

# Abundance and distribution of Southwestern Willow Flycatchers in San Diego County

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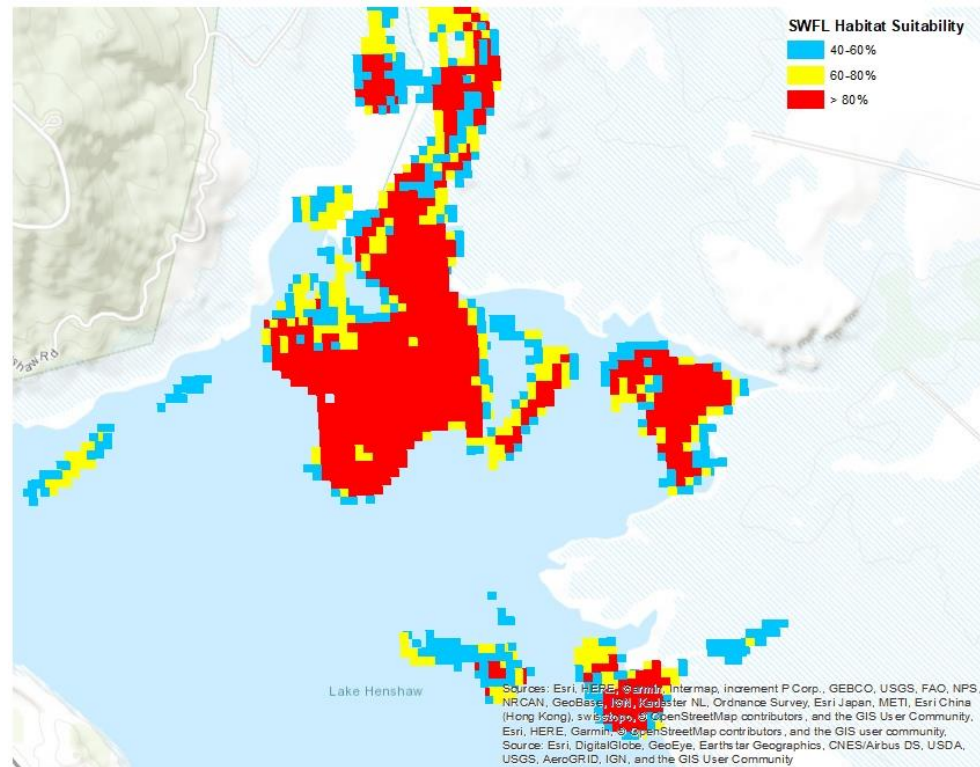
# Study Goals

- Status and trends of flycatcher populations in San Diego County
- Demographic study

# Historically Occupied Locations

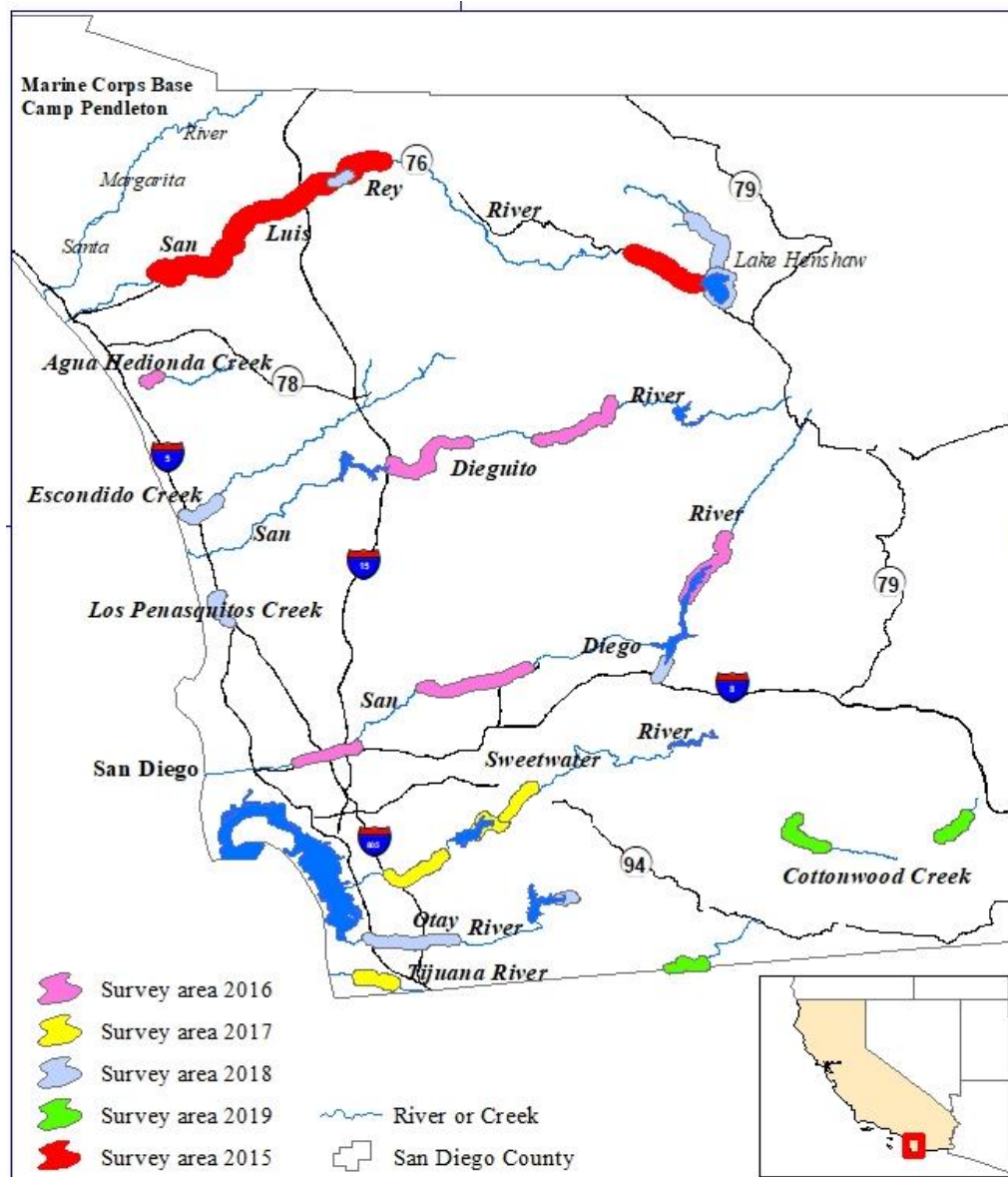
- Upper San Luis Rey
  - Vista Irrigation District (VID; 1999)
  - Cleveland National Forest (CNF; 1999)
  - Rey River Ranch (RRR; 1999)
- San Luis Rey/Pala (2001)
- San Luis Rey/Couser Canyon (2001)
- San Luis Rey/Bonsall (2014)
- San Luis Rey/Middle SLR Guajome (2005)
- San Dieguito (2001)
- Santa Ysabel (1997)
- San Diego River/El Capitan (2001)
- Sweetwater River/Sweetwater Authority (1999)

