Avian Projects Throughout the Southwest Region

Outline

4 presentations/Speakers:

- **Melanie Madden, MAPS stations**

- **Melissa Booker, San Clemente Island (SCI) Avian Monitoring**

- **Peggy Wilcox, Christmas Bird Count**

- **Vanessa Shoblock, Detachment Fallbrook Coastal California Gnatcatcher (CAGN) and Cactus Wren (CACW) Survey/Survey Protocol**

Open Floor for Marine Corps

30 Jan 2024

Monitoring Avian Productivity and Survivorship (MAPS) Stations
Navy Region Southwest, 2009-2020

Overall Classification: UNCLASSIFIED//FOR OFFICIAL USE ONLY

USGS
science for a changing world

Prepared for Commander, Navy Region Southwest

Monitoring Avian Productivity and Survivorship (MAPS) 5-Year Summary, Naval Outlying Landing Field, Imperial Beach, Southwestern San Diego County, California, 2009–13

Open-File Report 2015–1035

U.S. Department of the Interior
U.S. Geological Survey

- **MAPS**
  - Apr-Aug, 2009-2013
  - Tijuana River
  - 3,543 captures of 57 species
  - Common Species: BUSH, SOSP, OCWA, COYE
  - 22 Sensitive Species Including LBVI, WIFL, YBCH, YEWA

Ecosystems Mission Area—Species Management Research Program

Monitoring Avian Productivity and Survivorship (MAPS) 6-Year Summary, Naval Outlying Landing Field, Imperial Beach, Southwestern San Diego County, California, 2014–20
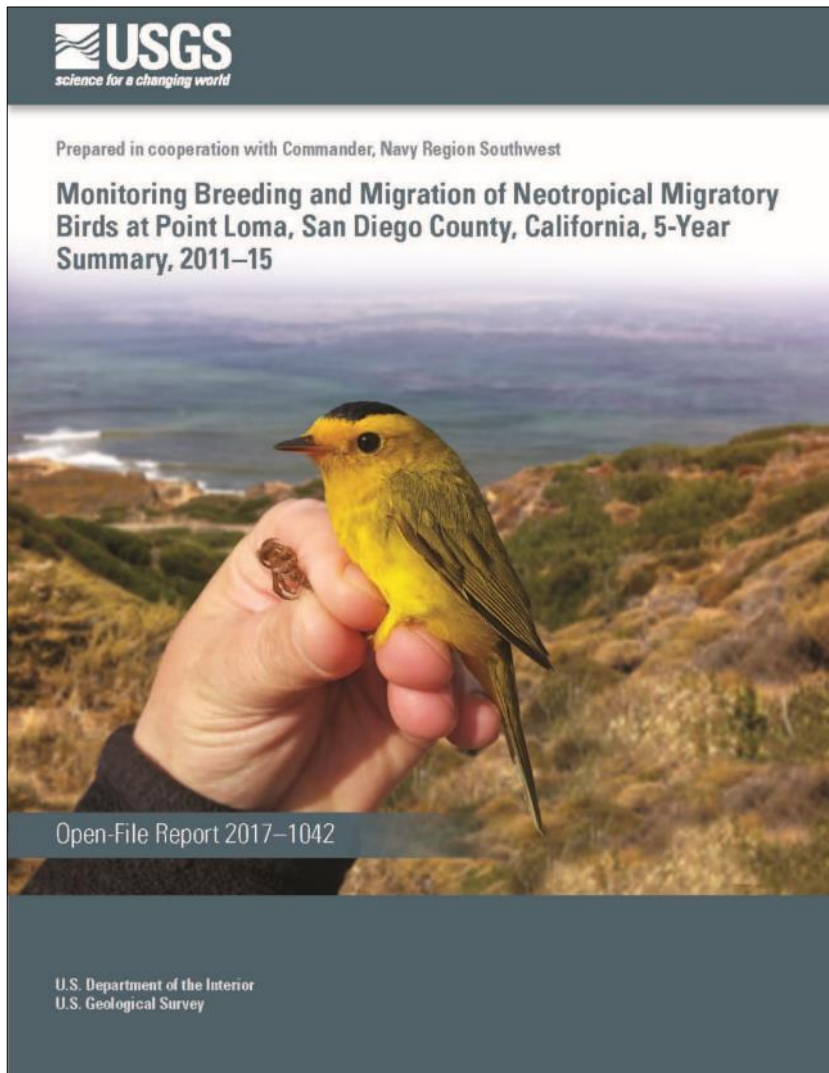
Open-File Report 2023–1055

U.S. Department of the Interior
U.S. Geological Survey

- **MAPS**
    - Apr-Aug, 2014-2020
    - Tijuana River
    - 3,543 captures of 68 species
    - Common species: BUSH, OCWA, WIWA, HOFI, SOSP, COYE
    - 19 Sensitive Species: LBVI, WIFL, CAGN, YBCH, YEWA
    - LBVI only species not impacted by shot hole borer in 2017, increase in numbers
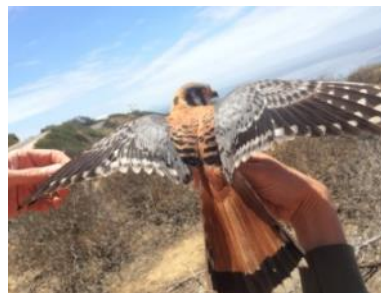
# POLO- Naval Base Point Loma/ Cabrillo National Monument, MAPS

USGS
science for a changing world

Prepared in cooperation with Commander, Navy Region Southwest

Monitoring Breeding and Migration of Neotropical Migratory Birds at Point Loma, San Diego County, California, 5-Year Summary, 2011–15

Open-File Report 2017–1042

U.S. Department of the Interior
U.S. Geological Survey

- **MAPS**
  - May-Aug, 2011-2015
  - Point Loma Peninsula, Upland
  - 1,737 captures of 66 species
  - Common species: OCWA, BUSH, ANHU, BEWR, CALT, SPTO
  - Sensitive species: CAGN, WIFL, LBVI

POLO- Naval Base Point Loma/ Cabrillo National Monument, Migration

A. April 7, 2015
0.03 Captures/Net-hour.

B. May 27, 2014
1.34 Captures/Net-hour.
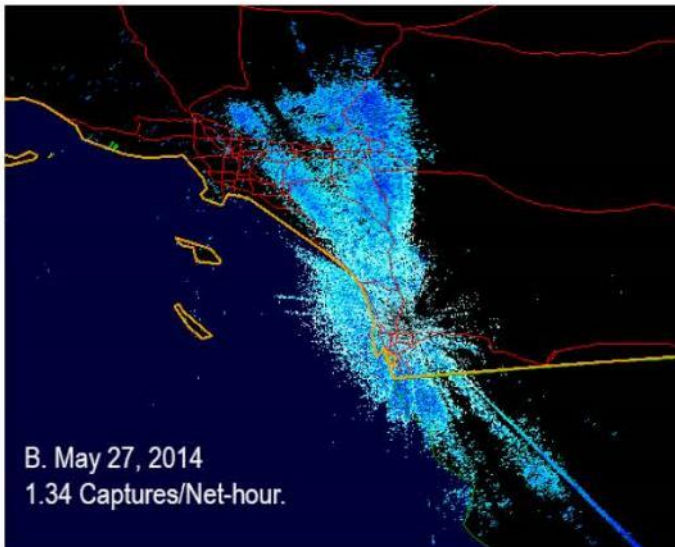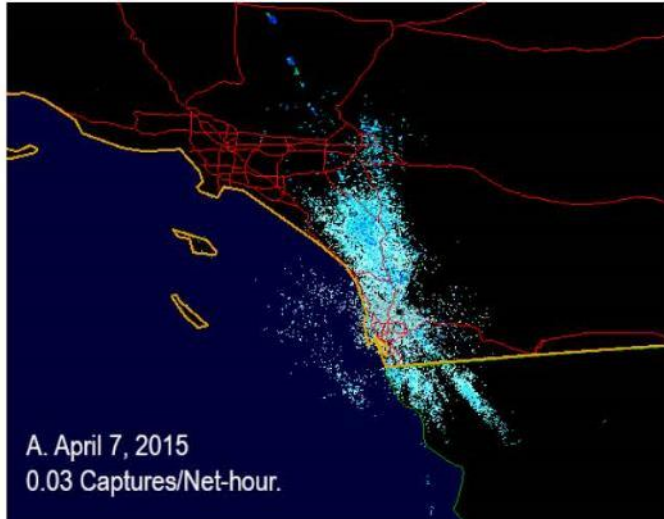
Spring Migration
- April-May, 2011-2015
- 1,796 captures of 54 migratory species
- Stopover for 76 migratory
- Common species: WIWA, PSFL, WAVI, WCSP, RUHU
- Sensitive species: LBVI, WIFL
- Signification correlation between number of migrants captured and Next-Generation Radar (NEXRAD) images

Representative Next-Generation Radar images showing spring 2011–15 banding days with (A) low and (B) high migrant bird capture rates, Point Loma banding station, San Diego County, California.

Prepared for Commander Navy Region Southwest

Monitoring Breeding and Migration of Neotropical Migratory Birds at Naval Base Coronado, Remote Training Site, Warner Springs, San Diego County, California, 5-Year Summary 2013–17
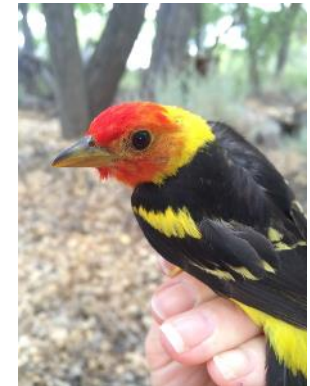
Open-File Report 2018–1112

U.S. Department of the Interior
U.S. Geological Survey

- **MAPS**
  - Apr-Aug, 2013-2017
  - San Luis Rey River
  - 783 captures of 58 species
  - Common species: BUSH, SPTO, OATI, ATFL
  - Sensitive species: LBVI, WIFL, YBCH, YEWA
- **Fall Migration**
  - Aug-Oct, 2013-2016
  - 627 migratory captures of 44 species
  - Common species: SPTO, WIWA, YEWA, OCWA
  - Sensitive species: WIFL

:

Questions?

