Ecology, Species Account, and Distribution of Coastal Cactus Wrens in Southern California

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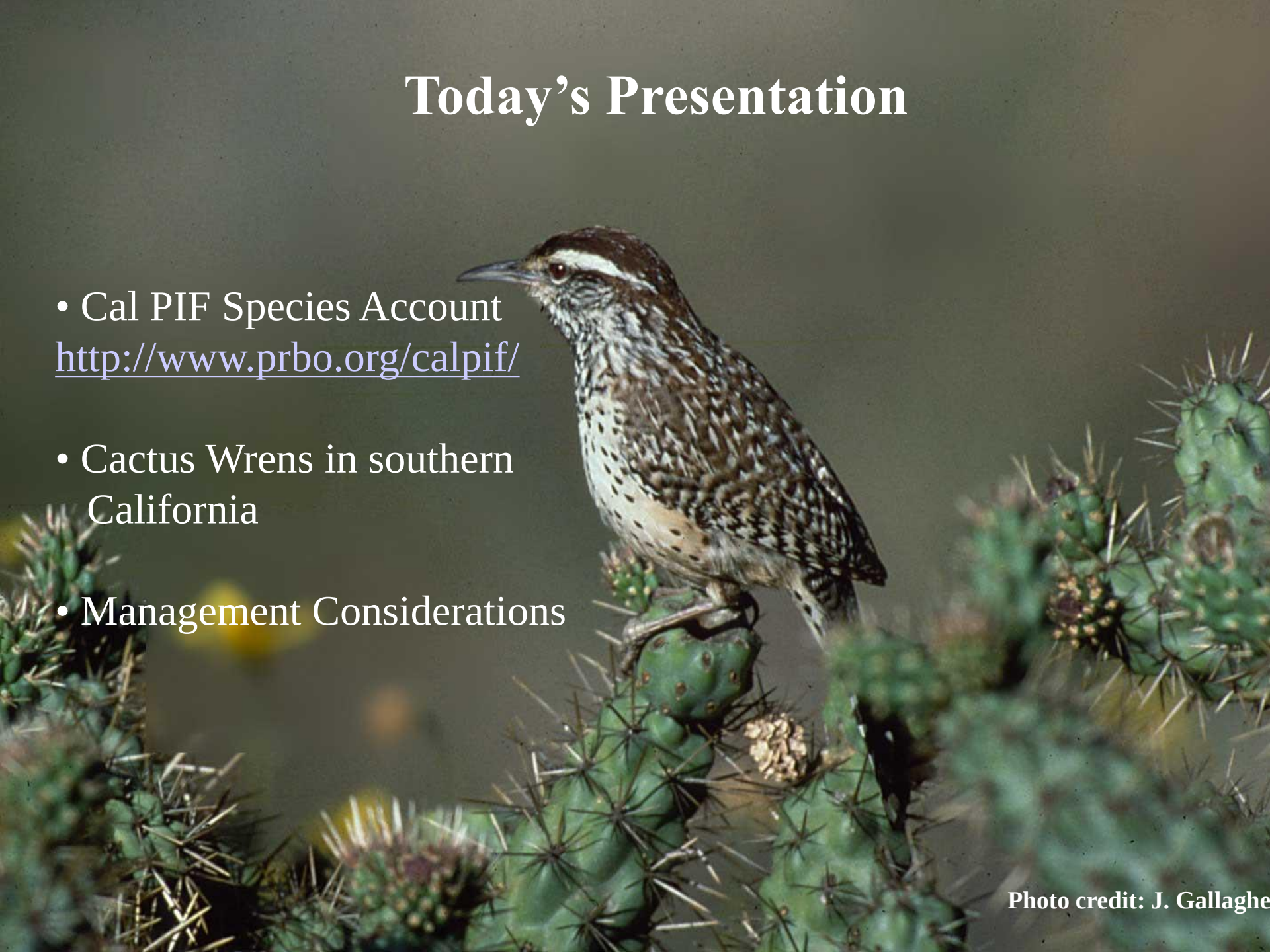
Today's Presentation



