

Presentation to



*Bird Surveys on  
MSHCP Properties  
2017-SWCA-1730K*

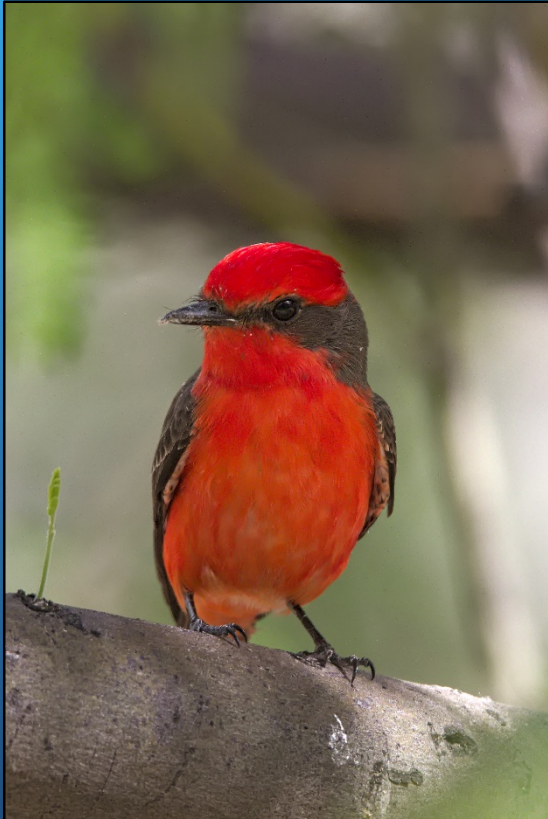
Presented by Justin J. Streit

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ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.

# Background and Need



Vermilion Flycatcher (Mike Swink, SWCA)

- Condition K.1 of the Incidental Take Permit (ITP) for the Clark County Multiple Species Habitat Conservation Plan (MSHCP) requires that the Desert Conservation Program (DCP) acquire private land along the Muddy River, Virgin River, and Meadow Valley Wash.
- Condition K.1 included specifically to help conserve desert riparian habitat for 6 MSHCP covered bird species: Arizona Bell's Vireo, Blue Grosbeak, Southwestern Willow Flycatcher, Summer Tanager, Vermilion Flycatcher, and Western Yellow-billed Cuckoo.

# Background and Need

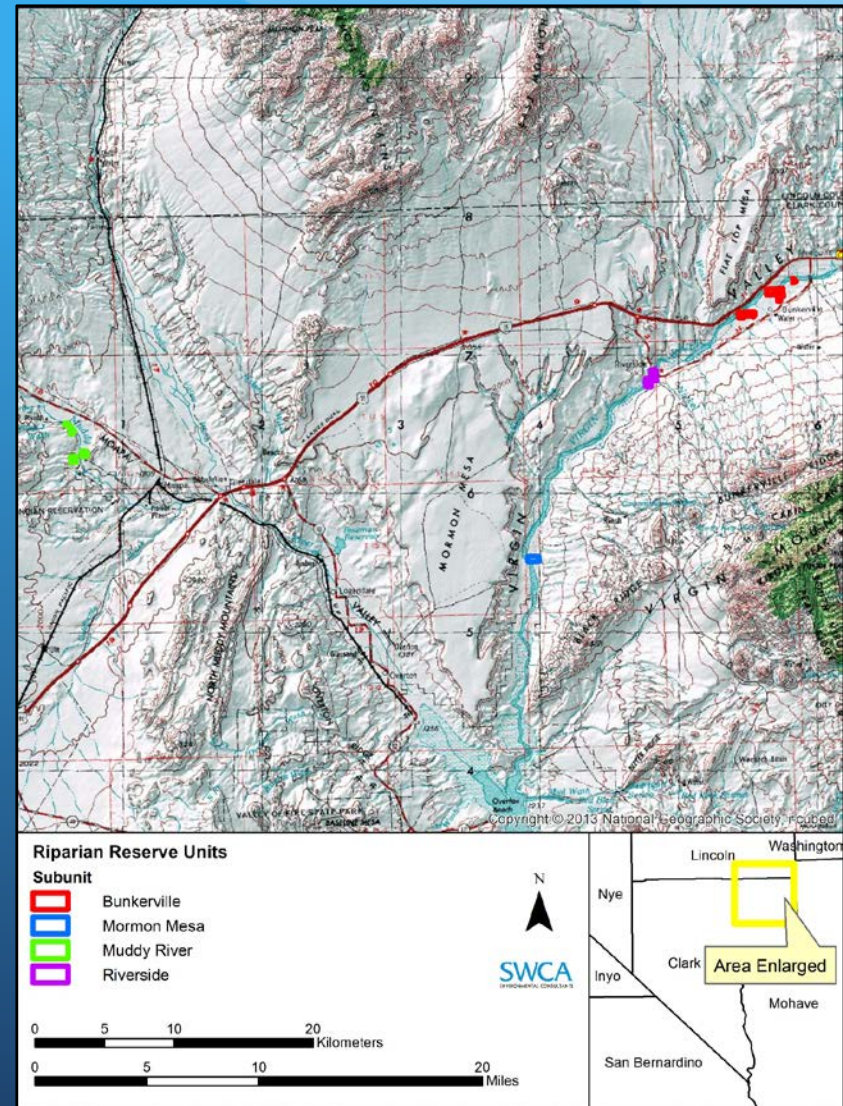


Mojave Desert Tortoise (Justin Streit, SWCA)

- Condition P of the MSHCP ITP requires that the DCP take measures necessary to ensure maintenance of connectivity for desert tortoise and other covered species within the Boulder City Conservation Easement (BCCE).
- This potentially includes avian covered species.

