A POPULATION CENSUS OF THE CACTUS WREN IN COASTAL LOS ANGELES COUNTY

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ABSTRACT: The Cactus Wren (*Campylorhynchus brunneicapillus*) is a polytypic species widespread in the southwestern U.S. and northern Mexico. Though closer in plumage characteristics to the desert subspecies *anthonyi*, populations resident in coastal sage scrub and alluvial fan scrub on the coastal slope of Los Angeles County occupy an ecological niche more similar to that of the more southerly subspecies *sandiegensis*. Because of fragmentation of habitat associated with urbanization, the populations on southern California's coastal slope are almost entirely isolated from those of the deserts, and apparently from each other. They are declining precipitously for reasons not entirely understood but certainly related to loss, fragmentation, and degradation of suitable habitat. In 2009, we organized a volunteer effort to map the entire population on the coastal slope of Los Angeles County and found 155 active, accessible territories. With the addition of scattered groups believed to occupy inaccessible areas, our maximum estimate for the county is around 200 pairs, most of them in the eastern San Gabriel Valley. We also document the loss of several historical populations in the area and present a revised distribution map for the Los Angeles area indicating connectivity among extant populations.

The San Diego Cactus Wren (*Campylorhynchos brunneicapillus sandiegensis*) is a California bird species of special concern (Unitt 2008), affording it some measure of protection under the California Environmental Quality Act (CEQA). Coastal populations of the Cactus Wren north of southern Orange County occupy the same types of cactus scrub habitats and may show plumage characters typical of the San Diego Cactus Wren, but the plumage of the population as a whole is closer to that of the desert subspecies *C. b. anthonyi* (Rea and Weaver 1990). Because they are classified as part of a widespread subspecies they possess no special status under the law, and efforts to list the coastal population as endangered at the federal level have been unsuccessful (USFWS 1994). Nevertheless, many land managers and regulatory agencies in the region treat all coastal Cactus Wrens as having special status under CEQA, and the Cactus Wren has been identified as a focal species of large-scale conservation and management plans (e.g., County of Orange and U.S. Fish and Wildlife Service 1996, Dudek and Associates 2003, City of Rancho Palos Verdes 2004, LSA Associates, Inc. 2007). During spring 2009, The Nature Conservancy teamed with Cooper and Hamilton to organize a survey team of more than 20 volunteer birders to develop a baseline estimate of the number and distribution of the Cactus Wren in coastal Los Angeles County. The volunteers mapped and surveyed all potentially suitable cactus scrub accessible to the public on the county's coastal slope, making multiple visits to active territories from March through June 2009. Volunteers were able to survey all of the known populations,

excepting an estimated 30–40 pairs on private lands and within gated communities. Here we present an updated distribution and population estimate, along with a historical overview of the species' range and status in Los Angeles County.

Systematics and Ecology

Across most of its wide range, the Cactus Wren is a quintessential bird of desert scrub. Exceptional are populations of the Pacific coastal slope from southeastern Ventura County, California, south to northwestern Baja California, Mexico, that occupy cactus-containing variants of sage, bluff, and alluvial scrub (Small 1994, Clark and Dodero 2008). Rea (1986) described populations on the coastal slope between southern Orange County and northwestern Baja California as the San Diego Cactus Wren (*C. b. sandiegensis*), while Rea and Weaver (1990) considered the populations farther north on the coastal slope part of the widespread desert subspecies, *anthonyi*. Because of lack of specimens from many areas, the geographic limits of *sandiegensis* remain open to question (Rea and Weaver 1990, Eggert 1996, Atwood and Lerman 2007), and birds from farther north along the coast, including Los Angeles County, could ultimately be considered part of this taxon (see Hamilton et al. 2011). We use the term "coastal Cactus Wren" in reference to the entire population of the coastal slope.

As recently summarized by Hamilton et al. (2011), coastal Cactus Wrens are wholly confined to extensive stands of mature prickly-pear (*Opuntia* spp.) or cholla (*Cylindropuntia* spp.), mainly below 600 m elevation, though records range up to approximately 950 m. The birds are extremely sedentary, highly susceptible to extirpation, and presumably isolated from desert populations, a situation that has been recognized for nearly a century (Dawson 1923, Grinnell and Miller 1944). Unlike in Arizona, where the Cactus Wren is characterized as having an "adaptable nature [that] allows it to nest regularly in residential neighborhoods and parks" (Wise-Gervais 2005), the coastal Cactus Wren is essentially confined to wild lands or to sites bordering large tracts of open space. The species may persist in small habitat patches within suburban development, where high-density residential neighborhoods alternate with "fingers" or islands of open space on steep hillsides, but it is highly prone to extirpation from such areas and unlikely to recolonize them quickly, if ever (Soulé et al. 1988, Crooks et al. 2001).

