic habitat." The Russian olive stands have dense foliage and form a relatively closed canopy. The mostly continuous band of woody riparian vegetation is about 621 meters long and varies from about 12 to 43 meters wide. The extent of total habitat area is 2.3 hectares. Based on the lack of native species (particularly cottonwoods and willows) and the extent of woody riparian habitat, this site appears to be unsuitable for yellow-billed cuckoos.

In summary, no contiguous, large, high-quality riparian habitat for yellow-billed cuckoos would be removed by any of the WDC action alternatives, and no cuckoos were identified during the surveys. Therefore, the WDC would have no effect on yellow-billed cuckoos.

6.0 References


- Halterman, M., M.J. Johnson, and J.A. Holmes. 2010. Western Yellow-billed Cuckoo Survey Standard Operating Procedure (SOP) #3. Draft. May 24. www.southernsierraresearch.org/Workshop/YellowBilledCuckooWorkshop/Materials/YBCU%20Survey%20SOP%203_Draft_6-7-12%20with%20survey%20form.doc.
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- Laymon, S.A., and M.D. Halterman. 1987. Can the western subspecies of the yellow-billed cuckoo be saved from extinction? *Western Birds* 18: 19–25.
- . 1989. A proposed habitat management plan for yellow-billed cuckoos in California. Forest Service General Technical Report PSW-110, pp. 272–277. www.fs.fed.us/psw/publications/documents/psw_gtr110/psw_gtr110_f_laymon.pdf.
- [UDWR] Utah Division of Wildlife Resources. 2011. Utah Sensitive Species List. dwr.cdc.nr.utah.gov/ucdc/ViewReports/SSL_20110329.pdf.
- [USFWS] U.S. Fish and Wildlife Service. 2013. Species Profile for Yellow-Billed Cuckoo (*Coccyzus americanus*). ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06R.
- [VRHCRP] Virgin River Habitat Conservation and Recovery Program. 2007. Western Yellow-Billed Cuckoo. vrhcrp.mesquitenv.gov/data/species/yellowbilledcuckoo.pdf.

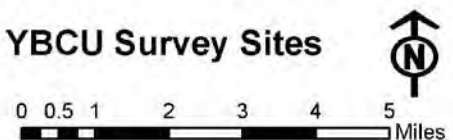


Attachment A – Overview Map of 2013 YBCU Survey Sites



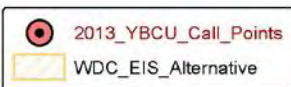
Attachment A Overview Map of 2013 YBCU Survey Sites

 Survey Site in WDC Study Area



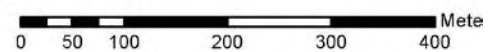


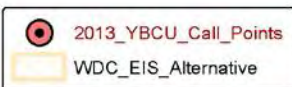
Attachment B – 2013 YBCU Survey Site Maps



Attachment B-1 Farmington Creek Site

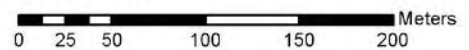
2013 YELLOW-BILLED CUCKOO SURVEY

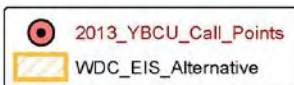




Attachment B-2 Haight Creek Site

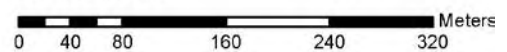
2013 YELLOW-BILLED CUCKOO SURVEY





Attachment B-3 Howard Slough Site

2013 YELLOW-BILLED CUCKOO SURVEY





Attachment C – 2013 YBCU Survey Detection Forms



Yellow-Billed Cuckoo (YBCU) Survey Detection Form

Page 1 of 1

☐ Non-Survey Detection (check box)

0 Total YBCU Detected

[illegible]

Notes: 1 - nearby road and construction activity; mostly large willows ~85% closed canopy, but not very wide; ~10% cottonwood

2 - 85% closed canopy with willows ~50' tall (noise still 3) - construction and lawn mower

3 - wind 3, ~75% closed canopy: 60% willow, 40% box elder overstory: also some woods rose? (noise 2)

4 - wind 3, ~60% willow ~40% box elder, 85% closed canopy.

5 - wind 3, 90% willow 10% cottonwood 85% closed canopy

6 - wind 3, 90% willow, 10% Russian olive 75% closed canopy

7 - wind 3, same trees, ~85% closed canopy up to 50-60' tall

8 - wind 4-5, 90% willow 10% poplar, but gaps ~25% closed (100 M N>S vert)

9 - wind 3-5, 80% willow 10% Russian olive 10% cottonwood, gap to north around Glover 60' trees

	Date	Initials
Data Entry:		
Data Proof:		
Data Scan :		

WIND		PRECIP		NOISE		CICADA		VOCALIZATION		CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
Calm	0	none	0	Quiet	0	0	0	Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP	
Smoke drifts	1	mist	1	Low Noise	1	1	1	Coo	COO	Sitting	ST	Carry Food	CF	Gedgling	FL	
Felt on face	2	drizzle	2	Medium	2	2 to 5	2	Knock/Alarm	ALA	Forages	FO	Eats Food	EF	Brooding	BR	
Leaves move	3	rain	3	Noise		6 to 10	3	Juvenile Calls	JCON	Preen	PRE	At Nest	AN	Incubating	IN	
Small branches	4	Heavy rain	4	High Noise	3	11 to 19	4	Other voc.	VO	Flies	FLY	Juvenile	JUV	Feeds Young	FY	
Small trees move	5	snow	5			20+	5	V Exchange	VEX	Distraction Display	DD	Carry Nest Material				CN

