

Avian Surveys and Monitoring

**2017-SWCA-1750K
2017-SWCA-1782B
2021-SWCA-2020E**

Presented to

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MOJAVEMAX.COM



desert conservation
PROGRAM

SWCA[®]

ENVIRONMENTAL CONSULTANTS

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Background - Avian Surveys on Riparian Properties

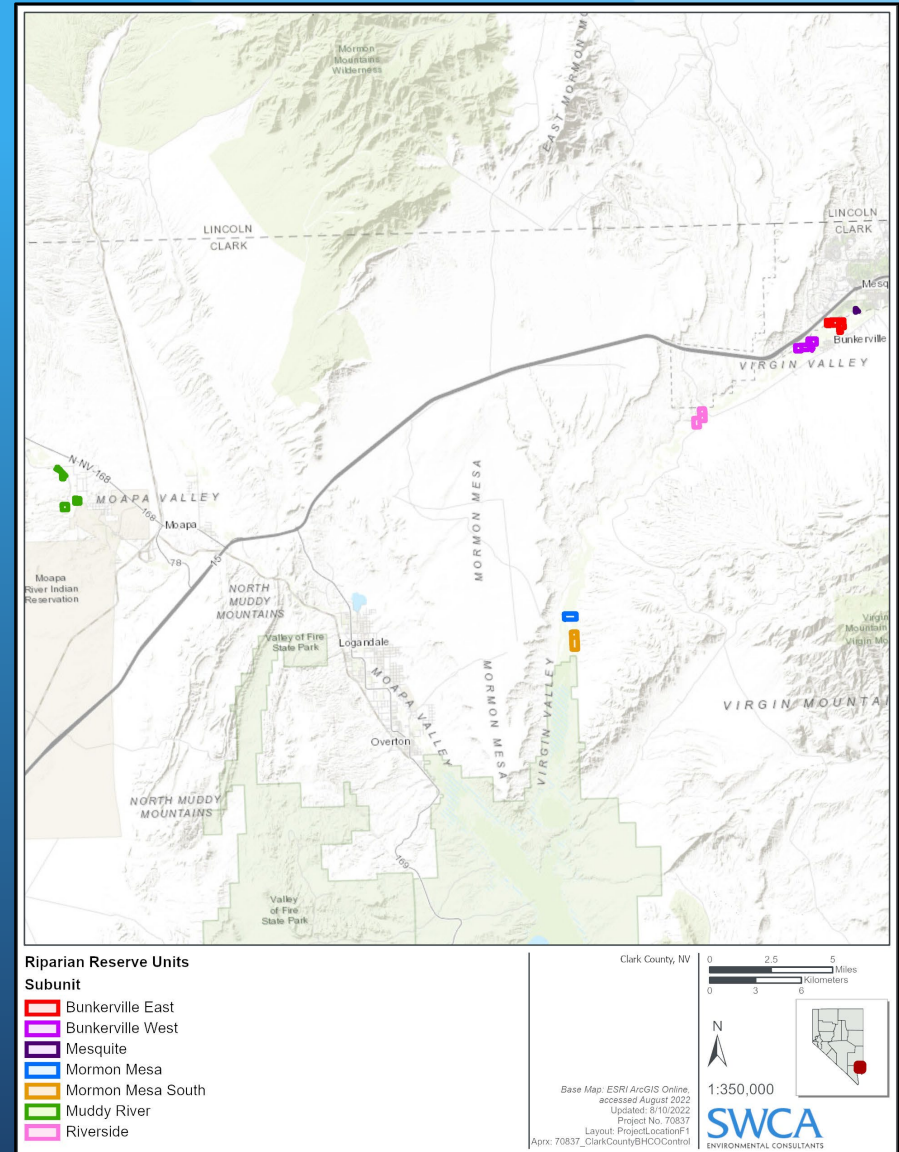


Vermilion flycatcher (Mike Swink, SWCA)

- 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.
- Included to help conserve desert riparian habitat for six covered bird species: Bell's Vireo, blue grosbeak, southwestern willow flycatcher, summer tanager, vermilion flycatcher, and western yellow-billed cuckoo.