# SWFL Habitat Suitability Model

Habitat suitability model by Jim Hatten<sup>1</sup>

# Survey Locations

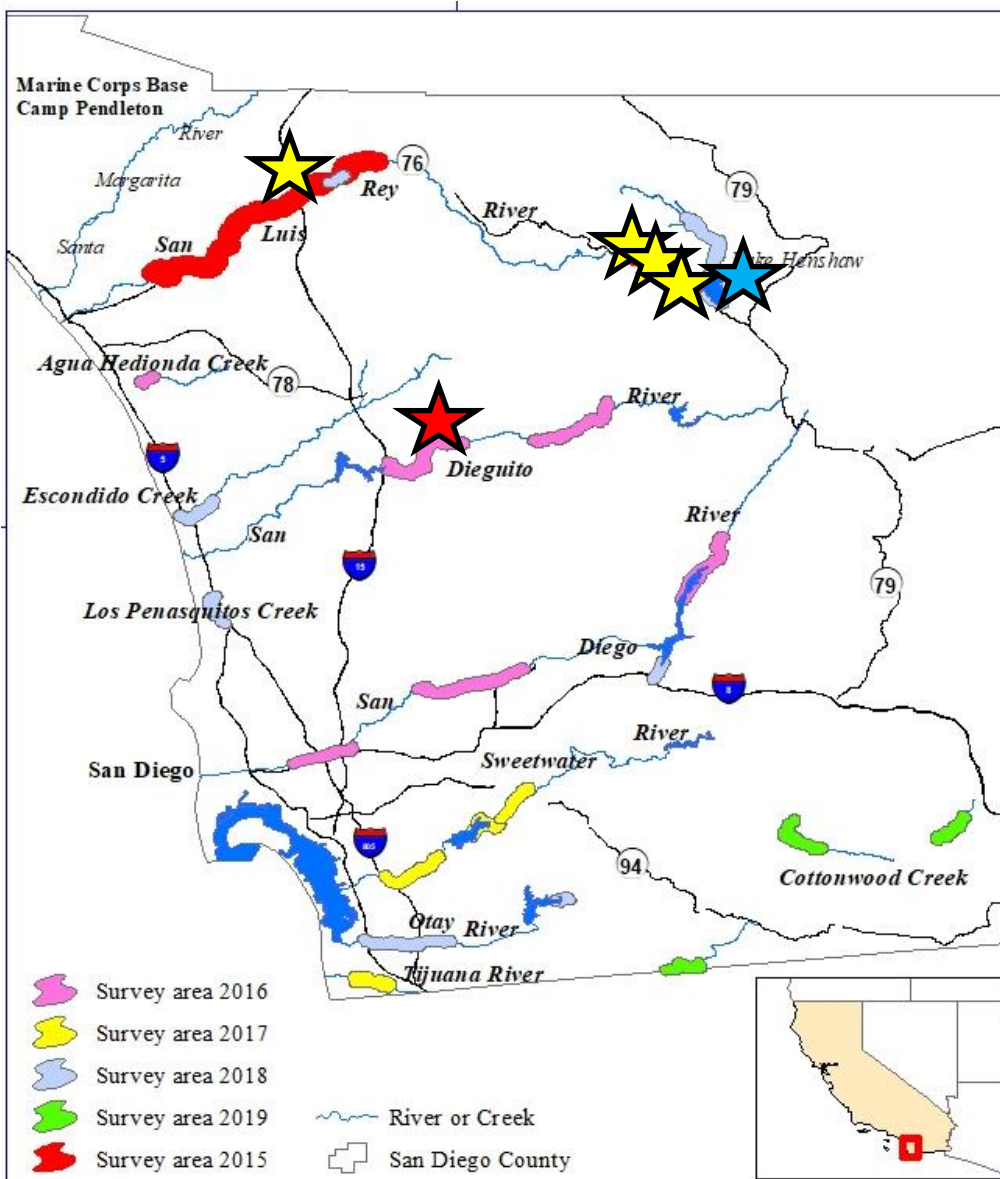
- 2015-2019
- 10 drainages
- 33 locations