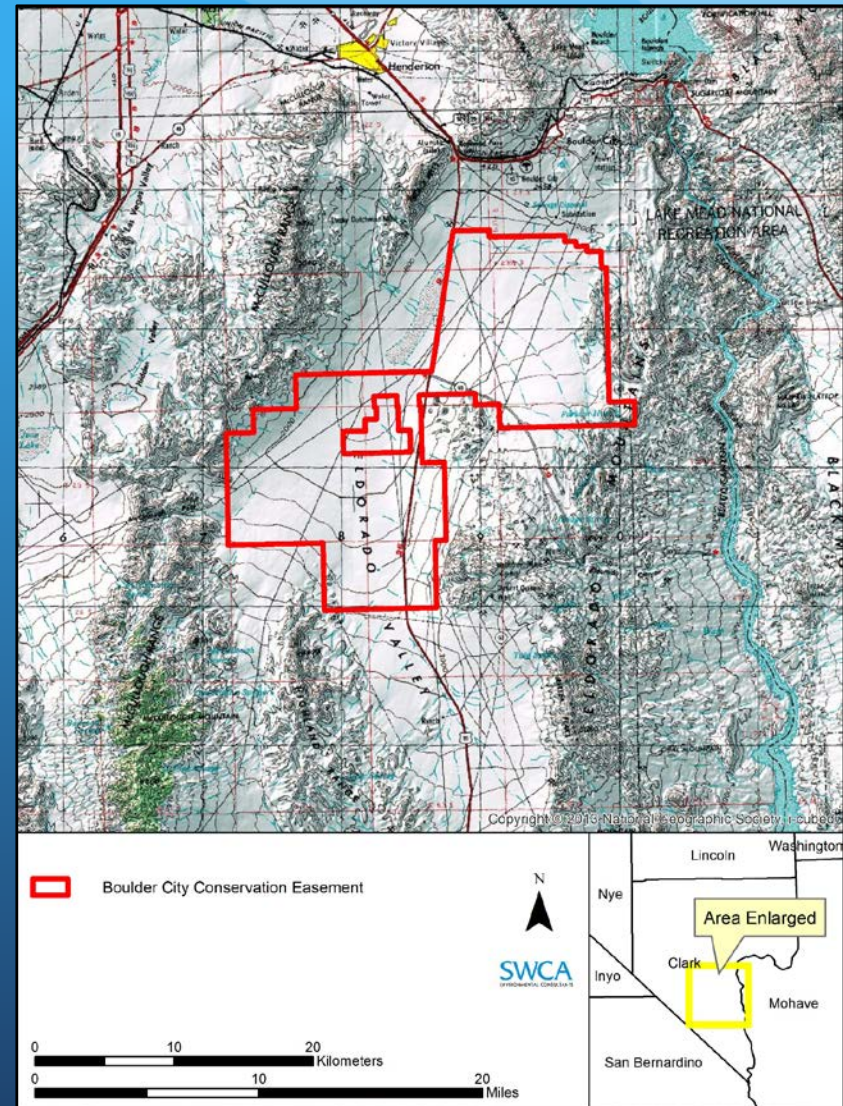
# Background and Need

- To date, the DCP has acquired 601 acres along the Muddy and Virgin Rivers (Riparian Reserve Units).
- Virgin River Subunit 1 (Mormon Mesa)
- Virgin River Subunit 2 (Bunkerville)
- Virgin River Subunit 3 (Riverside)
- Muddy River



# Background and Need

- In 1995, as required by the MSHCP and ITP, Boulder City granted the BCCE to the DCP
- 86,423 acres comprised of 97% Mojave Desert scrub habitat
- Southwest of Boulder City



# MSHCP Property Goals

- In 2015, the DCP's Riparian Reserve Unit Management Plan identified its first goal as to "Manage reserve units to provide habitat for the six MSHCP covered bird species" that use desert riparian habitat, which is to be accomplished through restoration, creation, and enhancement of riparian bird habitat.
- A secondary goal of the 2015 BCCE Management Plan is to protect and manage for MSHCP covered species other than desert tortoise.

# Project Objectives

- Baseline avian surveys commenced at all DCP properties in 2017 and 2018.
- The objective of 2017-SWCA-1730K was to build on this baseline record of both federally listed and non-listed bird species at the DCP's MSHCP properties.
- The long-term goal going forward is to use the baseline record of bird species to track changes in populations and measure the success of future restoration and management activities.

# Southwestern Willow Flycatcher and Yellow-billed Cuckoo Surveys



# Methods - Southwestern Willow Flycatcher

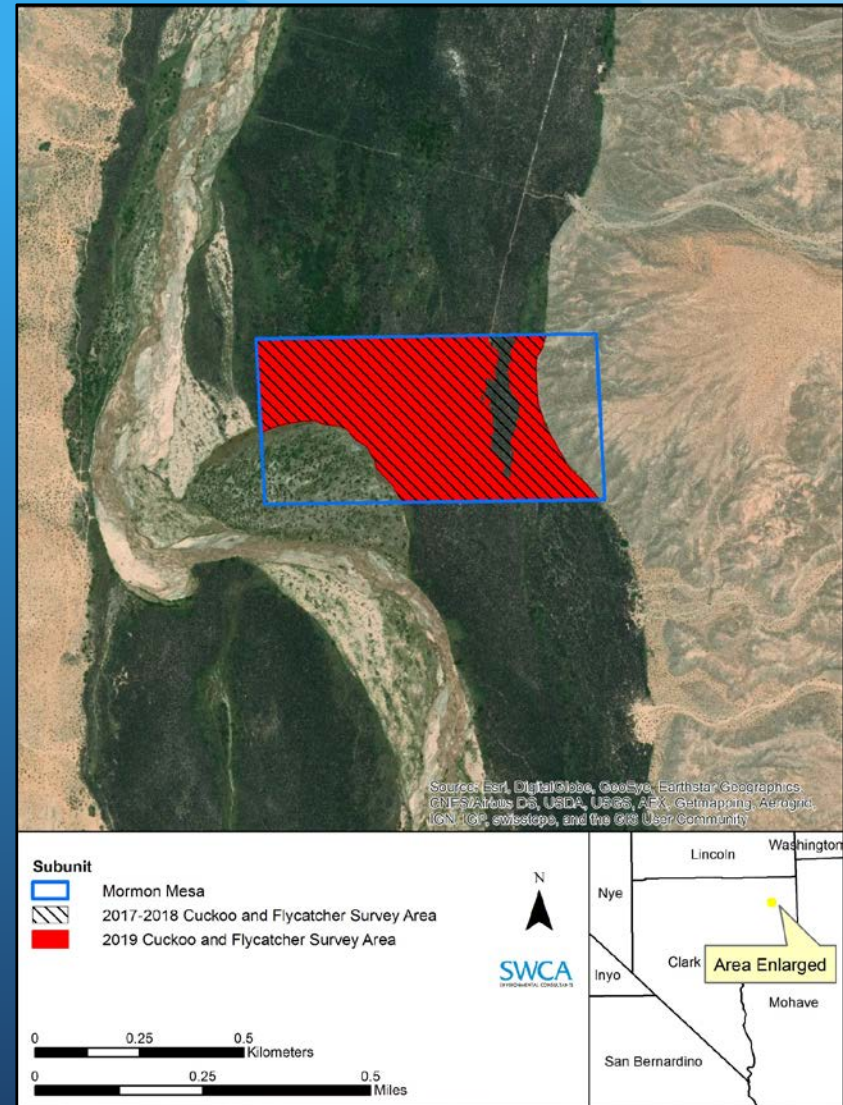
- Protocol followed Sogge et al. 2010
- Five survey visits between May 15<sup>th</sup> and July 17<sup>th</sup>
- Call-playback technique at locations spaced 20-30 m in appropriate habitat
- Surveyed from first light to no later than 10:30 a.m.
- Changed starting location every survey visit

