

City of Carlsbad 2010 Coastal California Gnatcatcher Survey Results
December 22, 2010

Introduction

The City Carlsbad's Habitat Management Program (HMP) and resulting preserve system was designed to protect sensitive habitat and plant and animal species. One of the HMP requirements is to regularly assess the status of "covered" species to determine if the populations are stable, increasing, or decreasing. The Coastal California gnatcatcher (CAGN, *Polioptila californica californica*) is one of the high priority HMP covered species which the City is required to monitor and manage pursuant to the conditions of coverage for the HCP/NCCP incidental take permits.

There has never been a total count in one breeding season of the number of pairs and individuals of this species across the entire City. Some groups, like CNLM, have been conducting regular surveys (i.e. almost every year since a preserve's inception), but these surveys have occurred on only a fraction of the overall suitable CAGN habitat in Carlsbad. In order to better understand and manage this species, the City and its land management partners (CDFG, CNLM, SDHC) developed a summary of the conservation and monitoring goals of the HMP and MHCP, reviewed historical and recently collected data, identified survey area gaps, and revised the monitoring goals and questions for the CAGN in the HMP. After identifying priority survey areas, the City and its management partners developed a 2010 breeding season survey protocol and coordinated surveys across much of the suitable CAGN habitat within the City. The primary objective for this effort was to determine the abundance, status (i.e. pair or single male) and distribution of CAGN across the City. This document summarizes the results of the 2010 surveys.

Monitoring Objective

Objective 1: Determine current distribution, status and abundance of CAGN in the City of Carlsbad.

Methods

The City and its management partners (survey team) met prior to the CAGN breeding season to develop a survey protocol (CNLM/TAIC, 2010). All partners agreed that two to three visits per survey area (usually less than 100 acres per day) was sufficient to determine the presence or absence of the species. However, due to budget constraints, some areas could only be visited once. Approximately 25% of the areas surveyed received 3 survey visits, 60% 2 survey visits and 15% 1 visit. Those areas that received one visit were generally areas in which CAGN were observed during the first visit and patch/area size was small (making it unlikely that additional individuals were missed); and thus, it was felt that time and money was better spent surveying additional areas or areas that needed a second or third visit. Surveys were coordinated amongst the survey team in areas adjacent to one another to avoid double counting.

At the onset, the goal of the survey team was to conduct the majority of surveys during the month of March and early April, when CAGN breeding behavior (e.g., vocalization, pairing, etc.) is generally the most conspicuous, resulting in easier detection. Although most surveys were conducted during this period, about 20% were conducted between mid April and late May. However, of those latter surveys, most of the first visits to an area were in the March to mid April timeframe. Most surveys per area were separated by 7 to 14 days.

Surveyors either took GPS coordinates in the field during surveys, or hand mapped birds on aerial photographs and later entered the information into GIS. The 2010 CAGN GIS file includes the name of the survey group (i.e. CNLM, CDFG, TAIC, etc), the survey year, the common and scientific name and status (pair, single male or other). Other GIS information used in this analysis includes Unit and Vegetation Patch size. "Unit" is defined as the total area of a contiguous piece of dedicated natural open space including all vegetation types (excluding open water and urban) and "Vegetation Patch" is defined as an area of suitable CAGN habitat (mostly CSS, but includes other vegetation types in which CAGN were observed).

Areas that were not surveyed were generally areas that lacked a management entity (see Table 1), or where the terrain was too steep. However, several areas that lack a management entity were surveyed and include Aviara, Evans Point (just east of Kelly Ranch), and Emerald Point (just east and south of the North County Habitat Bank. CNLM did not survey the steep areas of Box Canyon and CDFG did not survey the steep northern slope of Calavera Mountain (which is also not very suitable for CAGN as it is dominated by lemonade berry (*Rhus integrifolia*)).

Survey Results

85 pair and 42 male CAGN (Figure 1 and Table 1 attached to end of document) were observed for a total of 127 territories. "Male" observations do not imply that they are single males. Many of these males are likely paired, as sex ratios of this magnitude in CAGN and many passerine bird species is uncommon (sex ratio's are usually closer to 50:50, or a few % higher for males). Many of these "male" observations were made in areas in which only one survey visit was performed or in which the visit was made later in the breeding season when females are more difficult to detect. In areas such as the Crossings Golf Course and other City-owned properties, where 3 visits were performed, "male" observations were few and most CAGN were paired in these areas. A total of about 1,500 acres of suitable CAGN habitat was surveyed.