METHODS

Prior to the start of the survey, we reviewed the literature to establish where Cactus Wrens had been observed or collected on the coastal slope of Los Angeles County, drawing from such sources as the Los Angeles County Breeding Bird Atlas data (K. L. Garrett and L. W. Allen unpubl. data) and records of nests and specimens from several museums and the Western Foundation for Vertebrate Zoology (Table 1). We used Google Earth Pro to search for suitable habitat, identifiable from the distinct signature in aerial photographs of large cactus patches (grass-green, roughly circular areas within coastal scrub and chaparral, typically on south-facing slopes or along

Table 1 Summary of Coastal Cactus Wren Specimens, Nests, and Egg Sets from Los Angeles County.

Region and nearest city/feature	No. nests/egg sets (WFVZ)	No. specimens, nests, and egg sets (institutions other than WFVZ)	Years
San Gabriel Valley/foothills			
Alhambra	4	0	1896–1923
Arcadia	2	12	1900–1918
Azusa	8	5	1906–1940
Bassett	3	0	1936
Claremont	24	23	1894–1921
Monrovia	2	0	1902–1903
Pasadena[a]	3	20	1896–1908
Puente Hills/San Jose Hills	15	2	1887–1977
San Gabriel	0	1	1890
Los Angeles/coast			
Baldwin Hills	3	3	1928–1964
"Los Angeles"	16	0	1880–1904
Palos Verdes	0	1	1996
San Fernando Valley			
Big Tujunga Wash	6	39	1890–1930
Burbank[b]	4	2	1902–1911
North Hollywood[c]	0	8	1913–1917
San Fernando	1	42	1893–1911
"San Fernando Valley"	22	22	1885–1921
Sun Valley[d]	39	0	1895–1914
Van Nuys[e]	1	5	1902–1915
Santa Clara River valley			
Castaic	4	0	1910–1916
Mint Canyon	17	0	1936–1942

[a]Includes "Arroyo Seco."
[b]Includes "Toluca (Lake)."
[c]Includes "Lankershim."
[d]Includes "Roscoe."
[e]Includes "Garnsey."

washes below approximately 950 m). After soliciting volunteers from on-line birding listserves, we selected more than 20 experienced observers to serve as lead volunteers. We sent each lead volunteer aerial images of potentially suitable cactus patches and instructed them to drive around the neighborhoods checking for access points for future surveys.

Survey methods were similar to those developed for Cactus Wren surveys conducted throughout the Nature Reserve of Orange County (Mitrovich and Hamilton 2007). The first step was to map all habitat potentially suitable for the Cactus Wren. This entailed using an aerial photograph to outline all areas of cactus scrub judged capable of supporting nesting Cactus Wrens (i.e., stands with at least some cactus plants ≥1 m tall). We divided large, contiguous areas of cactus scrub—areas capable of supporting more than

one pair of Cactus Wrens—into multiple sites. In such areas, we typically defined survey areas by ridgelines or drainages, with a goal of minimizing the likelihood of Cactus Wrens moving between sites (i.e., maximizing independence of sites).

We then assigned each site to a "cactus scrub type" on the basis of its extent and the quality of its cactus resources:

Type 1: Highest quality. Site includes at least 1.0 contiguous acre (0.4 hectare) with ≥20% estimated cover of mature cactus (generally ≥1 m tall). Site may also include habitat with sparser cactus cover.

Type 2: Site covers ≥1.0 acre. Well-developed cactus patches may be present, but site does not include 1.0 contiguous acre with ≥20% estimated cover of mature cactus (generally ≥1 m tall).

Type 3: Site (a) covers less than 1.0 acre and (b) includes at least one cholla plant ≥1 m tall. Density of cactus within the polygon is irrelevant.