# Methods - Western Yellow-billed Cuckoo

- Protocol followed Halterman et al. 2015
- Four survey visits between June 15<sup>th</sup> and August 15<sup>th</sup>
- Call-playback technique at locations spaced 100 m apart in appropriate habitat
- Surveyed from first light to no later than 11:00 a.m. or when ambient temperature reached 40 degrees C
- Changed starting location every survey visit

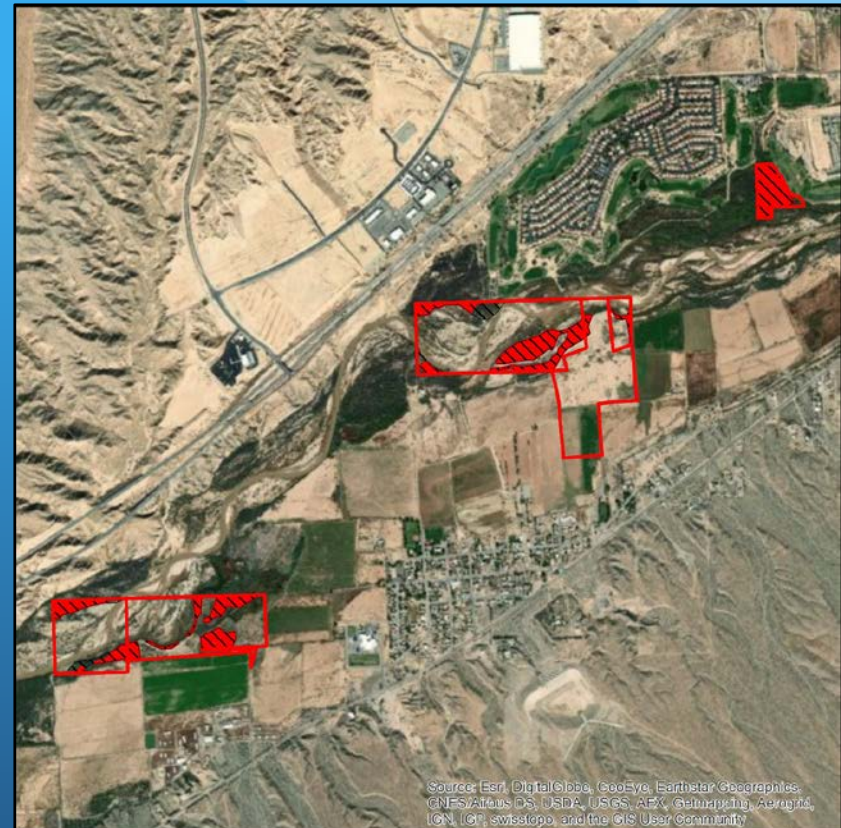
# Mormon Mesa

- East of Moapa Valley, NV
- 52.0 acres surveyed (4.3 acres less than 2017)
- Southwestern Willow Flycatcher = 22.9 hours
- Western Yellow-billed Cuckoo = 14.8 hours

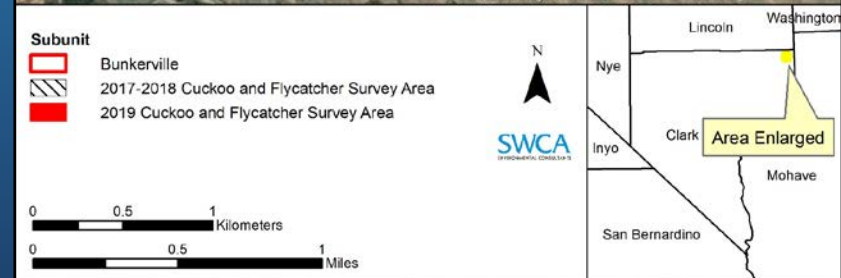


# Bunkerville

- North and West of Bunkerville, NV
- 48.3 acres surveyed
- Southwestern Willow Flycatcher = 51.5 hours
- Western Yellow-billed Cuckoo = 31.0 hours

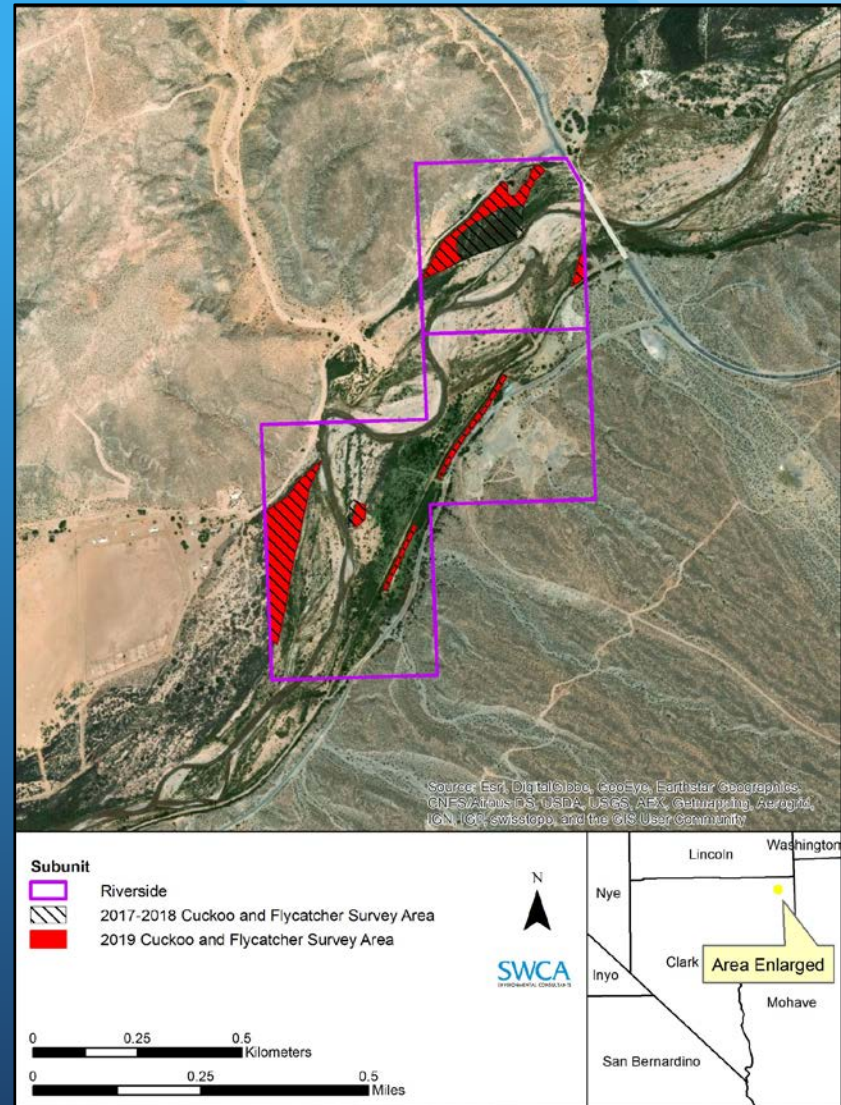


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, GeoEye, AeroGRID, IGN, IGT, swisstopo, and the GIS User Community