San Clemente Island Avian Monitoring

Presented By: Melissa Booker, San Clemente Island (SCI) Wildlife Biologist & SCI Loggerhead Shrike Program Manager
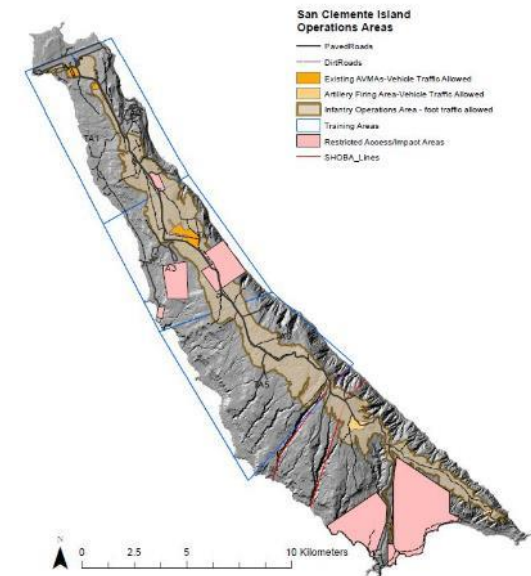
San Clemente Island Avian Monitoring

Location/Background

Avian Taxa Monitored:

- **San Clemente Loggerhead Shrike**

- **San Clemente Bell's Sparrow**

- **Western Snowy Plover**

- **Seabirds-storm-petrels & murrelets**

- **Bald Eagle**

- **Peregrine Falcon, Burrowing Owl, Misc/Mig Birds**

SC Loggerhead Shrike

Critically endangered subsp, only at SCI, highly managed, Navy investment >$50 million, $2.4M annually

- **Surveys (census all accessible areas) to determine the breeding population**

- **Apparent survival estimates by age and relative to potential correlates**

- **Reproductive parameters: number of breeding pairs, nest chronology-determine nestling banding windows, and quantify reproductive success and productivity**

- **Band chicks, fledglings, and adults to track population parameters**

- **Also record nesting substrate and management "treatments" (i.e., supplemental feeding and rat control)**

Descriptions of San Clemente loggerhead shrike population estimation measures used in 2022 on San Clemente Island, California.
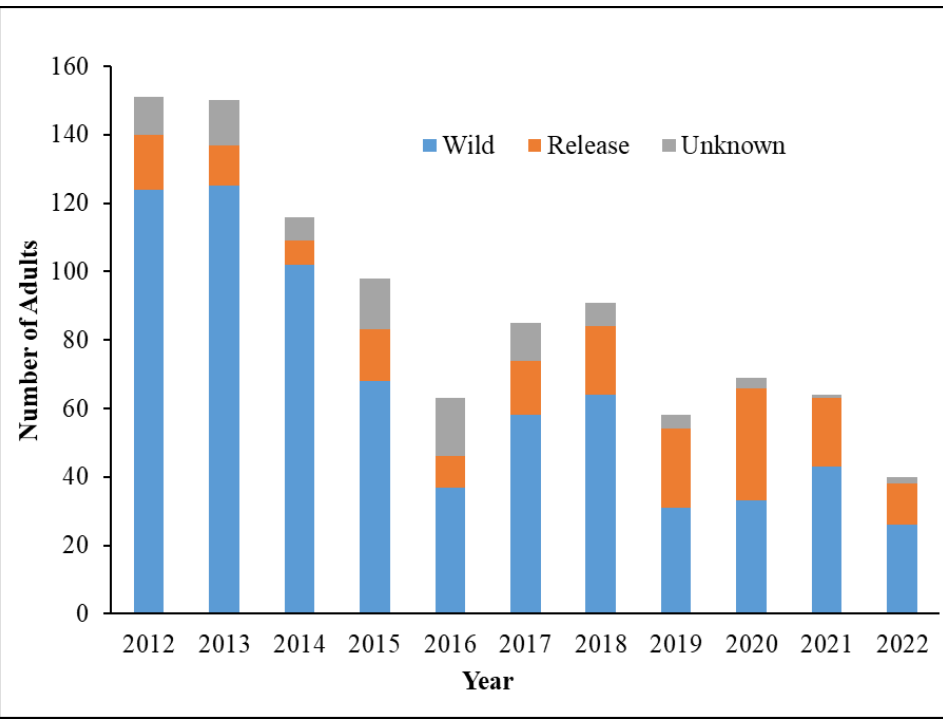
Measure	Acronym	Description	Included	Excluded	
Minimum Population Estimate	Min PE	All SCLS detected in March	Adult SCLS seen 1–31 March	SCLS seen only after 31 March	39
Potential Breeding Population	N	The number of SCLS that were alive at some point during the breeding season and had the potential to breed	Minimum Population Estimate plus all adults detected April–September	SCLS not detected after 28 February	41
Effective Breeding Population	N_e	All SCLS known to have bred	SCLS that reached the egg-laying stage	SCLS that only reached the nest-building stage	38
Maximum Population Estimate	Max PE	The maximum number of SCLS known to possibly be on island at one time	Potential Breeding Population plus all independent juveniles (wild and released)	SCLS not detected after 28 February and SCLS known to have died from March–September	117 (Sex ratio 1.05M:1F)

San Clemente Island Avian Monitoring
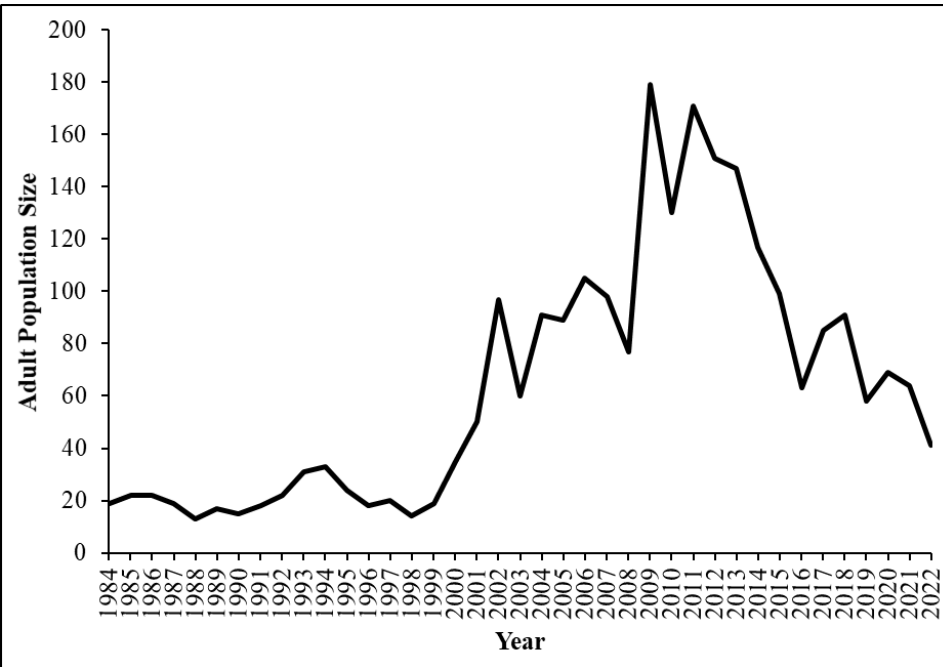
Shrike Potential Breeding Population (N) over time and by origin

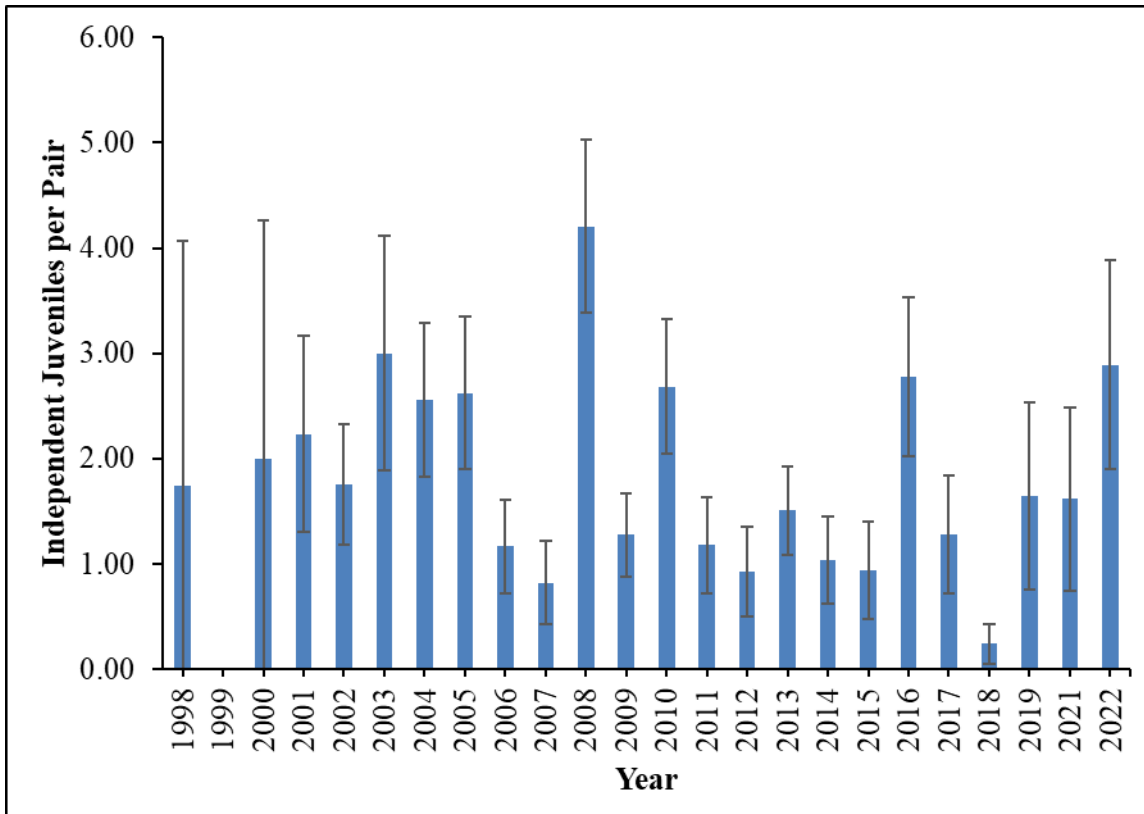**Shrike Survival:** apparent survival by age class available 1999-present, except for COVID. Strongest correlation is winter rainfall (prior) to juvenile survival
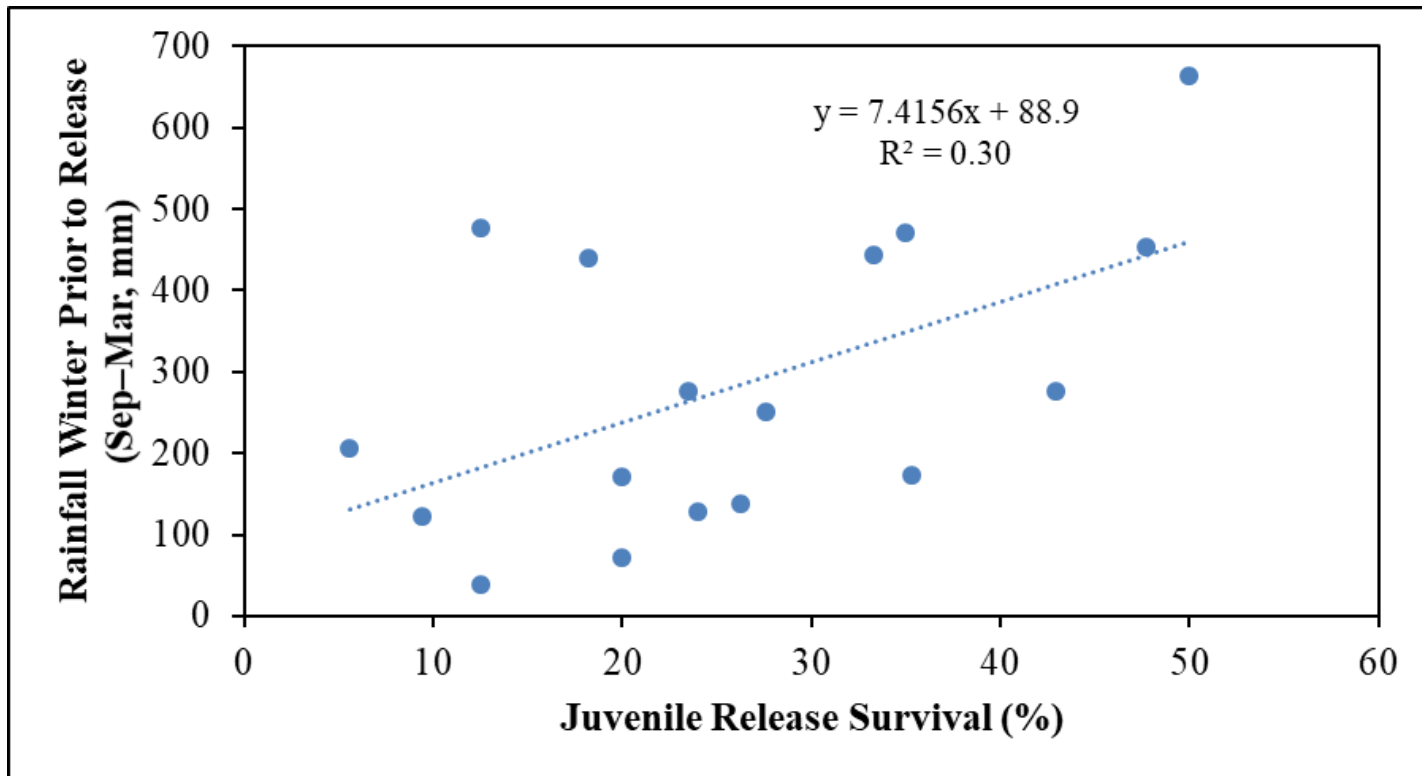
San Clemente Island Avian Monitoring