- Cal PIF Species Account
http://www.prbo.org/calpif/

- Cactus Wrens in southern California

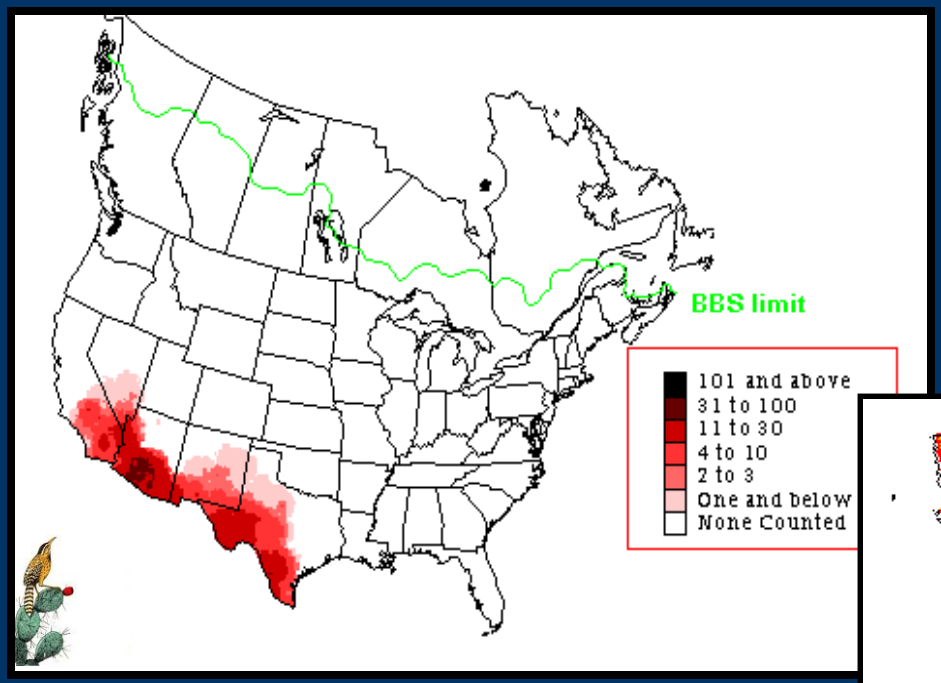
- Management Considerations

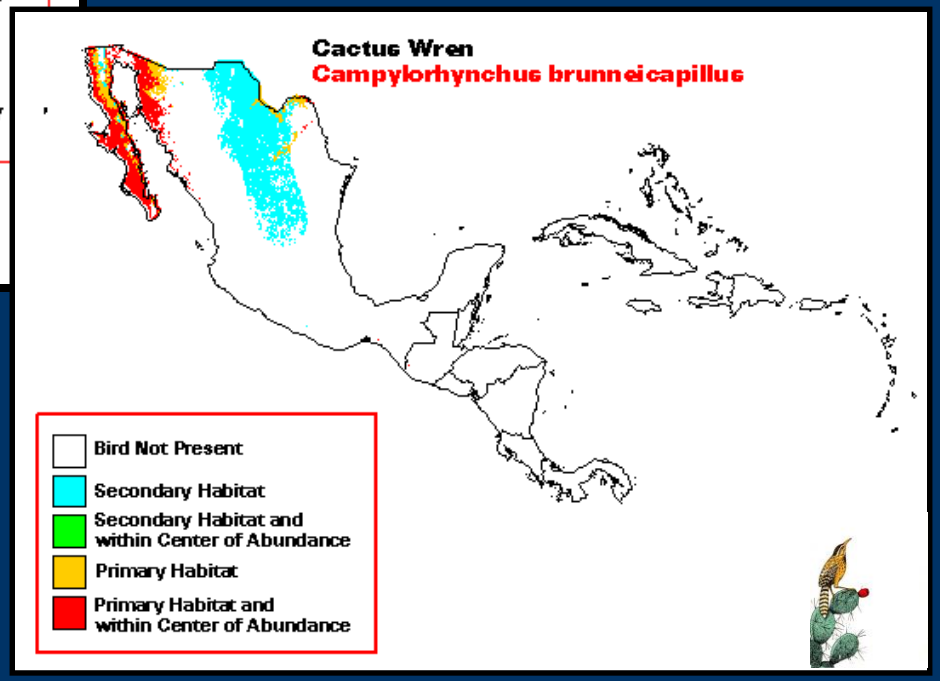
Photo credit: J. Gallaghe

Cactus Wren 101

- Resident species
- Largest species of wren in North America
- Male and female identical based on plumage
- Coastal populations CSS obligates
- Nests constructed throughout the year

Cactus Wren World Distribution





Adult **Juvenile**

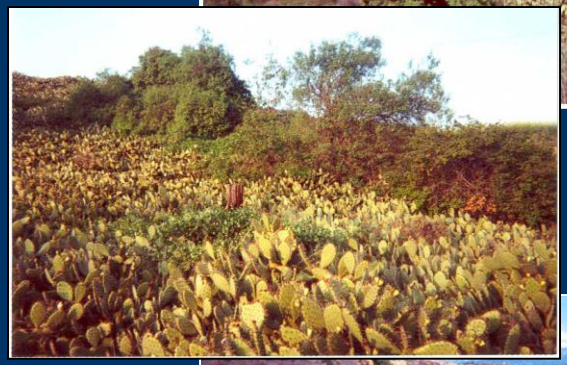
Length ~ 8.5 in. (22 cm)
Wing span ~ 11 in.
Weight ~ 1.4 oz (39 g)

- *Opuntia littoralis, O. oricola, O. prolifera*
- **Nest height ~ 1 m (3 ft.)**
- **Nests constructed year round**
- **Multiple nests built**

- Clutch size ~ 3-5 eggs
- Incubation period ~ 16 days
- Nestling period ~ 19-23 days

- 1-3 broods/season
- Both sexes tend young
- Nest helping by juveniles

Coastal Sage Scrub



- Sea level to 600 m
- Low, malacophyllus shrubland
- Drought deciduous
- Adapted to natural fire regime

•Common plant species include:

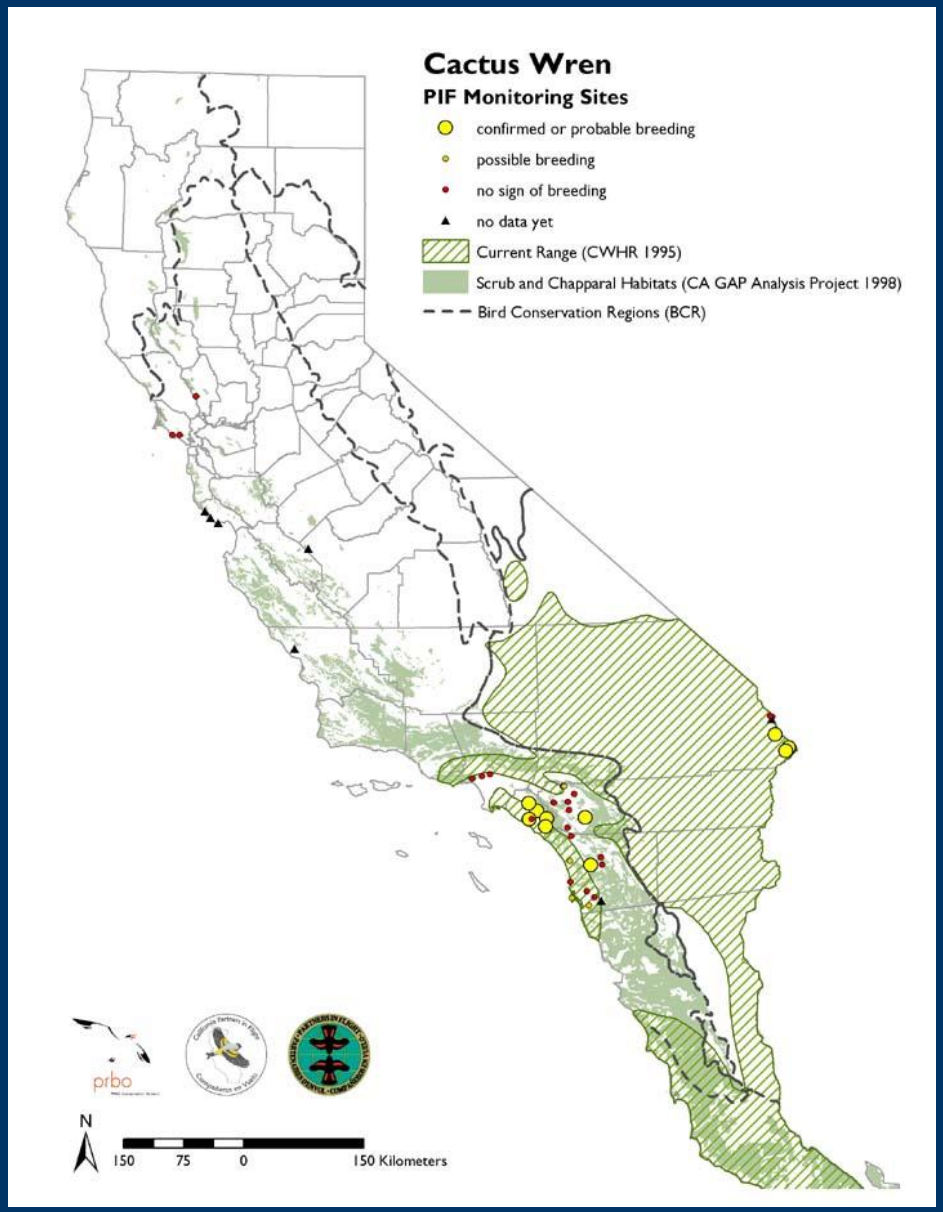
- *Artemesia californica*
- *Salvia sp.*
- *Eriogonum fasiculatum*
- *Opuntia sp.*

Coastal Cactus Wrens in southern California

Source: Garret and Dunn 1981

- Disjunct coastal and interior populations (*C.b. couesi*)
- Historical corridor via the San Gorgonio Pass (Riverside Co.)
- Largest segment of coastal population in Orange County and Camp Pendleton MCB (north SD County)