Riparian Reserve Units

- To date, the DCP has acquired 785 acres of riparian habitat comprising seven subunits along the Muddy and Virgin Rivers
 - Bunkerville East
 - Bunkerville West
 - Mesquite
 - Mormon Mesa
 - Mormon Mesa South
 - Muddy River
 - Riverside



Background - Avian Surveys at the BCCE

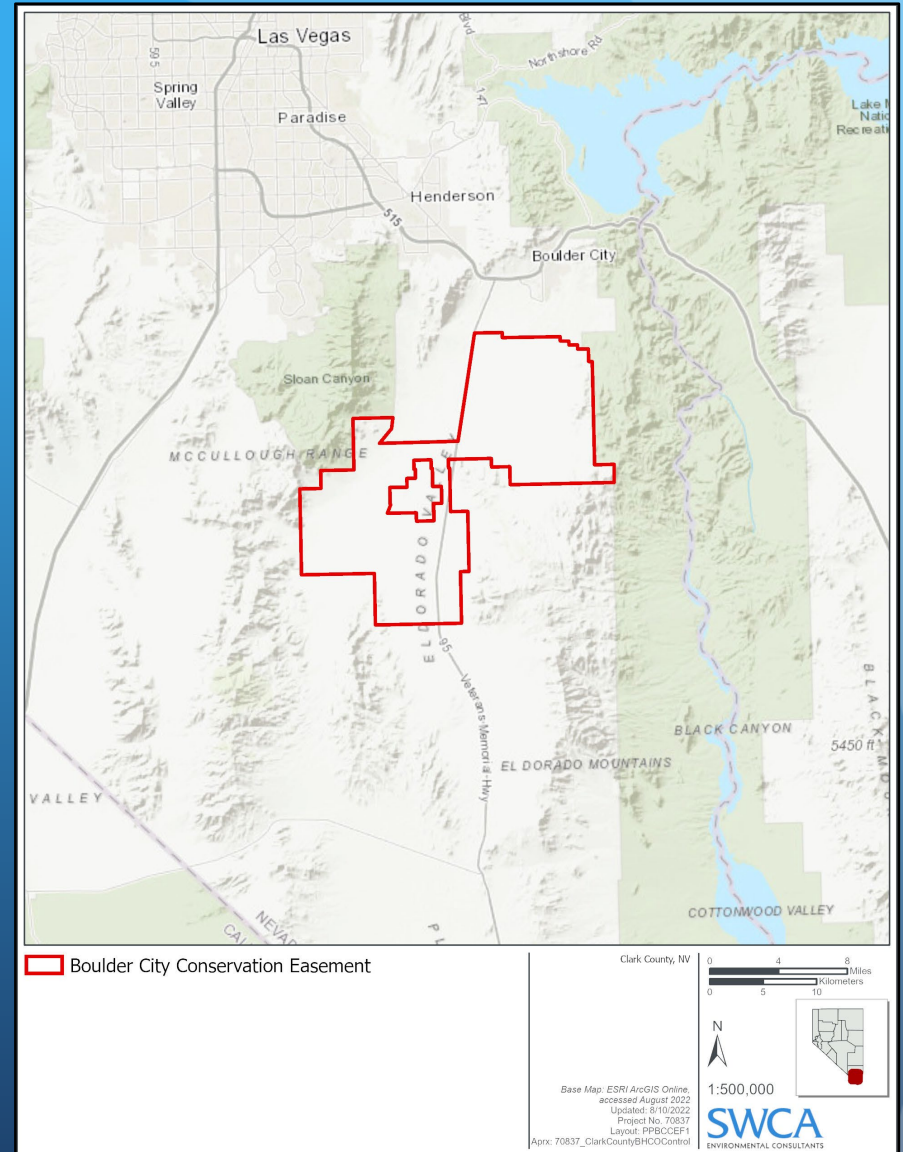


Mojave desert tortoise at the BCCE

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

BCCE

- In 1995, as required by the MSHCP and ITP, Boulder City granted the BCCE to the DCP
- 86,423 acres composed of 97% Mojave Desert scrub habitat
- Expanded to 87,342 acres in 2019



Project Objectives

- 2021-SWCA-2020E - Continue to build on a baseline record of both federally listed and non-listed bird species at the Riparian Reserve Units and BCCE
- 2017-SWCA-1750K - Implement a brown-headed cowbird control and southwestern willow flycatcher nest monitoring program at Mesquite West with a goal of increasing flycatcher nest success



Phainopepla

Point-Count Surveys

2021-SWCA-2020E

Methods - Point-Count Surveys

- Standard 10-minute unlimited radius point-count survey protocol (GBBO 2010 and Ralph et al. 1993)
- 30 point-count locations across Riparian Reserve Units
- 20 point-count locations at the BCCE
- Three survey visits between May 2 and June 17, 2022

Riparian Point-Count Results - Overview

- Seven MSHCP covered species (two incidentally) - vermilion flycatcher was the only covered riparian species not detected
- Two MSHCP evaluation species: crissal thrasher and loggerhead shrike
- 73 species recorded across all Riparian Reserve Units
- Most abundant species were cliff swallow, Abert's towhee, and mourning dove