- Reproductive/Nesting Data: total # nest attempts by outcome-apparent nest survival and # of successful nests that survived to independence

- Total # known eggs, nestlings fledglings, and juveniles

San Clemente Island Avian Monitoring

Mean breeding productivity and sample size of shrike pairs that advanced to at least egg-laying, by age group (SY = second year, ASY = after second year), in 2022 and the long-term average
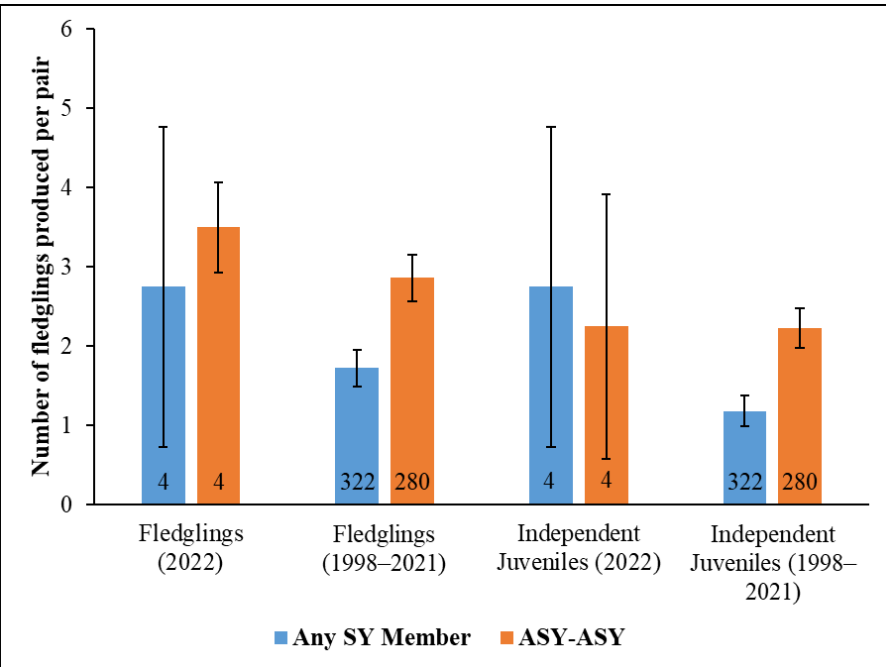
Winter rainfall in relation to shrike fledgling (FL) and independent juvenile (ID) production, 2005–2022

Comparison of 2022 San Clemente loggerhead shrike reproductive values, population sizes, and release numbers to the average from 1998–2021 and 2006–2021 on San Clemente Island, California. FL = fledglings. ID = independent juveniles (≥40 days post-hatching). Note, 2020 estimates are excluded due to data gaps (18 March–22 May 2020) stemming from a COVID-19 stay-at-home order.

Metric	2022	2006–2021	1998–2021
Nesting success	0.5	0.43	0.45
FL produced per pair	3.28 (95% CI = 2.30–4.25)	2.04 (95% CI = 1.86–2.22)	2.23 (95% CI = 2.07–2.40)
ID produced per pair	2.89 (95% CI = 1.90–3.88)	1.50 (95% CI = 1.35–1.65)	1.65 (95% CI = 1.51–1.78)
Proportion[1] of FL to ID	0.88	0.73	0.74
Juvenile Survival[2]	0.10	0.29	0.29[3]
Juveniles Released[4,5]	25 JR	26.0 (10–49)	25.8 (7–49)
Adults Released[4,5]	1	3.7 (0–14)	5.9 (0–21)
Potential Breeding Population[5]	41	109 (58–179)	90.9 (14–179)
Effective Breeding Population[5]	38	91.8 (45–154)	76.3 (11–154)
Maximum Population[5]	117	202.6 (105–320)	176.9 (24–320)

[1]Proportion of fledglings surviving to independence.

[2]Survival from previous year to 1 March of current year for all wild and release fledglings.

[3]Survival estimate for 1999–2021 only as release techniques not consistent in 1998.

[4]Only SCLS released ≥1999 are listed and ranges are shown. Juveniles Released includes Dad-and-Kids, Family Bonded, Family Release, Juvenile Release, and Modern Family techniques.

[5]Range shown

SC Bell's Sparrow

Formerly SC Sage Sparrow, federally listed 1977 & delisted in 2023

- Random stratified plot-based monitoring, 1,322 potential plots in 7 strata with ~100-110 selected annually for sampling

- Sequence surveys randomly throughout the breeding season to minimize seasonal behavioral effects on sparrow detectability

- Use double-sampling methods to estimate population size: a single survey of all randomly selected plots (rapid surveys) and a correction factor calculated from a subset of these plots that are surveyed 8 times (intensive surveys)

- Use territory mapping on both rapids and intensives to record individuals and breeding pairs

SC Bell's Sparrow

• Calculate island-wide density (and SE) by estimating habitat-strata-specific densities then give weight to proportion by strata representation, apply corrective factor and derive "corrected" mean density estimates x total BESP population area = island-wide pop est.
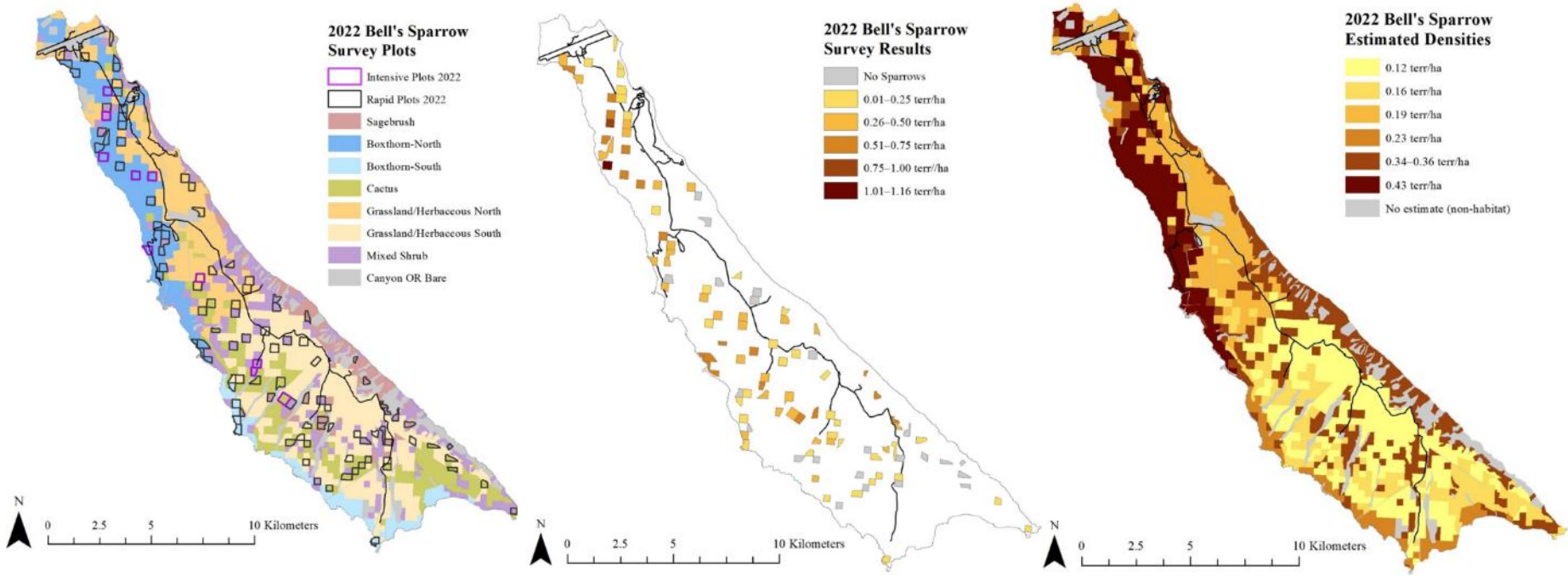
San Clemente Island Avian Monitoring

