Yellow-billed Cuckoo Surveys Lower Colorado River 2017-2019

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with Reclamation & Parametrix, Inc.

Southern Sierra Research Station
Research for Conservation of Biological Diversity

Lower Colorado River Multi-Species Conservation Program

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

Western yellow-billed cuckoo
Coccyzus americanus

- Long-distance migrant

- Nest mostly in riparian forest

- Listed as threatened 2014

LCR MSCP Study Area

Conservaton Area
MSCP Boundary

Beal Lake (BLCA)

Bill Williams River NWR (East, West)

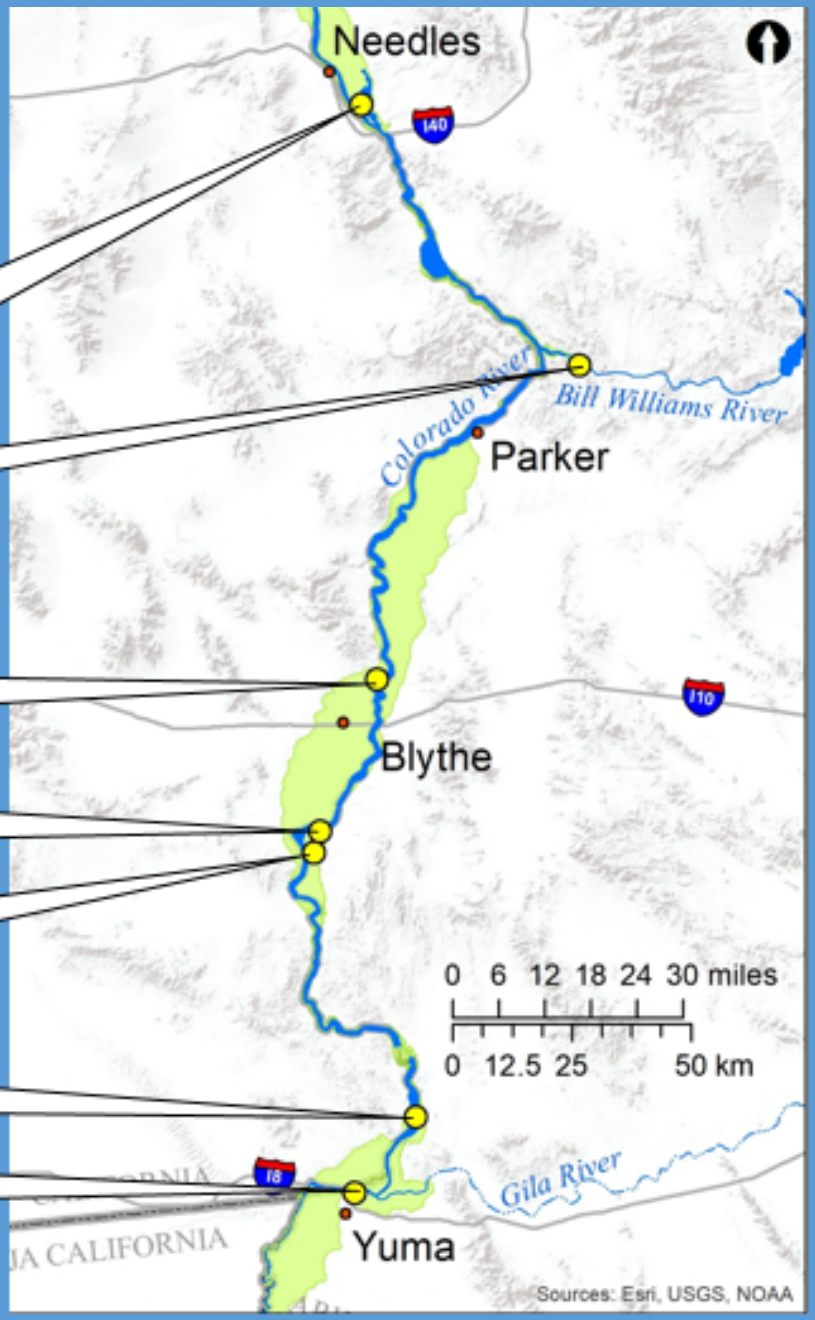
Palo Verde Ecological Reserve (PVER)

Cibola Valley (CVCA)

Cibola NWR Unit #1

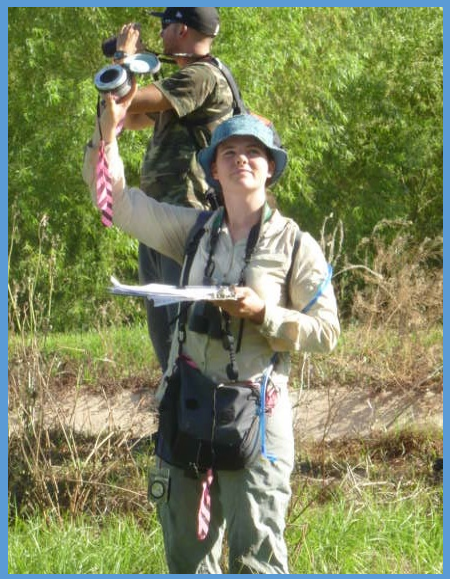
Laguna Division (LDCA)

Yuma East Wetlands (YEW)



Objectives/Methods

- Document cuckoo presence in LCR MSCP conservation areas (Halterman et al. 2016)
- Try to confirm breeding, especially at sites with no previous documented breeding
- Search for Cuckoos GPS tagged in 2014/2015, capture 2 attempts

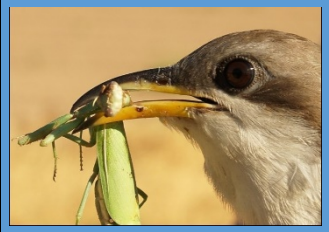


SSRS

Breeding Territory Estimation

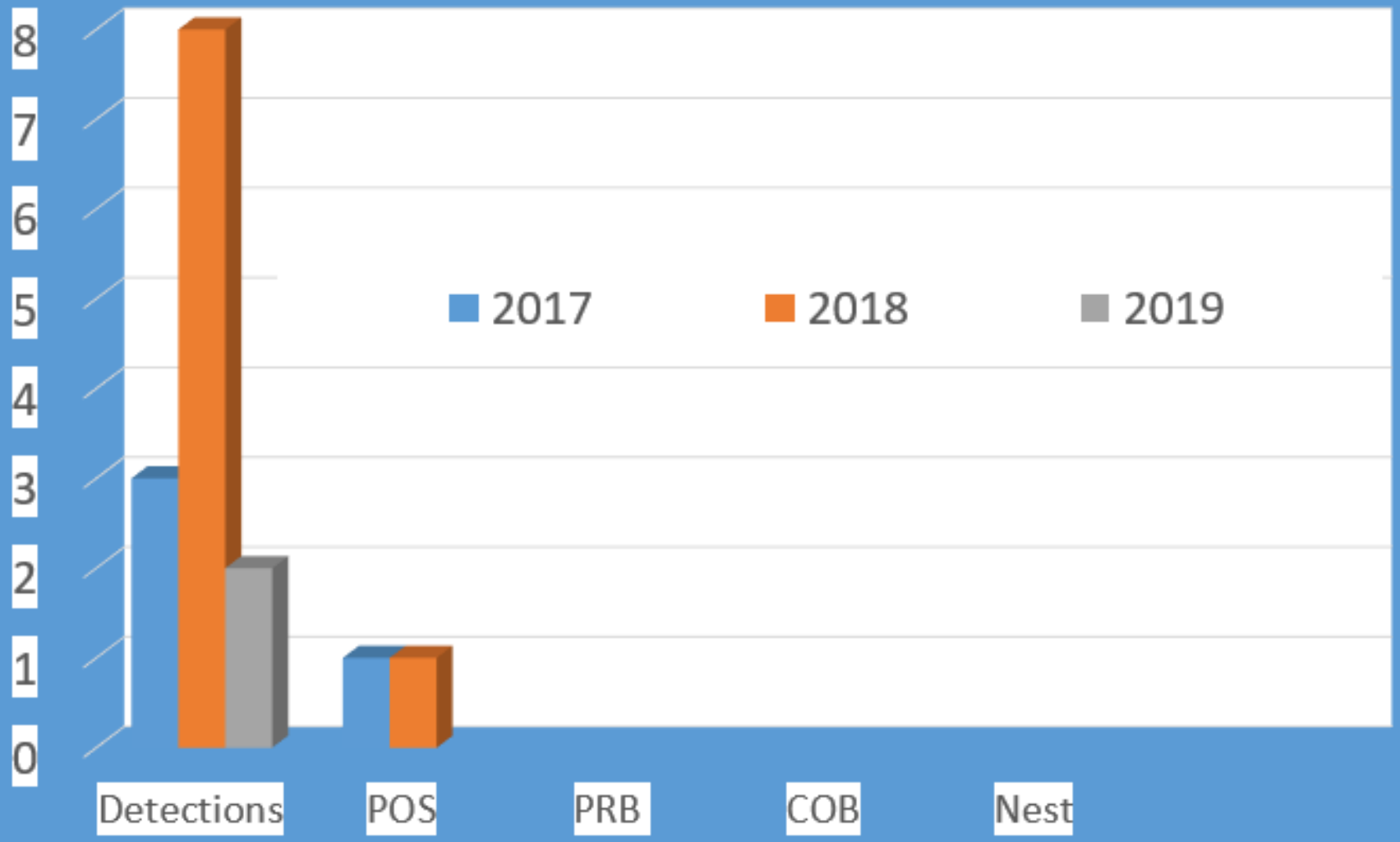
End of season assessment

Code	Confidence Level	Definition
PO	**Possible**	Detections in an area 2 surveys
PR	Probable	Detections in an area at least 3 surveys / breeding evidence
CO	Confirmed	Proof of breeding e.g. nest, fledgling, copulation