Phainopepla (Mike Swink, SWCA)

Riparian Point-Count Results - Covered Species

- Bell's vireo and blue grosbeak continue to be relatively common and were recorded at almost all Riparian Reserve Subunits
- These two species are more generalist within riparian habitats, tolerating more scrubby habitat



Open riparian habitat at Bunkerville East



Dense mixed mesquite at Riverside

Riparian Point-Count Results - Covered Species

- Southwestern willow flycatcher and summer tanager are much less common, each recorded at only one subunit in 2022
- These two species prefer mature native riparian trees



Dense willow habitat at Mesquite



Mature willows at Mormon Mesa
(Claire Hart Photography)

BCCE Point-Count Results



Black-throated sparrow (Mike Swink, SWCA)

- One MSHCP covered species: phainopepla
- Two MSHCP evaluation species: LeConte's thrasher and loggerhead shrike
- 12 species recorded across the BCCE
- Most abundant species were horned lark, black-throated sparrow, and ash-throated flycatcher

Phainopepla



Wash habitat at BCCE Point 37



Habitat overview at BCCE Point 22

- Requires mesquite/acacia habitat with mistletoe; this habitat is scant at the BCCE
- Recorded once at Point 37 (2022) and once at Point 22 (2019)

Evaluation Species

LeConte's Thrasher

- Recorded at one point-count location in 2022
- SWCA confirmed breeding at the BCCE in 2019



LeConte's thrasher nest at the BCCE

Loggerhead Shrike

- Recorded at one point-count location in 2022
- Found in a variety of open, shrubby habitats, wherever perches are available

Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo Surveys

2021-SWCA-2020E

Methods - Southwestern Willow Flycatcher Surveys

- Conducted at all Riparian Reserve Units
- Protocol followed Sogge et al. 2010
- Five survey visits between May 15 and July 17
- Call-playback technique at locations spaced 30 m in appropriate habitat

Methods - Western Yellow-billed Cuckoo Surveys

- Conducted at all Riparian Reserve Units
- Protocol followed Halterman et al. 2015
- Four survey visits between June 15 and August 15
- Call-playback technique at locations spaced 100 m apart in appropriate habitat

Southwestern Willow Flycatcher Survey Results

- Migrants and resident flycatchers detected at Mesquite and Mormon Mesa every year
- Migrant willow flycatchers:
 - Bunkerville East 2-D (1 - 2022)
 - Bunkerville West 2-M (1 - 2020, 1 - 2021)
 - Riverside 3-A (1 - 2020, 2 - 2021)
 - Muddy River Parcel E (2 - 2022)



Riverside 3-A, showing willows and water, two key habitat requirements for southwestern willow flycatcher

Western Yellow-billed Cuckoo Survey Results



Yellow-billed cuckoo (Sarah Nichols, SWCA)

- Zero survey detections in 2021 or 2022
- One incidental detection north of Mormon Mesa Parcel 5-A in 2022
- One incidental detection south of Bunkerville East Parcel 2-B in 2021
- Except for Mormon Mesa and Mesquite, habitat generally lacking at the Riparian Reserve Units

Cuckoo Detections - Past Years

- Seven detections in 2020
- Female observed nesting at Mesquite Parcel 1-A on July 26, 2019
- The nest was successful, with one fledgling documented on August 3.
- This is still only one of two confirmed breeding sites in the state of Nevada!



Yellow-billed cuckoo nest, Mesquite Parcel 1-A, 2019

Brown-headed Cowbird Control

2017-SWCA-1750K

Methods - Brown-headed Cowbird Control

- Implemented at the greater Mesquite West site (includes Clark County Parcel 1-A)
- Netting from mid-May through the end of July
- 13 net mornings in 2021, 17 net mornings in 2022
- Females euthanized via decapitation (American Veterinary Medical Association 2020).
- Also included opportunistic egg addling (2021) or replacement (2022) and nestling euthanasia



Flycatcher nest parasitized by brown-headed cowbird

Cowbird Net Setup



Cowbird net setup (Sarah Nichols, SWCA)



Decoy cowbird (Sarah Nichols, SWCA)

- Target netting involves use of a female cowbird decoy and two Bluetooth speakers for playing cowbird calls

Brown-headed Cowbird Control Results



Netted female cowbird (Sarah Nichols, SWCA)