Breeding Season

- 61 days - 177 days
- Earliest nest: 4 Jan & Latest active nest: 25 July

Nests

- Largest clutch: 5 eggs
- Most attempts at nesting by a single pair: 5
- Elevation range 5-553 meters
- Number of plant species documented as primary nest substrate: 38
- ≥ 9 % of nests used SCI/Channel Island endemic species as nest substrate

Movement

- Longest dispersal (juvenile to adult): 14.6 km & longest movement by adult: 5.4 km

Oldest Banded Sparrows: 10 years old

SC Bell's Sparrow

- 1984: 38 adults

- 1980-85: ~178 adults

- 1997: 294 adults

- 1999-2011: average 828 adults

New Monitoring Tested in 2012 and implemented fully 2013

- 2013-2018: Average 5,429

- 2019: 2,099 pairs (4,198 adults)

- 2020: 3,079 pairs (6,157 adults)

- 2021: 3,153 pairs (6,307 adults)

- 2022: 3,205 pairs (6,410 adults)

Range Expansion 3x (10,000 acres to ~33,000 acres)

San Clemente Bell's sparrow
Artemisiospiza belli clementeae

Listed in 1977 as Threatened
Delisted 2023

Western Snowy Plover

- Monitor monthly, typically only wintering birds

- Monitor before and after LCAC landings

- High winter count of 29 on 3 northern beaches (can't access southern beaches)

Seabirds-storm-petrels & murrelets

Seabirds-storm-petrels & murrelets

Table 5: Proposed long-term monitoring schedule for *Synthliboramphus* murrelets at San Clemente Island in 2018-2032. Complete monitoring includes spotlight surveys, at-sea captures and nest monitoring.

Year	Types of Monitoring	Year	Types of Monitoring
2018	Nest monitoring only	2026	Nest monitoring only
2019	Complete monitoring	2027	Complete monitoring
2020	Complete monitoring	2028	Complete monitoring
2021	Nest monitoring only	2029	Nest monitoring only
2022	Nest monitoring only	2030	Nest monitoring only
2023	Complete monitoring	2031	Complete monitoring
2024	Complete monitoring	2032	Complete monitoring
2025	Nest monitoring only		

Complete monitoring is nest and population monitoring

San Clemente Island Avian Monitoring

Bald Eagle Nest Camera
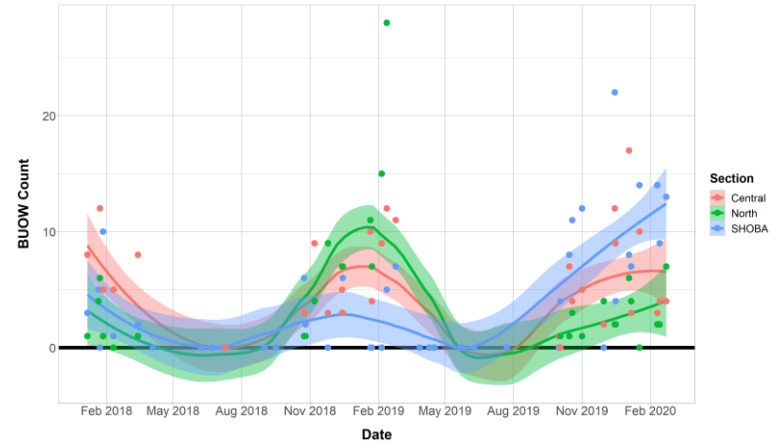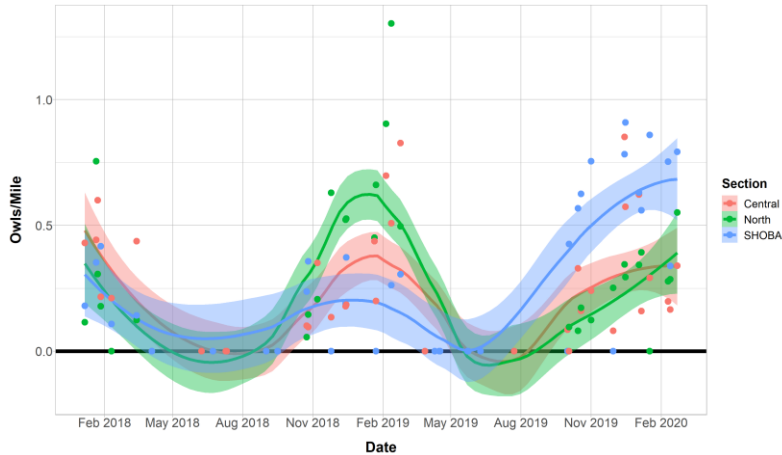
San Clemente Island Avian Monitoring

Over 350 (~367) avian spp recorded at SCI
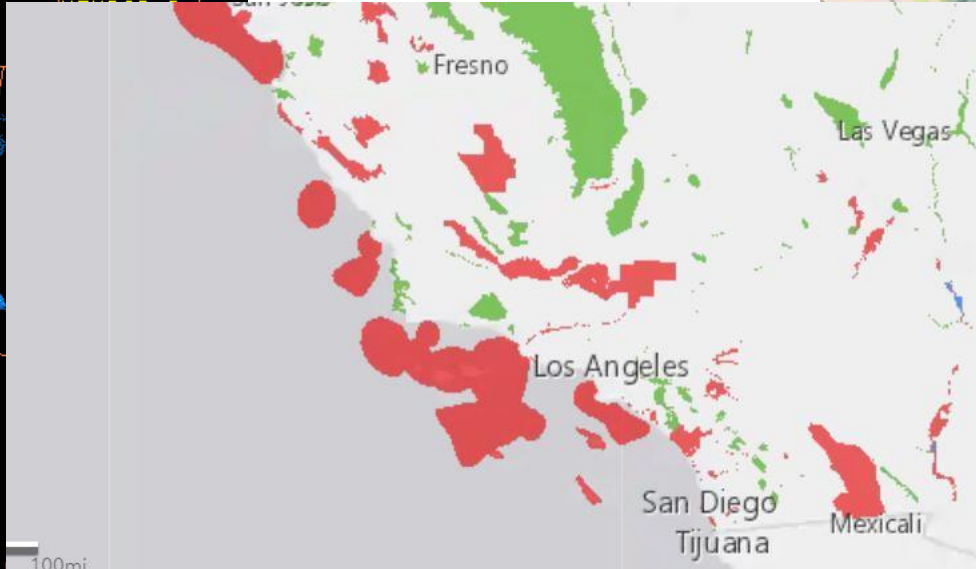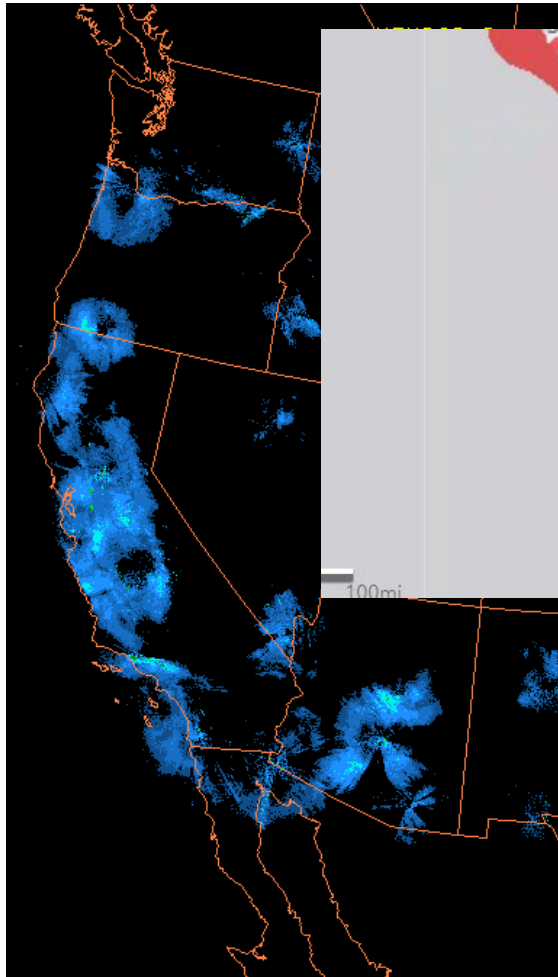
Christmas Bird Count

Navy supports annual citizen science bird survey in San Diego County

30 Jan 2024

Christmas Bird Count (CBC) Background

➤**Purpose:**
- To study long-term health and status of bird populations across Western Hemisphere

➤**History:**
- Nation's longest running citizen science bird project
- Began in 1900, has grown to include survey circles in over 20 countries
- Organized by Audubon Society and carried out by thousands of volunteers each year

CBC Background

> **Protocol:**
> - Runs from Dec 14 – Jan 5 every year
> - Survey areas consist of count circles that are 15 miles in diameter
> - Each count circle has a coordinator who organizes volunteers and compiles and reports results
> - All bird species and individual numbers observed by survey teams within the circle's assigned day are included in final count
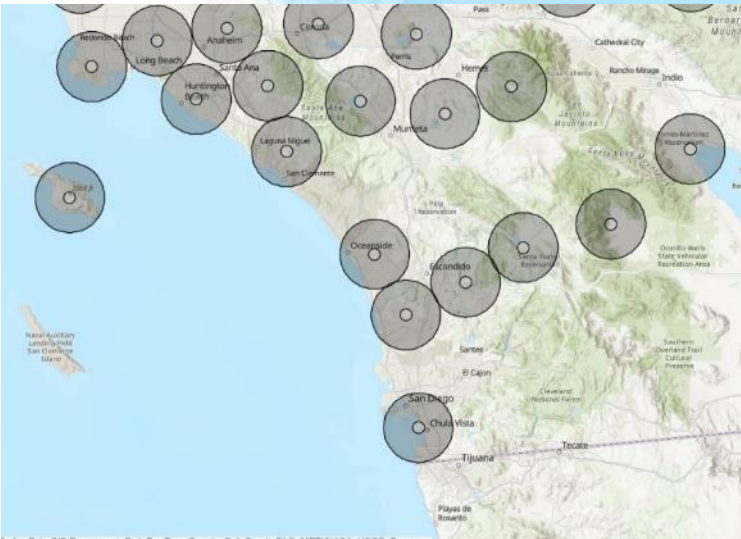
CBC Background