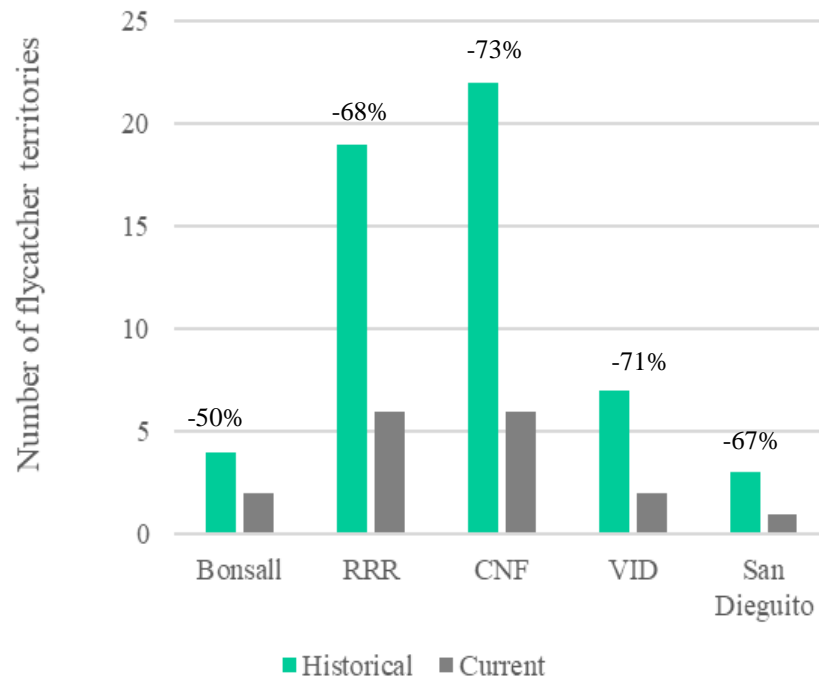
# Survey Results

- 18% of locations occupied
- Minimum of 80 resident SWFL
- 99% of SWFL at San Luis Rey
- San Dieguito only other drainage with SWFL
- Lake Henshaw the only new location with SWFL



# Population Trend at Historical Locations

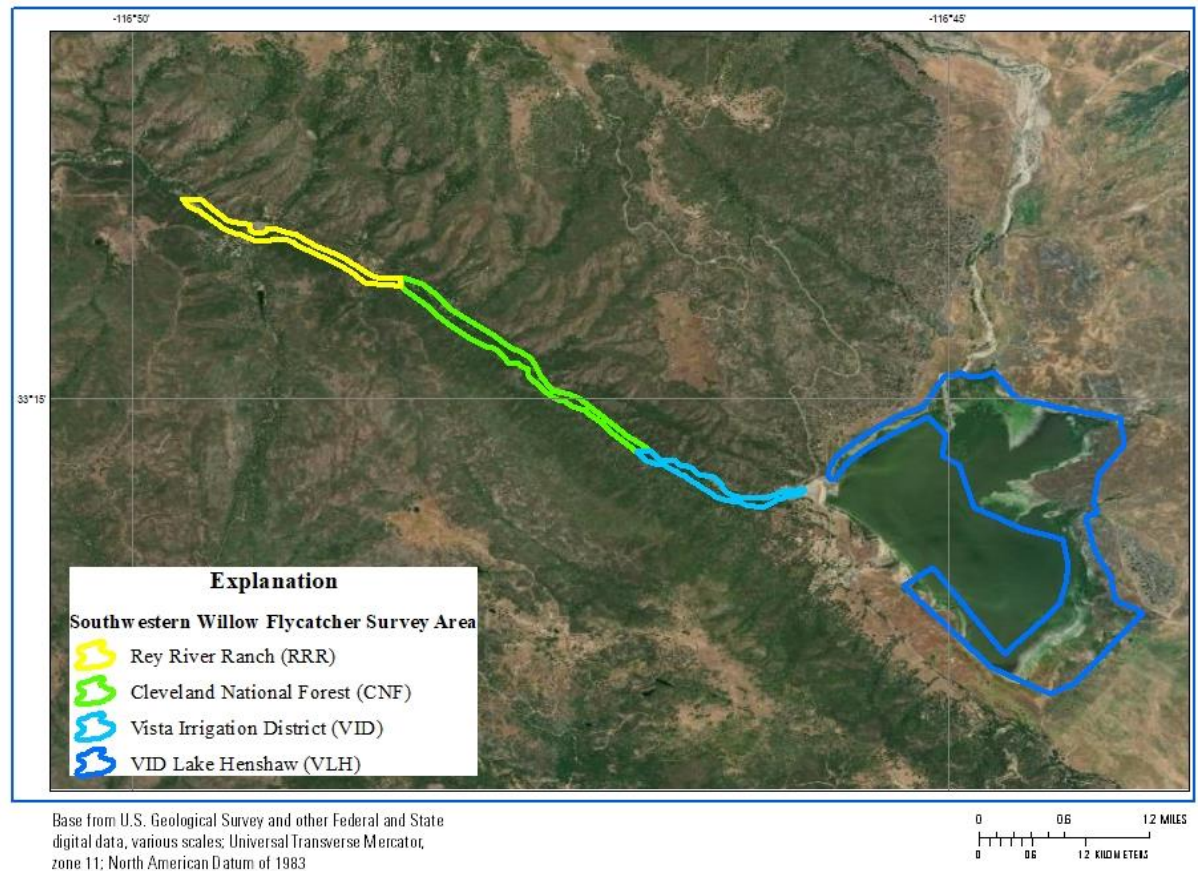
- 45 % still occupied
- Populations decreased