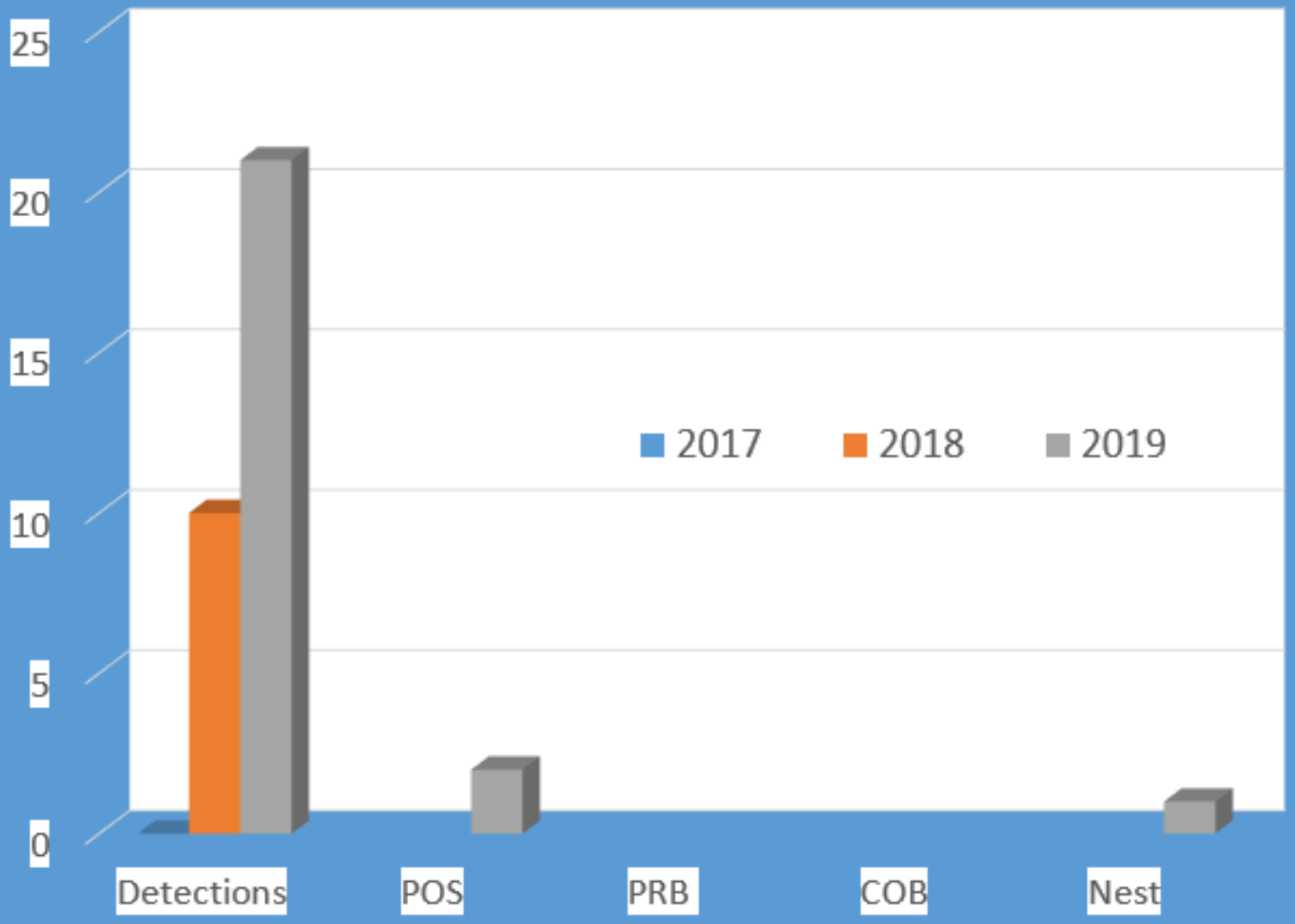


S McNeil/SSRS

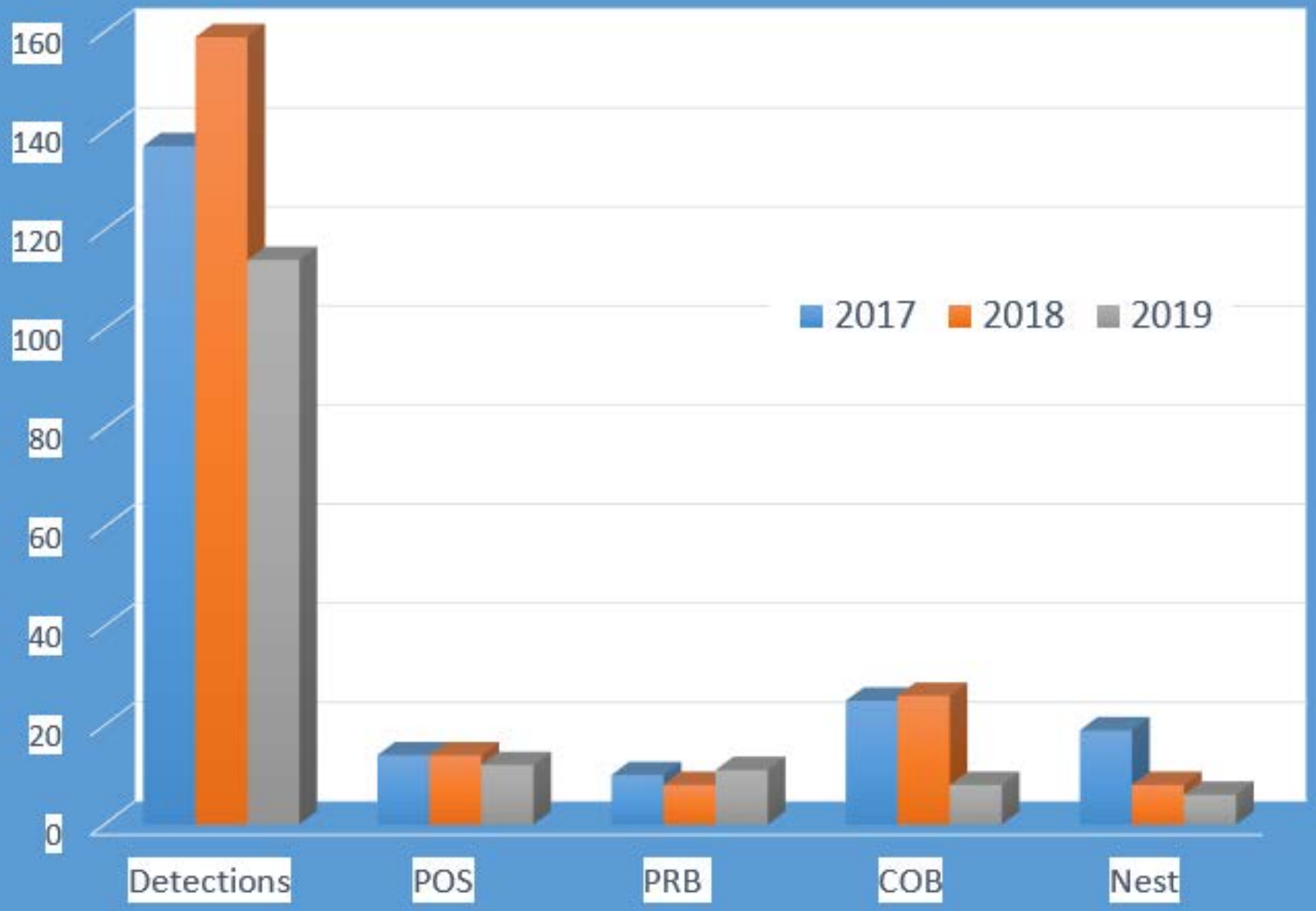
Beal Lake Conservation Area 55 ha



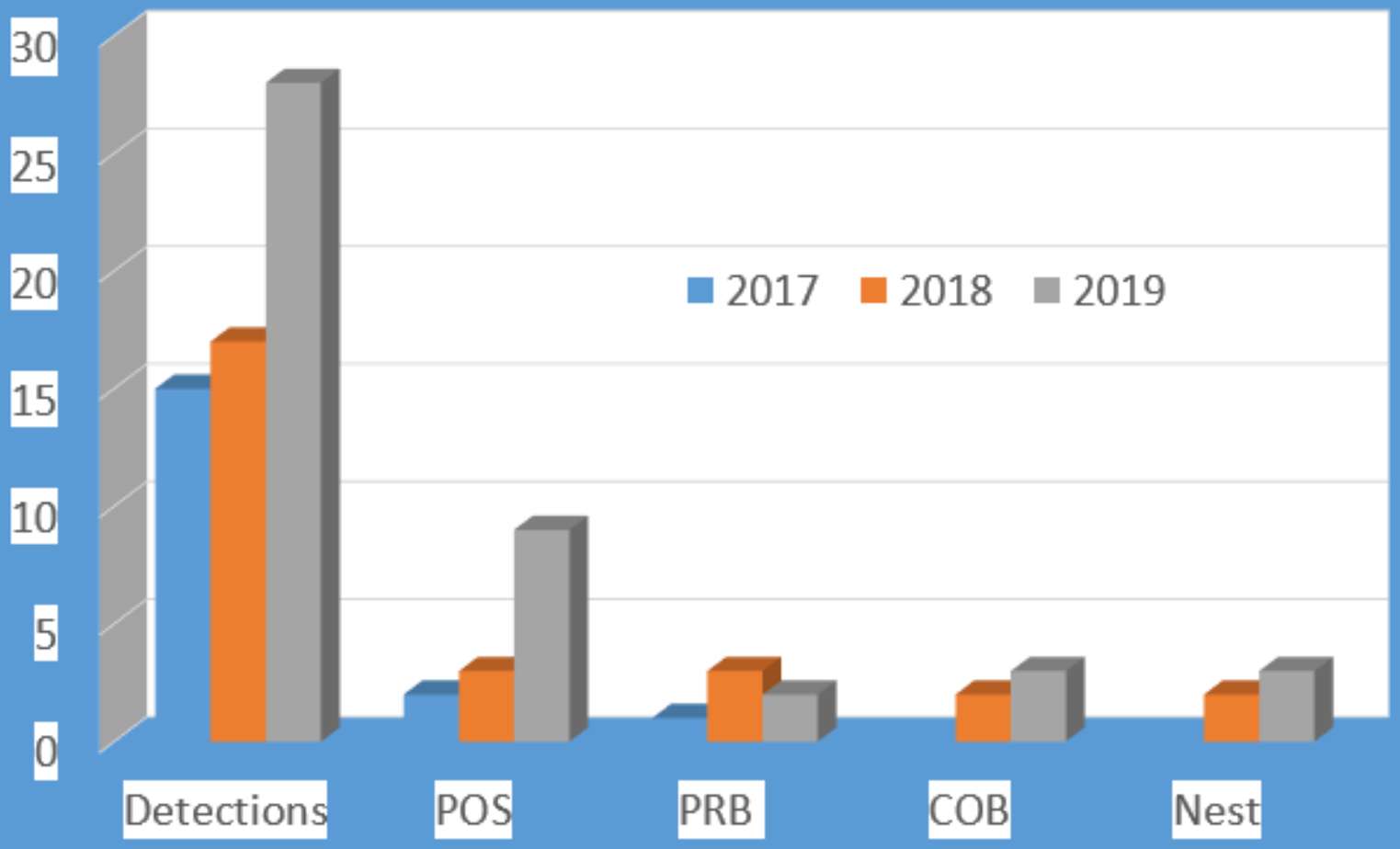