> **Relevance**
> - Over 300 peer-reviewed journal articles have been published using analyses derived from Christmas Bird Count data.
> - CBC data has been used by federal agencies as an integral part of environmental policy-making decisions.
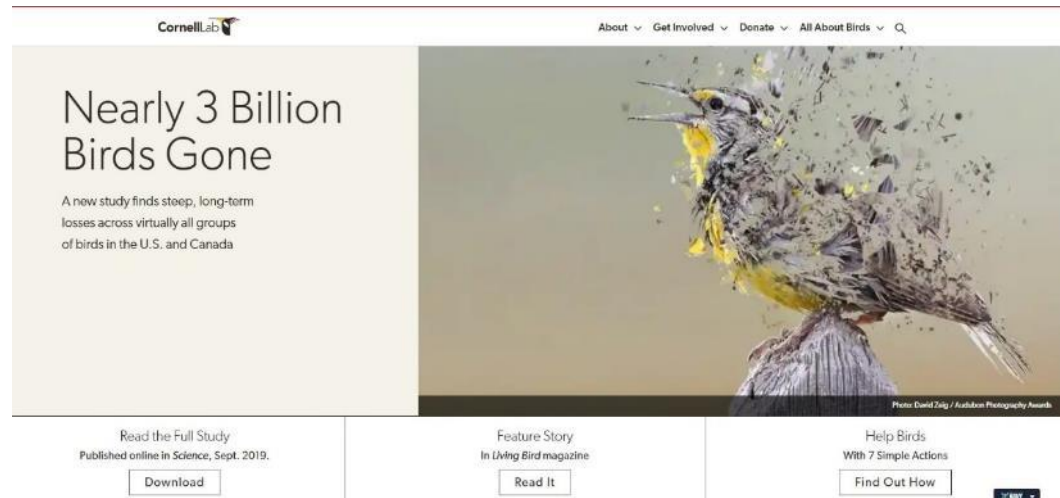
San Diego Circle – 2023/24

➤ The count for the San Diego Circle was held Dec 16th, 2023

➤ The following Navy properties were included:

- <u>Naval Base Coronado</u>
  - o Naval Air Station North Island
  - o Naval Amphibious Base
  - o Silver Strand Training Complex – South
  - o Naval Outlying Landing Field Imperial Beach
- <u>Naval Base San Diego</u>
- <u>Naval Base Point Loma</u>

➤ **Results in San Diego Circle:**

- 223 species observed
  - o Includes hybrids and exotic species (both naturalized and non-naturalized)
  - o Record high for SD
- 80,000 individual birds

➤ **Results on Navy property:**

- 132 species observed
- 7962 individual birds
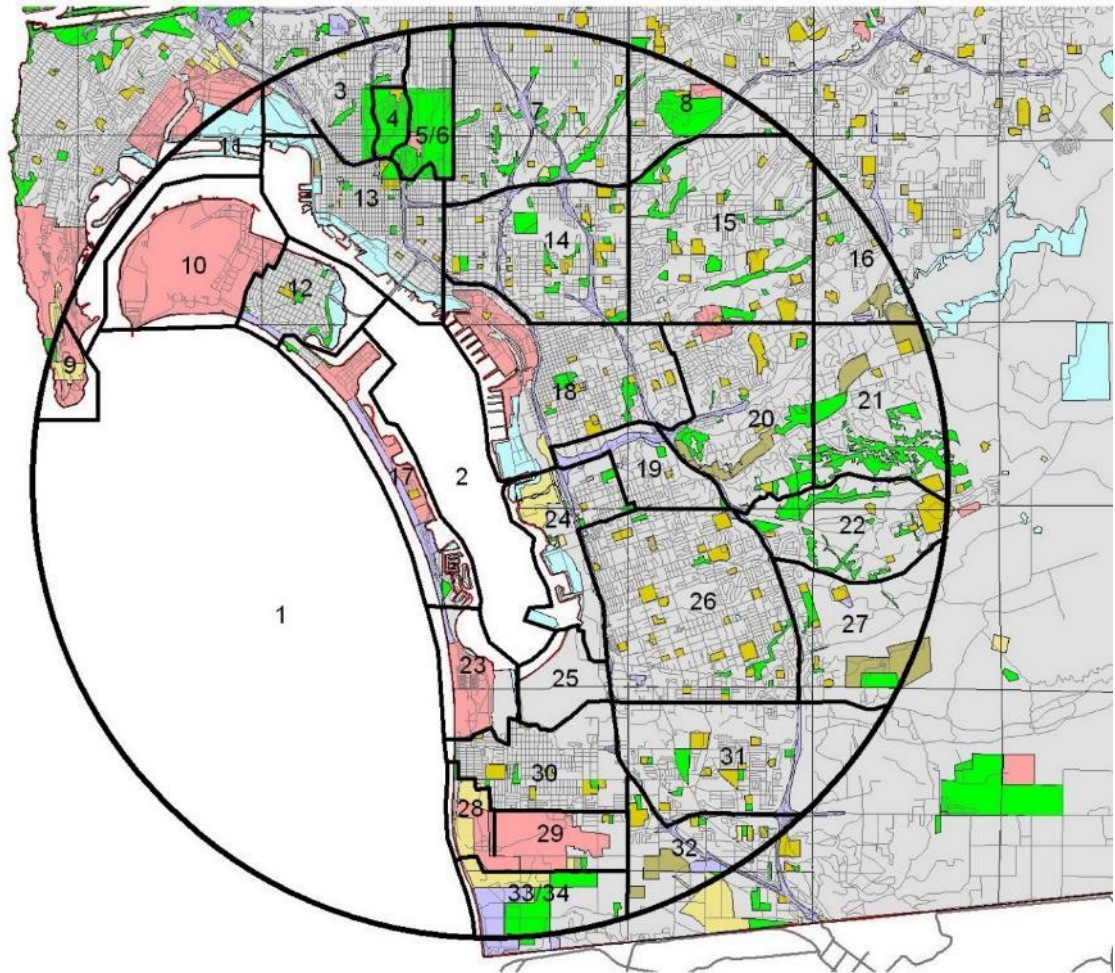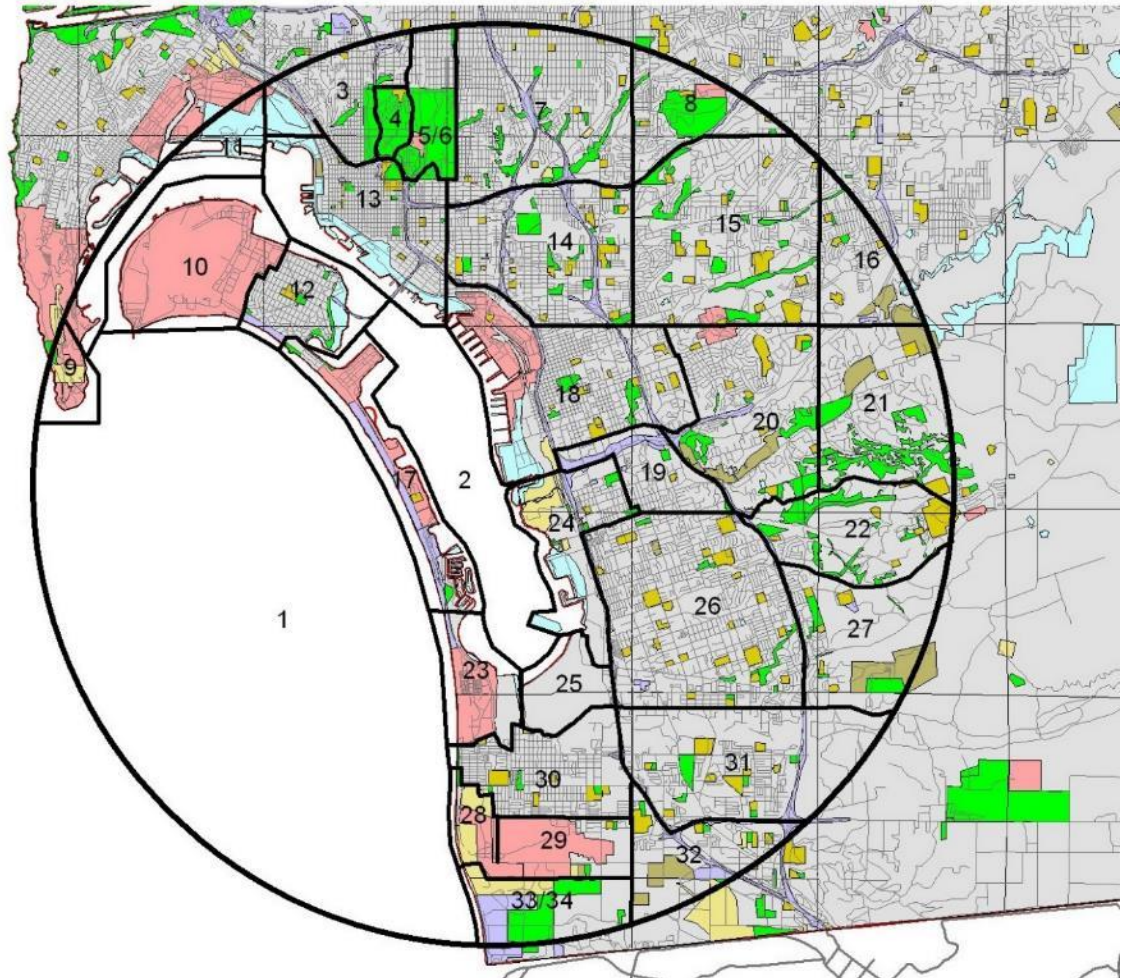
San Diego Circle Results – 2023/24

PC: Bryon Stone

PC: Brian Sullivan

➢**4 species were observed only on Navy property:**

- Lark sparrow
- Clay-colored sparrow
- White-throated sparrow
- Red-necked grebe

➢**Other notable stats:**

- 70% of Western snowy plover observations were on Navy land
- 54% of horned larks
- 53% of American kestrels
- 40% of American pipits
- 39% of Say's phoebes

Acknowledgments

> **Coordinator for San Diego Circle:**
> - Philip Unitt (San Diego Natural History Museum)

> **San Diego Audubon Lead Ornithologist:**
> - Lesley Handa (NAVFAC SW)