Type 4: Small, isolated stands of mature cactus without cholla. Site (a) covers less than an acre and (b) does not include at least one cholla plant ≥1 m tall. Density of cactus within the polygon is irrelevant.

Surveyors were instructed to first map all Type 1 and Type 2 stands and to search them for Cactus Wrens and their nests; where nests were found, surveyors recorded whether they appeared to be old or fresh. As time permitted, surveyors also mapped Type 3 and Type 4 stands near the higher-quality stands, with the thought that birds could be using suboptimal stands nearby if they were in the vicinity of the larger patches.

After the initial mapping, the observers visited all Type 1 and Type 2 stands three to seven times during March and April, the peak months for territory establishment, to search for wrens and their nests, and to refine the initial mapping of cactus scrub. Sites were dropped from the survey if wrens or their nests were not detected after three visits. This made the best use of volunteers' time and avoided potential population overestimates that could result from double-counting any territories established mid-season by birds dispersing from sites occupied earlier.

As part of a separate study, Hamilton mapped and surveyed public lands on the Palos Verdes Peninsula twice between 5 March and 19 May 2009. These were focused Cactus Wren surveys that employed techniques comparable to those described here but also included broadcast recordings of Cactus Wren vocalizations to elicit responses from birds (as authorized under a memorandum of understanding with the California Department of Fish and Game). The broadcast of vocalizations likely made up for any possible decrease in detections of wrens in this area relative to other sites resulting from the reduced number of surveys. The results we report for the Palos Verdes Peninsula are from these surveys.

In spring 2011, Cooper found a small population of Cactus Wrens on private land in the Industry Hills, an isolated range in the central San Gabriel Valley that was not surveyed during 2009; we incorporate results from this site with those from 2009. Our survey teams were denied access to the Montebello Hills, an oil field on the southern edge of the San Gabriel Valley that has been proposed for residential housing, but we believe that every other substantial population on the coastal slope of Los Angeles County was surveyed.

RESULTS

Current Distribution

Reflecting results of the surveys in 2009 and supplemental observations in 2011, Figure 1 shows the current distribution of the Cactus Wren on the coastal slope of Los Angeles County, as well as locations where the species is now extirpated. We estimate the total population on the coastal slope of