Bill Williams River NWR 355 ha



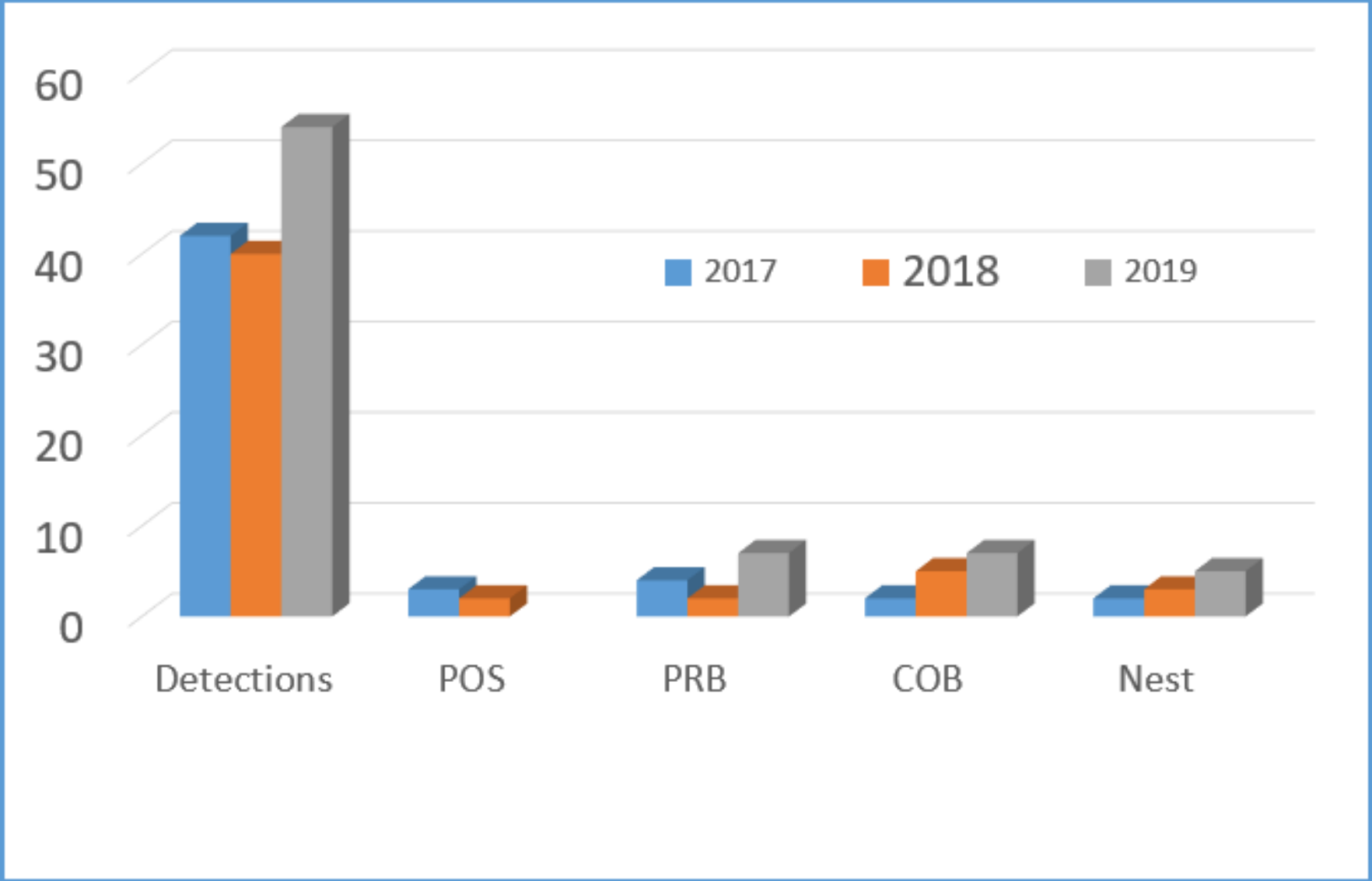
Palo Verde Ecological Reserve 415 ha



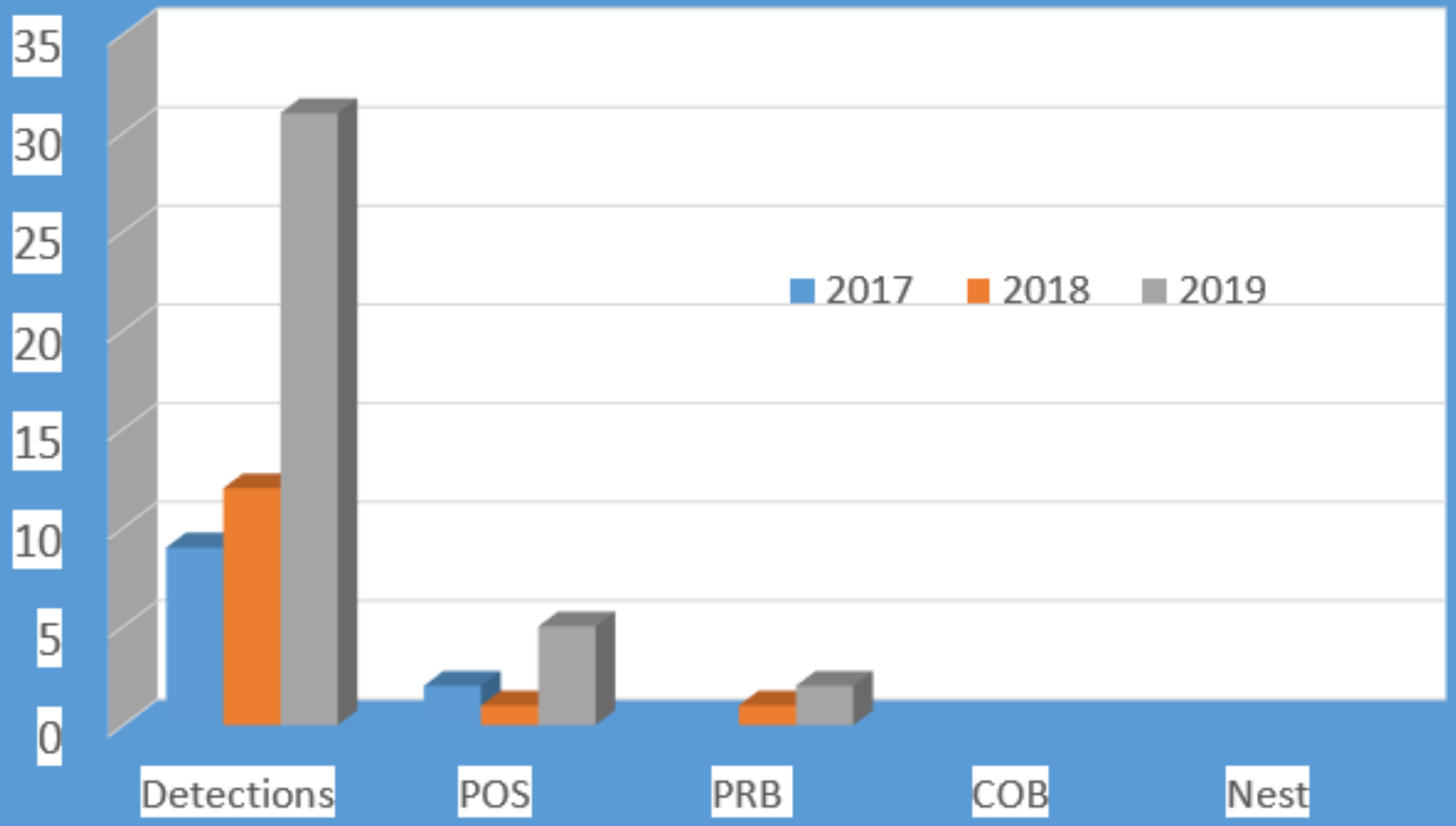