> **Installation Coordinators:**
> - Melanie Colón (NBC)
> - Nicole Desnoyers (NBC)
> - Loni Beyer (NBC)
> - Michelle Maley (NBSD)
> - Melissa Stepek (NBPL)

PC: Alex Shipherd

NAVWPNSTA Seal Beach Detachment Fallbrook
Coastal California Gnatcatcher and Cactus Wren Surveys/Monitoring

Photo by Kylie Fischer

Program Manager: Christy Wolf
Presenter: Vanessa Shoblock

- **Stationwide Surveys in 1990, 1994, and 2000 – documented CAGN population fluctuations**
  - No standardized survey protocol
  - Unknown if variation could be explained by methods or true differences
- **2009 = standardized protocol with methods, data (GIS) requirements**
  - Two fold purpose: to support the military mission (e.g., spatially explicit occupancy data for avoidance/minimization) and monitor species population/habitat trends
  - Stationwide survey once every five years per 2003 WFMP BO (2009, 2014, 2019)
  - Annual abbreviated surveys per 2003 WFMP BO, INRMP, mission needs (2008, 2010-13, 2015-18, 2020-23)

CAGN Protocol – Synopsis

- **Polygon-based/habitat survey approach with larger survey areas and subareas**
    - Annual surveys subset of mission and population priorities
    - Ensures same areas surveyed
    - Document trends from area to area including CSS
- **Surveyor Qualifications**
- **Specific details surveys, nest monitoring, photo monitoring, habitat suitability mapping**
- **Standards for GIS and other data collection**
- **Reporting specifications**
- **Includes documentation of CA Cactus Wren (special status species)**

TABLE OF CONTENTS

LIST OF APPENDICES

2.2 Avian Surveys

The following methods will be used regardless of type of survey (5-year Station-wide or annual abbreviated survey).

(1) Conduct presence/absence level surveys for the gnatcatcher, via a wandering transect method, with a focus on determining number of pairs throughout suitable habitat of pre-determined monitoring polygons on the Station using the most recent USFWS gnatcatcher survey guidance for section 10(a)(1)(A) permitees (see survey guidelines produced by the Carlsbad Fish and Wildlife Office, July 1997). Surveys follow the USFWS guidelines in the following elements:

   a. Surveys are conducted between 6:00 am and 12:00 pm.

   b. Surveys avoid periods of excessive or abnormal heat, wind, rain, fog, or other inclement weather

   c. If playback tape recordings are used, they are used only until individuals are initially located. They are not used frequently or to elicit further behaviors from the birds.

   d. Surveys are conducted by slowly walking survey routes. Sites with deep canyons, ridge lines, steep terrain, and thick scrub cover are surveyed slowly. Prevailing site conditions and professional judgement are applied to determine appropriate survey rates and acreage cover per day.

(2) Conduct 3 survey passes of each monitoring polygon between 15 February and 1 June. Surveys may be extended through 30 August with Navy approval. To maximize detection probability, the following guidelines shall apply:

   a. Surveys shall be spaced for maximum discernment of pair behavior throughout the season, with a minimum of two weeks apart and maximum

2.5   Data Collection and Reporting

The data listed below will be recorded during each survey pass regardless of type of survey (Station-wide or Annual Abbreviated) being conducted. See Appendix A for more detailed information on GIS data to be gathered.

(1)   Number of adults and breeding status (single, paired). GIS attribution for gnatcatcher will include gnatcatcher age (adult vs. juvenile), gender (male vs. female), and breeding status.

(2)   Number of fledglings and/or juveniles. For the purpose of this survey and data analysis, the term fledgling refers to young birds that are still being fed by or interacting with their parents. The term juvenile refers to young birds that are no longer associated with adults and are considered independent.

(3)   GIS locations of observed birds and any nests encountered.

(4)   Observations of any brown-headed cowbird brood parasitism in any incidentally encountered or monitored gnatcatcher nest. Nest checks are optional during the annual surveys and unless there is a reason to look at the nest contents (such as suspected brood parasitism), it should be avoided. Status can be determined from a distance.

(5)   GIS locations of special status species, especially those that are federally listed or are State of California Species of Special Concern, and Detachment Fallbrook watch list species (as identified in the INRMP's official Plant and Animal Lists and/or at the discretion of the Conservation Program Manager). Include date observed and any additional details (sex, single/paired, transient, etc.). The gnatcatcher monitoring program provides a means to simultaneously gather status and distribution data on the coastal cactus wren.

APPENDIX A
GIS Formatting for Coastal California Gnatcatcher Surveys
at Detachment Fallbrook

Key to meeting the overall goal of monitoring the distribution and abundance of coastal California gnatcatchers (gnatcatcher) on Detachment Fallbrook is to have data collection and record keeping protocols that ensure repeatability and comparability through time. This Addendum to the annual abbreviated and 5-year comprehensive gnatcatcher survey protocols provides the fundamental GIS framework to establish the necessary standardization in the GIS for comparability across survey years. It is important to note that certain elements of the GIS formatting described in this appendix may be subject to change.

For the gnatcatcher surveys, a geodatabase comprised of six separate GIS layers is desired:

(1)   GIS Layer 1: A polygon layer identifying survey subareas covered (to be provided annually although anticipated to remain static unless modifications to the survey protocol are made).

(2)   GIS Layer 2: A point layer depicting each gnatcatcher group/individual as recorded during the individual survey passes.

(3)   GIS Layer 3: A composite (cumulative) point layer to identify the total number of gnatcatcher pairs and the location of their general use area.

(4)   GIS Layer 4: A gnatcatcher nest point layer created from the information gathered in the individual nest point table to identify the results of the nest monitoring for the 20 gnatcatcher nests monitored during the survey. This layer

CAGN Protocol – GIS Survey Area Table

A.1 GIS Polygon Layer of Survey Areas

The GIS polygon layer of the survey area will reflect which subareas were covered in that season, weather it is for the annual abbreviated or the Station-wide 5-year comprehensive survey. Table A1 lists and defines the attributes associated with this GIS layer.

Table A1. GIS Layer 1 (Polygon Feature): CAGN_YYYY_DET_Survey_Area

Attribute Name	Attribute Definition
Fa_Sty_ID	Primary Key. Define as a unique, user defined ID number for each polygon; prefer to start at 1 and work way up.
Feat_name	Polygon number
Feat_desc	Name or other polygon description
Area_size	Numerical amount of polygon area – desire meters squared
Area_u_d	Polygon area unit (following SDSFIE standard measurement unit abbreviations; e.g., M2 = meter squared)
Perim	Numerical length of the polygon perimeter - desire meters
Perim_u_d	Polygon perimeter unit (following SDSFIE standard measurement unit abbreviations; e.g., M = meter)
Habitat_Area	Numerical amount of CSS area (based on most recent vegetation mapping) within the Survey Area – desire meters squared
Habitat_Area_u_d	Habitat area unit (following SDSFIE standard measurement unit abbreviations; e.g., M2 = meter squared)
Fauna_spp	The species name of the fauna found in the sample -- *Polioptila californica californica*
Fauna_name	The common name of the fauna found in the sample -- coastal California gnatcatcher
Year_coll	Identify the year the data were collected in the form of YYYY
Project_ID	Contract number under which the project was conducted

A.3 GIS Point Layer of Composite Coastal California Gnatcatcher Observations

This point layer is a summation, or composite, of the gnatcatcher observations documented during individual survey passes. To generate this composite layer, follow the steps below and use the attributes in Table A3:

(1) Examine all three survey passes of the survey subareas and determine

    a. The number and location of Pair sightings

    b. The number and location of Individual (unpaired) gnatcatchers

(2) Determination of the number of pairs should be based on the highest number of use areas by a pair or presumed pair (e.g., female with juveniles) detected during a single survey pass. A "use area" is defined to include any area that appears to be occupied by a resident gnatcatcher, including a pair, lone male, or lone female. Dispersing juveniles and transient adults (observed only once) are not considered resident. Although territory studies are not a part of the annual or 5-year survey protocol, any observed use data should be taken into account in determining the number and location of pairs within survey subareas. Additional criteria, such as the presence of large potential barrier features, may be taken into account when determining potential use area boundaries and number and location of pairs.

(3) If pairs are observed within close proximity (same use area) but during different survey passes, they should be assumed to be the same pair. If only a male or female is detected within a use area that had a previous pair observation, the individual should not be considered a new pair and should be considered paired (unless compelling evidence to the contrary is available; detectability is expected to vary between survey passes). Particular consideration should be given to gnatcatcher that occur near the boundary of

Table A3. GIS Layer 3 (Point Feature): YYYY_CAGN_Inventory_Assessment

Attribute Name	Attribute Definition
Hab_Num	Number assigned by installation to aid in record keeping; prefer to start at one and work way up. Unique numbers.
Species_ID	Primary Key. Define as a unique, user defined ID number for each point; ID to be more extensive following the general format of "CAGN2009_pair_01, CAGN2009_individual_01, etc".
Fauna_spp	The species name of the fauna found in the sample -- *Polioptila californica californica*
Fauna_name	The common name of the fauna found in the sample -- coastal California gnatcatcher
Surveyor	Permitted individual who surveyed the area
Num_total	Total number of CAGN
Num_female	Total number of females
Num_male	Total number of males
Num_juv	Total numbers of juveniles (when associated with an individual point from "Species_ID") or fledglings (when associated with a pair point from "Species_ID")
User_flag	Use to identify the number of times observed throughout the separate survey passes (use 1, 2, 3, etc. – no text; should include incidental observations)
Feat_name	Polygon Number where point located
Feat_desc	Name of polygon where point located
Narrative	Discuss point as a culmination of x amount of sightings, and what was observed (e.g., successful fledging of 2 juveniles, etc.)
Year_coll	Identify the year the data were collected in the form of YYYY
Project_ID	List the contract number and define that this is the record to the contract under which the project was managed.