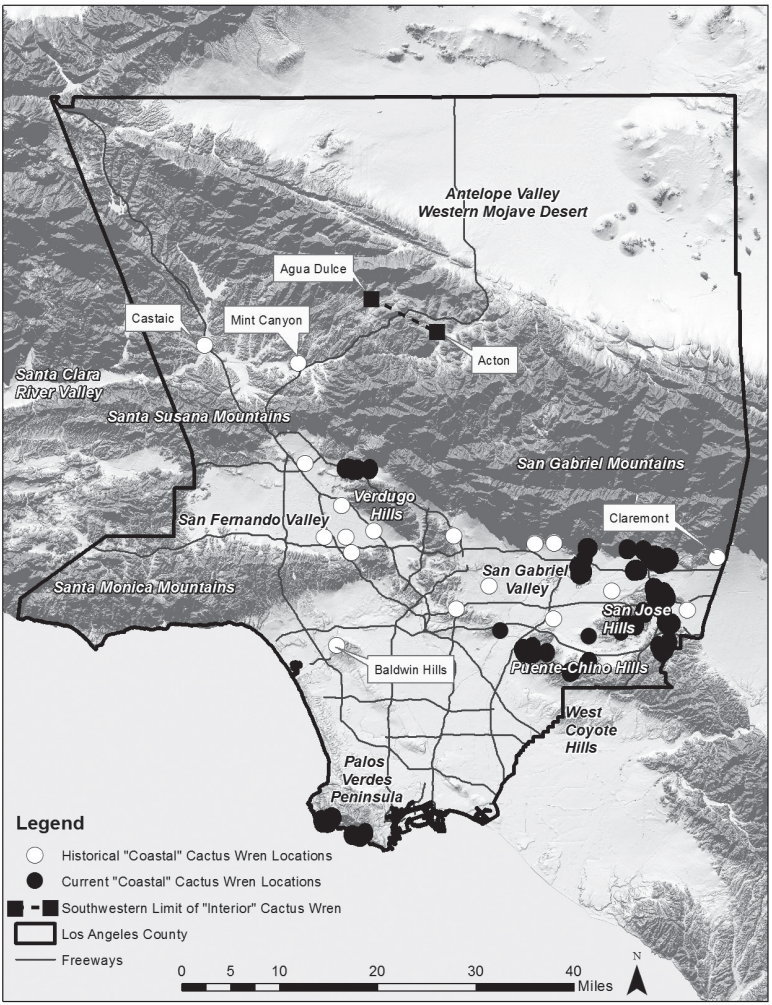

Figure 1. Current and historical distribution of the Cactus Wren on the coastal slope of Los Angeles County. Populations persist in three main areas: the San Gabriel Valley (at right), the Palos Verdes Peninsula (bottom), and Big Tujunga Wash (top).

Los Angeles County is currently 155–193 pairs (Table 2). The great majority of Cactus Wren territories (122–167, or 79–87% of the total) occur in the eastern San Gabriel Valley, in an area extending from the Puente Hills (Whittier/Hacienda Heights to Diamond Bar/Pomona) north through the San Jose Hills (San Dimas and Walnut) and up to the base of the San Gabriel Mountains from Azusa east through Glendora to San Dimas (including South Hills Park in Glendora and Santa Fe Dam in Irwindale). In our 2009 survey, all but two territories in the San Gabriel Valley were found east of the San Gabriel River. On the basis of our review of a biological report available to the public (Natural Resource Consultants 2009) and observations made from adjacent public lands, few territories appear to remain in the Montebello Hills. That population, together with any additional territories that may exist in other inaccessible areas (especially in the Glendora–San Dimas foothills), accounts for up to 37 pairs that could not be confirmed during our 2009 census.

Approximately 28 pairs (14–15% of the total) were mapped on the Palos Verdes Peninsula in 2009. The birds occurred in groups of up to five pairs each, clustered on the southwestern edge of the peninsula. While follow-up surveys of the same areas by Cooper in subsequent years yielded similar results, several additonal pairs, not included in the 2009 estimate, were discovered at a new preserve here in 2012. Nearly all cactus scrub on the

Table 2 Summary of Cactus Wren Territories, Confirmed and Estimated, on the Coastal Slope of Los Angeles County, 2009–2011.

		Occupied territories (2009 survey)		
Region and subregion	Nearest cities	Documented	Estimated (additional)	Total
San Gabriel Valley/foothills				
Montebello Hills	Montebello	0	2	2
Puente Hills, West	Whittier, La Habra Heights	23	4	27
Puente Hills, East	Diamond Bar, Pomona	38	0	38
San Gabriel foothills, incl. South Hills Park	Glendora, San Dimas, Azusa	24	19	43
San Jose Hills, Industry Hills	San Dimas, Walnut, Cal Poly Pomona	27	12[a]	39
Santa Fe Dam	Irwindale	10	0	10
Los Angeles/coast				
Palos Verdes	Rancho Palos Verdes, Rolling Hills	28	0	28
San Fernando Valley				
Big Tujunga Wash	Los Angeles (Tujunga)	5	1	6
Santa Clara River valley	Santa Clarita	0	0	0
Total		155	38	193

[a]Includes four pairs estimated for Industry Hills, discovered in 2011.

peninsula has been set aside as protected open space, managed by the Palos Verdes Peninsula Land Conservancy.

Six territories (3–4% of the total) were along Big Tujunga Wash, in the northeastern San Fernando Valley, all but one located along a 2-km stretch of wash east of the Hansen Dam Recreation Area (Department of Recreation and Parks, city of Los Angeles), west of Interstate 210. Because of the relatively limited extent of cactus habitat and the large amount of time our volunteers devoted to repeatedly hiking and inspecting all areas of potential cactus habitat along the wash, we are also confident of this estimate.

Adjacent to but outside Los Angeles County (and therefore not included in this analysis), our volunteers also mapped 12 territories in the west Coyote Hills in Fullerton, Orange County (within Ward Nature Park). We estimate that the entire Coyote Hills support approximately 26 territories, roughly half of which are located in an active oil field closed to the public.

Habitats Used

We found Cactus Wrens primarily in three distinct habitat types on the coastal slope of Los Angeles County. Most pairs occupied very large patches of cactus scrub on low hills surrounding the inland valleys, often on marine deposits on southern or western exposures. In these areas, the main cactus species were native prickly-pears (*Opuntia littoralis*, *O. oricola*), sometimes hybridized with non-native mission cactus (*O. ficus-indica*). Important co-dominants included California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), laurel sumac (*Malosma laurina*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*).

