

Avian Surveys and Cowbird Parasitism Control and Evaluation on MSHCP Properties

**2021-SWCA-2020E
2019-SWCA-1935A**

Presented to

Presented by Justin J. Streit



MOJAVEMAX.COM



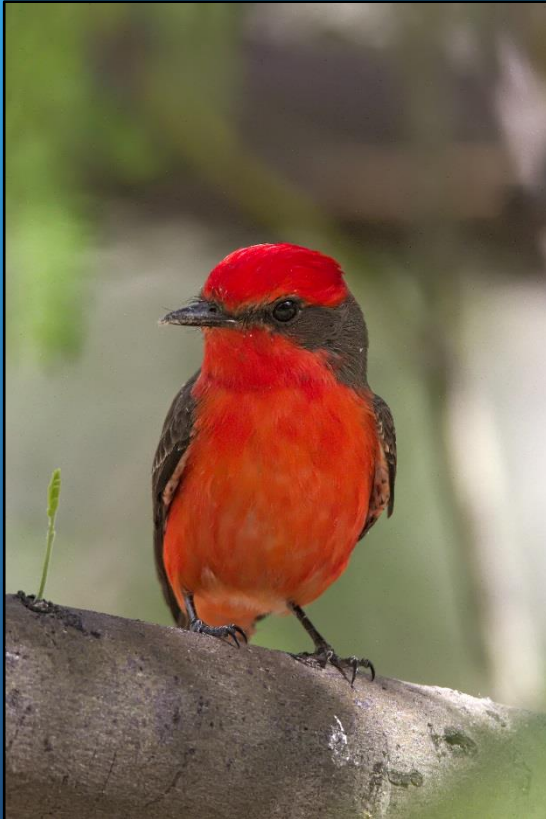
desert conservation
PROGRAM

SWCA[®]

ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.