Data from Kus and Beck, 1998; Kus and others, 1999; Varanus Biological Services, 2000, 2001; B. Kus, unpublished data, 2014-19

# Upper SLR Population

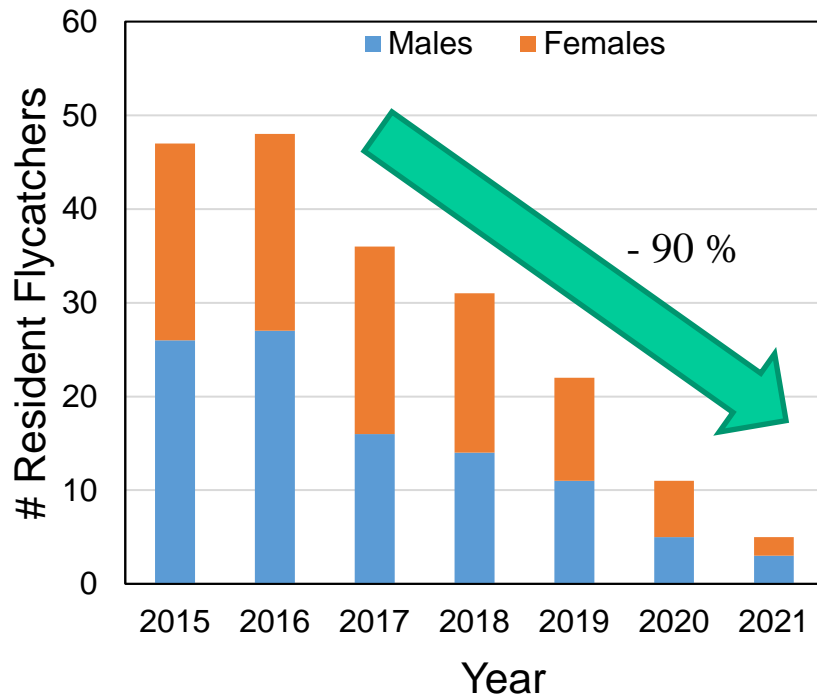
- Downstream surveyed annually 2015-2021
- Upstream surveyed annually 2018-2021