On the Palos Verdes Peninsula, most Cactus Wrens used a form of coastal bluff scrub dominated by prickly-pear and/or coastal cholla (*Cylindropuntia prolifera*); frequent co-dominants included California sagebrush, California encelia (*Encelia californica*), ashy-leaf buckwheat (*Eriogonum cinereum*), and lemonade berry (*Rhus integrifolia*).

Finally, limited numbers of wrens were found in alluvial scrub with cane cholla (*Cylindropuntia californica* var. *parkeri*; formerly *Opuntia parryi*) and various sandy-wash plants such as yerba santa (*Eriodictyon* spp.). Stands of alluvial fan scrub are now essentially limited to Big Tujunga Wash upstream of Hansen Dam and the San Gabriel River wash (mainly upstream of Santa Fe Dam), but this community formerly occurred along the Santa Clara River and its tributaries and was also likely more widespread in the San Gabriel Valley. Early records of the Cactus Wren from San Gabriel and the Arroyo Seco (Pasadena) probably refer to birds in alluvial scrub habitat that is now lost (though occasional reports of single birds continue from the Arroyo Seco near Devil's Gate dam; see www.ebird.org).

Historical Distribution

During the late 1800s and early 1900s, Cactus Wrens were collected at several locations on the coastal slope of Los Angeles County subsequently lost to development or habitat conversion (loss of cactus scrub, typically through repeated wildfire). Grinnell (1898) considered the Cactus Wren a

"common resident locally on cactus covered washes in the mesa regions" of Los Angeles County ("mesa" here refers to the gently sloping lands at the base of the San Gabriel Mountains). By the middle of the 20th century, populations were known from scattered locales in the San Fernando and San Gabriel valleys (Willett 1933, Grinnell and Miller 1944). Specimens and egg sets, the latter in the Western Foundation of Vertebrate Zoology (WFVZ), indicate that the historical range probably included most of the eastern San Fernando Valley (specimens from Burbank, San Fernando, Toluca Lake, etc.), the western San Gabriel Valley (San Gabriel, Pasadena, Arcadia, and Monrovia), and the Santa Clara River at Castaic and Mint Canyon (habitat now essentially eliminated) (Table 1). A population that persisted in the Baldwin Hills near Culver City until the mid-1990s (Molina 2001) appears to be extirpated. Oddly, the Palos Verdes peninsula was not listed as a location for the species by early (pre-1950) authors and collectors, although Bradley (1980) considered the species "fairly common" there; most likely, the birds were simply overlooked by early collectors, as territories were in areas that would have been remote and very difficult to reach in the early 1900s prior to road-building at mid-century.

DISCUSSION

Population Connectivity

Prior to the 2009 census, the Cactus Wren's range in Los Angeles County was poorly represented in published literature, with coastal populations alternately depicted as contiguous from Ventura County east through the Santa Monica Mountains in the Los Angeles Basin (Garrett and Dunn 1981) or extending from Ventura County north and east through the San Gabriel Mountains into the western Mojave Desert via Cajon Pass (Solek and Szijj 2004), neither of which appears to have been the case either historically or in recent years. In fact, all populations in Los Angeles County are isolated from those in eastern Ventura County to the west (the northernmost extent of the species along the coast), though the Ventura County population previously extended northeast into northwestern Los Angeles County (to Mint Canyon) via the Santa Clara River valley. Today, birds in Ventura County appear to be restricted to a narrow band of cactus scrub from near Point Mugu on the coast northeast to Moorpark (Cooper and L. S. Hall, unpubl. data).

In Los Angeles County, "interior" Cactus Wrens reach the western edge of the Mojave Desert near Acton in upper Soledad Canyon and Agua Dulce on the north slope of the San Gabriel Mountains, where they occur in Joshua Tree woodland and desert scrub, as cactus is scarce (during the mid-2000s one or two pairs were resident briefly in planted Joshua Trees [*Yucca brevifolia*] and prickly-pear near Davenport Road northeast of Santa Clarita, *fide* J. Moore) (see Figure 1). At higher elevations between the coastal and the desert slopes of the San Gabriel Mountains, these thorny habitats were originally replaced by dense mixed chaparral that is now widely converted to annual non-native grassland. These habitats, unsuitable for the Cactus Wren, represent an effective barrier at least 20 km wide between the interior and coastal-slope populations.