CalPIF Species Range and Habitat Map

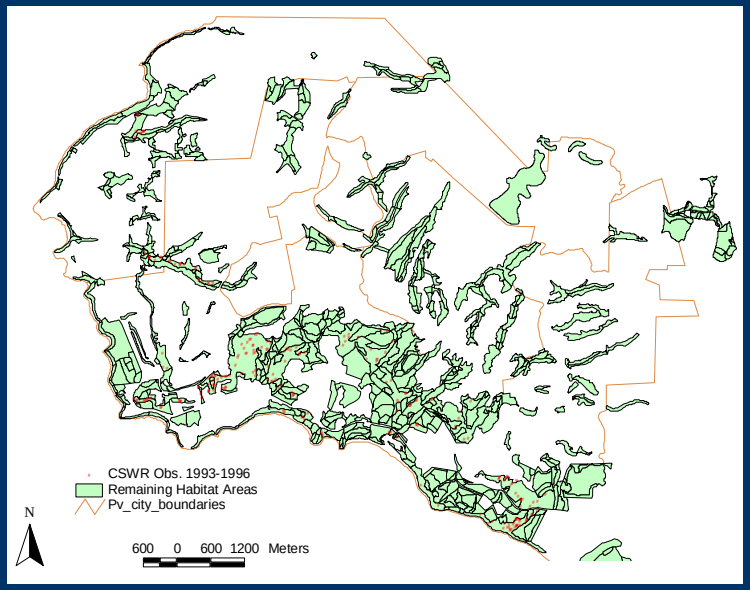


Ventura
Los Angeles
Orange
San Diego
Riverside
San Bernardino
Imperial
Kern
Inyo

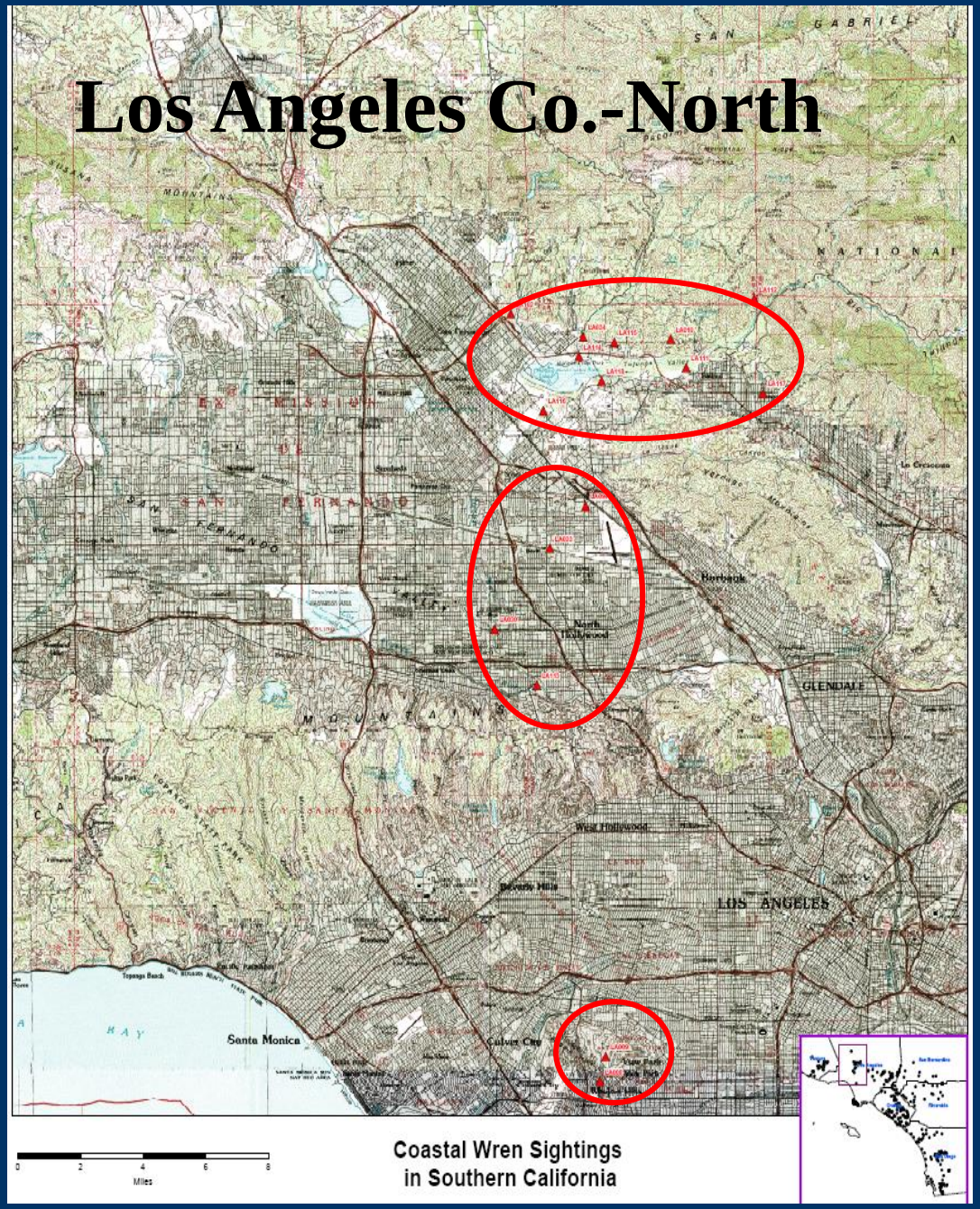

Ventura County
El Rio
Moorpark
Oxnard
Camarillo
Casa Conejo
Thousand Oaks
Oak Par
Agoura Hill
Image NASA
Image © 2008 DigitalGlobe
Image © 2008 City of Thousand Oaks
© 2008 Tele Atlas
6.26 mi
Google
Pointer 34°10'43.72" N 118°56'56.46" W elev 758 ft
Streaming 100%
Eye alt 21.64 mi

Palos Verdes Peninsula

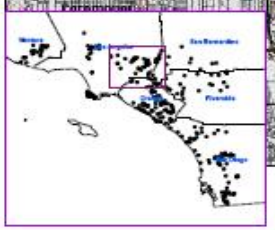
- "Closed system"
- Long history of development
- Small habitat fragments in an urban matrix
- Gently sloped hills, coastal bluffs, steep interior canyons