Cibola Valley Conservation Area 216 ha



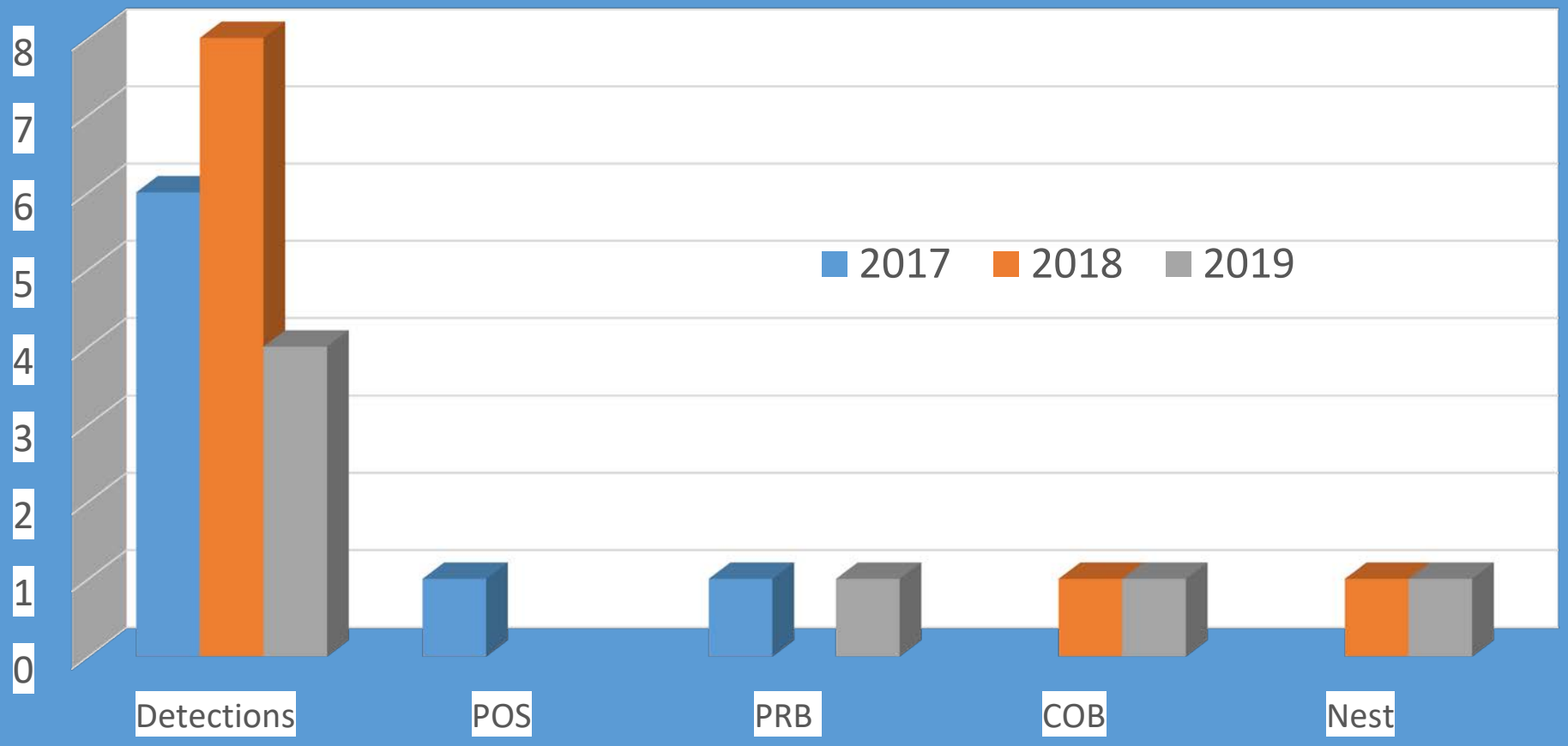
Cibola NWR 243 ha



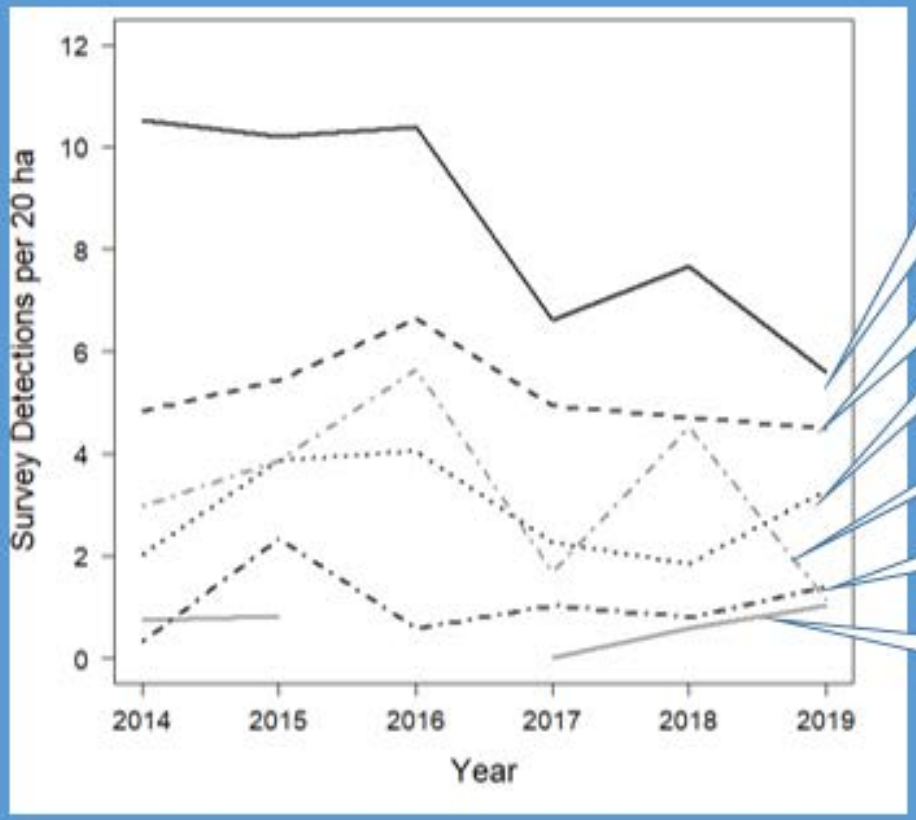
Laguna Division Conservation Area 437 ha



