CONSERVATION MANAGEMENT OF THE COASTAL CACTUS WREN
PRIORITY INFORMATION NEEDS

Goals:

Synthesize available information to assess current status and trends.

Identify information gaps most relevant to informing strategies for effective conservation management

Identify priority monitoring and research questions; secure collaborations and catalyze investigations.

Identify and prioritize options for management.

Focus habitat protection efforts and initiate controlled experimentation in restoration.

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I. CACW DISTRIBUTION

Map past, current, and potential ("restorable") distribution of CACW in Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties based on bird point locations and vegetation community mapping

- Collect and verify historical CACW records with local experts for each county; outline likely historic distribution of cactus wren based on these record;
- Use SCAG/SANDAG landcover data and local experts to identify those cactus wren locations and habitat areas that have been lost from urban development, those that remain in conserved lands, and those that still exist but are not in protected status;
- Use fire history data to identify those locations that have been likely lost to fires within the past 5-10 years;
- Update point location and habitat mapping with contemporary surveys as those information become available (Orange and San Diego County NCCP areas);
- Identify gaps in data for which surveys would be necessary (LA, Ventura, Riv.).

Describe current distribution and, where possible, abundance and local trends of CACW and CACW habitat

- Are populations declining irrespective of burning?
- Is it possible to identify cactus scrub habitat over large spatial scales using remote sensing?
- Conduct "Gap analysis" for CACW habitat.
- Identify remaining potential habitat within historical range.
- Identify important remaining population or habitat areas: potential core areas, potential stepping stones, locations where coastal and desert populations remain proximate to each other, etc.
- Identify populations and habitat areas that face the greatest risk of loss due to fire, development or other anthropogenic causes.

II. CACW DEMOGRAPHICS/GENETICS/HEALTH

Develop spatially-explicit metapopulation viability model, (e.g., to help frame within- vs. among-subpopulation, and local vs. regional demographic questions)

- What are the most critical factors (births, deaths, immigration, emigration) affecting population dynamics?
- Identify priority information/parameter needs to improve future models.
- Develop strategies to improve persistence of subpopulations (e.g. reduce isolation of subpopulations and minimize fragmentation effects).

Frame hypotheses for and initiate long-term demographic research

- Patterns and drivers of spatial and temporal variation in reproduction.
- Patterns and drivers of spatial and temporal variation in survivorship.
- Patterns and drivers of spatial and temporal variation in immigration/emigration.
- Is predation a factor in the loss/decline of some populations?
- Does predation vary between large and small populations?

Describe habitat affiliations of CACW

- What are the variables that influence use of cactus scrub by the cactus wren? Use data to 1) develop predictive model for habitat suitability and 2) inform restoration efforts.

Assess habitat dynamics and threats to key habitat attributes (i.e., cactus), vis a vis invasive species, fire, post-fire recruitment/succession, drought, cactus pests and pathogens, climate change, etc.

Assess prevalence and health/population effect of West Nile Virus

Inventory museum specimens, records, sample archives, etc. (that could be a resource for genetic and other analyses)

Collect and examine genetic data to understand past and present population structure (e.g., degree of isolation)

- What constitutes a barrier to cactus wren dispersal?

III. CONSERVATION MANAGEMENT

Identify and develop strategies to reduce vulnerability of important populations or habitat areas

- Are there measures available to reduce fire risk for remaining populations?
- Can regional fire hazard mapping be used to identify remaining CACW populations that are at high risk of extirpation due to fire?
- Evaluate Gap Analysis results; improve conservation management status where needed.

Develop experimental restoration trials in key areas (to reduce fragmentation effects, to mitigate habitat loss)

- Develop methods to accelerate post-fire cactus scrub restoration at various scales.
    - Does cactus scrub restoration speed habitat recovery in burn areas?
    - Study variation in post fire recovery of *Opuntia littoralis/oricola* vs. *Opuntia prolifera*

    - Does cactus scrub restoration speed recolonization by cactus wrens in burn areas?
    - How quickly do cactus wrens recolonize burn areas without restoration?
- Is it feasible to link isolated subpopulations by creating "stepping stones" of cactus scrub habitat or by incorporating appropriate plants in developed areas to make them more "permeable" to movement?
- Test utility of artificial nest site structures.
- Frame translocation issues:
    - Genetics consideration related to source of translocated birds?
    - Behavioral factors (habitat affinities; relatedness, age and number of conspecifics moved; adjacency of conspecifics) that should be considered as part of a translocation effort
    - Timing/seasonality considerations related to translocation?
    - Potential source populations
    - Habitat/site parameters of acceptor sites for translocated birds?
    - Pre and post-translocation monitoring?