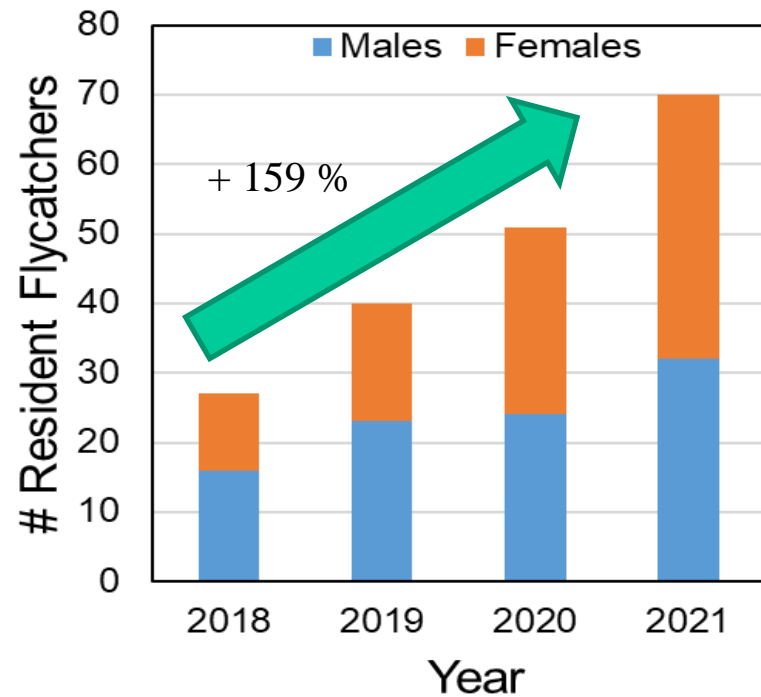


# Population Trend at Upper SLR

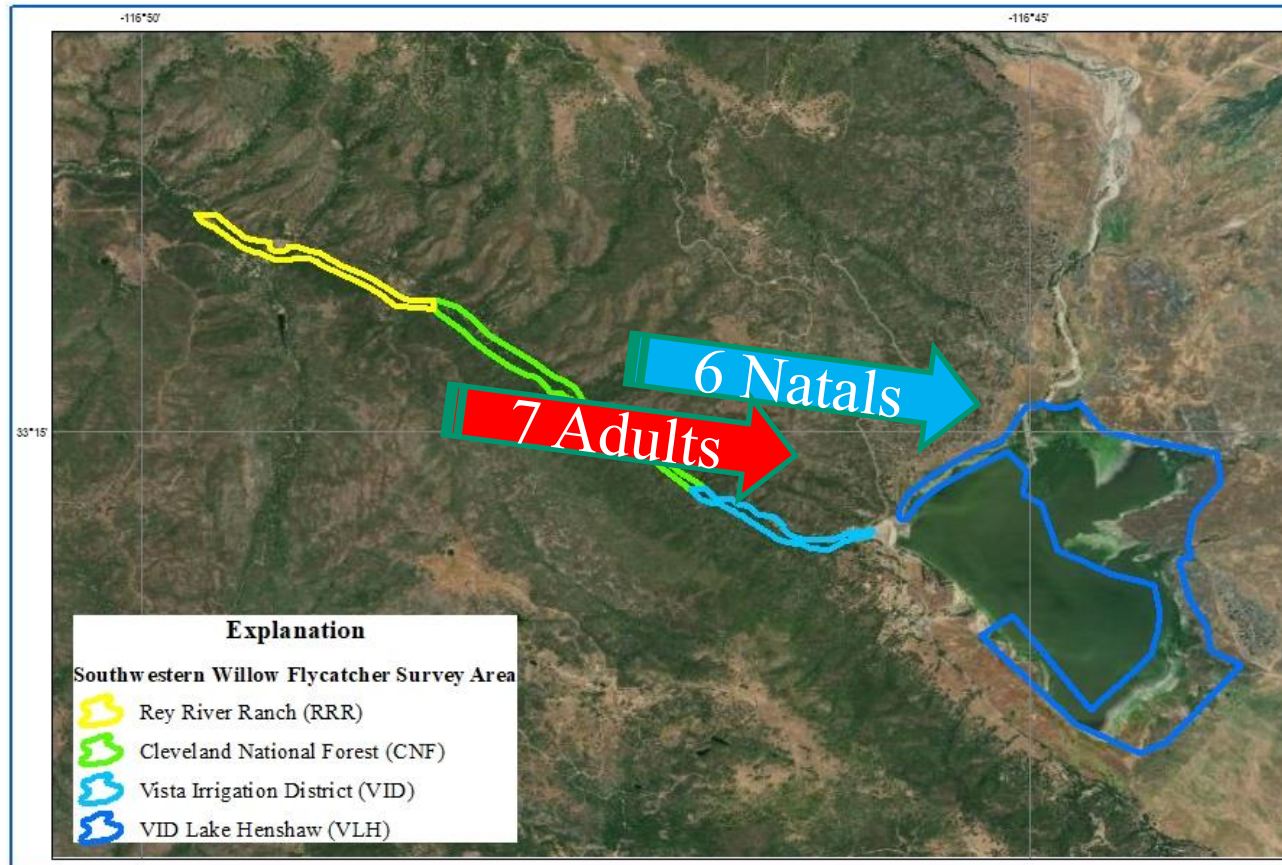
Downstream of Dam  
(RRR, CNF, VID)



Upstream of Dam  
(Lake Henshaw)