CAGN were observed throughout the City in almost all areas that were surveyed (see Figure 1). In addition, CAGN were observed in most unit areas and vegetation patch sizes (Figures 1-5). There seems to be no correlation between occupancy and unit area or vegetation patch size. Although there seems to be a correlation between the number of occupied patches to patch size (i.e. decrease in the number of occupied patches to patch size), this is merely a result of there being more small patches than large ones in Carlsbad (Figure 5). Units that were unoccupied tended to be extremely small (less than 1.0 acres) and/or lacked suitable habitat.

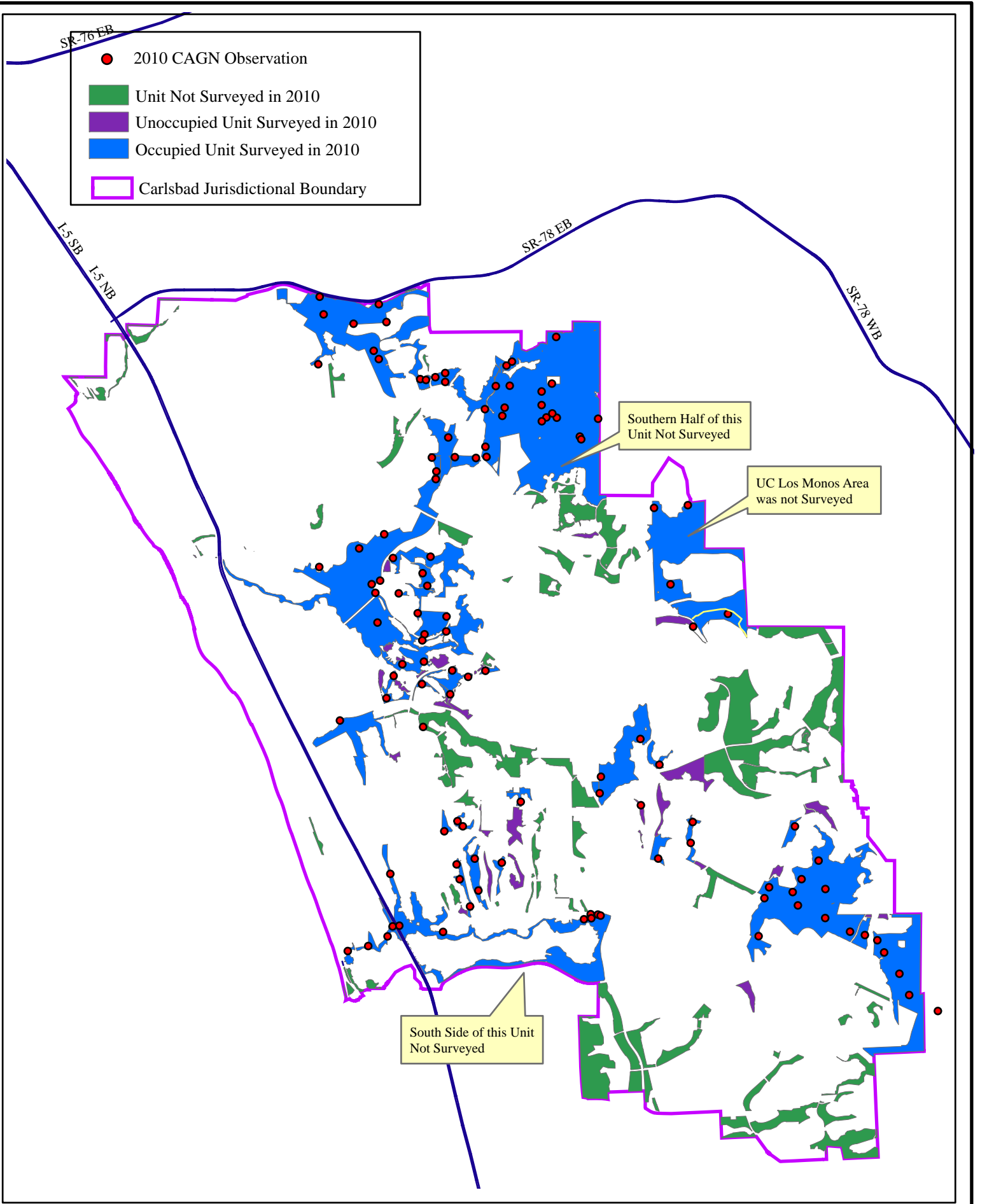


Figure 1
 2010 CAGN Observations
 Carlsbad, California

2,100 1,050 0 2,100 Feet



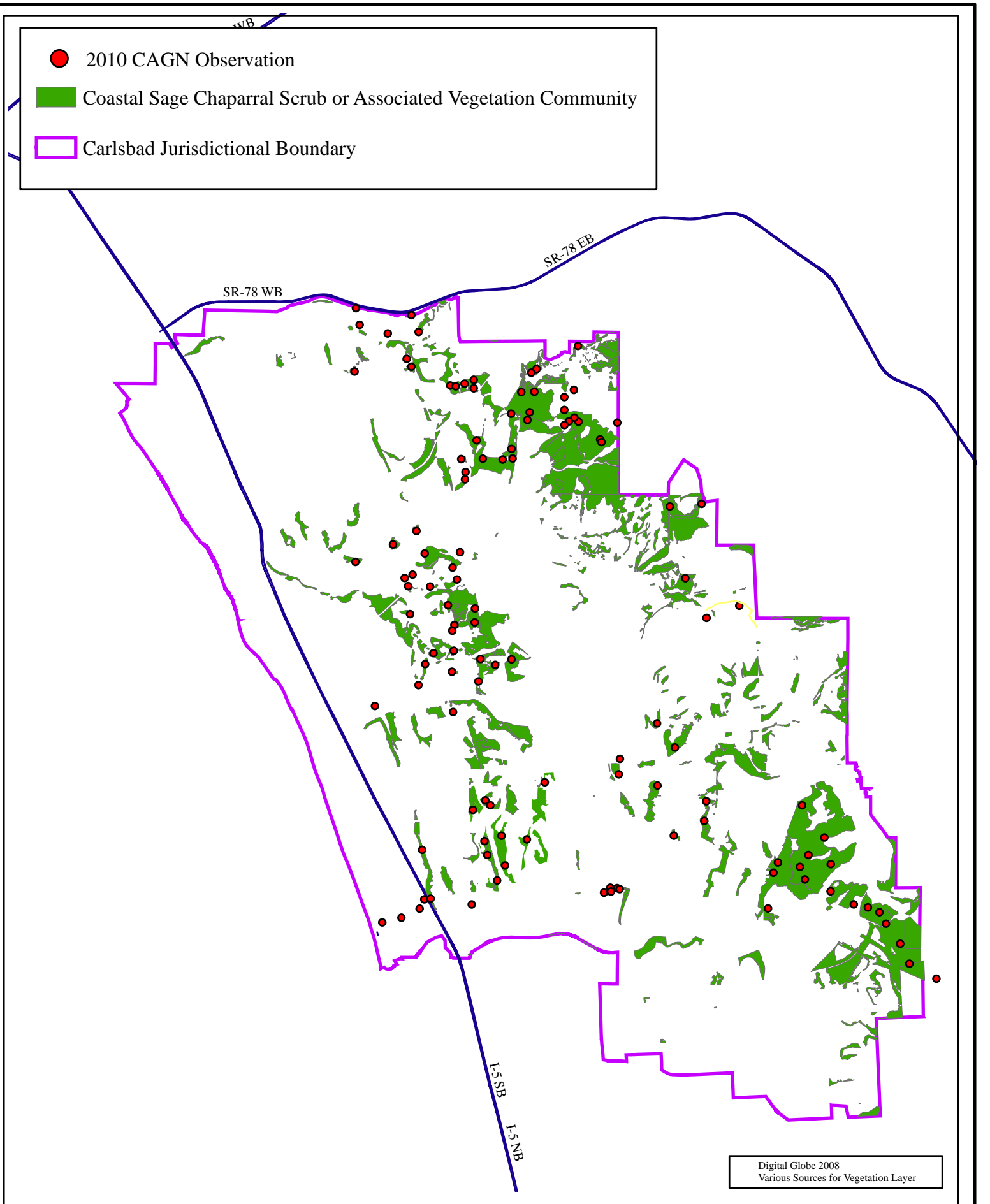


Figure 2