On the coastal slope of Los Angeles County, Cactus Wrens have always occupied more or less isolated patches of mature, cactus-rich scrub at low elevation. Historically, populations were separated from each other by expanses of chaparral, grassland, and other natural habitats that lack cactus. In recent decades, extensive clearing for agriculture followed by intensive urban sprawl have exacerbated this natural tendency toward isolation of coastal Cactus Wren populations. The imposing, east/west-trending San Gabriel Mountains clearly represent a major barrier to the birds' dispersal between the desert and coastal-slope populations. To the west, the Santa Susana Mountains appear to effectively block the movement of wrens between the alluvial scrub of the eastern San Fernando Valley and similar habitat in the Santa Clara River valley. Their minimum elevation in this area, approximately 524 m at Newhall Pass, is toward the upper end of the coastal Cactus Wren's typical elevational range, and the Santa Susanas generally lack the tall cactus or other large, spiny vegetation that characterize Cactus Wren habitat.

Cactus Wrens of the San Fernando Valley (including Big Tujunga Wash) have been similarly isolated from those of the San Gabriel Valley to the east by the chaparral-cloaked Verdugo Mountains, Santa Monica Mountains (including Griffith Park), and San Rafael Hills. The savanna of valley oak (*Quercus lobata*) that formerly covered the western San Fernando Valley would not have supported Cactus Wrens, and expanses of dense chaparral and coast live oak (*Q. agrifolia*) woodland in the Santa Monica Mountains and Simi Hills would have inhibited interchange with populations along the coast in Ventura County. Cactus Wrens probably did not occur widely on the coastal plain toward Santa Monica Bay, which supported mainly coastal prairie and riparian scrub, but the birds did find areas of suitable habitat wherever low, rocky hills emerged, including in the Baldwin Hills (now extirpated) and on the Palos Verdes Peninsula.

Populations in the San Gabriel Valley were likely contiguous with those to the south in Orange County, via the Puente–Chino Hills (see Cooper 2000), and with those in in San Bernardino and western Riverside counties, via alluvial washes at the base of the San Gabriel and San Bernardino mountains, such as San Antonio Creek in Claremont (which supported Cactus Wrens until a major fire in 2003, *fide* D. A. Guthrie), east to Lytle Creek and the Santa Ana River wash, where they persist today (*fide* M. R. Aimar). The status of birds east of the upper Santa Ana River toward San Gorgonio Pass has been poorly documented and deserves attention, to evaluate whether this area might continue to facilitate exchange between interior and coastal-slope populations.

As for the idea that birds on the coastal slope of Los Angeles County necessarily originated in the desert (as is implied by their being classified as part of the interior subspecies *anthonyi*), it seems equally likely that birds moved north along the coast from San Diego County/Baja California or that both sources are represented. This latter scenario would explain the intermediate appearance of birds of at least some coastal-slope populations. For example, many birds on the Palos Verdes Peninsula show extensive white barring in the tail, consistent with *C. b. sandiegensis*, but otherwise resemble *C. b. anthonyi* (see Hamilton et al. 2011). Scattered reports of Cactus Wrens on the coastal

slope far from known populations lend credence to coastal dispersal. These include one along the Santa Ana River in Anaheim, 11–15 August 1992 (Hamilton and Willick 1996), one at Terminal Island in San Pedro, 7 May 2007 (*N. Am. Birds* 61:513), and a description of the species and photograph of a nest near Millard Canyon, Pasadena (sent to Cooper in August 2009).

Conservation Challenges

Coastal populations of the Cactus Wren in Los Angeles County and elsewhere in the region have been in decline for at least the past 100 years. Willett (1912) remarked on the wren's apparent disappearance from a site near Santa Paula (along the Santa Clara River valley, where now apparently extirpated, *fide* P. E. Lehman) during the early 20th century, and two decades later he (1933) characterized the species as having become "much less plentiful" in Ventura County because of large-scale clearing for agriculture. Dawson (1923) memorably expressed concern for the wren's future in an increasingly urbanizing landscape, observing, "The Cactus Wren has receded from many parts of the San Diego–Ventura section already, and is in danger of being altogether cut off."