- 14 cowbirds euthanized in 2021, 12 cowbirds euthanized in 2022 (included one juvenile)
- 1 egg added in 1 nest in 2020, 3 eggs added in 2 nests in 2021, 1 egg replaced in 1 nest in 2022
- 1 nestling euthanized in 2022

Avian Nest Monitoring

2017-SWCA-1750K

Methods - Avian Nest Monitoring

- Conducted for southwestern willow flycatcher at Mesquite West and at Mormon Mesa
- Conducted every 4 days once a territorial flycatcher was detected (mid-May to mid-August)
- Included determining territory status, locating nests, and monitoring known nests
- Included color-banding adults and nestlings for determining territory association and confirming nest success, respectively

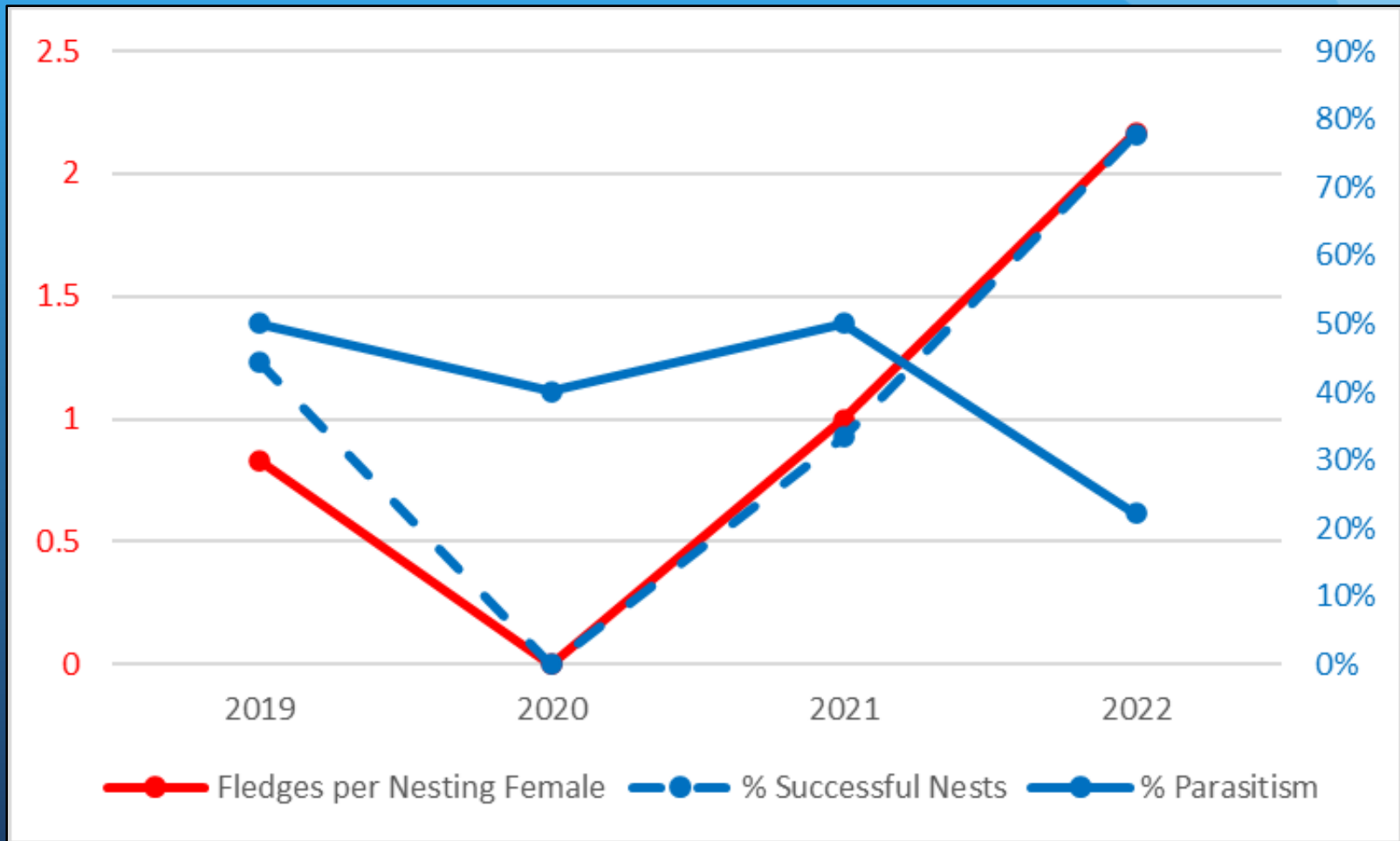
Mesquite West Monitoring Results

- Mesquite West
 - 2020 - 5 nesting attempts; all failed - 0 fledges
 - 2021 - 6 nesting attempts; 2 successful - 3 fledges
 - 2022 - 9 nesting attempts; 7 successful - 13 fledges
- Site regularly has migrant and resident willow flycatchers
- Habitat is dense narrowleaf and Goodding's willow