 2010 CAGN Observations by Vegetation Patch Size
 Carlsbad, California

2,300 1,150 0 2,300 Feet



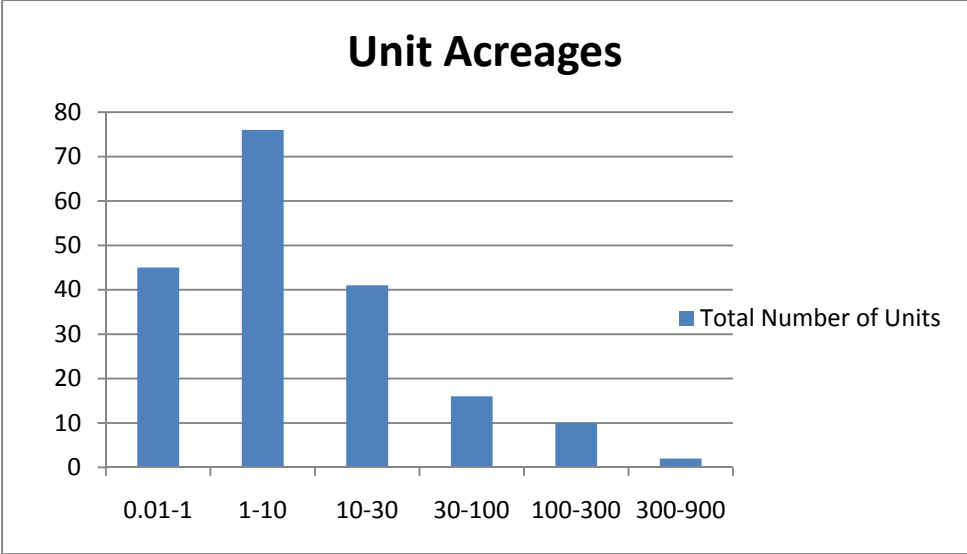


Figure 3. Number of Unit Size Classes (in Acres) in Carlsbad
(X axis=acreage size class; Y axis=number of Units)

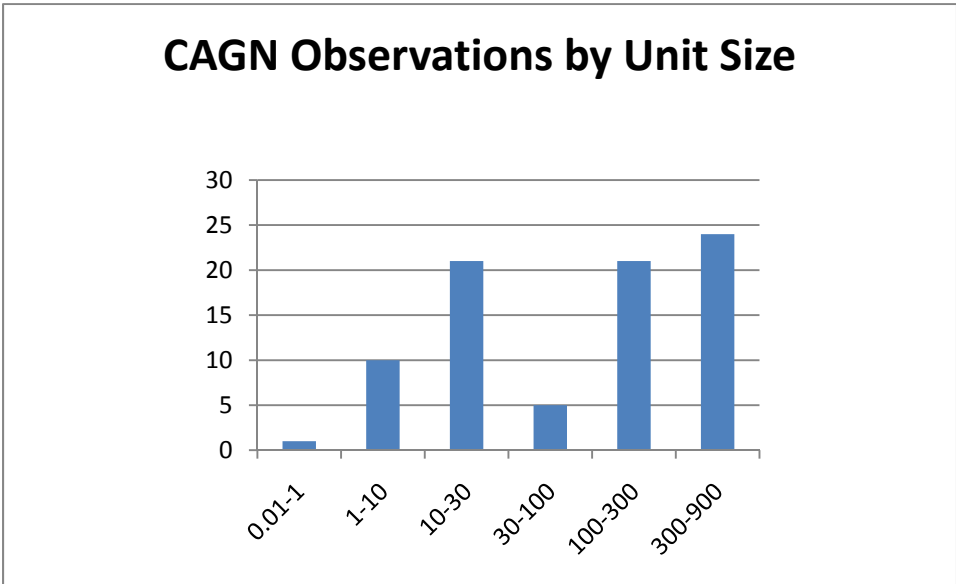


Figure 4. Number of CAGN Observations by Unit Size Class
(Y axis=number of CAGN observations; X axis=acreage size class of Unit)