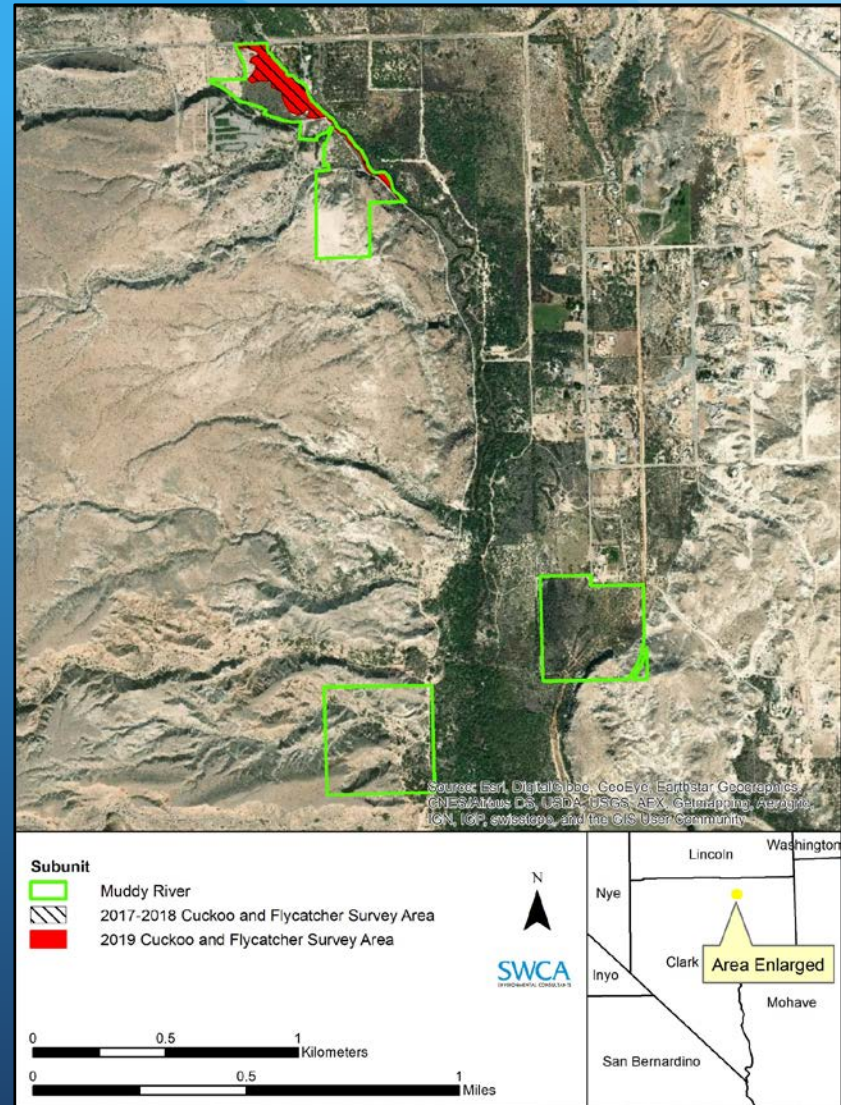
# Riverside

- South of Riverside, NV
- 9.6 acres surveyed (3.5 acres less than 2018)
- Southwestern Willow Flycatcher = 18.2 hours
- Western Yellow-billed Cuckoo = 11.3 hours



# Muddy River

- West of Moapa, NV
- 8.5 acres surveyed
- Southwestern Willow Flycatcher = 6.6 hours
- Western Yellow-billed Cuckoo = 5.3 hours



# Mormon Mesa Results

- 1 male Southwestern Willow Flycatcher established a territory, but did not pair up with a female - same as 2017
- 2 Yellow-billed Cuckoo detections 4 days apart - likely 1 non-resident bird
- Areas of native desert riparian trees (e.g. narrowleaf and Goodding's willow) currently support at least one flycatcher territory at the northern edge of the parcel



Overview of habitat at Mormon Mesa

# Bunkerville Results - Flycatcher

- At least 4 individual Southwestern Willow Flycatchers detected at Parcel 2-H
- Male OWO paired with 3 separate females; OWO has bred at Parcel 2-H since 2015!
- No Southwestern Willow Flycatchers detected at any other Bunkerville parcel

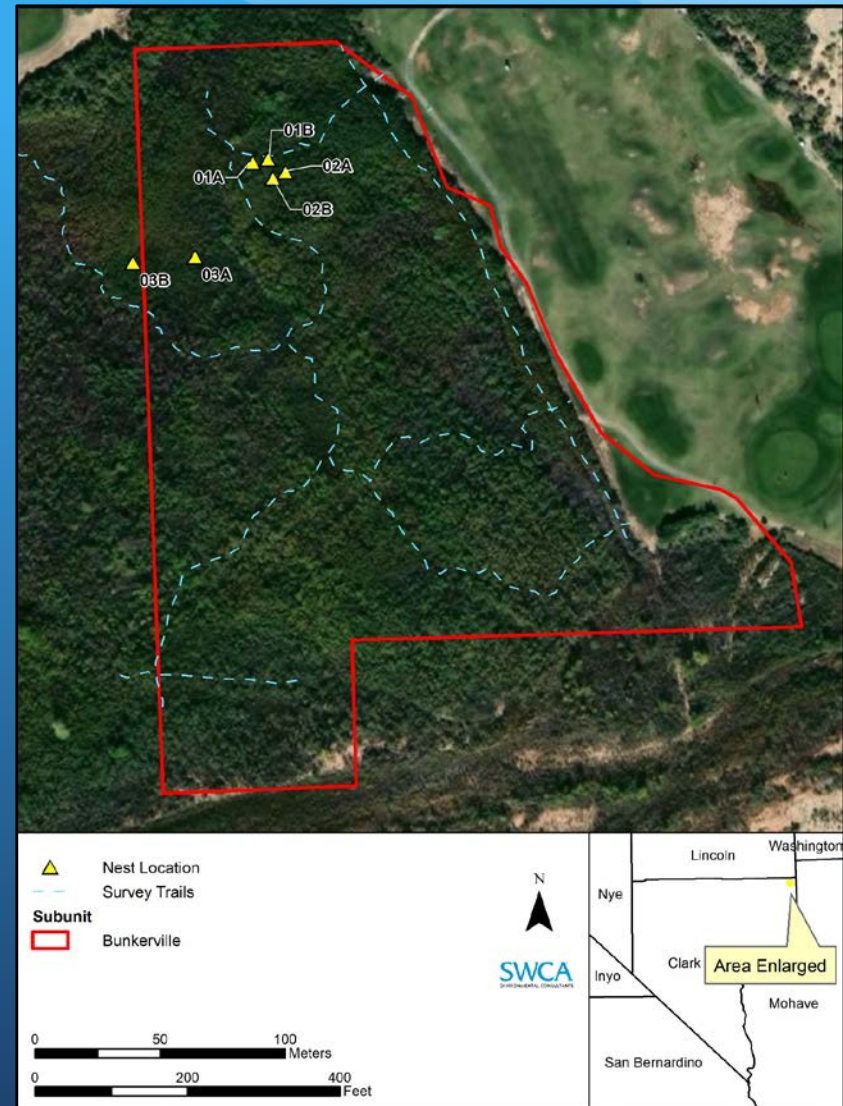


OWO at Parcel 2-H



# Flycatcher Nests at 2-H

- Each female had  $\geq 2$  nesting attempts; seven total known nesting attempts
- 01 had one successful attempt with  $\geq 1$  fledge
- 02 had two failed nesting attempts
- 03 had two successful attempts with 3 fledges