Fledgling flycatchers at Mesquite West
(Sarah Nichols, SWCA)

Flycatcher Nesting at Mesquite West



Mormon Mesa Monitoring Results

- Mormon Mesa
 - 2020 - 4 adults, 1 successful nesting attempt
 - 2021 - 1 adult
 - 2022 - 2 adults males
- Pattern of one male establishing a territory but not attracting a female



Restoration plot and flycatcher habitat at Mormon Mesa (Claire Hart Photography)

2020 Mormon Mesa Flycatcher Nestlings



2020 was the first year that southwestern willow flycatchers successfully nested in one of the County's restoration plots

Newly banded flycatcher nestlings at Mormon Mesa Parcel 5-A

Other Riparian Survey Results

- 8 adult and 16 nestling flycatchers banded in 2022, up from 10 flycatchers banded in 2021 and 8 in 2020
- Yuma Ridgway's rail was incidentally detected in Bunkerville West Parcel 2-J on May 23, 2022 - first time this species has been recorded at the Riparian Reserve Units



Emergent marsh at Bunkerville West Parcel 2-J

Avian Surveys

2017-SWCA-1782B

Background - Avian Surveys for Model Refinement



Gilded flicker

- DCP is currently developing a proposed amendment to the MSHCP
- To aid in this effort, habitat suitability models were developed for species included in the amendment (Nussear and Simandle 2020; Nussear 2019)
- These models will assist in identifying potential areas for conservation.