# Shift in Distribution





# Possible Reasons for Shift in Distribution



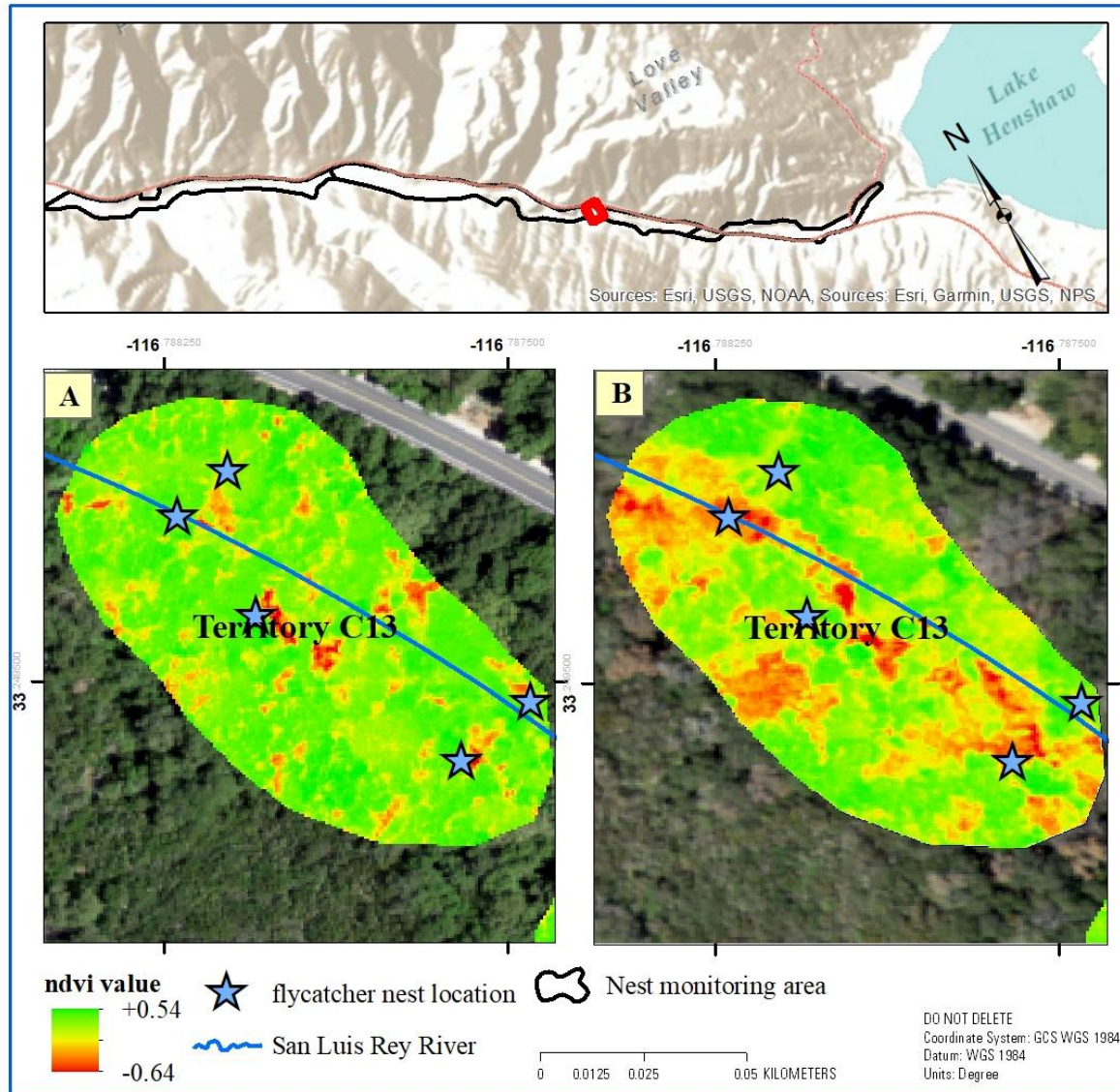


# Changes in Habitat Downstream





# Downstream Oak Mortality





# Lake Henshaw!



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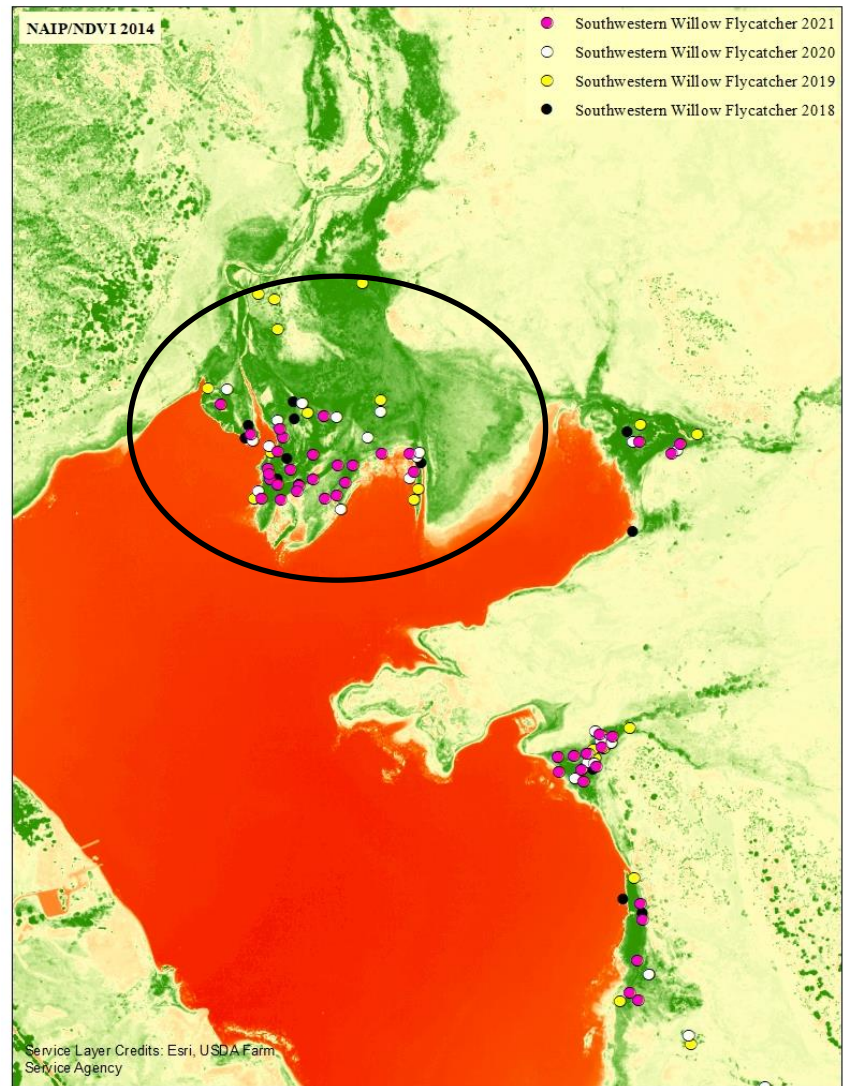
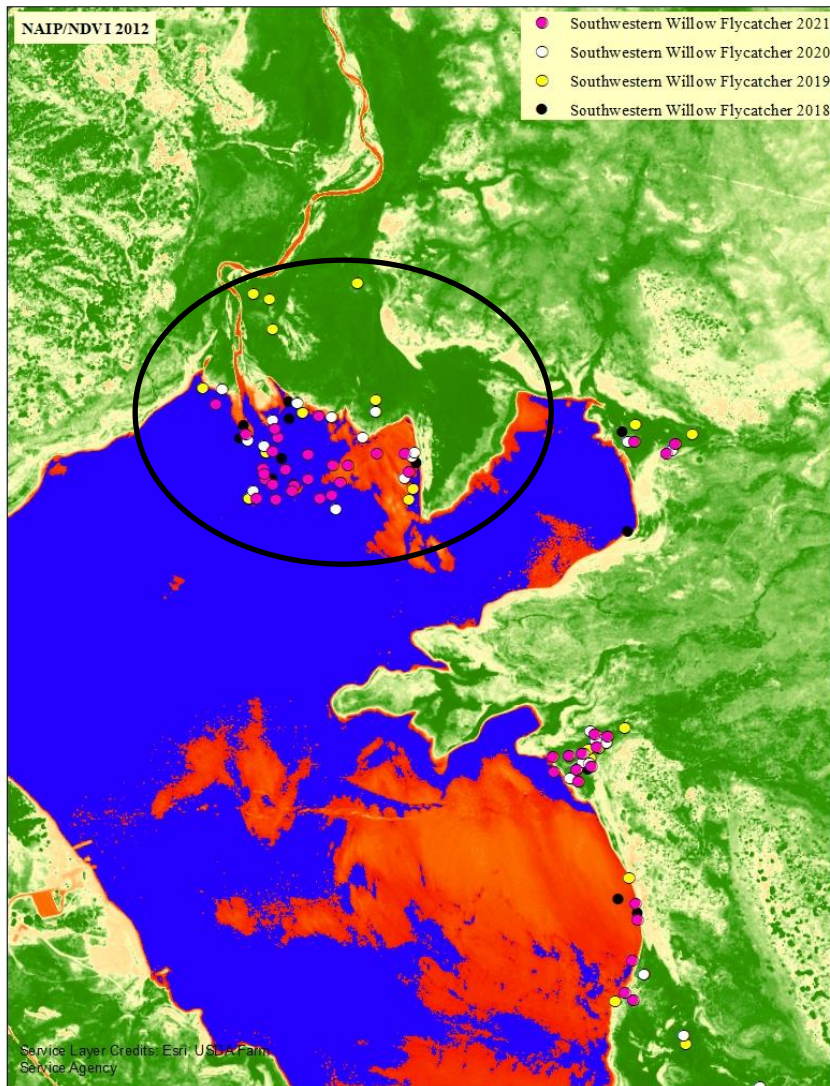
Barbara Kus