CAGN Protocol – GIS Data Tables

CAGN Protocol – GIS Data Tables

Table

CAGN_2023_Inventory_Assessment

Feat_desc	Year_coll	Project_ID	User_flag	Narrative	Num_unk	Fauna_nam	Status
Romeo Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
Romeo Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
Romeo Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
Romeo Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a pair	0	Coastal California Gnatcatcher	Pair
Romeo Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a pair	0	Coastal California Gnatcatcher	Pair
<Null>	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair seen with 3 fledglings	0	Coastal California Gnatcatcher	Pair
Lower Lake Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a male	0	Coastal California Gnatcatcher	Male
<Null>	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a female	0	Coastal California Gnatcatcher	Female
<Null>	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a male	0	Coastal California Gnatcatcher	Male
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a female	0	Coastal California Gnatcatcher	Female
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a pair	0	Coastal California Gnatcatcher	Pair
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair seen with 2 fledglings	0	Coastal California Gnatcatcher	Pair
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair seen with 3 fledglings	0	Coastal California Gnatcatcher	Pair
North Magazine Lake O'Neill Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair seen with 4 fledglings	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair seen with 2 fledglings	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a male	0	Coastal California Gnatcatcher	Male
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	4	Point is a culmination of 4 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	4	Point is a culmination of 4 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	4	Point is a culmination of 4 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	5	Point is a culmination of 5 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Juliett Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Central	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Central	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair seen with 2 fledglings	0	Coastal California Gnatcatcher	Pair
South Magazine Central	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Central	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair seen with 3 fledglings	0	Coastal California Gnatcatcher	Pair
South Magazine Central	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	1	Point is a culmination of 1 sighting of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	3	Point is a culmination of 3 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair
South Magazine Air Park Area	2023	N6247320D0024 TO N6247321F5086	2	Point is a culmination of 2 sightings of a pair	0	Coastal California Gnatcatcher	Pair

I◄ ◄ 1 ► ►I | (0 out of 47 Selected)

CAGN_2023_Inventory_Assessment

Hercules JV (Lead Surveyor = Kylie Fischer)
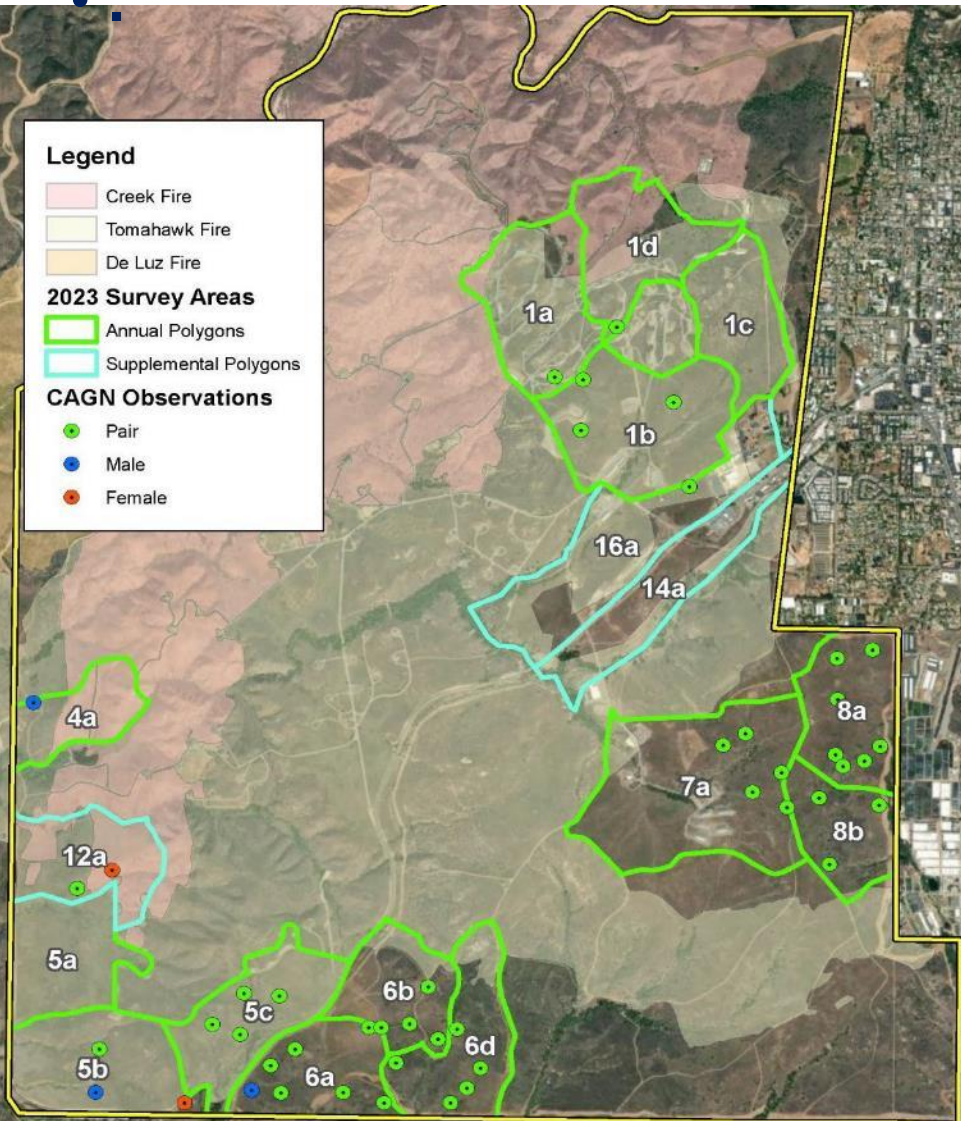
- **Annual Polygons**
  - 40 pairs produced 16 fledglings
  - 3 males with no female confirmed
  - 1 female with no male confirmed
  - 6 were seen as family groups

- **No cowbird parasitism observed**

- **Cattle grazing occurred in 2023; no signs of incidental take due to cows**

- **CAGN data supported** ~ 4 projects in FY23

CAGN Trends: Past – Present

Annual CAGN Surveys and Prior Winter/Spring Precipitation
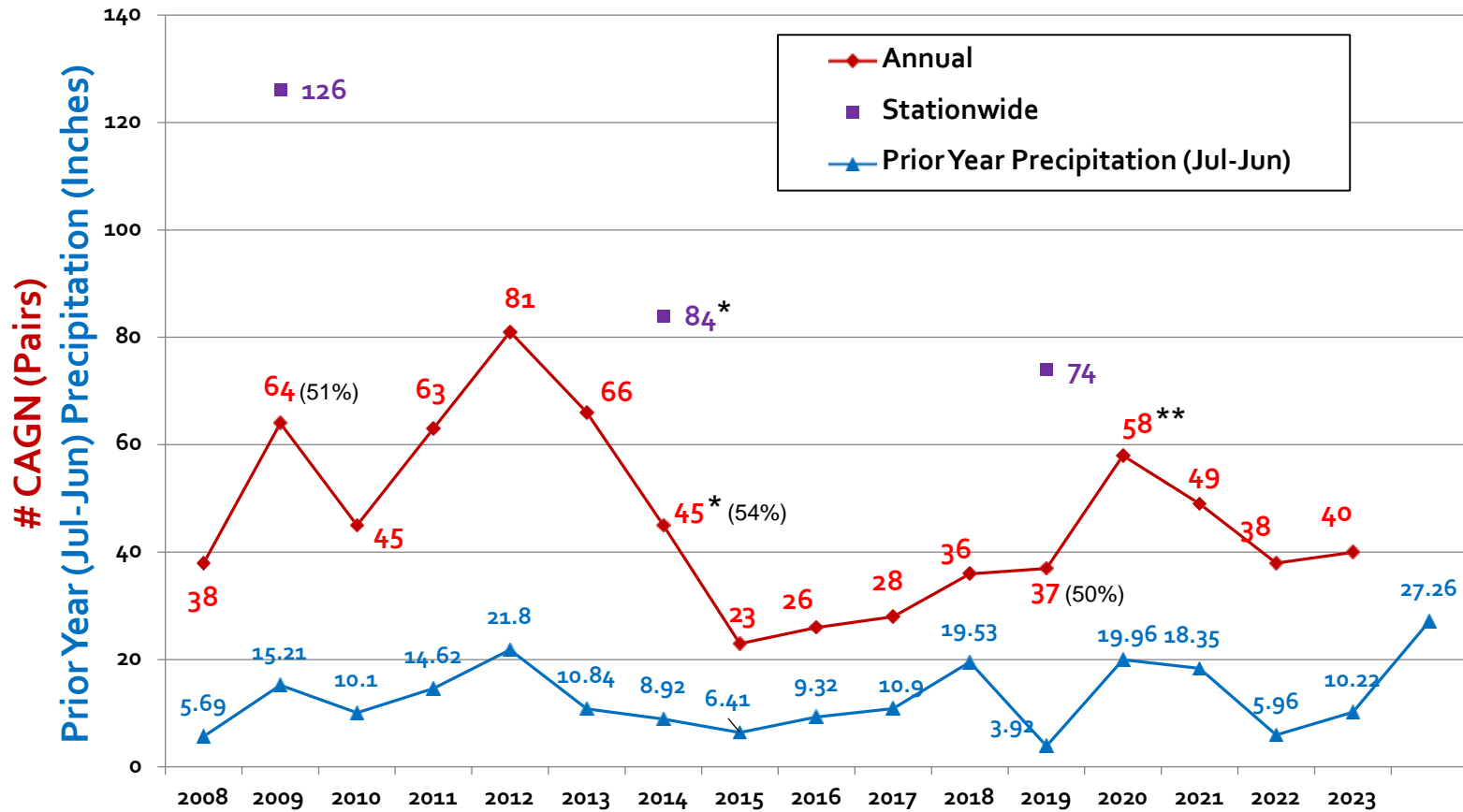
Annual Monitoring Program (2008 – Pres)
(2009, 2014, & 2019 are also Station-wide Surveys)

* Pre-Tomahawk Fire (May 2014)
** Pre-Creek Fire (Dec 2020)

# CAGN Trends: Preliminary Analysis of Precipitation Influence

CAGN Annual Survey Data Prior to Tomahawk Fire (2008-2014) Compared to Prior-Year (Oct-Apr) Precipitation

- Removed years fires in effort to isolate potential influence of precipitation on CAGN pairs.
- R^2 evaluated for various precipitation periods (e.g., same year, select months); highest R^2 (0.8438) was from the Prior-Year Oct-Apr (Winter/Spring) period.
- **Interpretation: ~ 84% of the variation in # CAGN pairs can be explained by the prior-year (Oct-Apr) precipitation.**

	Prior Yr Precip (Oct-Apr)*	CAGN Totals	CAGN Yr
PY2007	5.69	38	2008
PY2008	15.21	64	2009
PY2009	10.1	45	2010
PY2010	14.62	63	2011
PY2011	21.8	81	2012
PY2012	10.84	66	2013
PY2013	8.92	45	2014

* PY2007 = Oct 2006 – Apr 2007; etc.