Yuma East Wetlands 68 ha



Survey Detections per 20 ha, 2014-2019



PVER

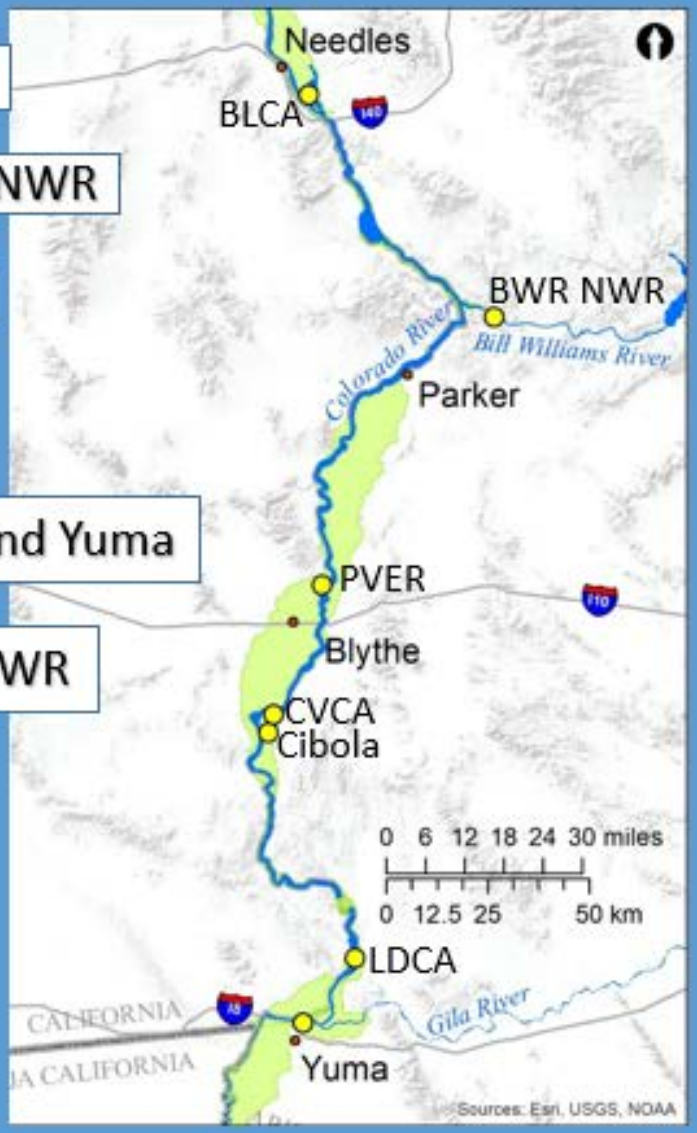
Cibola NWR

CVCA

BLCA

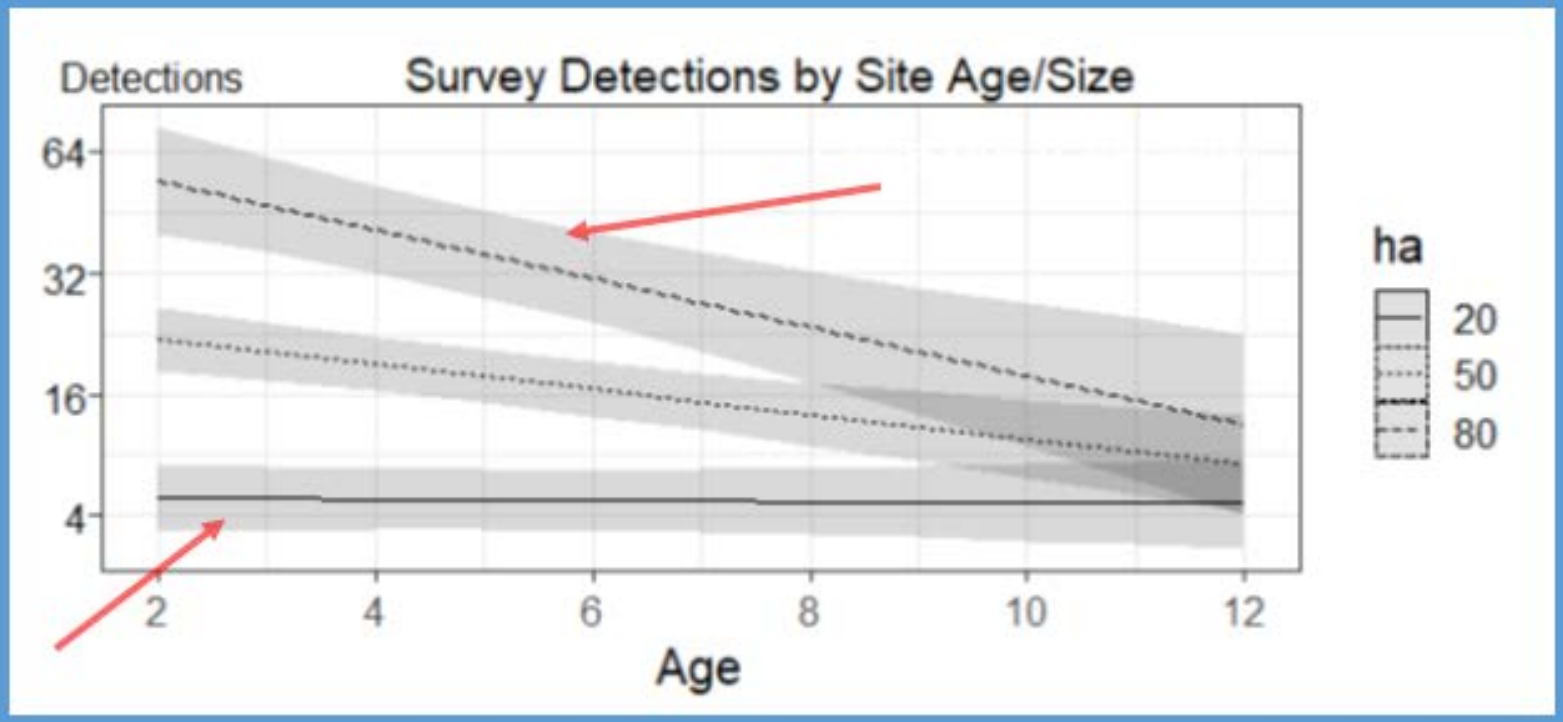
LDCA and Yuma

BWR NWR



Survey detections per 20 ha, 2014–2019, by survey area.

Detections by age + size + age*size (2008-2018, Blythe)



Predicted survey detections by site age for sites 20, 50, and 80 ha.
95% predictive intervals are shown by grey shading around each line.