# Have Flycatchers always occupied Lake Henshaw?

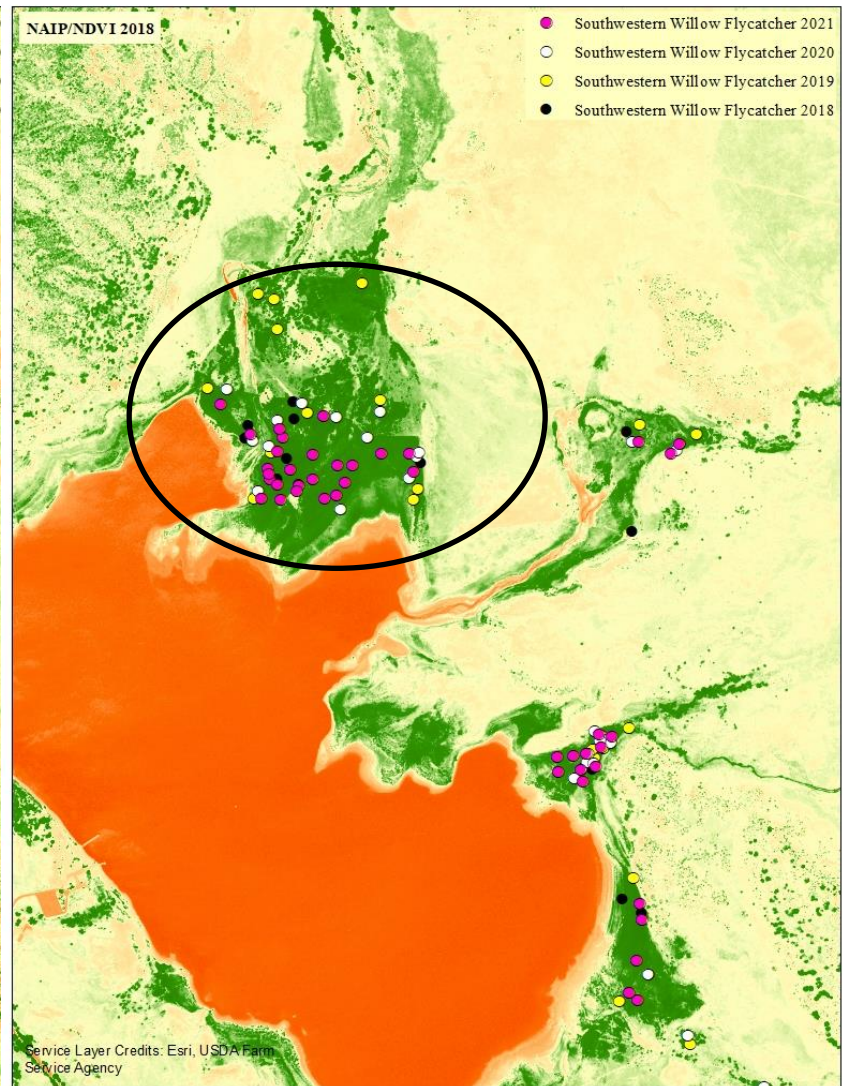
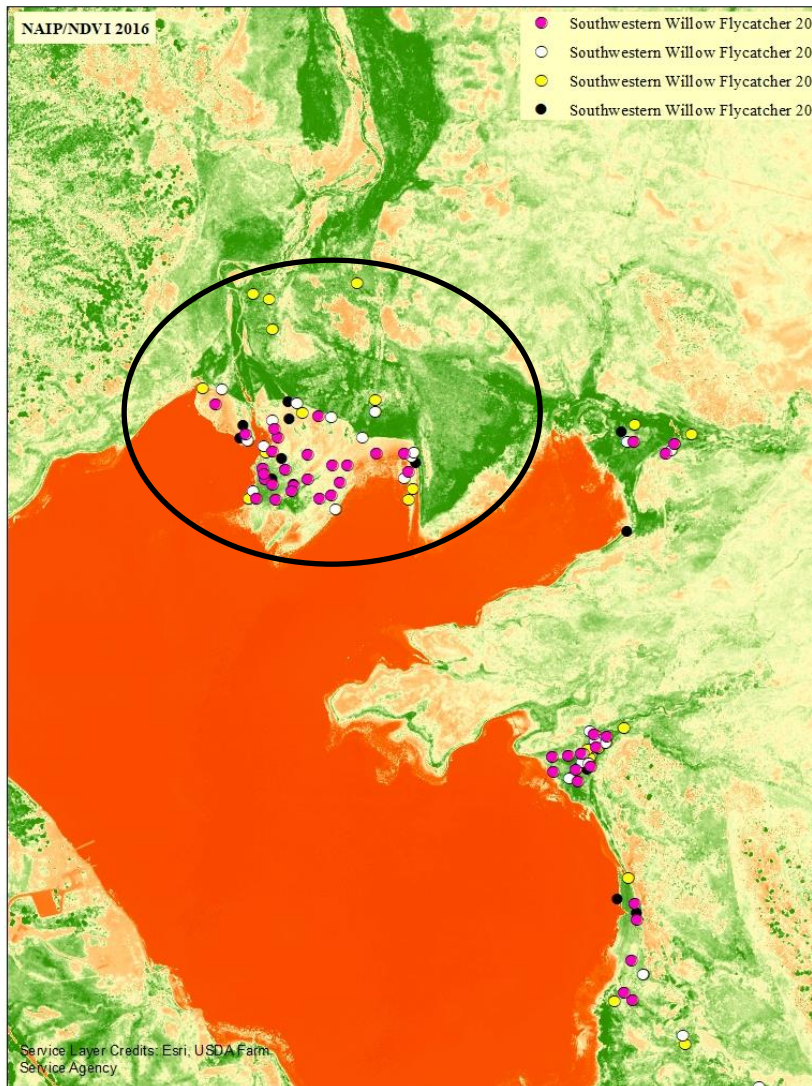
- No documented surveys prior to 2018
- Likely occupied before 2018, but exponential growth since 2018
- Long term drought 2012-2016
- Lake drawdown/exposed more shoreline
- NDVI (normalized difference vegetation index) changes evident