# Bunkerville Results - Cuckoo

- At least 3 individual Yellow-billed Cuckoos detected
- 3 detections 18 days apart at Parcels 2-I and 2-J - at least 1 individual and a possible breeder?
- A pair of Yellow-billed Cuckoos were documented at Parcel 2-H on July 26, 2019, including this female!!
- And....



Yellow-billed Cuckoo nest, Bunkerville Subunit Parcel 2-H (Justin Streit, SWCA)

# Bunkerville Results - Cuckoo

- The nest was successful, with a fledgling documented on August 3<sup>rd</sup>.
- This is only one of a two confirmed breeding sites in the state of Nevada!



Yellow-billed Cuckoo fledgling, Bunkerville  
Parcel 2-H (Sarah Nichols, SWCA)

# Riverside Results

- No Western Yellow-billed Cuckoo detected at either Riverside parcel
- No Willow Flycatcher detected at either Riverside parcel
- Poor quality habitat for these species



Willow Flycatcher detected at the Riverside Subunit in 2018 (Justin Streit, SWCA)

# Muddy River Results

- No Willow Flycatcher detected
- 3 Yellow-billed Cuckoo detections ( $\geq 2$  individuals) over two survey rounds, but none during later rounds – possible breeders?
- Habitat dominated by scattered pine, Washington fan palm, and mulberry



Habitat where Yellow-billed Cuckoos were detected at Muddy River

# Western Yellow-billed Cuckoo



Yellow-billed Cuckoo (Sarah Nichols, SWCA)

- Recorded incidentally or during cuckoo surveys at Mormon Mesa, Bunkerville (3 different parcels), and at Muddy River
- Habitat thought to be lacking at Riparian Reserve Units, but presence could be more driven by...

# An Invasion!!!



Pallid-winged Grasshopper (David Syzdek, SNWA)

- Above average winter precipitation
- Irruptive year for Pallid-winged Grasshoppers
- Grasshoppers and other large insects constitute most of the prey for Yellow-billed Cuckoo
- Breeding could have coincided with this year's outbreak

# Point-count Surveys

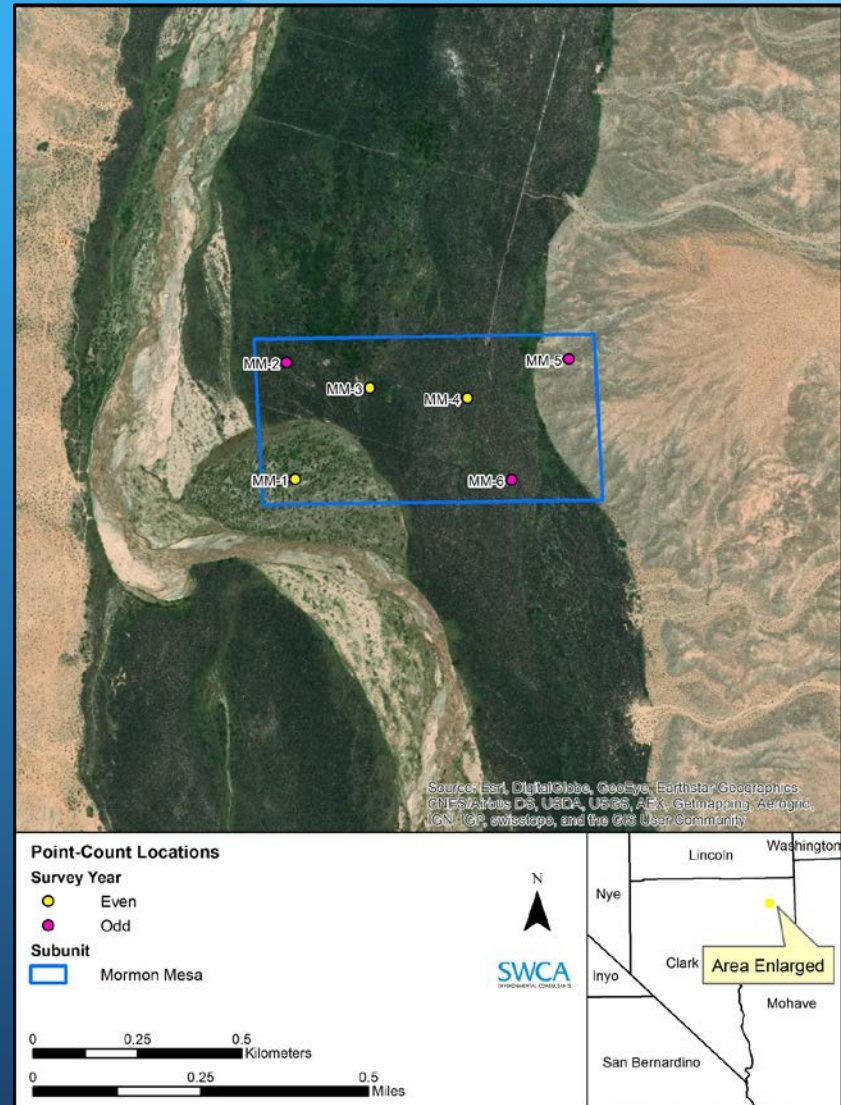


# Methods – Point-Count Surveys

- Standard 10-minute unlimited radius point-count survey protocol (GBBO 2010 and Ralph et al. 1993)
- 3 survey visits between May 7 and June 25, 2019
- Surveyed sunrise to no later than 10:00 a.m.
- Changed starting location every survey visit