Of the three remaining populations in Los Angeles County, the San Fernando Valley population may have experienced the greatest reduction in extent. It is particularly threatened, having been reduced from a large area of the eastern valley to just a handful of birds along a limited stretch of poorly protected alluvial fan scrub on property in Tujunga Wash managed by multiple agencies with limited presence on the ground. Approximately 40% of this area's alluvial scrub habitat was converted to a golf course in the early 2000s, and today the area is frequented by homeless people who light fires and smoke at makeshift campgrounds, often within wren territories (Cooper pers. obs.). It may be only a matter of time before this highly isolated population (see Table 1) blinks out, as did that of the Baldwin Hills in the 1990s.

Intensive surveys on the Palos Verdes Peninsula from 1993 to 1996 yielded annual counts in the range of 50–63 breeding pairs of Cactus Wrens (Atwood et al. 1996); thus the current estimate of 28 pairs represents a halving of this isolated population during the past 15 years or so. Additional years of surveys are needed to confirm this decline, which has taken place despite the population occurring almost entirely on lands protected and managed on behalf of the Cactus Wren and other native scrub species. It is conceivable that this population may continue to decline, contract, and perhaps even quietly vanish. Similarly, the San Gabriel Valley population, which currently extends along the base of the foothills of the San Gabriel Mountains from Azusa east to La Verne, once extended west to Pasadena and east to Claremont and has therefore contracted in area by about half.

Many pairs of Cactus Wrens occupy lands slated for potential residential development, such as in the Montebello Hills, and private property within residential neighborhoods, especially in the northeastern San Gabriel Valley. Additional pairs occur within zones subjected to aggressive brush-clearing for fire control. Indeed, during our 2009 study, observers noted various factors such as a recent fire that killed cactus plants outright, clearing for brush control (by machine, hand, and goats), and invasion of cactus patches by both non-native and native plants.

It seems likely that continued misunderstanding over the distribution and systematics of Cactus Wrens on the coastal slope of Los Angeles County, at least some of which exhibit a mix of both coastal and desert plumage characters, contributed to a perception that these populations are secure (like those of the abundant and widespread subspecies *anthonyi*) or that their numbers would continually be "replenished" by birds from the desert. In turn, coastal Cactus Wrens have received less attention and less protection than has the California Gnatcatcher (*Polioptila californica californica*), a listed taxon that is much more plentiful than the wren on the coastal slope of southern California and less threatened by wildfires. As Rea and Weaver (1990) observed more than two decades ago, by the time the coastal Cactus Wren's plight in the region is widely acknowledged, it may be too late to effectively conserve its remaining populations.

Fortunately, Cactus Wren populations are persisting within several large protected areas on the coastal slope of Los Angeles County, including lands managed by the Puente Hills Habitat Conservation and Preservation Authority in the western Puente Hills, Frank G. Bonelli Regional Park in San Dimas (County of Los Angeles Department of Parks and Recreation), the Santa Fe Dam Recreation Area in Irwindale (County of Los Angeles Department of Parks and Recreation), and in South Hills Park in Glendora (city of Glendora). Recent experience on the Palos Verdes Peninsula and at other large open-space reserves elsewhere in the region, however, is that the setting aside of even extensive tracts of cactus scrub may be inadequate to conserve populations of coastal Cactus Wrens over the long term, largely because of the potential for wildfires to destroy extensive stands of cactus, the very slow regrowth of those stands, and the wren's limited capacity to recolonize isolated cactus stands (see Hamilton et al. 2011).

Other possible problems, which may be related to fire damage, include dense growth of non-native grasses and weeds in the understory of cactus scrub (which appears to interefere with the wrens' ability to forage effectively on the ground) and a recent dramatic increase in the regional breeding population of Cooper's Hawk (*Accipiter cooperii*), a potential wren predator regularly observed hunting near cactus scrub. Research into some of these issues is continuing, as is a study of the genetics and systematics of the Cactus Wren across the coastal slope of southern California, and population census/mapping efforts are taking place throughout the region. The 2009 census of wren territories across Los Angeles County establishes a current baseline by which future population changes may be measured and exemplifies the important contributions that volunteers can make toward these urgent and ambitious campaigns to save the Cactus Wren in this region.

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