Background - Avian Surveys on Riparian Properties

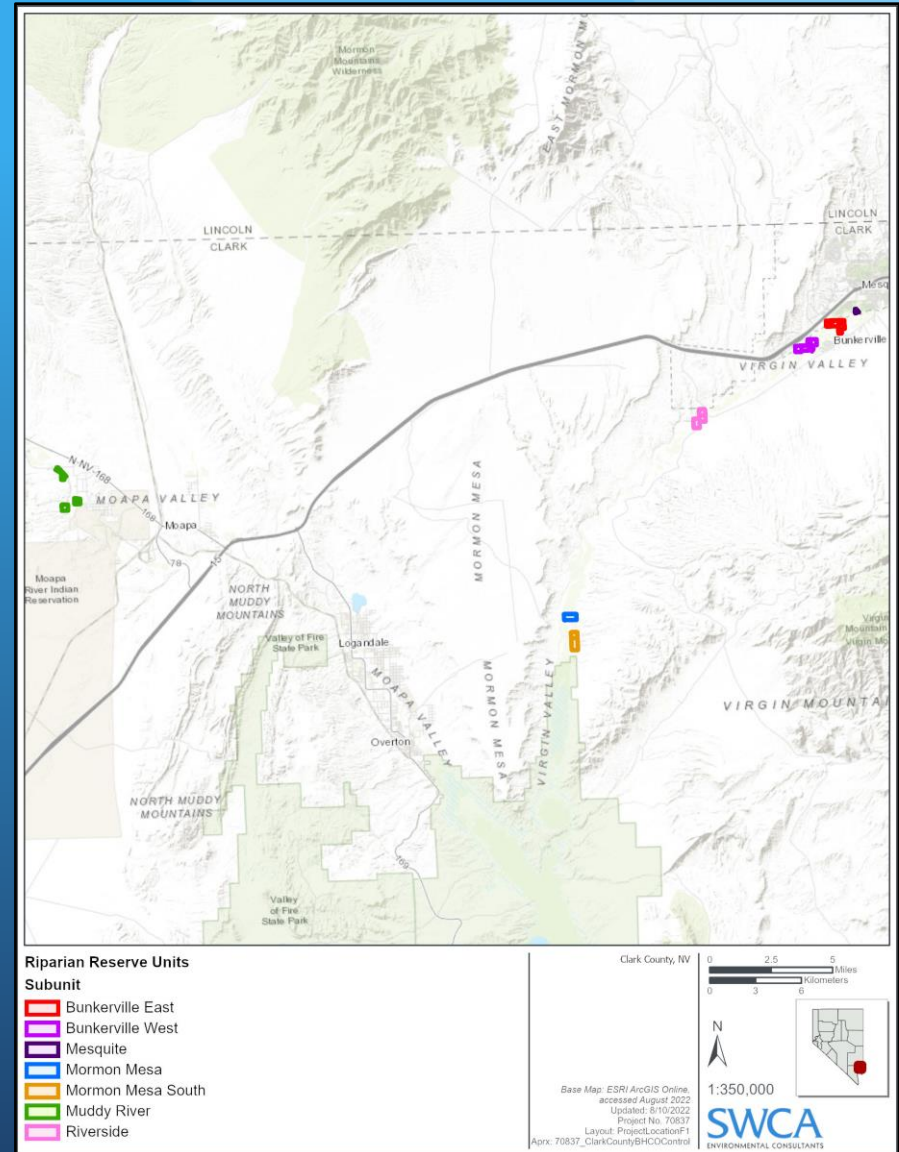


Vermilion flycatcher (Mike Swink, SWCA)

- 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

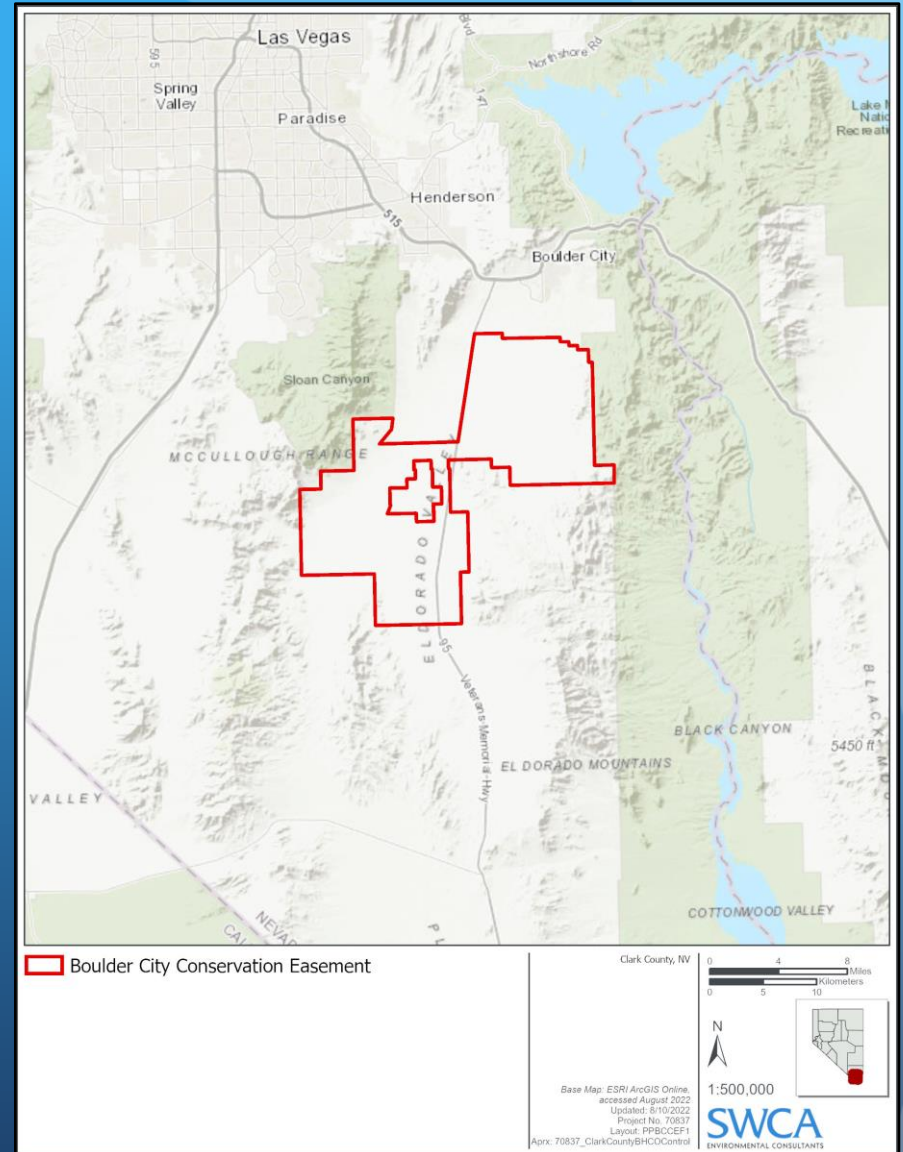
- Condition P of the ITP requires that the DCP take measures to ensure maintenance of connectivity for desert tortoise and other covered species within the Boulder City Conservation Easement (BCCE).
- This potentially includes covered avian species, like the phainopepla