Los Angeles Co.-North



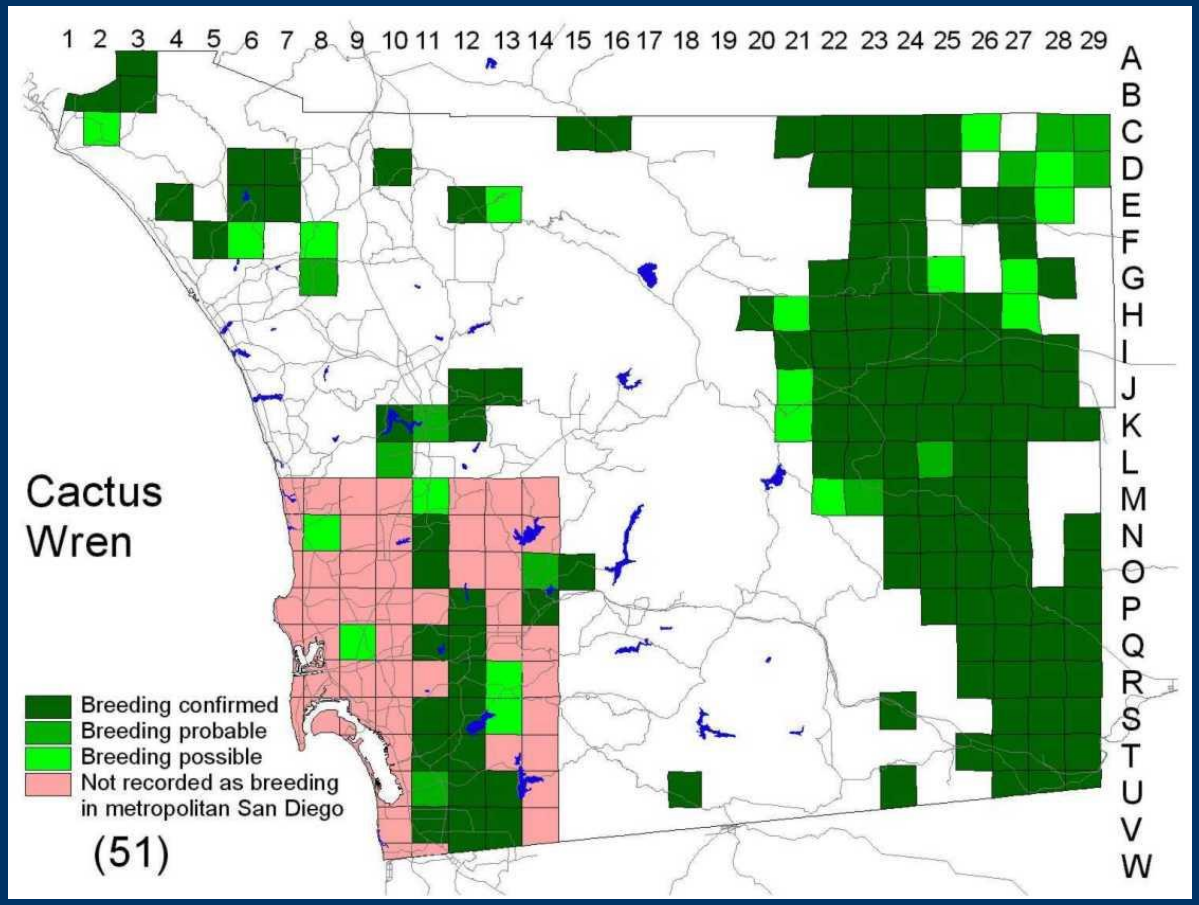
Los Angeles Co.-East



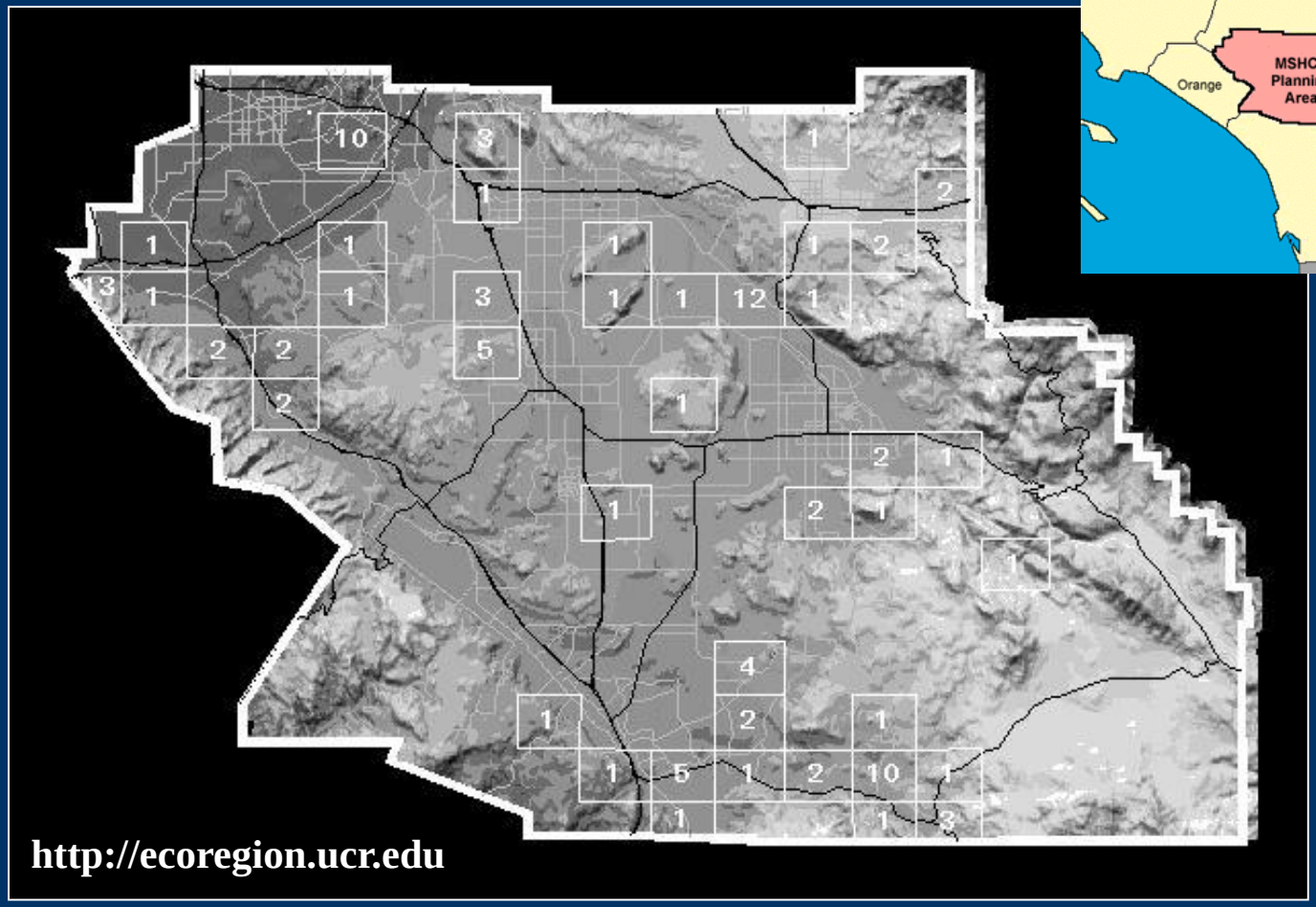
Coastal Wren Sightings
in Southern California