Project Objective

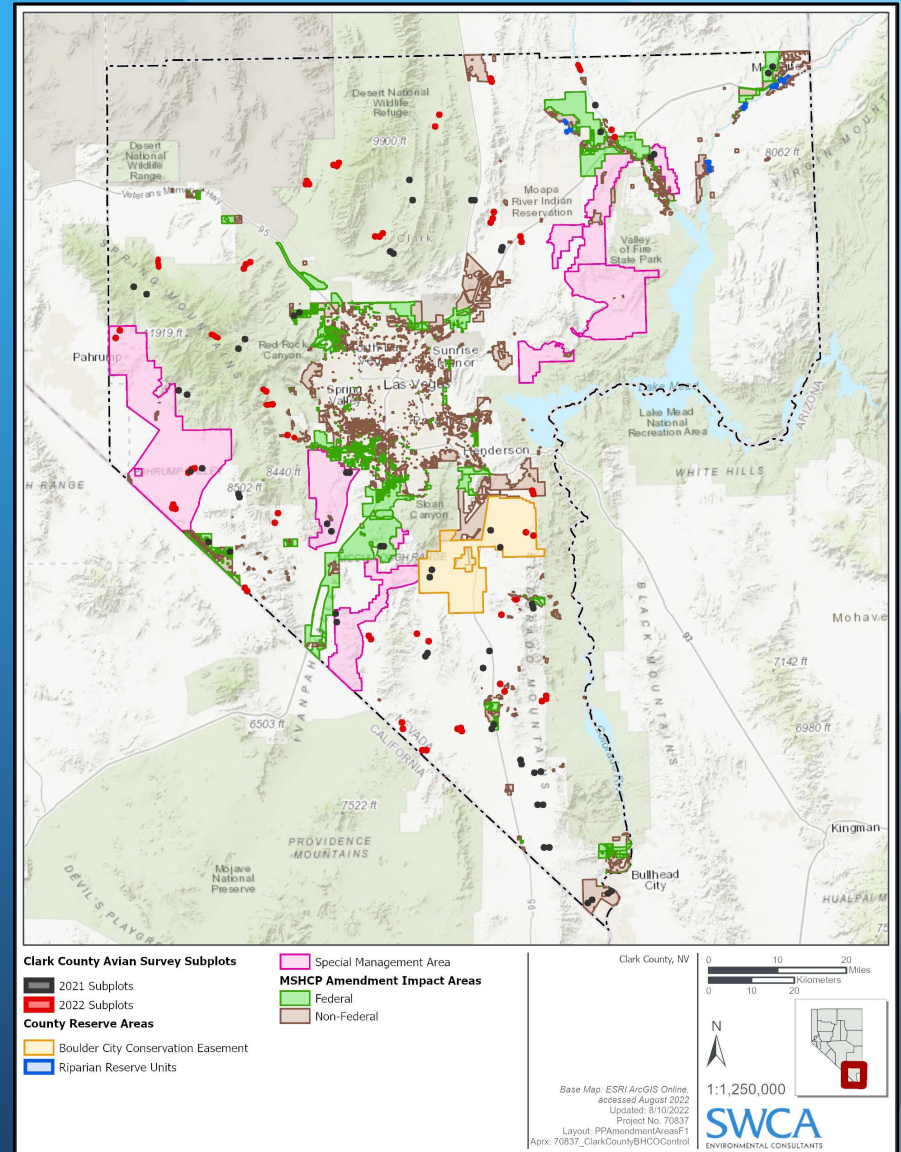


Bendire's thrasher

- 2017-SWCA-1782B - Verify and expand upon avian records for seven target species across Clark County to update and refine habitat suitability models

Amendment Areas

- Surveys targeted seven bird species: Bell's vireo, Bendire's thrasher, gilded flicker, golden eagle, LeConte's thrasher, loggerhead shrike, and western burrowing owl
- Habitat suitability models used to select sites - preference for predicted habitat lacking detections
- 30 unique sites each in 2021 and 2022



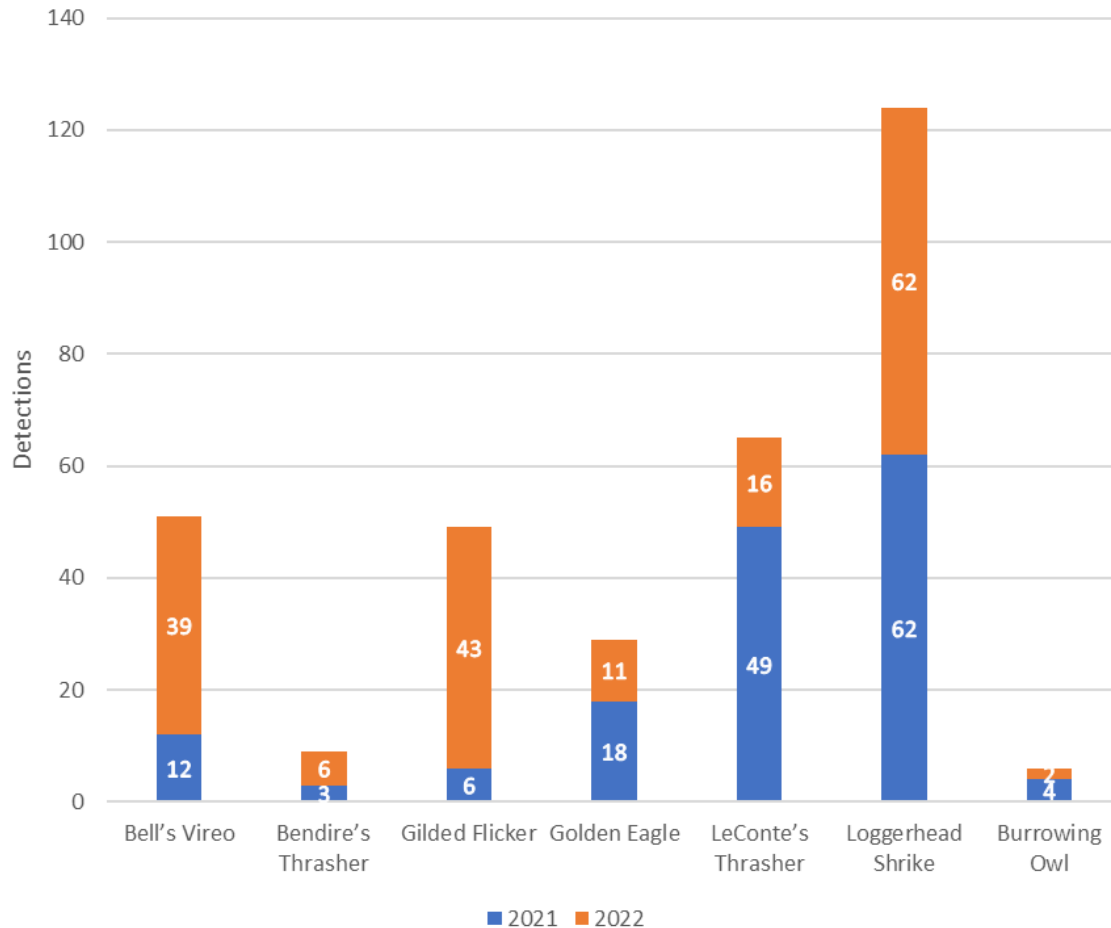
Methods - Area Searches

- 300 x 300 m area searches (Desert Thrasher Working Group 2018)
- Each site included two or three area search subplots
- Three survey visits between March 23 and June 11
- Area searches from first light to no later than 11:00