Loggerhead shrike, an MSHCP Evaluation Species

BCCE

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



Project Goals

- 2021-SWCA-2020E (Year 5 of 5) - Continue building a record of federally listed and non-listed bird species present at the Riparian Reserve Units and BCCE
- 2019-SWCA-1935A (Year 1 of 4) - Maintain and/or improve habitat for the southwestern willow flycatcher and help identify lands where habitat enhancement may be implemented to expand habitat for the flycatcher



OWO at Mesquite Parcel 1-A

Project Tasks

- 2021-SWCA-2020E -
 1. Point-count surveys
 2. Species-specific surveys for southwestern willow flycatcher and western yellow-billed cuckoo
- 2019-SWCA-1935A -
 1. Brown-headed cowbird control
 2. Southwestern willow flycatcher monitoring
 3. Thermal refugia monitoring



Flycatcher monitoring at Mormon Mesa
(Claire Hart Photography)

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)
- 29 point-count locations across Riparian Reserve Units
- 20 point-count locations at the BCCE
- Three survey visits between May 1 and June 24, 2023

Riparian Point-Count Results

2023

- All 8 covered avian species detected (summer tanager and vermilion flycatcher only detected incidentally)
- Two MSHCP evaluation species: crissal thrasher and loggerhead shrike
- 72 species recorded across all Riparian Reserve Units
- Most abundant species were Lucy's warbler, mourning dove, and Abert's towhee

2017-2023

- All 8 covered avian species detected (all recorded from at least one point-count)
- Two MSHCP evaluation species: crissal thrasher and loggerhead shrike
- 97 species recorded across all Riparian Reserve Units
- Most abundant species were mourning dove, Abert's towhee, and Gambel's quail

Riparian Point-Count Results - Covered Species

- Blue grosbeak was most abundant MSHCP species at Riparian Reserve Subunits - first time since 2017 this wasn't Bell's vireo
- Blue grosbeak, Bell's vireo, and phainopepla prefer or tolerate scrubbier habitat at the Riparian Reserve Units



Open riparian habitat at Bunkerville East



Dense mixed mesquite at Riverside

Riparian Point-Count Results - Covered Species

- Yellow-billed cuckoo, summer tanager, Southwestern willow flycatcher, and vermilion flycatcher are much less common, each recorded at only one point-count or incidentally in 2023
- Specific habitat needs, including large, contiguous habitat



Dense willow habitat at Mesquite



Mature willows at Mormon Mesa
(Claire Hart Photography)

BCCE Point-Count Results 2018-2023

- One MSHCP covered species: phainopepla (2019, 2022)
- Three MSHCP evaluation species: Crissal thrasher (2019 only), LeConte's thrasher, and loggerhead shrike
- 46 species recorded across the BCCE (22 in 2023)
- Most abundant species are black-throated sparrow, horned lark, and house finch (2023 and combined years)



Phainopepla

Phainopepla



Mesquite spring at BCCE Point 22



Acacia wash at BCCE Point 37

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

Evaluation Species

LeConte's Thrasher

- Recorded at one point-count location in 2023
- Restricted to desolate, sparsely-vegetated habitats