CAGN Pairs (2008-2014) x Prior-Year (Oct-Apr) Precipitation

$y = 2.6577x + 24.329$
$R^2 = 0.8438$

7
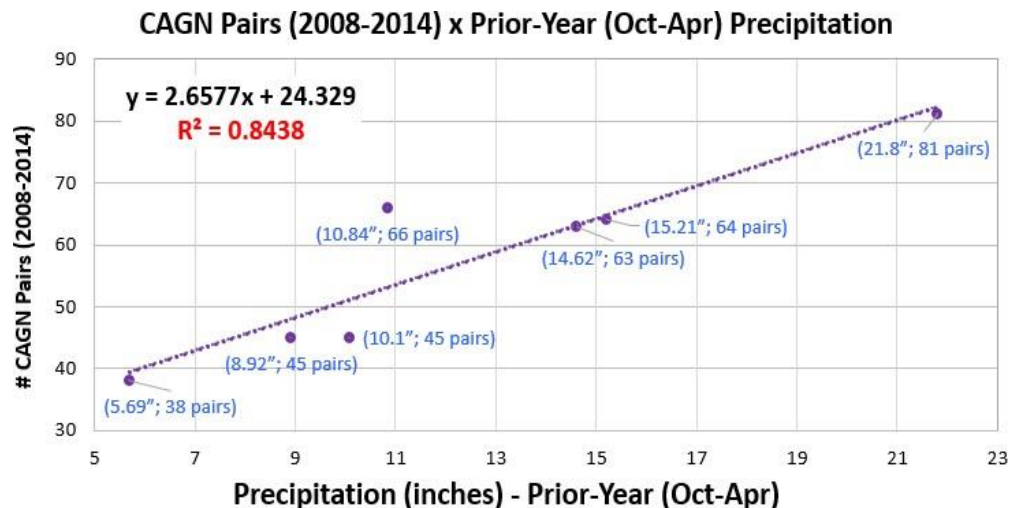
Coastal Cactus Wren Surveys

Inclusion of Cactus Wren, other species in CAGN Protocol

(4) Locations of coastal cactus wrens will be recorded and the number of use areas (not total observations of individuals) will be determined during the course of the surveys.

(5) A complete list of vertebrate species, with an emphasis on avian species, observed during the survey will be recorded and the locations of other special-status and Detachment Fallbrook watch list species will be recorded.

(5) GIS Layer 5: A composite (cumulative) point layer of special status and Detachment Fallbrook watch list species, including use areas for the coastal cactus wren.

(6) GIS Layer 6: A polygon layer depicting habitat suitability.

Inclusion of Cactus Wren, other species in CAGN Protocol

A.5 GIS Point Layer of Special Status and Detachment Fallbrook Watch List Species

This point layer is a summation, or composite, of special status and Detachment Fallbrook watch list species observations documented during individual survey passes. To generate this composite layer, follow the steps below and use the attributes in Table A5:

(1)   Examine all three survey passes of the survey subareas and determine

      a. The number and location of sightings of special status and Detachment Fallbrook watch list species

(2)   Create the overall "inventory" layer by establishing a single (composite) point per (a) pair or (b) individual.

(3)   Determine the breeding status (sex, single/paired, transient, etc.).

Table A5. Layer 5 (Point Feature): CAGN_YYYY_SpecialStatus_Assessment
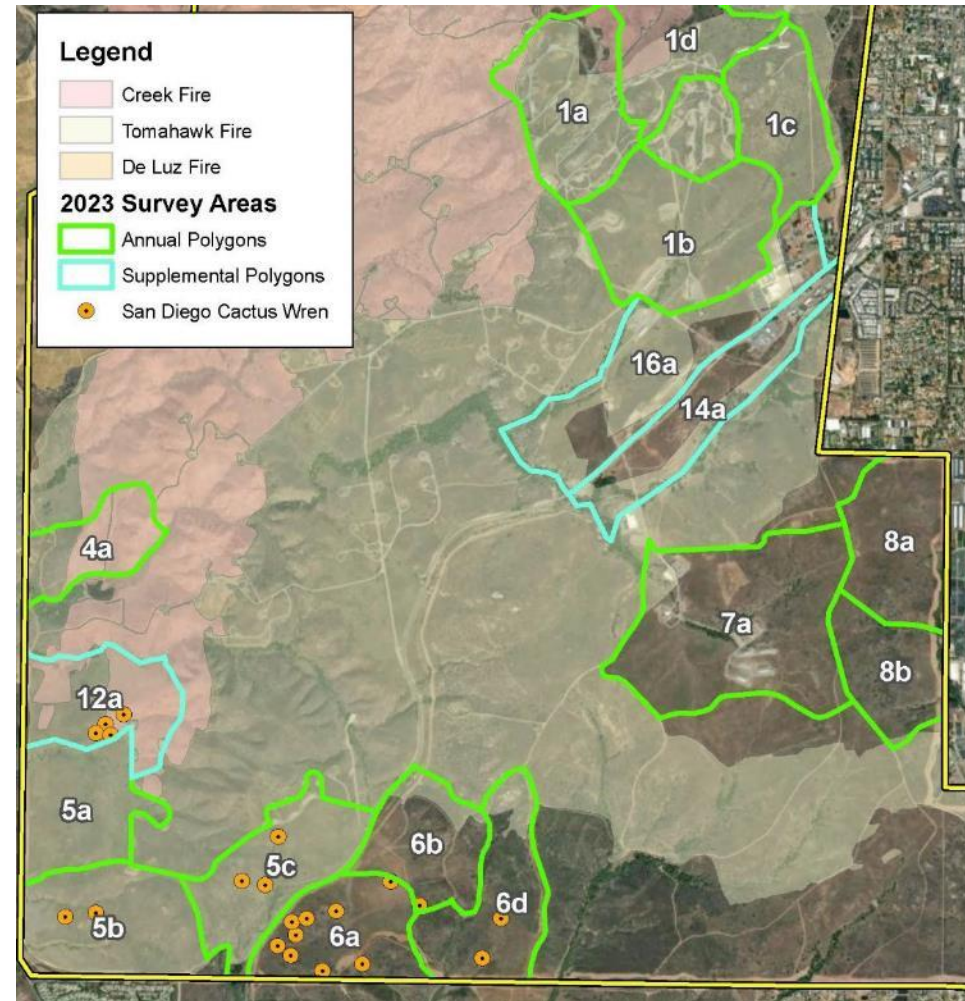
Attribute Name	Attribute Definition
Coord_ID	Primary Key. An ID used to define cumulative pairs
Fauna_spp	The species name of the fauna found in the sample -- *Campylorhynchus brunneicapillus sandiegensis*
Fauna_name	The common name of the fauna found in the sample -- coastal cactus wren
Surveyor	Individual who surveyed the area
Num_total	Total number observed through the season
User_Flag	Breeding Status – breeding, probable breeding, transient
Feat_name	Polygon Number where point located
Narrative	Summary information regarding when the observations occurred.
Year_coll	Identify the year the data were collected in the form of YYYY
Project_ID	List the contract number and define that this is the record to the contract under which the project was managed.

2023 Coastal Cactus Wren

Hercules JV (Surveyors Kylie Fischer, Travis Cooper)

- Coastal cactus wren (CACW) surveys are conducted during, and secondary to, CAGN surveys

- 2023 was an Annual Survey Protocol

- CACW were still mainly persisting in SW corner of Det (burned & unburned CSS) following the Tomahawk Fire.

- 2023 CACW:

  - 21 CACW territories detected

  - 17 CACW territories within annual survey polygons

  - 9 territories were within the Tomahawk Fire perimeter (14 in 2021, 9 in 2022), 2 of which were also in Creek Fire perimeter

  - Nesting is occurring within the Tomahawk Fire perimeter at 12a and 5c.

Legend
- Creek Fire
- Tomahawk Fire
- De Luz Fire

2023 Survey Areas
- Annual Polygons
- Supplemental Polygons
- San Diego Cactus Wren

2023 Coastal Cactus Wren Data

- 2012 = 26 CACW territories observed by USGS in annual polygons; 33 territories detected during 3-pass annual CAGN survey.

- 2014 = Pre-Tomahawk Fire stats

- 2015-16: CACW territories mainly in unburned CSS. Few CACW anecdotally observed outside of annual polygons. Station-wide #s presumed low following FY14 fires.

- 2020 = 26% (6 of 23) territories in Tomahawk Fire perimeter

- 2023 = 43% (9 of 21) territories in Tomahawk Fire perimeter

- Non-Annual (Supplemental, Incidental): During non-Station- wide survey years, supplemental polygons are often surveyed in addition to Annual Survey Area polygons. CACW territories may also be detected incidentally in other areas. The supplemental and incidental data are tallied in all territories observed; however, they are provided separately in graph below to distinguish from the more comparable Annual Survey Area data.

CACW Territories: Annual & Stationwide Surveys
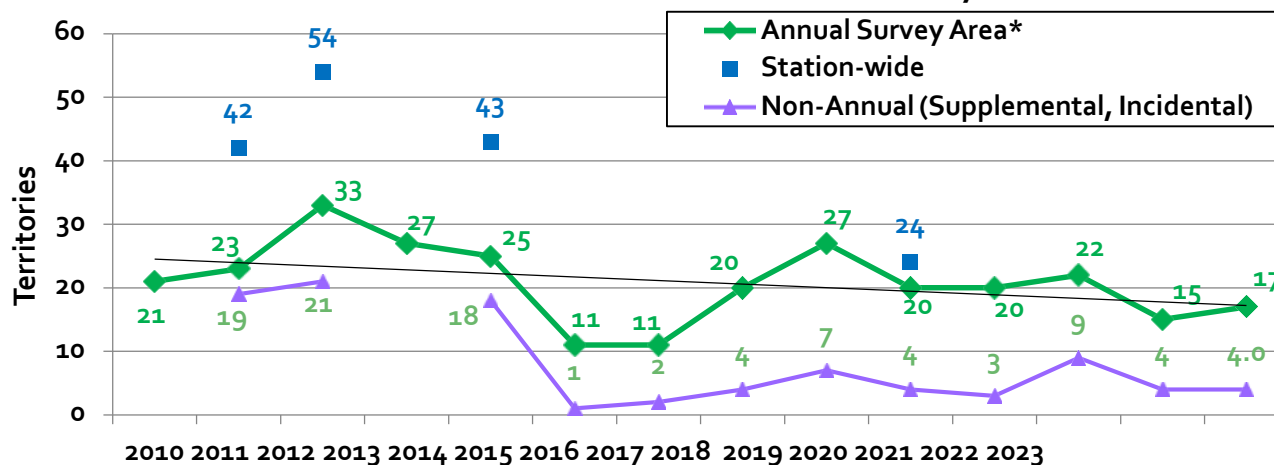
* "Annual Survey Areas refers to CACW territories within annual CAGN survey polygons.

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Questions?