# Lake Henshaw changes in NDVI





# Lake Henshaw changes in NDVI



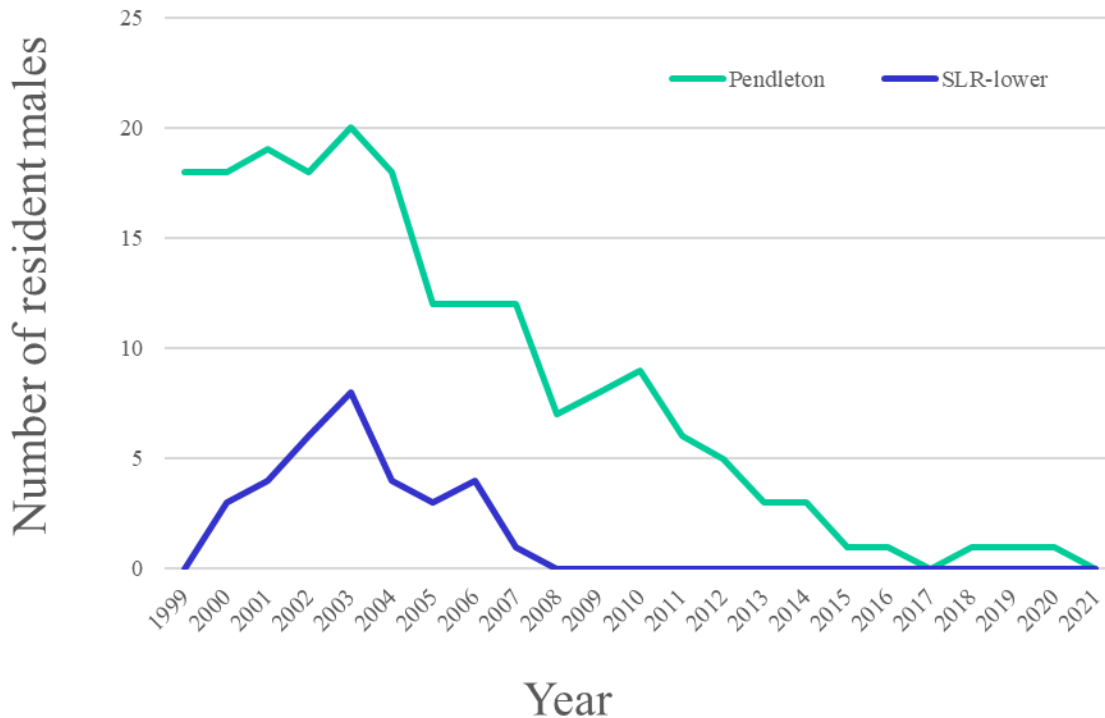
# Upper San Luis Rey

With the addition of Lake Henshaw, continues to be the largest flycatcher population in San Diego County





# Other San Diego County Population Trends



# Acknowledgements

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## Field Biologists:

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# References

- KUS, B.E., AND BECK, P.P., 1998, DISTRIBUTION AND ABUNDANCE OF THE LEAST BELL'S VIREO (*Vireo bellii pusillus*) and the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) at selected Southern California sites in 1997: PREPARED FOR THE CALIFORNIA DEPARTMENT OF FISH AND GAME, WILDLIFE MANAGEMENT DIVISION, SACRAMENTO, CALIFORNIA.
- KUS, B.E., BECK, P.P., AND WELLS, J.M., 1999, STATUS AND BREEDING ACTIVITIES OF THE SOUTHWESTERN WILLOW FLYCATCHER AT THE CLEVELAND NATIONAL FOREST IN 1999: PREPARED FOR THE U.S. FOREST SERVICE, CLEVELAND NATIONAL FOREST.
- Varanus Biological Services, 2000, Southwestern Willow Flycatcher data summary 1995-1999: Prepared for the U.S. Bureau of Reclamation, Phoenix area office, Phoenix, AZ.
- Varanus Biological Services, 2001, Southwestern Willow Flycatcher field season 2000 data summary: Prepared for the U.S. Bureau of Reclamation, Phoenix area office, Phoenix, AZ.