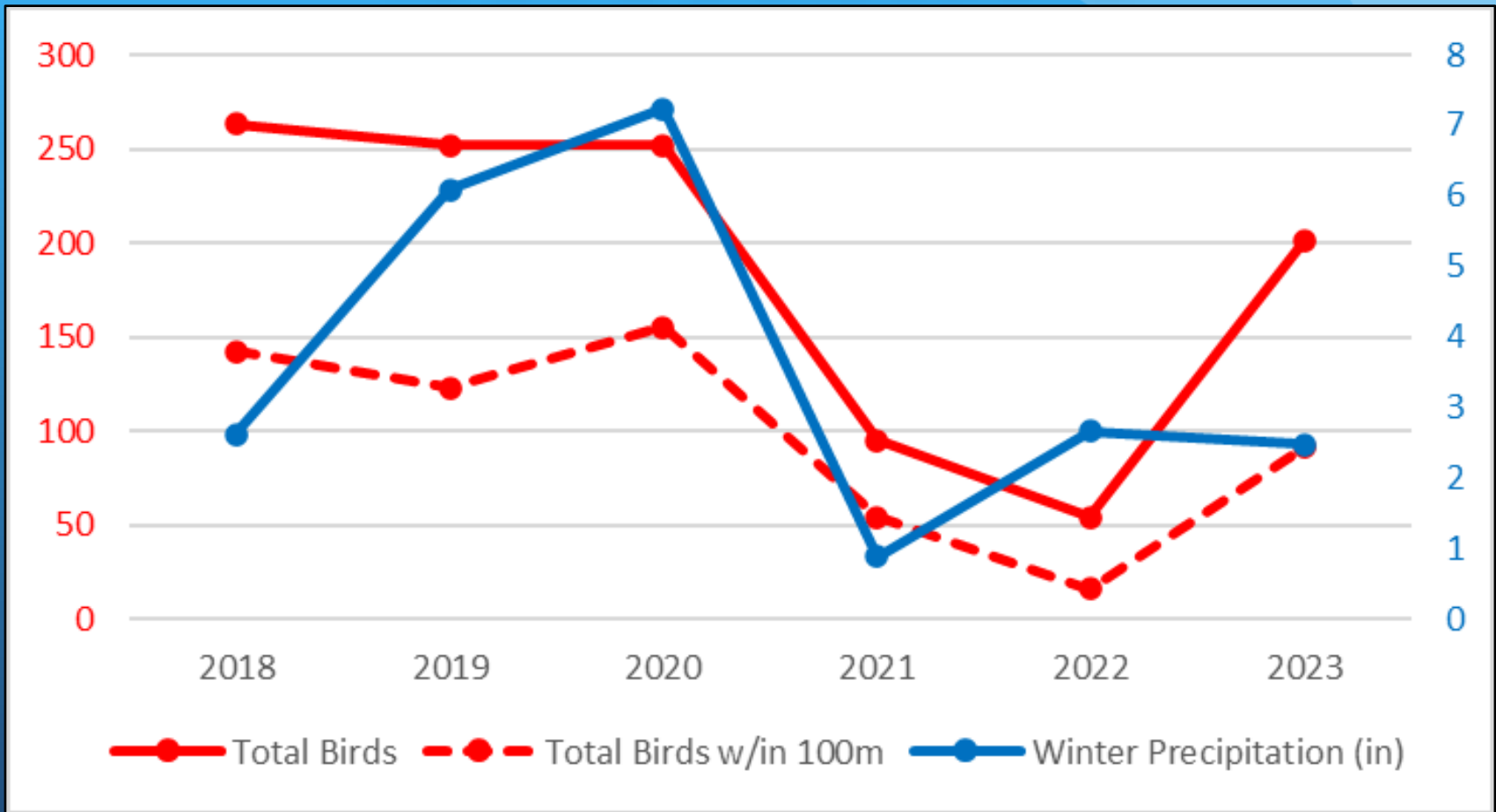


LeConte's thrasher nest at the BCCE

Loggerhead Shrike

- Recorded at one point-count location in 2023
- Widespread but found in low densities in a variety of open, shrubby habitats, wherever perches are available

Winter Precipitation vs Bird Detections



Precipitation Data from Searchlight, NV Source: Western Regional Climate Center (2023).