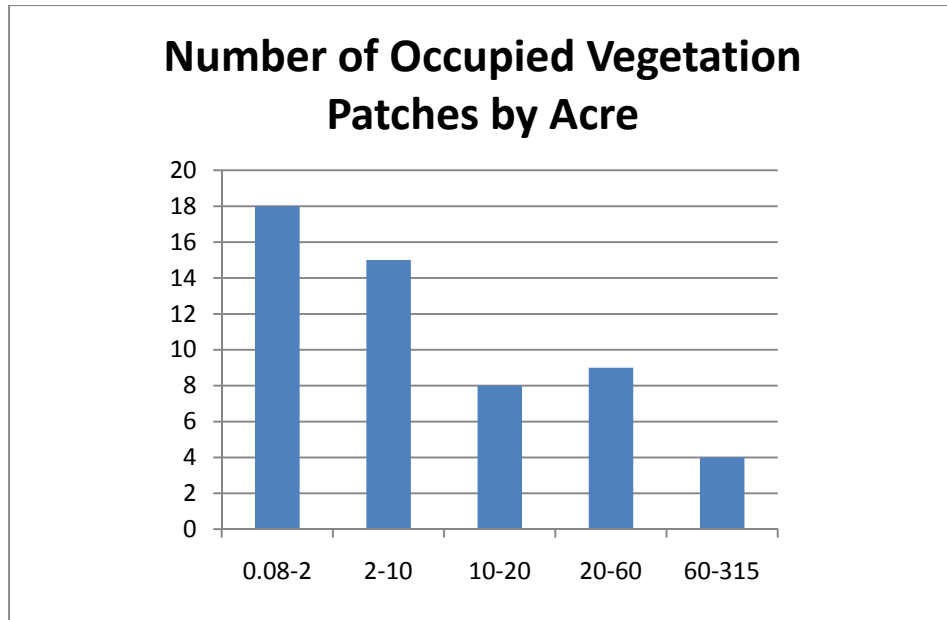


Figure 5. CAGN Occupation by Vegetation Patch Size Class
(Y axis=number of patches occupied by CAGN; X axis= acreage size class of vegetation patch)

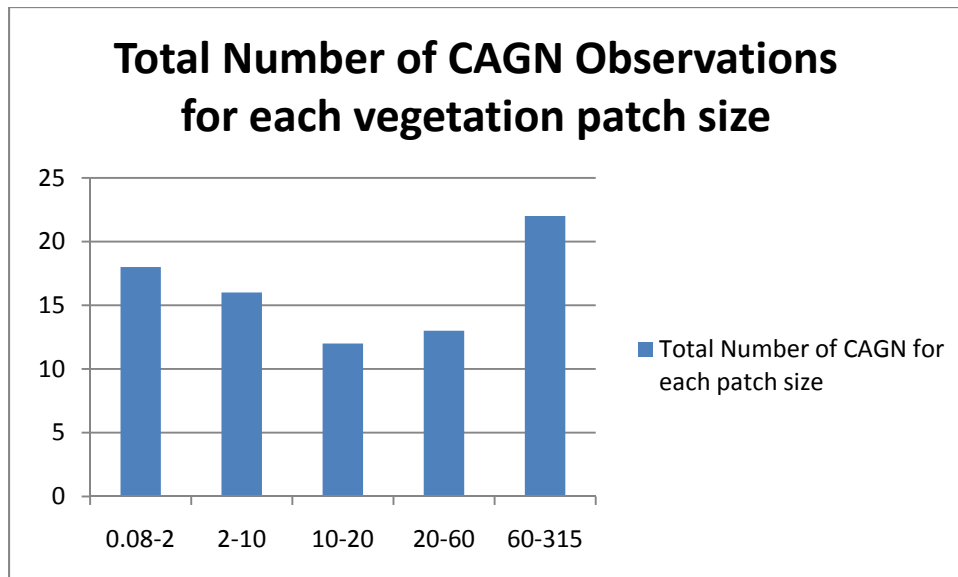


Figure 6. Total CAGN Observations by Vegetation Patch Size Class
(Y axis=total number of CAGN observed; X axis=vegetation patch size).