0 1 2 3 4
Miles

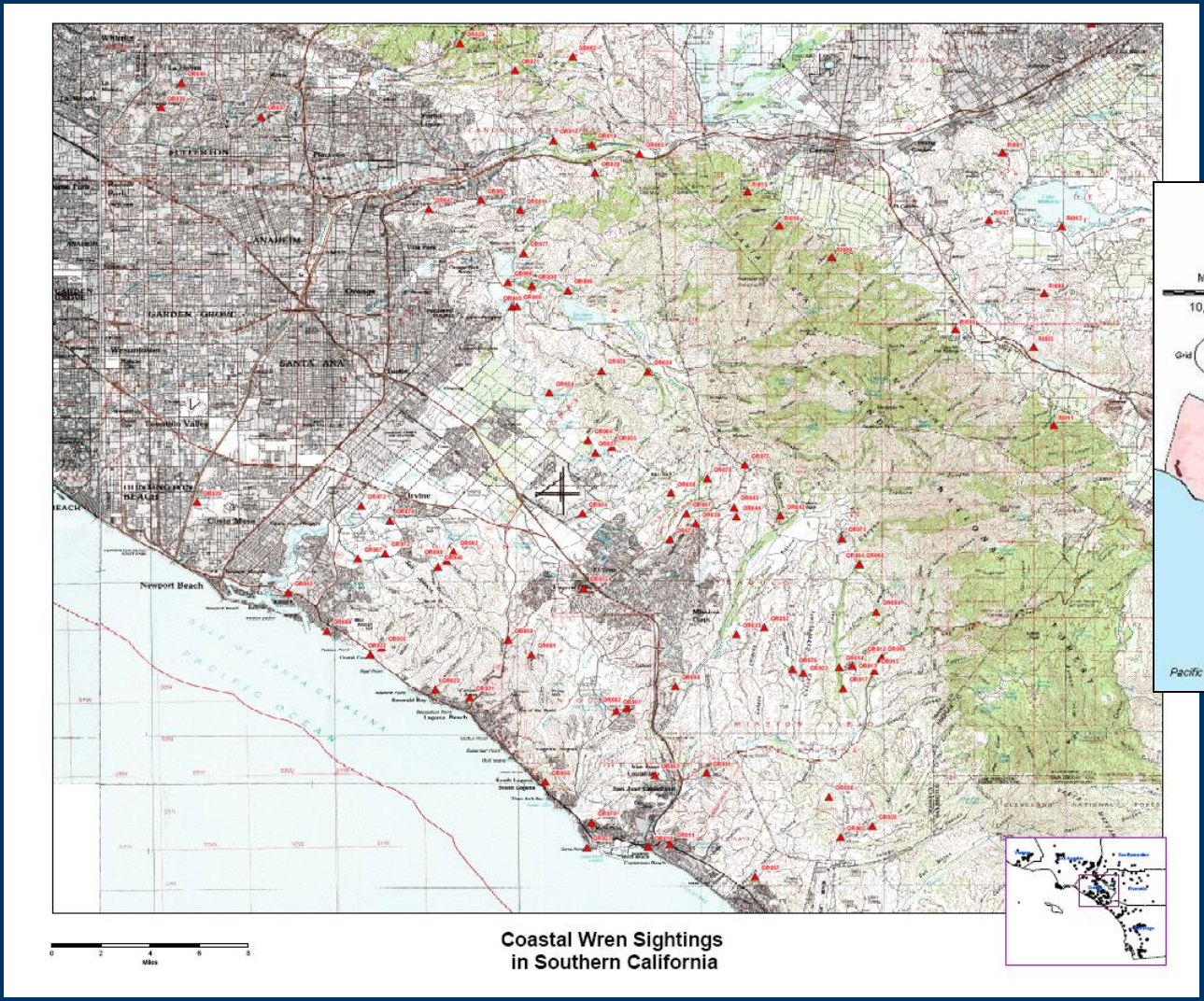
1997-2000 San Diego County Breeding Bird Atlas

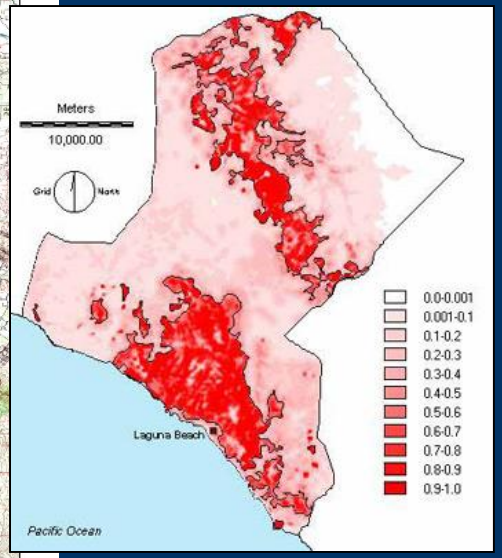


Coastal Cactus Wren Distribution within the Western Riverside Co. MSHCP Planning Area