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

Southwestern Willow Flycatcher Survey Results 2018-2023

- Migrants and resident flycatchers detected at Mesquite and Mormon Mesa every year
- No migrants at any other sites in 2023.
- Previous migrant willow flycatchers:
 - Bunkerville East (1 - 2022)
 - Bunkerville West (2 - 2020, 2021)
 - Riverside (4 - 2018, 2020, 2021)
 - Muddy River (2 - 2022)



Riverside Subunit, showing willows and water, two key habitat requirements for southwestern willow flycatcher

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

Western Yellow-billed Cuckoo Survey Results - 2023

- Zero survey detections in 2021 or 2022
- 13 survey detections in 2023, plus 5 incidental locations at Riparian Reserve Units
- Probable breeding at Mormon Mesa
- Possible breeding at Muddy River, Riverside, and Bunkerville West(?)



Yellow-billed cuckoo (Sarah Nichols, SWCA)

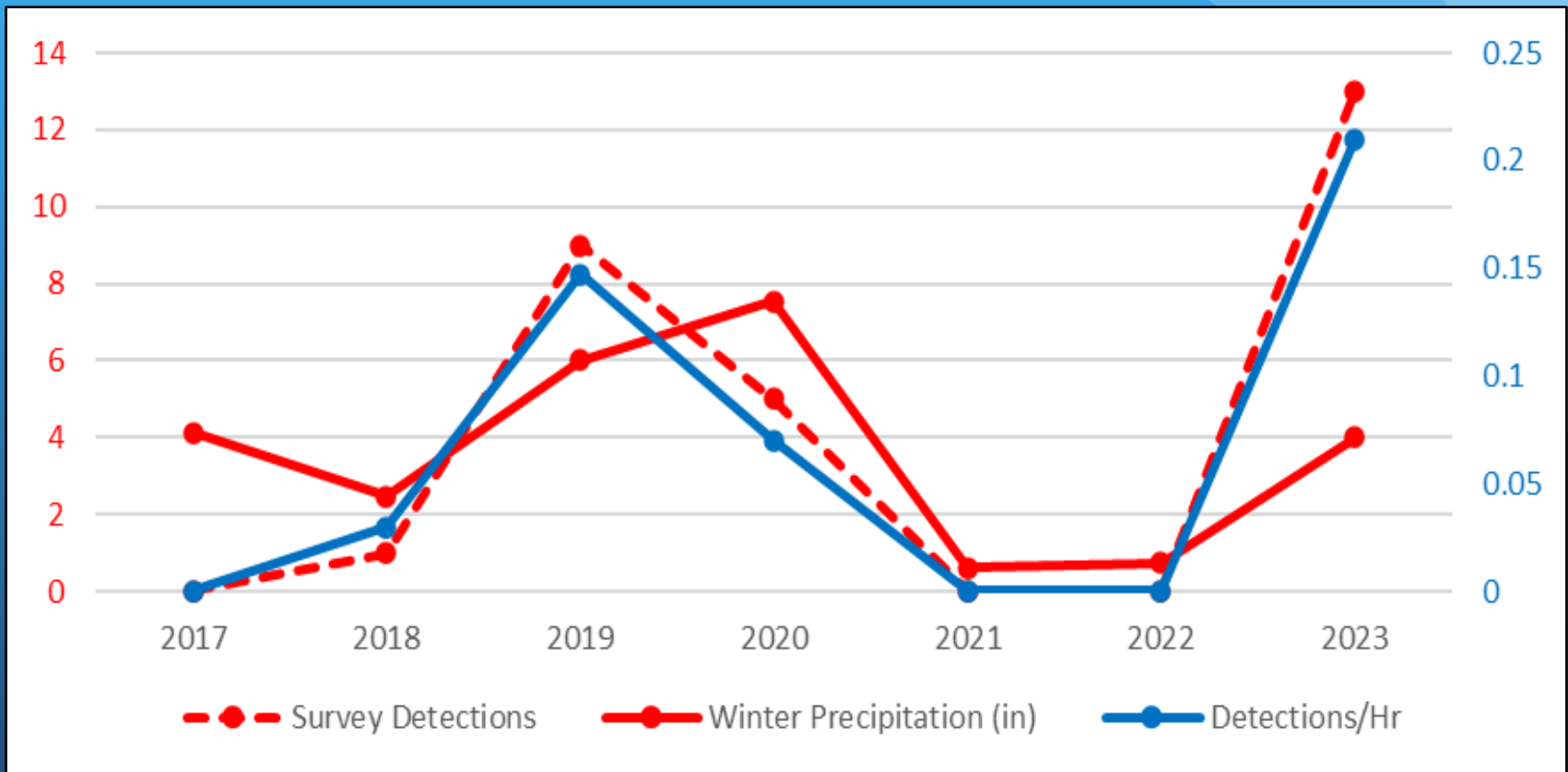
Cuckoo Detections - Past Years

- Is marginal habitat used in irruption years?
- No evidence of breeding at Mesquite Parcel 1-A in 2023, though nesting was confirmed in 2019
- Mesquite West is still one of only two confirmed breeding sites in the state of Nevada!
- Breeding has been suspected at Mormon Mesa in the past.



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

Winter Precipitation vs YBCU Detections



Precipitation Data from Overton, NV Source: Western Regional Climate Center (2023).

Brown-headed Cowbird Control

2019-SWCA-1935A

Methods - Brown-headed Cowbird Control

- Conducted at Mesquite West (includes Clark County Parcel 1-A)
- Netting for females from mid-May through the end of July
- 13 net mornings in 2021, 17 net mornings in 2022, 15 net mornings in 2023
- Females euthanized via decapitation
- Also included cowbird egg addling (2021) or replacement (2022, 2023) and nestling euthanasia



Flycatcher nest parasitized by a brown-headed cowbird

Cowbird Net Setup



Cowbird net setup (Sarah Nichols, SWCA)



Cowbird decoy (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



First netted female cowbird of 2023
(Sarah Nichols, SWCA)

- Target Netting -
14 females in 2021
11 females and 1 juvenile
in 2022
4 females in 2023
- Nest Control -
3 eggs added in 2021
1 egg replaced and 1 nestling
ethanized in 2022
1 egg replaced in 2023

Southwestern Willow Flycatcher Monitoring

2019-SWCA-1935A

Methods - Southwestern Willow Flycatcher 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)
- Includes determining territory status, locating nests, and monitoring known nests
- Color-banding adults and nestlings for determining territory association and confirming nest success, respectively