Discussion

The 2010 survey season results provide a useful snapshot of CAGN abundance, status and distribution in Carlsbad. CAGN are observed across the jurisdiction and in all unit and vegetation patch sizes. Therefore, continued management of all unit and vegetation patch sizes is considered important for the preservation of this species. Small habitat patches will continue to play an important role in Carlsbad, especially during a catastrophic event, such as fire that burns some of the larger patches of coastal sage scrub (e.g., in La Costa Villages and Calavera), by serving as refugia. These small patches could be a source of CAGN recolonization after such an event occurs. In addition, the smaller patches are likely to be important “stepping stones” for CAGN movement throughout the City.

In the future, surveyors should consider three visits to each survey area so that more effort can be given to determine pair status during survey visits. This would improve our knowledge of the number of pairs in Carlsbad, rather than assuming that most single males are single and not paired.

It may not be necessary to add additional areas that were not surveyed in 2010. The two largest areas that were not surveyed are Bressi Ranch/Carrillo Ranch and the southern areas of Carlsbad. Both of these areas should be first surveyed for the total acreage of suitable CAGN habitat, as much of these areas are likely to be unsuitable. Other smaller patches (<10 acres) that were not surveyed could be surveyed if they have the potential to act as movement corridors (i.e., a stepping stone corridor).

Future investigations should include:

- a. Ground-truthing and revising the GIS vegetation communities’ layer to determine suitable habitat for the CAGN.
- b. Conducting nest monitoring to determine breeding success in various unit and vegetation patch sizes (e.g., are small patches acting as a population sink?).
- c. Collecting genetic information from individual to determine the effectiveness of CAGN corridors/movement areas.
- d. Developing a standard field/data collection form and GIS file format for data submission in the next survey year, which is scheduled for 2013.

References

CNLM/TAIC 2010. California Gnatcatcher Monitoring Program for the City of Carlsbad.

Preserve or Area Name	Manager	Acres of CSS*	Most recent survey	# of pairs and single males observed 1 st visit	# of pairs and single males observed 2nd visit	# of pairs and single males observed 3rd visit	Notes (Please note the total CSS NOT surveyed)
Buena Vista Creek Ecological Reserve	CNLM-CDFG	12	2010	0	0		Three pair heard on adjacent land, one of these pair observed anecdotally on Reserve in June. 2 SM heard anecdotally
Calavera Hills Phase I (Calavera Mtn)	CDFG		3-3-10, 3-11-10, 4-8-10	3 SM and 2 pairs	2 SM and 3 pairs	1 SM and 5 pairs	Conclusion: 2 SM and 4 pairs (Additional pair observed on 3 rd visit were also observed by CNLM on Cal Hills P2, and reported there)
Calavera Hills Phase II Habitat Conserv. Area (aka Calavera West of Calavera Heights)	CNLM	Total: 110acres Village K Village H Village U/W Village X	2010 5/14/10 5/12/10 4/6/10 5/4/10	4 pairs 1 SM 1 pair 1 SM 1 pair 0	3 pairs A pair and one SM 1 pair 1 male	2 pairs N/A N/A 0	Totals 6 pair (of which, one family group), 2SM
Cantarini/Holly Springs							Not Surveyed
Cassia-Professional Offices	CNLM	No CSS	2010	0	0		No CAGN located.
Carlsbad Highlands ER	CDFG		3-3-10, 3-11-10	5 SM and 1 pair	2 SM and 2 pairs		Conclusion: 6 SM and 2 pairs and one unknown
Carlsbad Oaks North	CNLM	73	4/16/10	2 pair, 1 SM	1 pair, 1 SM	0	total 3 pair
Carlsbad Village	City-CNLM	Approx 10 acres	2010	0	1 pair	0	Conclusion: 1 pair
Carrillo Ranch	City-CNLM	none	2010				Not Surveyed
Dawson-Los Monos Reserve	UC						Not Surveyed
Emerald Pointe Estates	SDHC	10	2010	1 pair			1 pair, anecdotal observation
Encinas Creek (Biltmore)							Not Surveyed
Encinitas Wetlands	CNLM	0	2010				Not Surveyed
Kelly Ranch HCA	CNLM	49	4/15/10	3 pair 4 SM	2 pair, 3 SM	1 pair	Total 5 pairs, 3 SM,