Methods - Eagle-Use Counts

- Golden eagle was not a priority species in 2022
- 52 of 60 sites included one eagle-use count location
- Immediately followed the area searches
- 1-hour fixed location use counts (USFWS 2013)
- Three survey visits between March 23 and June 11

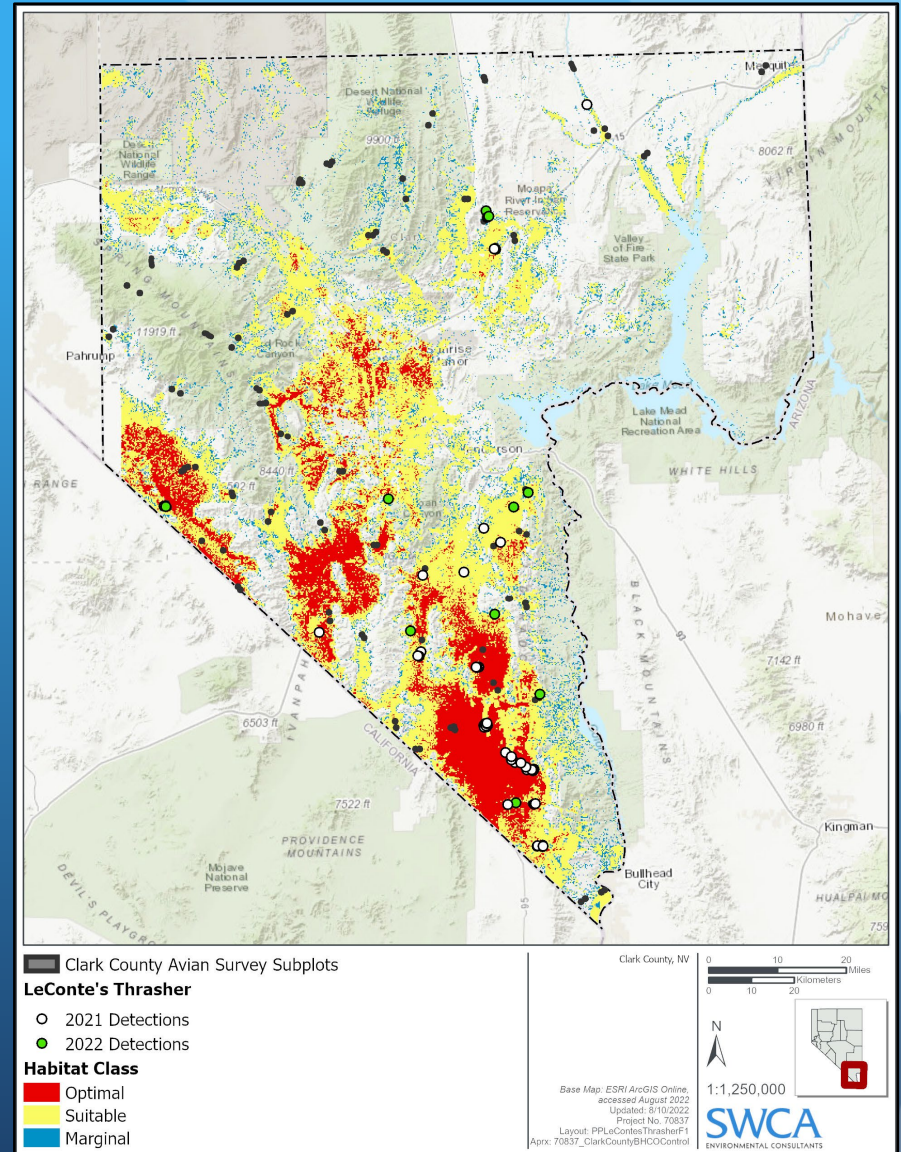
Target Species Detections



- 333 target species detections over 2 years
- Low numbers of western burrowing owls, Bendire's thrashers, and golden eagles