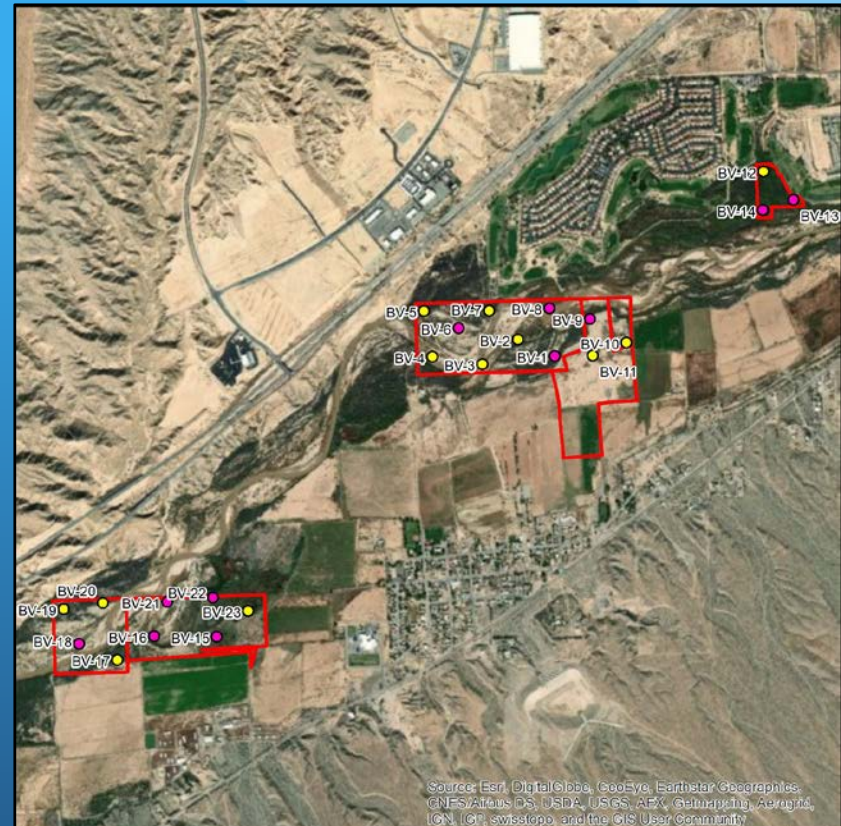
# Mormon Mesa

- East of Moapa Valley, NV
- 3 randomly-selected survey locations
- Habitat dominated by dead or dying tamarisk with screwbean mesquite and arrowweed in the southwest and willow stands in the northwest



# Bunkerville

- West and North of Bunkerville, NV
- 11 randomly-selected survey locations
- Habitat extremely varied between parcels, but tamarisk, willow, and arrowweed prevalent throughout