Preserve or Area Name	Manager	Acres of CSS*	Most recent survey	# of pairs and single males observed 1 st visit	# of pairs and single males observed 2 nd visit	# of pairs and single males observed 3 rd visit	Notes (Please note the total CSS NOT surveyed)
La Costa Canyon Park	City-CNLM	Unknown, but CSS does occur	2010	0	0	0	Not Surveyed
La Costa /Romeria	City-CNLM	Approx 10 acres		0	0	0	Not Surveyed
La Costa Villages: Cassia Choumas-P-County Greens Ridgeline-West Ridgeline-East Denk Mountain Nelson-County	CNLM	650	2010	0 6 pair, 1 SM 6 pair, 2 SM 4 pair, 3 SM 1 pair, 1 SM 3 pair, 1 SM 0	0 7 pair, 2 SM 6 pair, 2 SM 5 pair, 4 SM 2 pair, 1 SM 3 pair 0		Conclusion: 27 pair and 6 SM Lower Box Canyon not surveyed (~50 acres not surveyed).
Lagoon Lane	City-CNLM	None or marginal	2010				Not Surveyed
Lake Calavera Mitigation Parcel	City-CNLM	70	2010	2 pair	2 pair	2 pair & 1 single male	Conclusion 2 pair and 1 SM
Los Monos	City-CNLM	10	2010	2 males	0	0	Conclusion: 2 males use property
Macario Canyon	City-CNLM	Approximately 15	2010	2 pair	2 pair	2 pair	Conclusion: 2 pair
Moonstone (aka. La Costa Village Center Townhomes; Levatino)							Not Surveyed
Municipal Golf Course	City-CNLM/Du dek	Approx 120 acres	2010	13 pair			Conclusion: 13 pair
N. County Habitat Bank	CNLM	1	2010	1 pair	0	0	Conclusion: 1 pair
N. Coast Calvary Chapel							
Palomar Pointe/Hieatt							Not Surveyed
Poinsettia Park	City-CNLM	6	2010	0	0	0	Not Surveyed
Rancho Carrillo Conservation Area		No suitable habitat					

Preserve or Area Name	Manager	Acres of CSS*	Most recent survey	# of pairs and single males observed 1 st visit	# of pairs and single males observed 2nd visit	# of pairs and single males observed 3rd visit	Notes (Please note the total CSS NOT surveyed)
Research Center	City-CNLM	None					
Robertson Ranch East	CNLM	28 plus 10 acres of css reveg Parcel "A" Parcel "B"	4/6/10 5/05/10	1 pair 2 SM 2 pair	1 pair 1 SM 2 pair	N/A 2 pair	Robertson Ranch East Parcel "A" not re-surveyed on third visit Total 3 pairs, 2 SM
Robertson Ranch West Village Phase I	CNLM	Reveg in progress, less than 1 acre pre-existing	4/9/10	3 pair	3 pair	1 pair	Totals 3 pair
Shelley Preserve							Not Surveyed
Special Resource Area 1: Fox Miller Brodiaea site							Not Surveyed
Special Resource Area 2 Poinsettia Ln Vernal Pools (includes Water's End)							Not Surveyed
Special Resource Area 3: Encinitas Creek							Not Surveyed
Spyglass							Not Surveyed
Summit	CDFG	Less than 2 acres	March 2010	0	0	0	Surveys conducted by CNLM
Veteran's Memorial Park	City-CNLM	Approx 10	2010	1 pair	1 pair	1 pair	Conclusion: 1 pair
Totals		Approximately 1,500 acres					Total: 85 pair and 42 SM in Carlsbad and 8 pair and 2 SM in County/Carlsbad Off-Jurisdictional areas