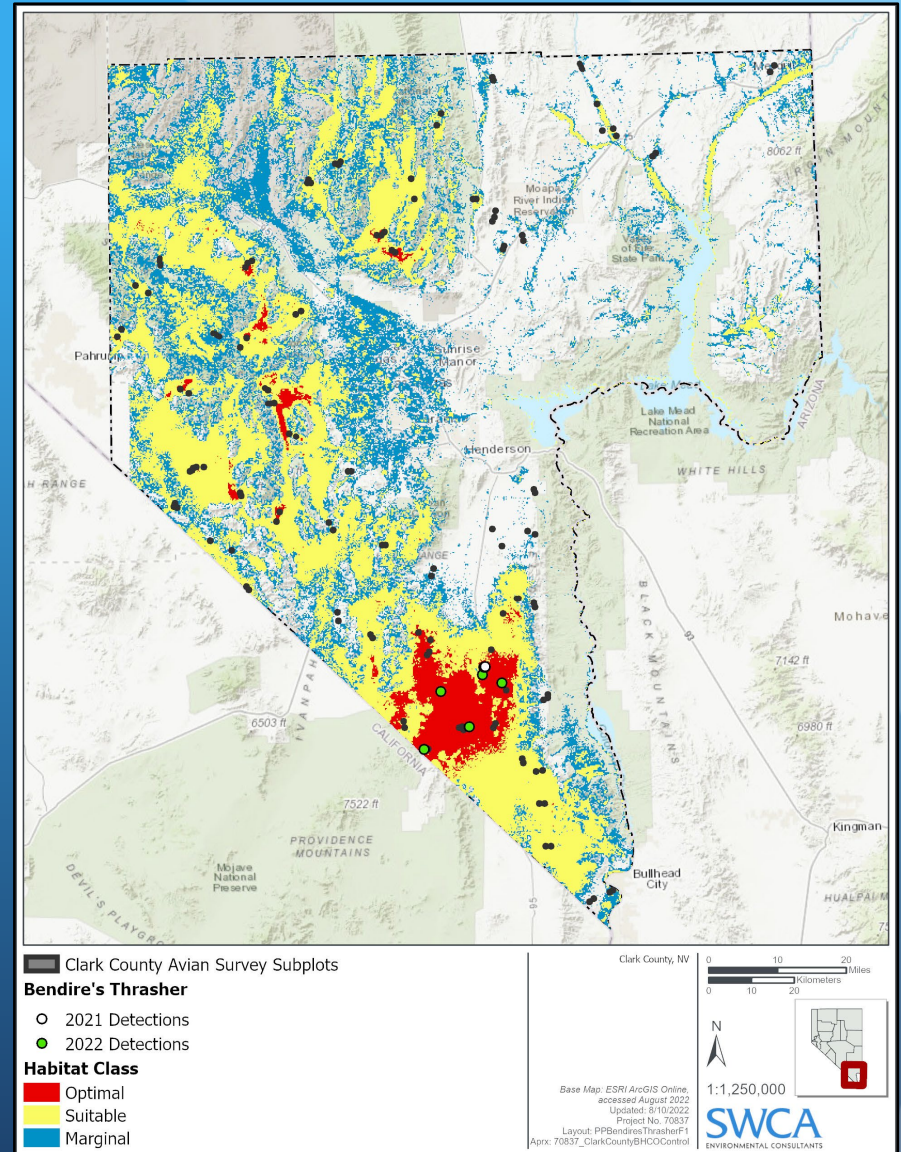
LeConte's Thrasher

- Appears to be a good model fit
- 98% of detections in predicted habitat (habitat categorized as optimal or suitable)



Bendire's Thrasher

- Model appears to overestimate habitat within Clark County
- Despite 54% of the surveyed area covering predicted habitat for Bendire's thrasher, only three (4%) subplots yielded Bendire's thrasher detections



Conclusions - Flycatcher

- Southwestern willow flycatchers had a great breeding year at Mesquite, and brown-headed cowbird control could be helping to increase nest success
- 2022 was lowest parasitism rate and highest fecundity recorded at Mesquite West in last 10+ years



Southwestern Willow Flycatcher (Chance Hines, SWCA)

Conclusions - Cuckoo

- Only incidental detections of yellow-billed cuckoo have been recorded each of the last two survey seasons
- Habitat is generally lacking at the Riparian Reserve Units, and this could be a return to expected levels of activity



Yellow-billed cuckoo

Conclusions - Point-counts

- MSHCP covered bird species are consistently recorded across DCP riparian properties
- Phainopepla is only covered species at the BCCE
- Property acquisition does result in conservation of habitat for covered riparian bird species



Bell's vireo at the Riverside Riparian Reserve Unit (Mike Swink, SWCA)

Conclusions - Model Refinement Surveys

- All seven target species were recorded in 2021 and 2022
- Some models appear to be a better fit than others
- Additional detections will be input into the models to help refine predicted habitat



Golden eagles

Questions?



Vermilion flycatcher