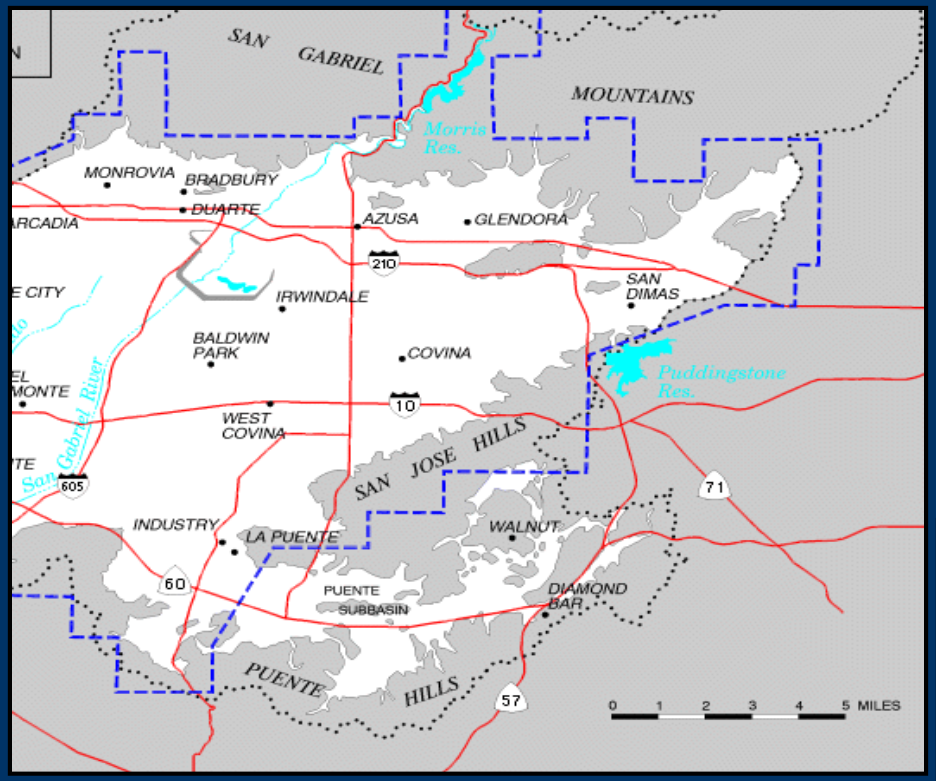


Coastal Cactus Wren Distribution within Orange County and the NROC



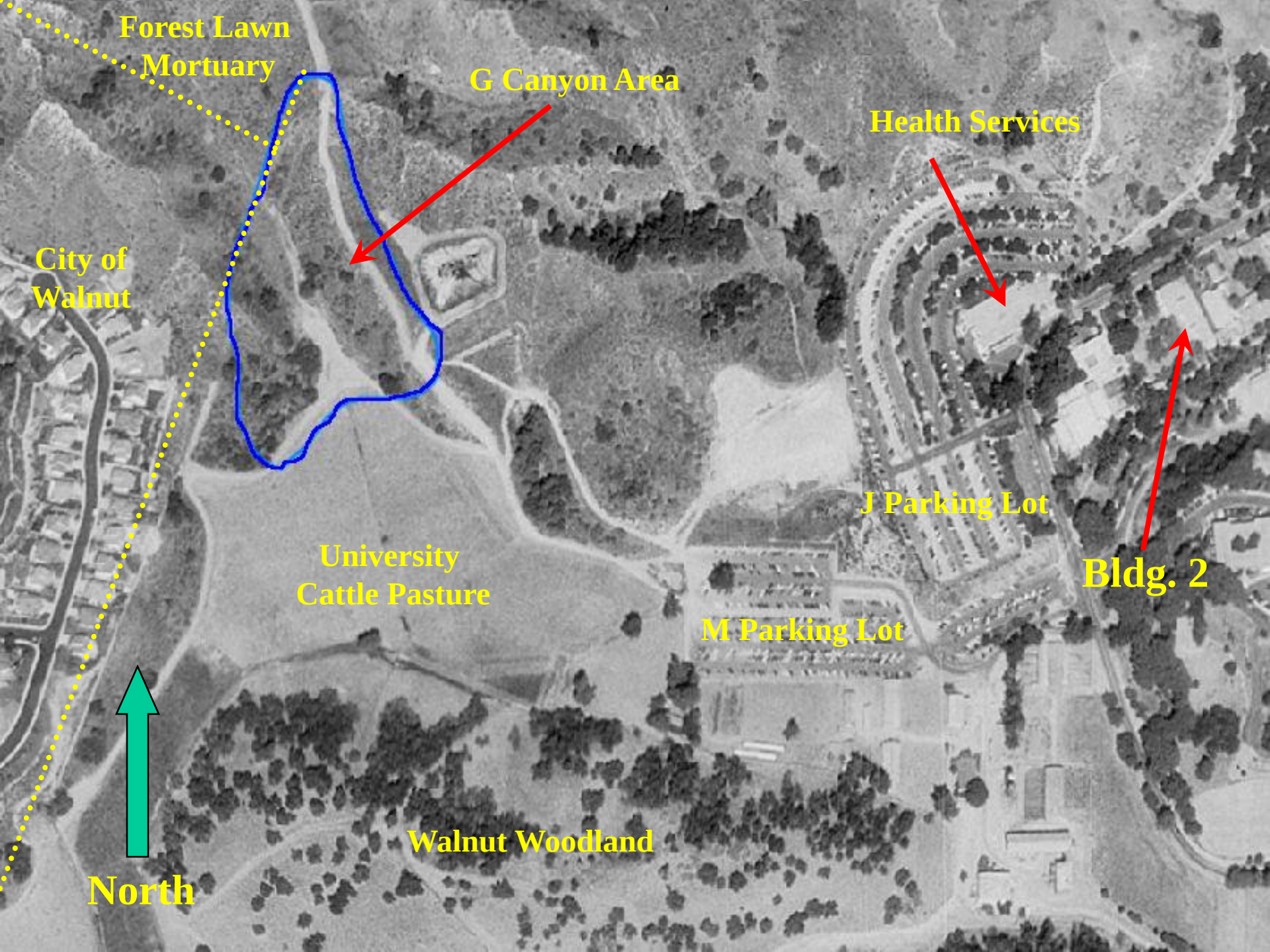


Puente-Chino-San Jose Hills

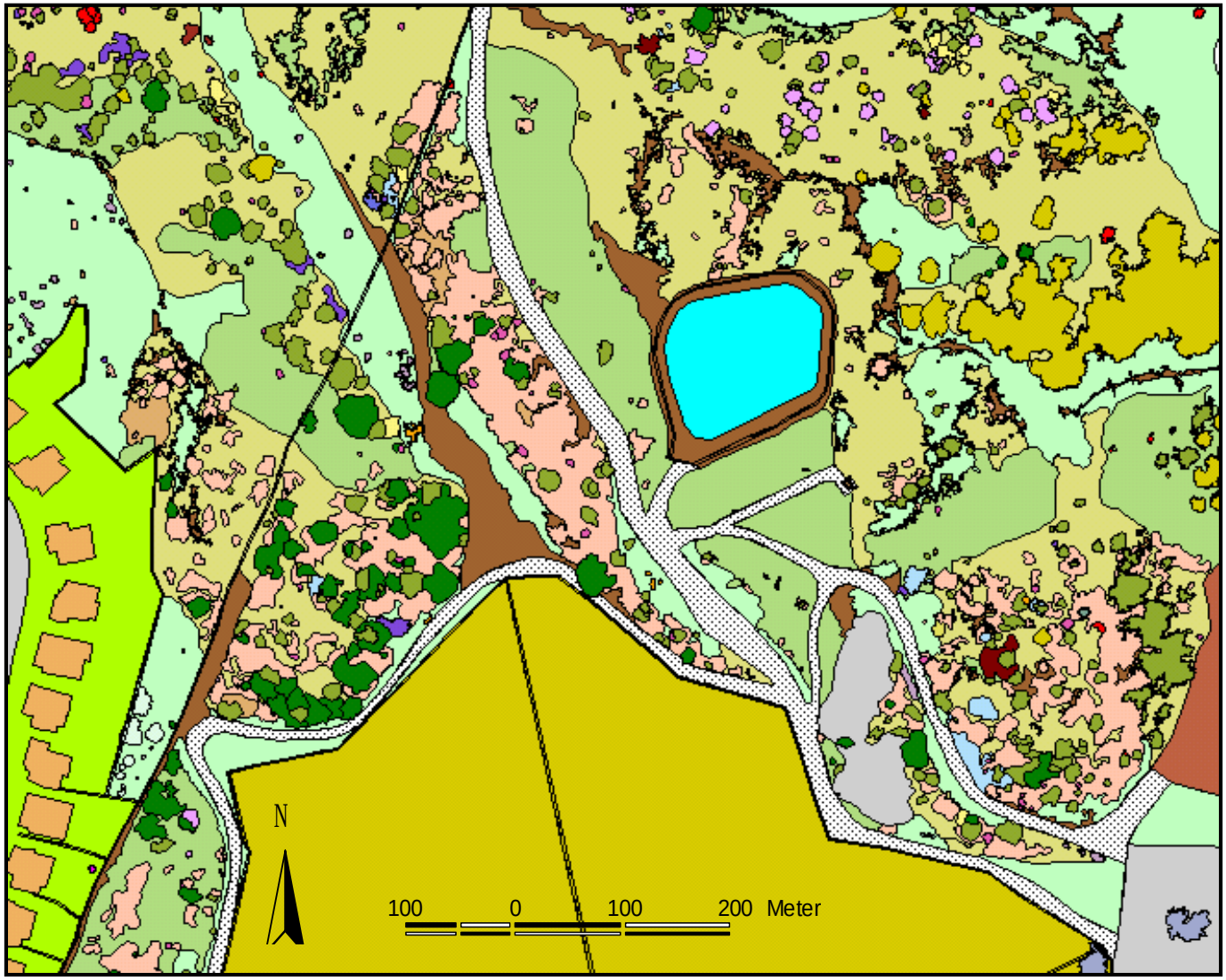


Source: San Gabriel Valley Watermaster

Cal Poly Pomona


Forest Lawn
Mortuary
G Canyon Area
Health Services
City of
Walnut
J Parking Lot
University
Cattle Pasture
Bldg. 2
M Parking Lot
Walnut Woodland
North

Digitized map of G Canyon study area (Cal Poly Pomona)