Model variable	**Estimate**	**SE**	**P**
Site Size (ha)	0.100	0.011	< 0.001
Age	0.121	0.066	0
Age:size interaction	-0.006	0.002	< 0.00

Expansion of breeding habitat

- CVCA Phase 7 - 29.3 ha Planted 2015
- CVCA Phase 8 - 44.7 ha Planted 2016
- CVCA Phase 9 - 31.2 ha Planted 2017

- CBNWR Middle Hippy Fire - 49.3 ha - Planted 2017
- CBNWR Lower Hippy Fire - 49.6 ha – Planted 2016

- Hunters Hole 18 ha – Planted 2013

Young sites are attracting breeding cuckoos

- 2018 - nests at CVCA 8 and 9
- 2019 - nest at CVCA 8, two at CVCA 7
- 2018 - two nests at Hippy Fire (Cibola NWR)
- 2019 - three nests at Hippy Fire

LCR MSCP cuckoo habitat is ageing (2008-2018)

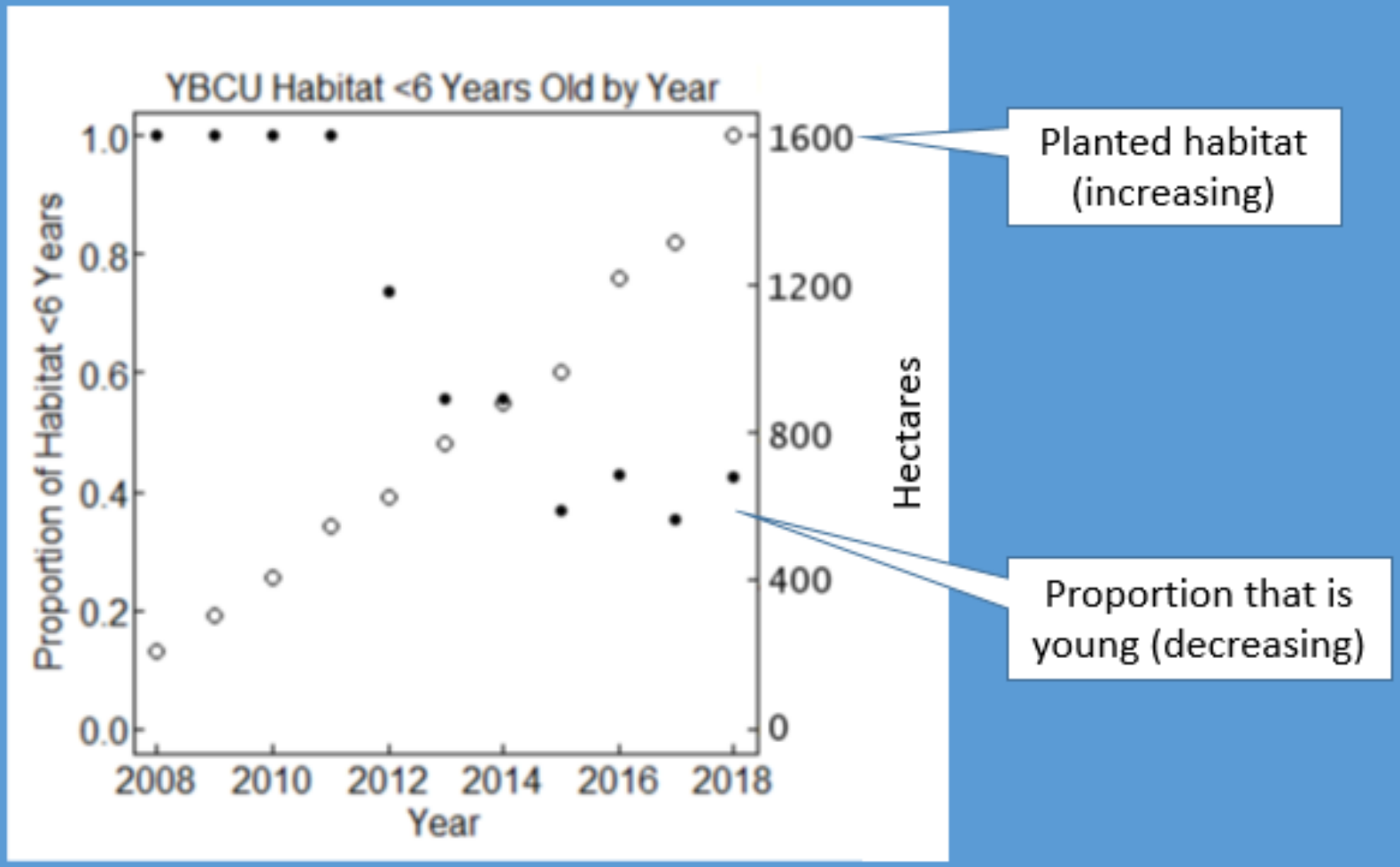


Figure 17.—Hectares of planted YBCU habitat (open circles) and proportion of habitat < 6 years old (black circles) by year, LCR MSCP sites, 2008 to 2018 (2014-2018 summary report)

Other Results: 2017

- Cibola NWR - oldest YBCU on record resighted: 8+ years

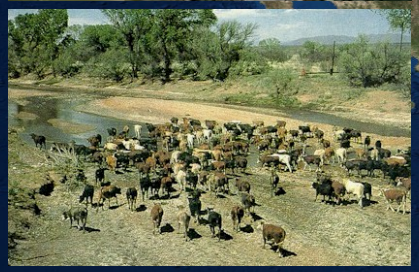
Rocky at Crane Roost June 2017, banded 2010
Photo – Jennifer Tobin, SSRS

Other Results: 2017

- PVER – recaptured 7th GPS-tagged YBCU

Broccolini with GPS tag 2015
Photo – SSRS

Migratory Connectivity & Full Life-cycle Conservation



Breeding

Migration

Wintering

Methods

- 2014-15 PVER: Capture, attach GPS (>65 g + nesting)
- 2015-17: Recapture, remove tag, download data
- Google Earth: assess land cover, protection status
- Road trip: ground truth GPS points, assess habitat, threats

Lotek PinPoint-10 GPS tag, lower-back leg loop harness

Photos: SSRS

Yellow-billed cuckoo migration & wintering

- 2015-17: recaptured 7 of 14 tagged YBCU
- 34 points - 6 birds
  - 12 protected
  - 22 unprotected
  - 22 fall migration
  - 3 winter
  - 9 spring migration

2017 Fall + Spring Migration - Desert Washes, So. AZ

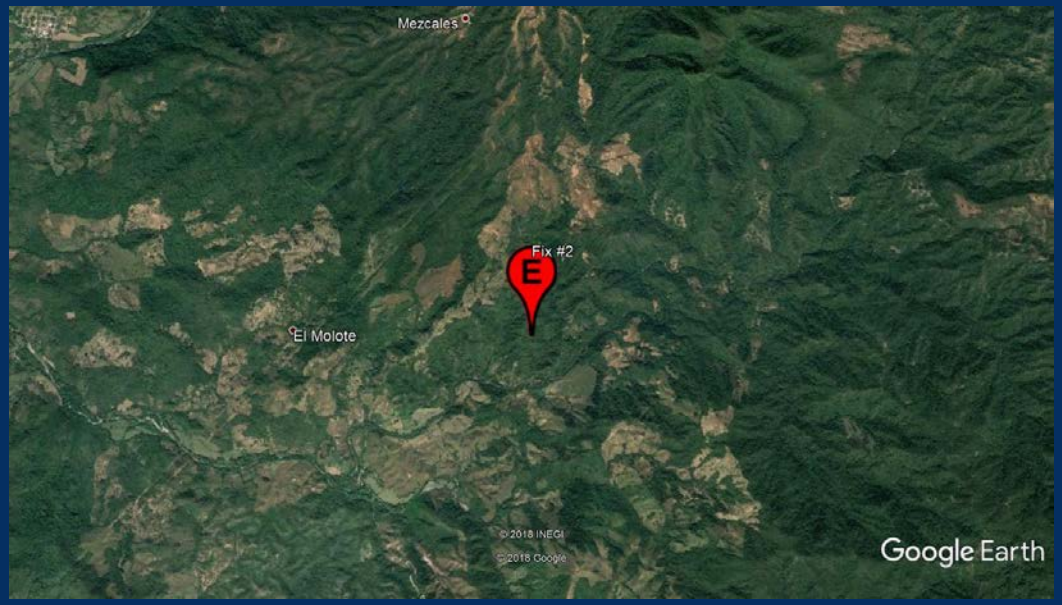
6/26: Sonoran Desert National Monument near Gila Bend