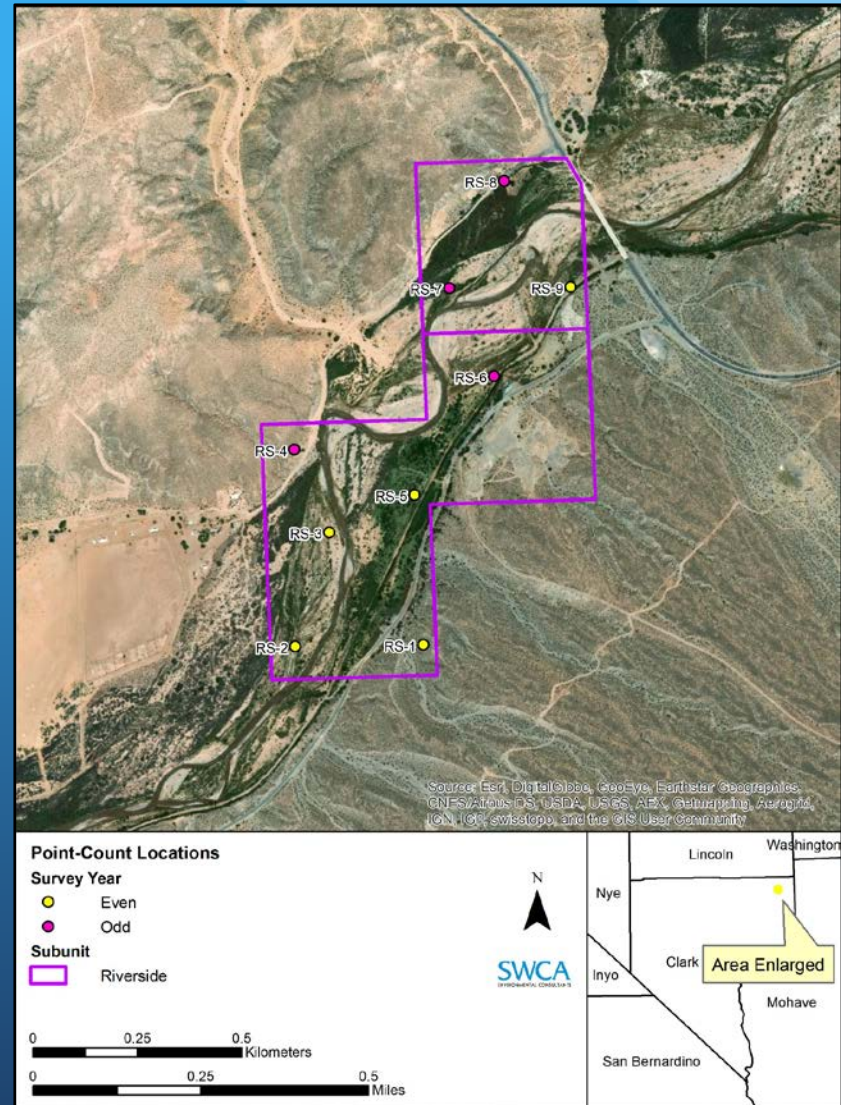


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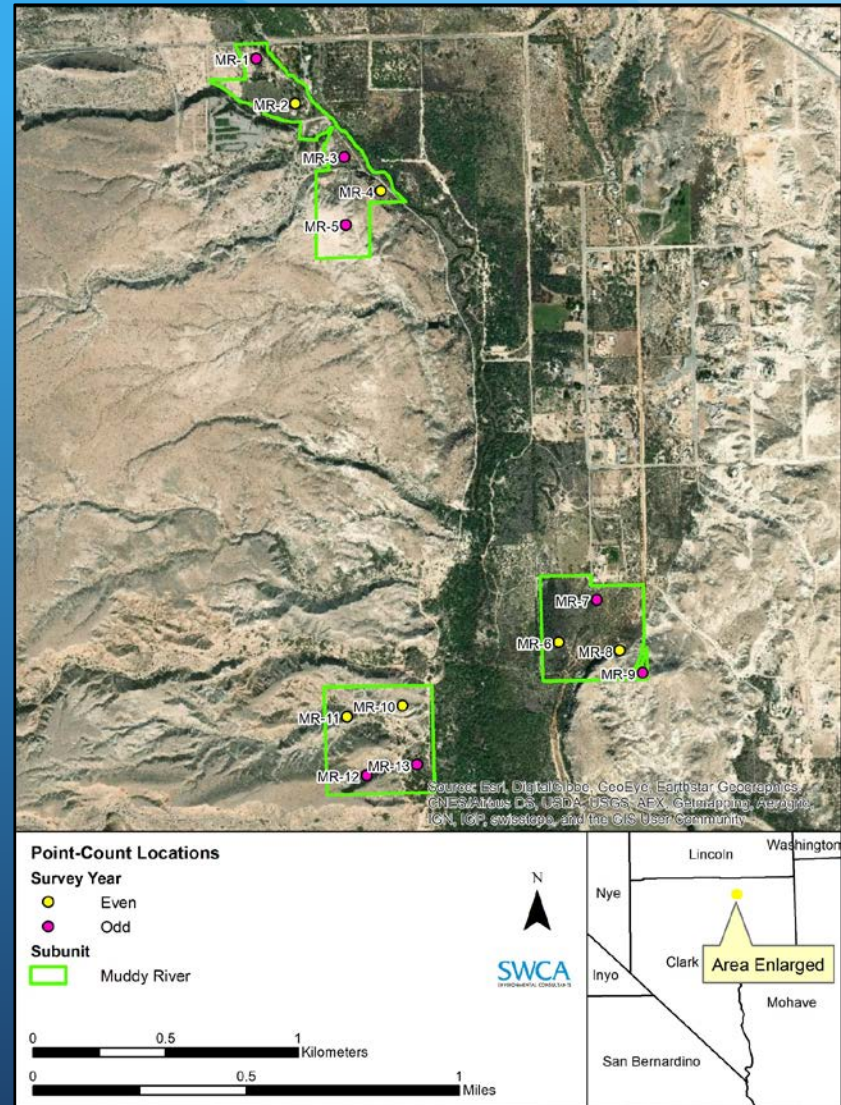
# Riverside

- South of Riverside, NV
- 4 randomly-selected survey locations
- Variable patches of arrowweed, mesquite, tamarisk, and willow



# Muddy River

- West of Moapa, NV
- 7 randomly-selected survey locations
- Highly varied habitat with parcels dominated by horticultural plants, creosote bush, big saltbush, and tamarisk



# Riparian Property Point-Count Results



Phainopepla (Mike Swink, SWCA)

- 6 MSHCP covered species (1 incidentally) - Summer Tanager was the only covered riparian species not detected
- 2 MSHCP evaluation species
- 65 species recorded across all Riparian Reserve Units
- Most abundant species were Mourning Dove, Abert's Towhee, and Northern Rough-winged Swallow

# Mormon Mesa

- Dominated by dead or dying tamarisk
- Three MSHCP covered species recorded: Arizona Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo
- MSHCP species only recorded on west end of the parcel; areas with more native vegetation



Goodding's willow at Mormon Mesa

# Bunkerville Parcels 2A-2G

- Consists mostly of open, scrubby, flood-prone habitat dominated by tamarisk and arrowweed with patches of screwbean mesquite and willow
- Two MSHCP covered species recorded: Arizona Bell's Vireo and Blue Grosbeak



Open, scrubby habitat at Bunkerville



# Bunkerville Parcel 2-H

- Dominated by very dense narrowleaf willow with intermittent tamarisk
- Four MSHCP covered species recorded: Arizona Bell's Vireo, Blue Grosbeak, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo
- Little to no restoration necessary



Dense native vegetation in Parcel 2-H

# Bunkerville Parcels 2I-2J

- Varied habitat includes monotypic tamarisk stands, arrowweed, mesquite, and wet meadows
- Four MSHCP covered species recorded: Arizona Bell's Vireo, Blue Grosbeak, Yellow-billed Cuckoo, and Vermilion Flycatcher
- Cattle grazing is preventing native vegetation growth



Varied habitat at Parcel 2-J

# Riverside

- Variable patches of arrowweed, mesquite, tamarisk, and willow
- Three MSHCP covered species recorded: Arizona Bell's Vireo, Blue Grosbeak, and Phainopepla
- Cattle grazing could be a major obstacle to success of restoration efforts at Riverside



Open scrubby, but varied habitat at Riverside

# Muddy River

- Northern parcels dominated by horticultural plants and big saltbush
- Southern parcels dominated by creosote bush and tamarisk with scattered honey mesquite
- Four MSHCP covered species recorded: Arizona Bell's Vireo, Blue Grosbeak, Phainopepla, and Yellow-billed Cuckoo



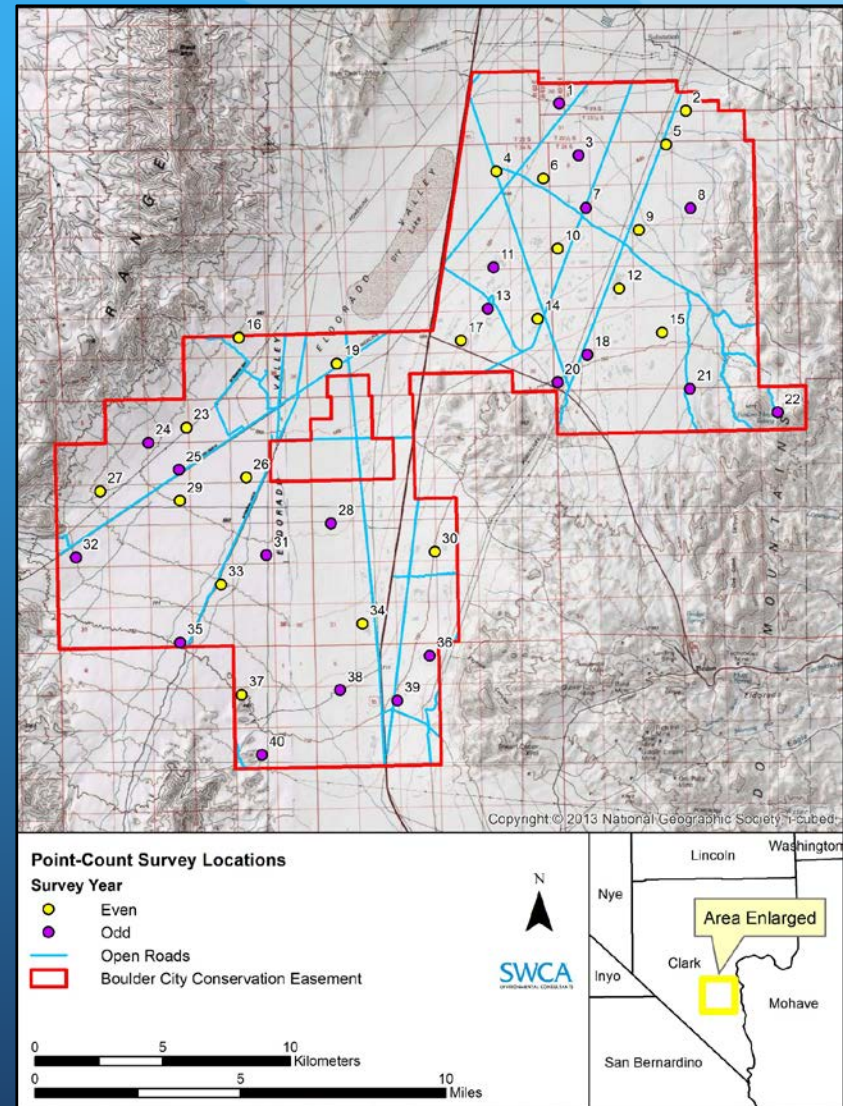
Northern Parcels at Muddy River



Southeastern Parcels at Muddy River

# Boulder City Conservation Easement

- Southwest of Boulder City, NV
- 20 randomly-selected survey locations
- Most in Mojave Desert scrub habitat