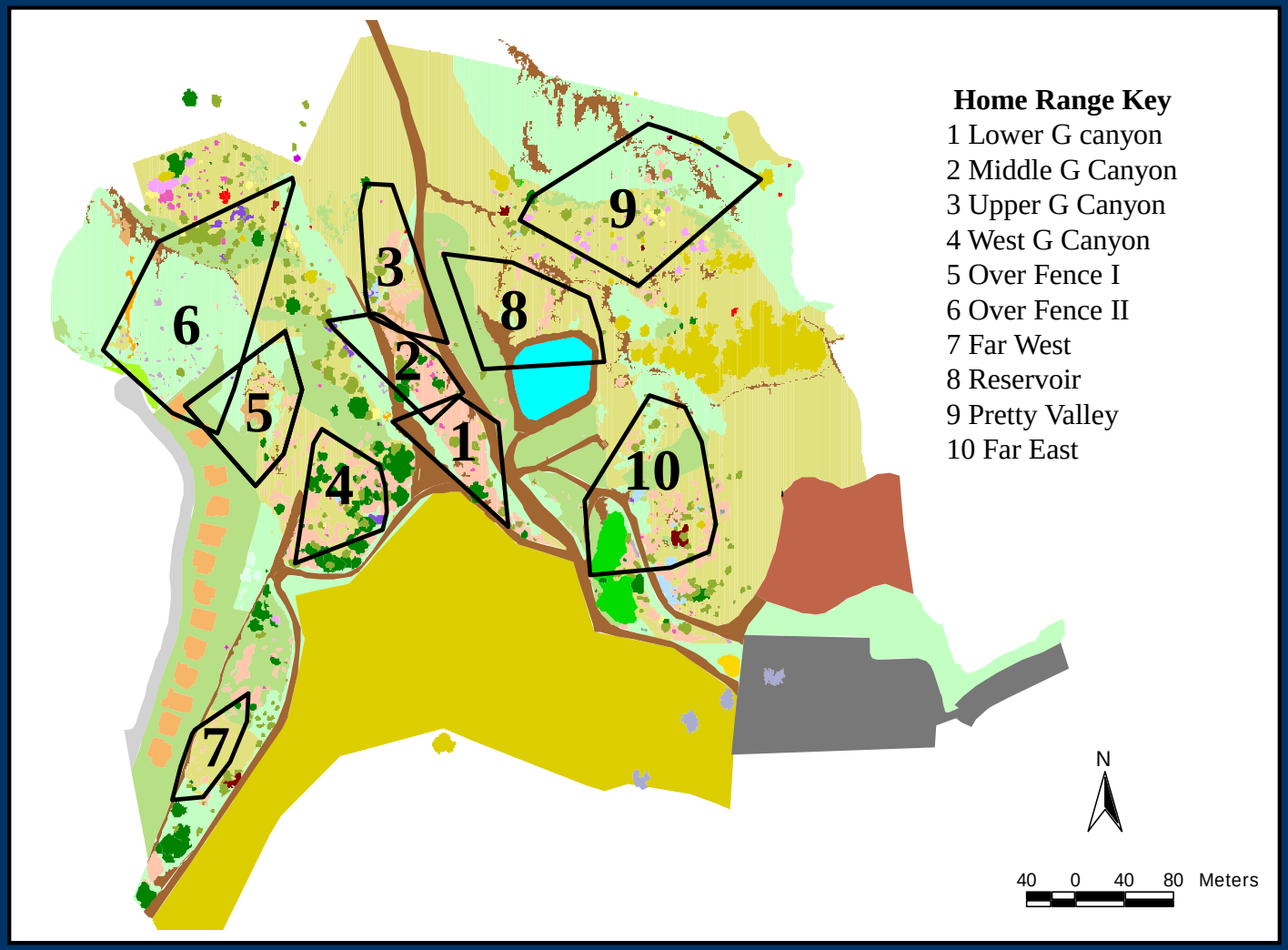


Fencelines

Macrohabitat Types
- Annuals
- Artemesia Scrub
- Bare Ground
- Black Walnut
- Bushmallow
- Cactus
- Cal. Sagebrush
- Elderberry
- Eucalyptus
- Exotic Pine
- Field
- Coyote Brush
- ID
- Laurel Sumac
- Mixed Scrub
- Monkey Flower
- Oak
- Ornamental
- Poison Oak
- Redberry
- Serviceberry
- Sugar Bush
- Sycamore
- Toyon
- Tree Tobacco
- Water
- Castor Bean
- Exotic
- Exotic Groundcov
- Snag
- Sage
- Arroyo Willow
- Buckwheat Scrub
- Rock Rose

Landscape Features
- Chiller Plant
- Drain Catch
- Gazebo
- House
- Irrigation pipes
- Landscaped yards
- M Parking Lot
- Paved Road
- Pump housing
- Reservoir
- Unpaved Access Roads

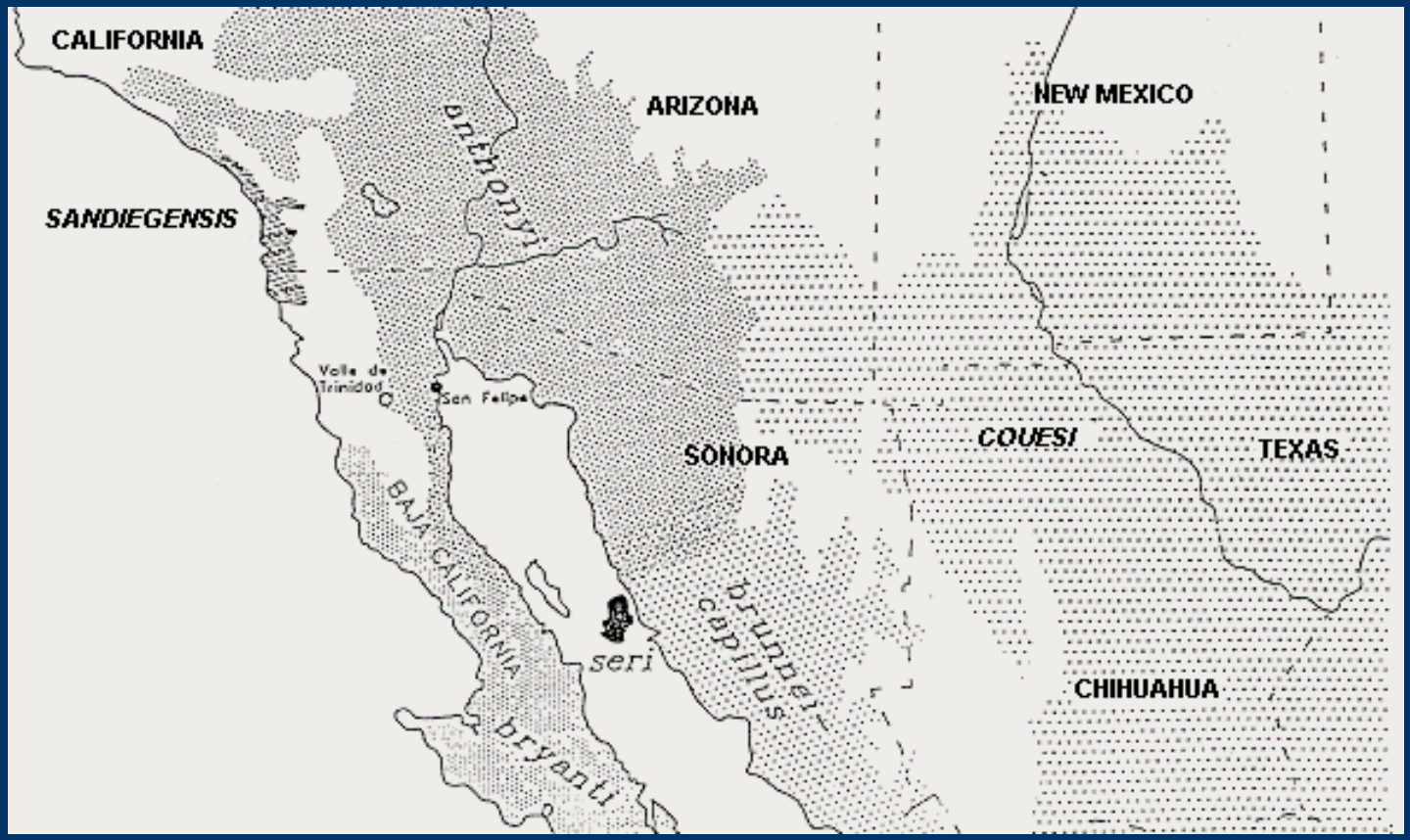
Cactus Wren MCP Home Range Placement and Configuration at Cal Poly Pomona, Apr.-Sept. 2000