8/20: Cabeza Prieta NWR near Ajo

Photos – Diane Tracy, SSRS

Fall - Tropical Deciduous Forest, Nayarit, MX

Stopover point 9/17



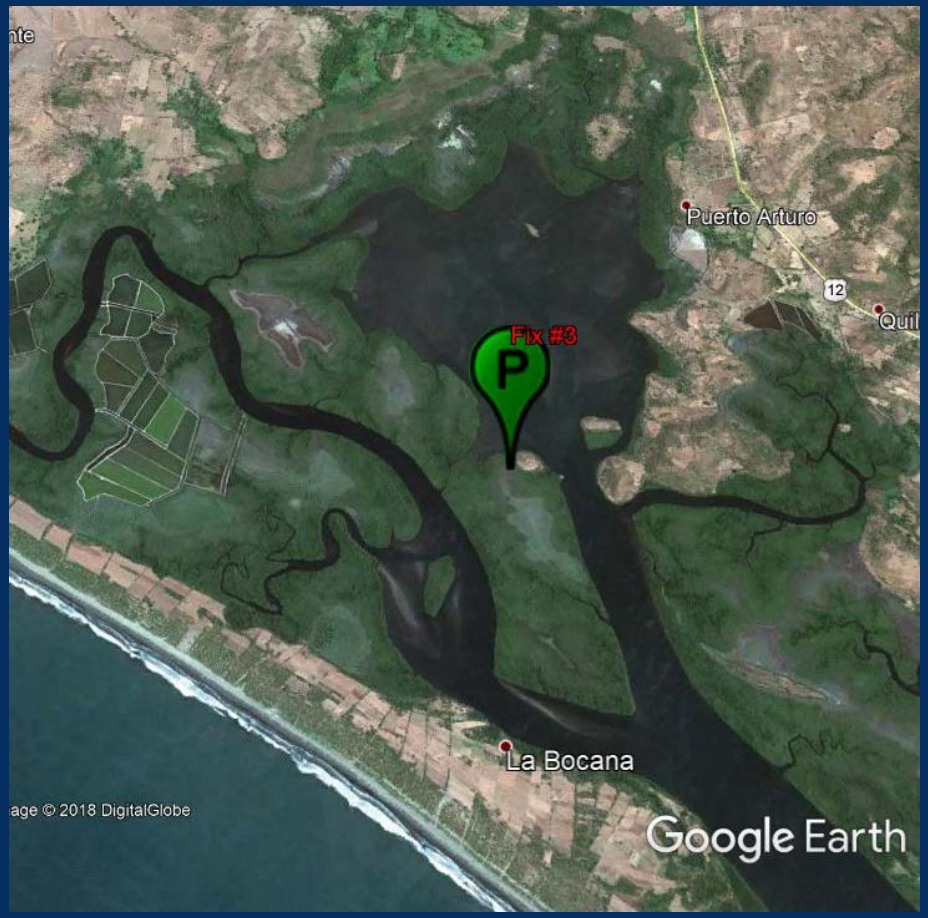
Photos – Shannon McNeil, SSRS

Fall – Mangroves, Chinandega Nicaragua

Stopover point 10/14

José Martín Vallecillo Mendez - Paso Pacífico

Young mangrove forest
Former shrimp farm - Now protected: ***Reserva Natural Estero Padre Ramos***