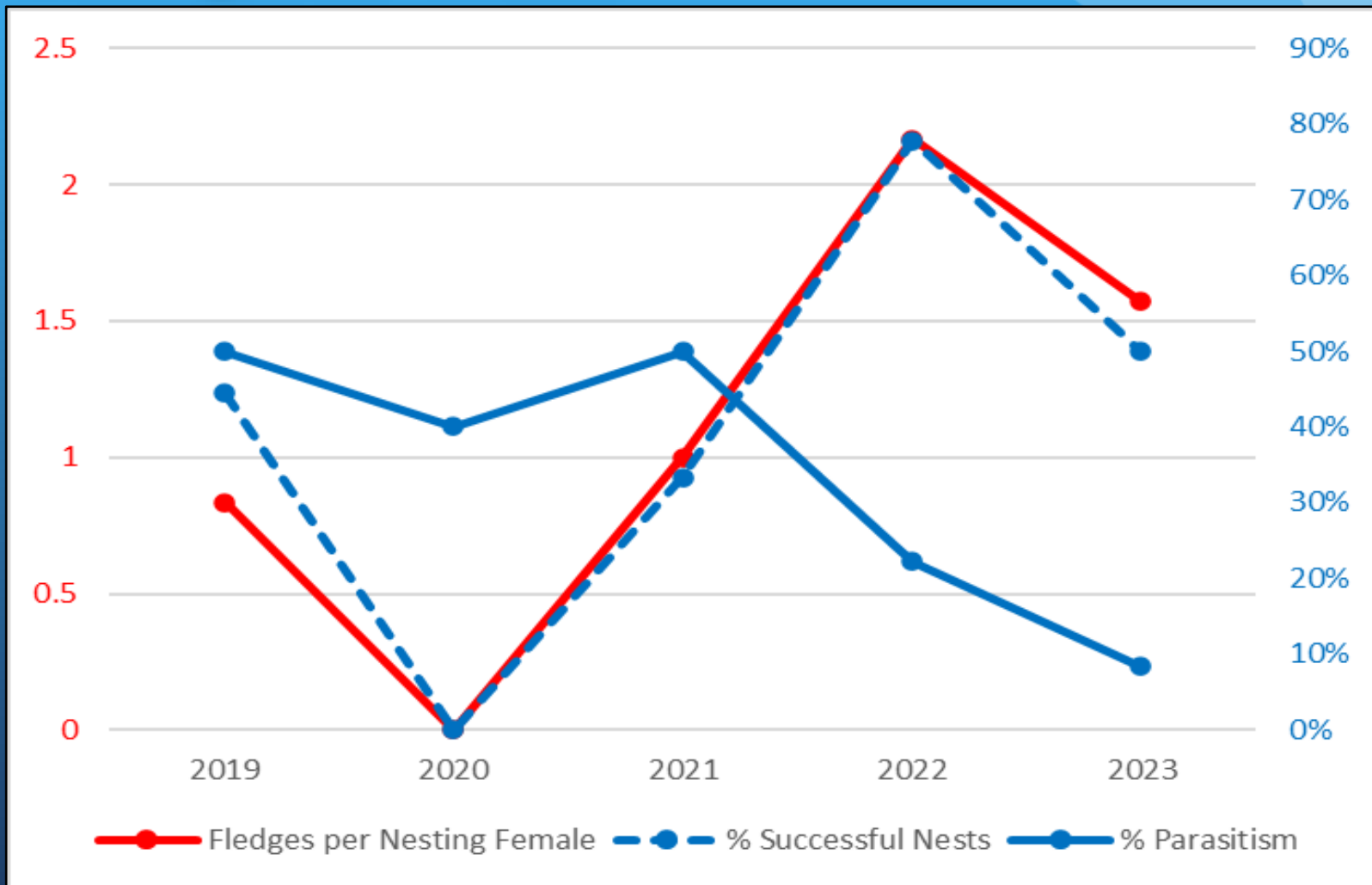
Mesquite West Monitoring Results

- Mesquite West
 - 2020 - 5 nesting attempts; all failed - 0 fledglings
 - 2021 - 6 nesting attempts; 2 successful - 3 fledglings
 - 2022 - 9 nesting attempts; 7 successful - 13 fledglings
 - 2023 - 12 nesting attempts; 6 successful - 11 fledglings
- Habitat is dense narrowleaf and Goodding's willow with water or saturated soils throughout



Fledgling flycatcher 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
 - 2023 - 3 adults, 1 nesting attempt failed due to parasitism
- Pattern of one or two territories annually
- Parasitism impacts unclear given low nesting attempts



Parasitized flycatcher nest at Mormon Mesa

Flycatcher Banding Results

- 6 adult and 13 nestling flycatchers banded in 2023 - second most in the last 4 years of banding
- 24 in 2022
10 in 2021
8 in 2020



Banding a nestling flycatcher (Claire Hart Photography)

Thermal Refugia Study

2019-SWCA-1935A

Methods - Thermal Refugia Monitoring

- Deployed iButton data loggers to collect temperature and humidity data in a variety of habitats including:
 1. Southwestern willow flycatcher nesting habitat
 2. Unoccupied marginal flycatcher habitat
 3. Other Riparian Reserve Unit habitat
- 42 iButton data loggers were deployed ~May 31, 2023, and retrieved ~August 15, 2023
- Data collected every 30 minutes for entirety of deployment
- No results at this time

Conclusions - Flycatcher

- Southwestern willow flycatchers had another strong breeding year at Mesquite West, and brown-headed cowbird control appears to be helping to elevate nest success
- 2023 was lowest parasitism rate and second highest fecundity recorded at Mesquite West in last 10+ years



Southwestern willow flycatcher (Chance Hines, SWCA)

Conclusions - Cuckoo

- Total yellow-billed cuckoo detections, survey detections, and detections per hour of survey were all records for the last 7 years of this study
- Habitat was thought to be generally lacking at the Riparian Reserve Units, so 2023 numbers are surprising



Yellow-billed cuckoo at Muddy River
(Sarah Nichols, SWCA)

Conclusions - Point-counts

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



Blue grosbeak at Bunkerville West

Questions?



A nest-building Bell's vireo contemplating temperature and humidity
at Mormon Mesa Parcel 5-A