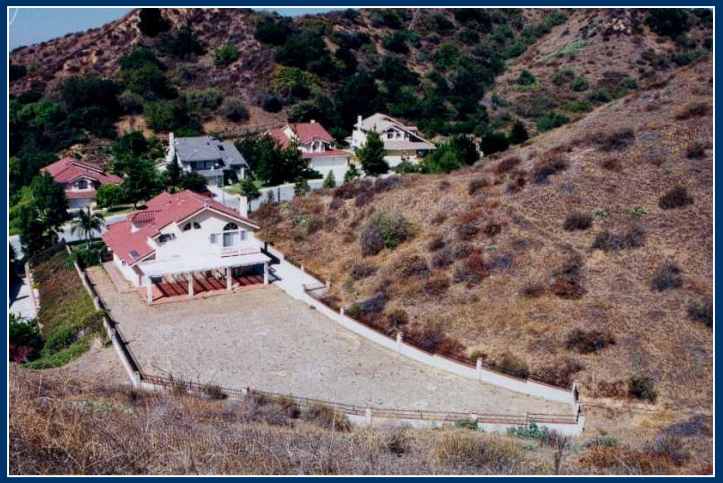
Current Management Status

- California State Species of Special Concern
- Cleveland Nat. Forest Federal Sensitive
- Formerly Federal Category 3b species
- Target species for California's Natural Communities Conservation Program (NCCP)
- Attempted listing of "San Diego" cactus wren in 1991 (Rea and Weaver 1990)

Rea and Weaver's Proposed Subspecies Distribution



Management Issues

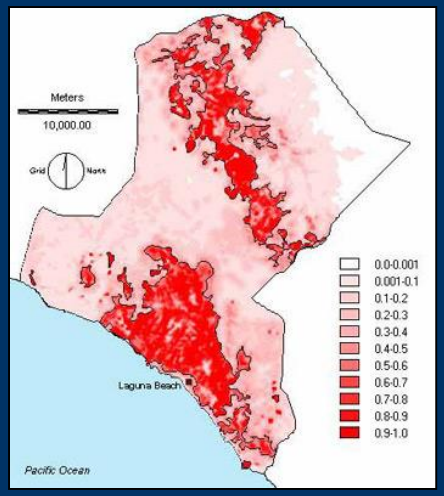


- Loss, degradation, fragmentation of CCS
  - increasing urbanization of southern California
- Small, fragmented populations
- Highly sedentary (males)
- Lack of demographic information on coastal populations
  - juvenile survivorship
  - dispersal

Effects of habitat fragmentation on scrub birds

- Decline of native vegetation cover closer to urban edges
- Microhabitat changes within fragments can especially impact species with strict habitat requirements
- Mesopredator release with increasing fragmentation
  -loss of larger predators

Factors Affecting Colonization/Extinction



- **Extrinsic factors:**
  characteristics of habitat-
  patch size, patch isolation

- **Intrinsic factors:**
  characteristics of species-
  body size, abundance

Further Management Considerations

- Coastal cactus wrens more sensitive to habitat fragmentation than other CSS avian species (Atwood 1998)

- Phylogenetic considerations
  - small, genetically distinct populations (Eggert 1996)
  - morphological vs. genetic subspecies (Zink 2001, 2004)

- Limited dispersal ability, but may be key during certain times of year (e.g post-breeding season)

- Habitat restoration feasibility
  -cactus translocation

Subspecies Debate

- Six morphological subspecies (*bryanti*, *couesi*, *guttatus*, *bruneicapillus*, *affinis*, *purus*)

- Phylogenetic analysis = two genetic groups (Zink 2004)
  - central/southern Baja
  - continental (all other populations)

- Focus on independent evolutionary subunits, not individual subspecies for conservation

Corridor/Reserve Design for Coastal Cactus Wrens

- Unlikely to cross areas of unsuitable habitat (non-CSS)
- *Opuntia* a limiting factor for coastal populations
- Vegetation cover very important
  - majority of time spent on ground
- Corridor size
  - Quality over quantity of habitat

- Individuals can live and nest successfully in close proximity to human activity

Management Actions

1. Identify all localities with breeding populations

2. Increase the number of protected areas of coastal sage scrub habitat with Cactus Wren populations

3. More study of reproductive success, survivorship, and dispersal capacity.

4. Explore the efficacy of habitat restoration and promote sound urban habitat conservation practices

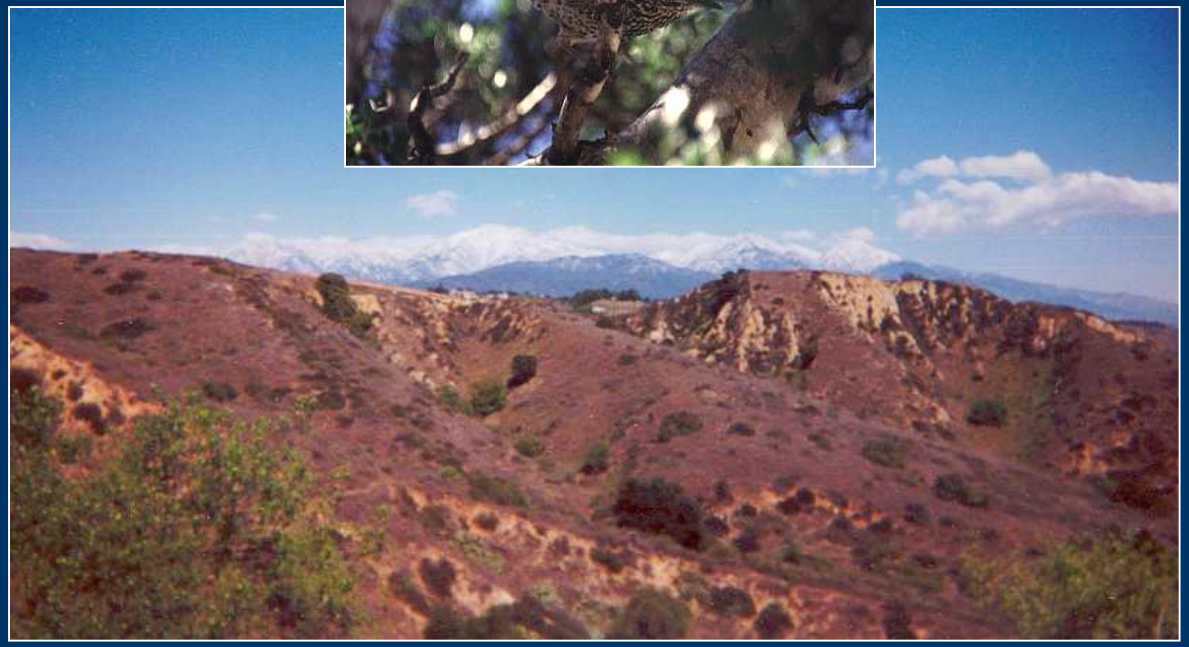
Future Research

• Identification of suitable habitat and habitat linkages
- Geographic Information Systems (GIS)

• Basic demographic studies on a regional scale
- size of subpopulations, dispersal biology

• Comprehensive genetic studies
- subspecies debate
- homozygosity of subpopulations

Thank You



Questions?

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