# BCCE Point-Count Results



Black-throated Sparrow (Mike Swink, SWCA)

- One MSHCP covered species: Phainopepla
- 3 MSHCP evaluation species: Crissal Thrasher, LeConte's Thrasher, and Loggerhead Shrike
- 23 species recorded across the BCCE
- Most abundant species were Black-throated Sparrow, Horned Lark, and House Finch

# Phainopepla



Habitat overview at BCCE Point 22

- Requires mesquite/acacia habitat with mistletoe; very little habitat across the BCCE
- Only recorded once in 2019 at Point 22 - Forlorn Hope Spring
- 14 of the 23 species recorded in 2019 were detected at this survey location

# LeConte's Thrasher



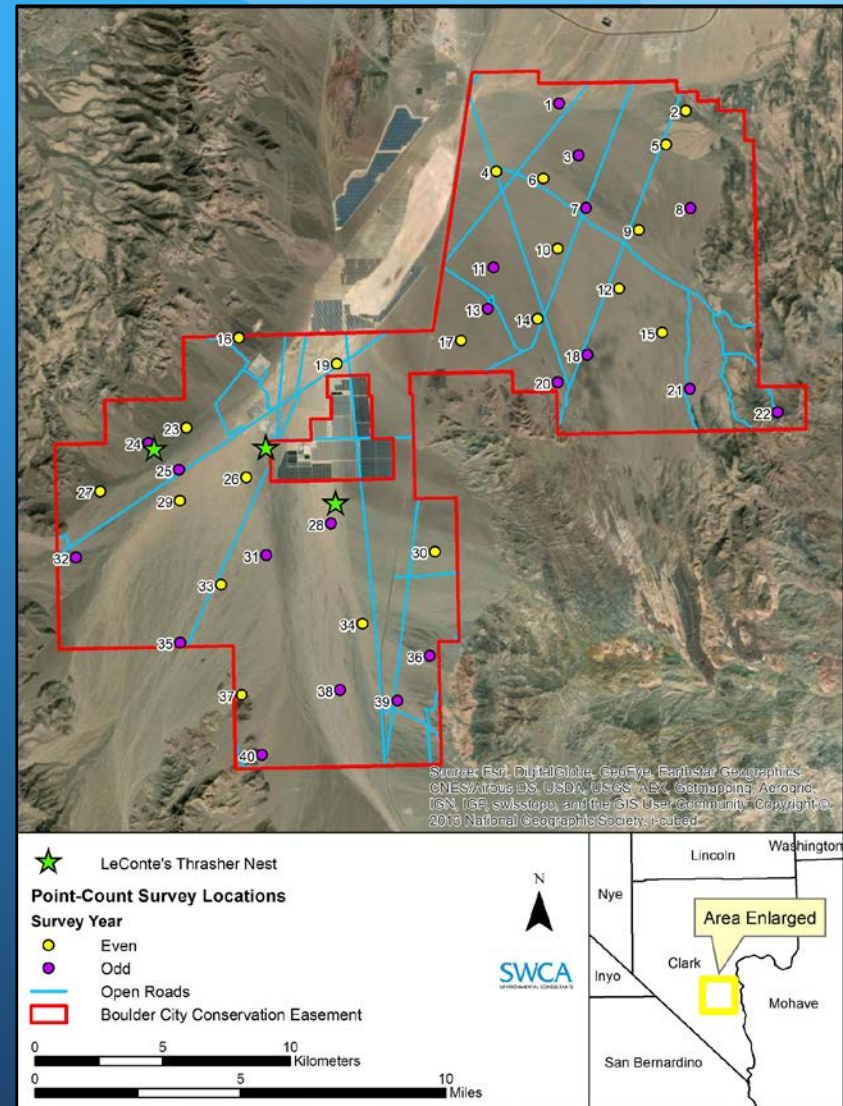
LeConte's Thrasher nest near BCCE Point 24

- Recorded at 6 of 20 point-count locations
- Prefers sparsely vegetated Mojave Desert scrub habitats
- SWCA confirmed breeding at the BCCE in 2019



# LeConte's Thrasher Nests

- Incidentally detected three active nests in three different areas of the BCCE
- 2 nests detected on March 23<sup>rd</sup> and 1 on May 7<sup>th</sup>
- Nest outcomes unknown



# Evaluation Species

## Crissal Thrasher

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- Recorded at one point-count location in 2019
- Prefers dense vegetation, usually near water



Loggerhead Shrike (Justin Streit, SWCA)

## Loggerhead Shrike

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- Recorded at 2 of 20 point-count locations
- Found in a variety of open, shrubby habitats, wherever perches are available

# Conclusions - Flycatcher and Cuckoo

- Much of the Riparian Reserve Units do not currently provide habitat for Southwestern Willow Flycatchers or Western Yellow-billed Cuckoo.
- Bunkerville Parcel 2-H supported at least three Southwestern Willow Flycatcher territories and one Yellow-billed Cuckoo territory.



Southwestern Willow Flycatcher (Chance Hines, SWCA)

# Conclusions and Recommendations

- Areas of native trees (e.g. Goodding's willow, narrowleaf willow, screwbean mesquite) currently provide habitat for MSHCP covered bird species and should be preserved, wherever present.
- Monotypic stands of tamarisk provide less habitat for MSHCP covered species and should be removed and restored with native vegetation.
- Remove cattle and erect cattle exclusion fencing anywhere there is native vegetation at the Virgin River Subunits.

# Conclusions and Recommendations

- Side channels and perched water tables provide excellent opportunities for successful restoration at Bunkerville Parcels 2-I and 2-J.
- Continue avian surveys and consider adding banding efforts for Southwestern Willow Flycatcher to study long-term use and movements between Riparian Reserve Units.



Southwestern Willow Flycatcher (Sarah Nichols, SWCA)

# Conclusions - BCCE

- The BCCE does not contain riparian or cliff habitat and, therefore, does not provide habitat for most of the MSHCP covered species.
- A single Phainopepla was the only MSHCP covered species recorded on the BCCE; mistletoe is relatively uncommon on the BCCE and numbers are low.
- LeConte's Thrasher was confirmed breeding on the BCCE in 2019.



Vermilion Flycatcher (Mike Swink, SWCA)

# Questions?