[illegible]

Notes:



Yellow-Billed Cuckoo (YBCU) Survey Detection Form

Page__1__ of __1__

☐ Non-Survey Detection (check box)

0 Total YBCU Detected

[illegible]

Notes: 1 - Loud noises (3) Sprinkler; Lawn mower (2); 1 car, construction across street

2 - Similar noise level to 1st point; 1 hummingbird, MODO

3 - Water noise; construction site (2-3); airplane

4 - 1-2 noise, construction. MODO, few birds

5 - Buzz saw; noise - 2

6 - Noise - 1; still hear buzz saw - small plane; Black capped chickadee

7 - Noise 1; car, 1 dog barking; horse, no birds

8 - Noise 0-1 - water current is audible.

9 - Lots of bird noise, 1 plane.

	Date	Initials
Data Entry:		
Data Proof:		
Data Scan :		

WIND		PRECIP		NOISE		CTCADA		VOCALIZATION	CODE	BEHAVIOR	CODE	BEHAVIOR	CODE	BREEDING	CODE
calm	0	none	0	Quiet	0	0	0	Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP
Smoke drifts	1	mist	1	Low Noise	1	1	1	Coo	COO	Sitting	ST	Carry Food	CF	Fledgling	FL
Felt on face	2	drizzle	2	Medium Noise	2	2 to 5	2	Knock/Alarm	ALA	Forages	FO	Eats Food	EF	Brooding	BR
Leaves move	3	rain	3		3	6 to 10	3	Juvenile Calls	JCON	Preen	PRE	At Nest	AN	Incubating	IN
Small branches	4	Heavy rain	4		4	10 to 19	4	Other voc	VO	Flies	FLY	Juvenile	JUV	Feeds Young	FY
Small trees move	5	snow	5	High Noise	5	20+	5	V Exchange	VEX	Distraction Display	DD			Carry Nest Material	CN

[illegible]

Notes:



Yellow-Billed Cuckoo (YBCU) Survey Detection Form

Page__1__ of __1__

☐ Non-Survey Detection (check box)

0 Total YBCU Detected

[illegible]

Notes:	1 - A few cars; other bird noise (1)
	2 -Wind 1 - noise from cows, a rooster; BARS
	3 - Roosters and Cows, wind 0
	4 - RNPH and Domesticated Geese, cows, lots of bird noise
	5 - Similar bird noise as 4; wind 0; BBMA
	6 - Same as 5; BARS and BBMA

* First 3 points, GPS data may be innaccurate. Also points named hs-1(through 6)

	Date	Initials
Data Entry:		
Data Proof:		
Data Scan :		

WIND		PRECIP		NOISE		CICADA		VOCALIZATION		CODE	BEHAVIOR		CODE	BEHAVIOR		CODE	BREEDING		CODE
calm	0	none	0	Quiet	0	0	0	Contact	CON	No visual	NV	Catches Prey	CP	Copulation	COP				
Smoke drifts	1	mist	1	Low Noise	1	1	1	Coo	COO	Sitting	ST	Carry Food	CF	Fledgling	FL				
Felt on face	2	drizzle	2	Medium Noise	2	2 to 5	2	Knack/Alarm	ALA	Forages	FO	Eats Food	EF	Brooding	BR				
Leaves move	3	rain	3	Noise		6 to 10	3	Juvenile Calls	JCON	Preen	PRE	At Nest	AN	Incubating	IN				
Small branches	4	Heavy rain	4	High Noise	3	11 to 19	4	Other voc	VO	Flies	FLY	Juvenile	JUV	Feeds Young	FY				
Small trees move	5	snow	5			20+	5	V Exchange	VEX	Distraction Display	DD							Carry Nest Material	CN

[illegible]

Notes: _____

Attachment D– Representative Photos of YBCU Survey Sites

D.-1 Farmington Creek Site



D.-2 Haight Creek Site



D.-3 Howard Slough Site



Attachment E– Documented Bird Species during 2013 YBCU Surveys

Scientific Name	Species
<i>Corvus brachyrhynchos</i>	American crow
<i>Turdus migratorius</i>	American robin
<i>Pelecanus erythrorhynchos</i>	American white pelican
<i>Riparia riparia</i>	Bank swallow
<i>Hirundo rustica</i>	Barn swallow
<i>Pica hudsonia</i>	Black-billed magpie
<i>Poecile atricapillus</i>	Black-capped chickadee
<i>Archilochus alexandri</i>	Black-chinned hummingbird
<i>Callipepla californica</i>	California quail
<i>Corvus corax</i>	Common raven
<i>A. a. domesticus</i>	Domestic goose
<i>Picoides pubescens</i>	Downy woodpecker
<i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Sturnus vulgaris</i>	European starling
<i>Ardea herodias</i>	Great blue heron
<i>Haemorhous mexicanus</i>	House finch
<i>Passer domesticus</i>	House sparrow
<i>Charadrius vociferus</i>	Killdeer
<i>Zenaida macroura</i>	Mourning dove
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Gallus gallus domesticus</i>	Chicken
<i>Selasphorus rufus</i>	Rufous hummingbird
<i>Poocetes gramineus</i>	Vesper sparrow
<i>Tyrannus verticalis</i>	Western kingbird
<i>Plegadis chihi</i>	White-faced Ibis