Photos – Shannon McNeil, SSRS

Fall – Thorn scrub, León Nicaragua

Stopover point 10/15 - cattle ranch near León

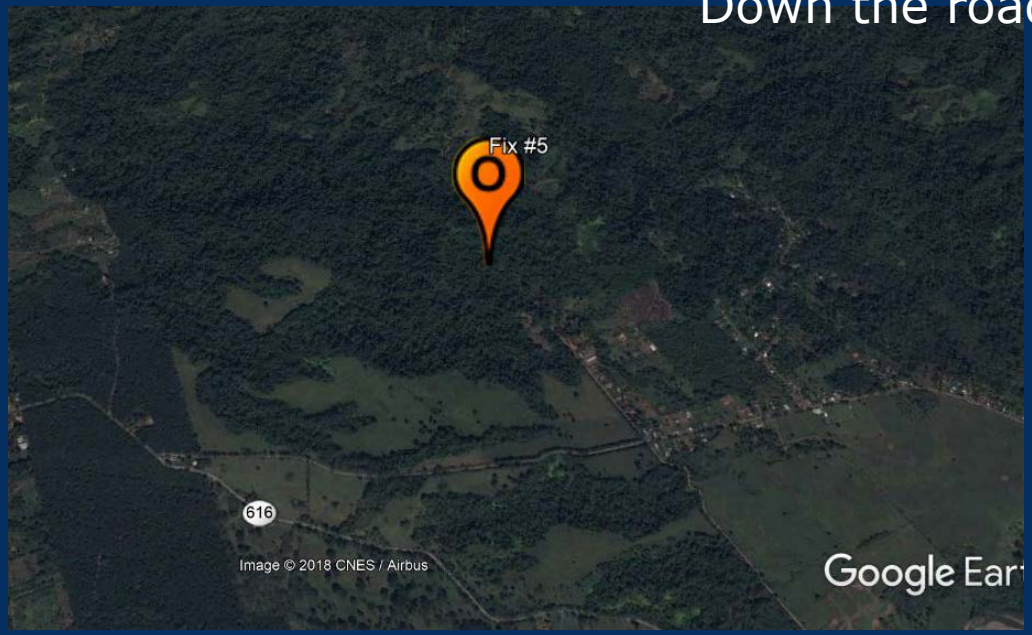
La Familia Caballero López

Photos – Shannon McNeil, SSRS

Fall – Tropical Humid Forest Puntarenas Costa Rica

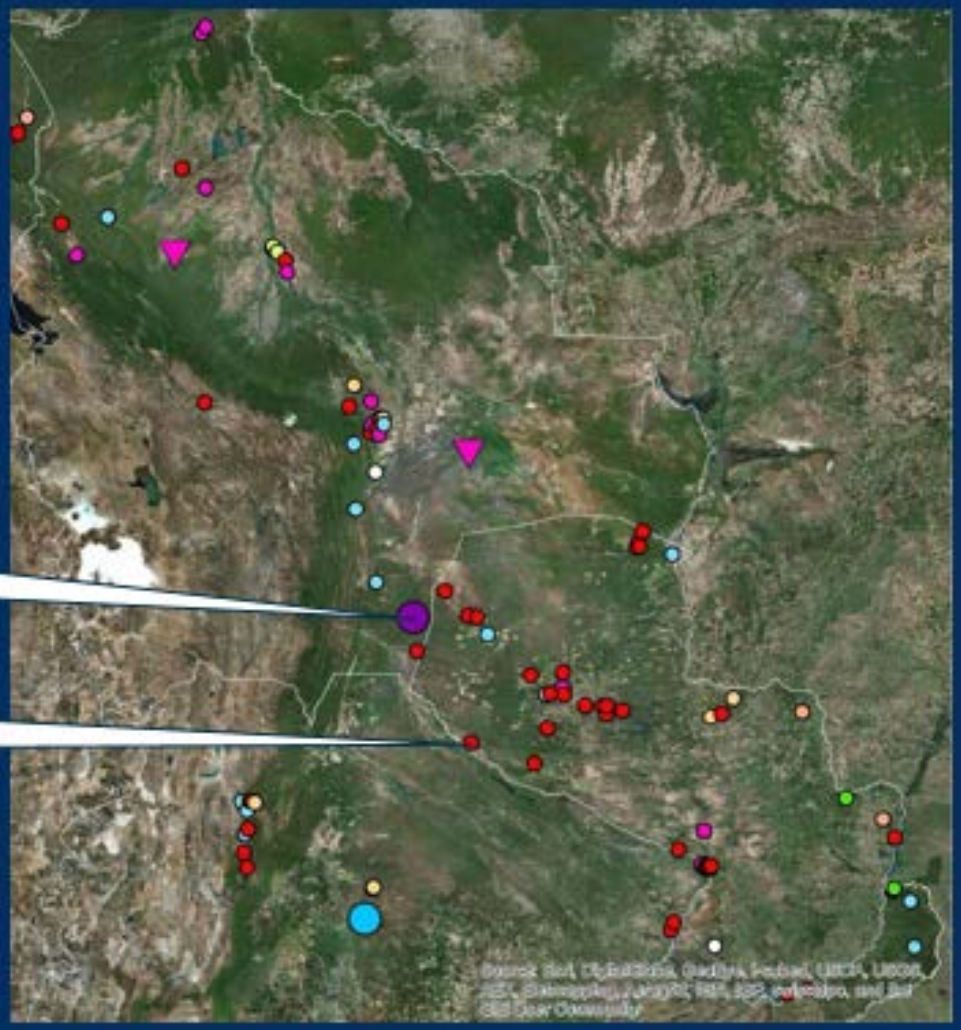
Stopover pt. 10/22

Down the road

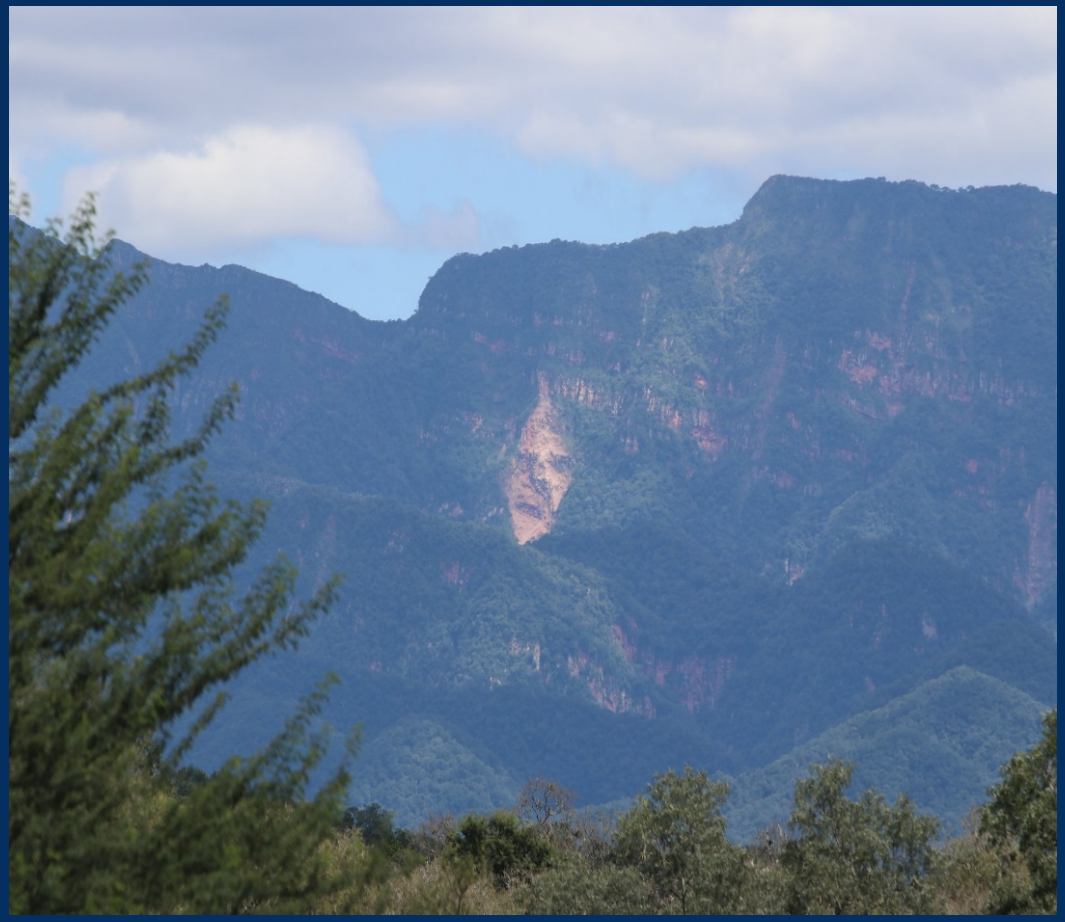


Photos – Shannon McNeil, SSRS

2018 We visited wintering habitat Paraguay, Bolivia and Argentina



Tarija Department, Southern Bolivia



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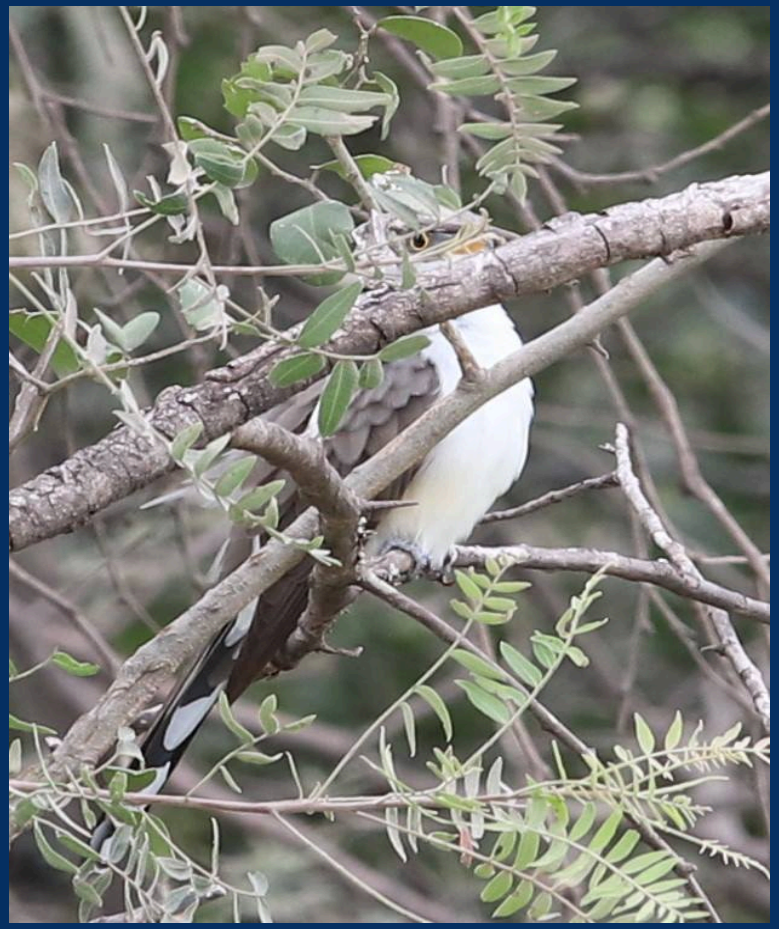
Santiago del Estero, Salta, Argentina



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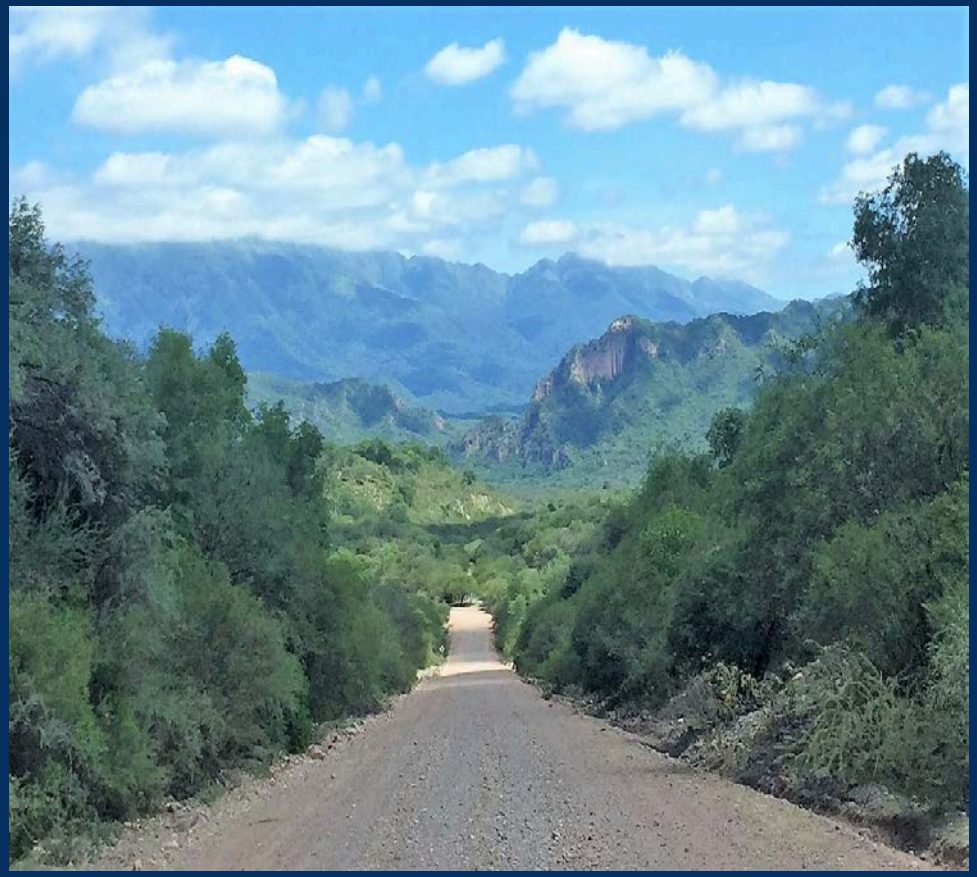

DRY CHACO FILADELFIA PARAGUAY

2019 -2020 COLLABORATION WITH SMITHSONIAN MIGRATORY BIRD CENTER
" DETERMINING WHEN AND WHERE IN THE ANNUAL CYCLE MORTALITY OCCURS FOR THE YBCU"

Next…

Track more YBCU:

- Motus towers / transmitters
- Satellite tags 2020
- Conservation/ collaboration on wintering grounds

Acknowledgments:

Bureau of Reclamation, LCR MSCP
Parametrix
SSRS

Lower Colorado River Multi-Species Conservation Program

Southern Sierra Research Station
conserving biological diversity through research

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