2008 Surveys
Cactus Wrens and California Gnatcatchers
San Dieguito River Valley, San Diego County

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Introduction & Study Objectives

The San Dieguito River Valley (SDRV), consisting of the San Pasqual Valley and Lake Hodges, is one of the most significant natural open spaces in San Diego County. This area supports a major recreational amenity, the San Dieguito River Park (SDRP), as well as habitat for several species covered and permitted by the Multiple Species Conservation Program (MSCP). The 2007 Witch Fire burned a substantial portion of the SDRV, including more than 60% of the SDRP. The extremely high natural resource and recreational values in this area emphasize the need and urgency for fire recovery efforts.

Conserved lands in the SDRV have been core population strongholds for San Diego Cactus Wrens (*Campylorhynchus brunneicapillus sandiegensis*) and Coastal California Gnatcatchers (*Polioptila californica californica*), with estimates in the 1990s of approximately 90 pairs of wrens (Mock 1993 as cited by Unitt 2004) and 235 pairs of gnatcatchers (Ogden 1995). Much of the coastal sage and cactus scrub in southern California has burned during the past decade, and post-fire monitoring has demonstrated short-term declines in the populations of both wrens and gnatcatchers (e.g., Mayer and Wirtz 1995, Wirtz et al. 1997) and longer-term declines for wrens (e.g., Harmsworth Associates 2001, Hamilton 2004, Mitrovich and Hamilton 2007). Gnatcatchers typically prefer scrub at least 4–5 years old for nesting (Atwood and Bontrager 2001) whereas wrens require mature, intact cactus scrub that can take decades to recover after a wildfire (Rea and Weaver 1990, Mitrovich and Hamilton 2007). Some of the same scrub that burned in San Diego County during the 2003 fires burned again in 2007, further exacerbating the problems associated with wildfires, especially for Cactus Wrens. Other factors believed to be placing pressure on populations of these birds in the region include the loss, degradation, and fragmentation of sage scrub and cactus scrub habitats, as well as inappropriate public recreational uses of natural lands. As detailed herein, it appears that Cactus Wrens have already experienced localized extirpation from parts of the SDRV, and as the long-term effects of wildfires and other stressors play out, additional local populations of wrens and/or gnatcatchers may blink out. Given the significance of populations of both species in the SDRV, these extirpations may ultimately have conservation implications for the MSCP and for the southern California populations of these two species as a whole.

Immediately after the Witch Fire of 2007, the Conservation Biology Institute (CBI) worked with the San Dieguito River Valley Conservancy (SDRVC), SDRP, Conservation and Research on Endangered Species (CRES), California State Parks, San Diego Natural History Museum (SDNHM), U.S. Fish and Wildlife Service (USFWS), Palomar Audubon Society, and the City of San Diego Water Department to prioritize post-fire restoration and monitoring efforts in the SDRV. An initial reconnaissance served to identify sites most appropriate for monitoring of Cactus Wrens and California Gnatcatchers and restoration of cactus scrub habitat appropriate for these species (Figure 1, Table 1).

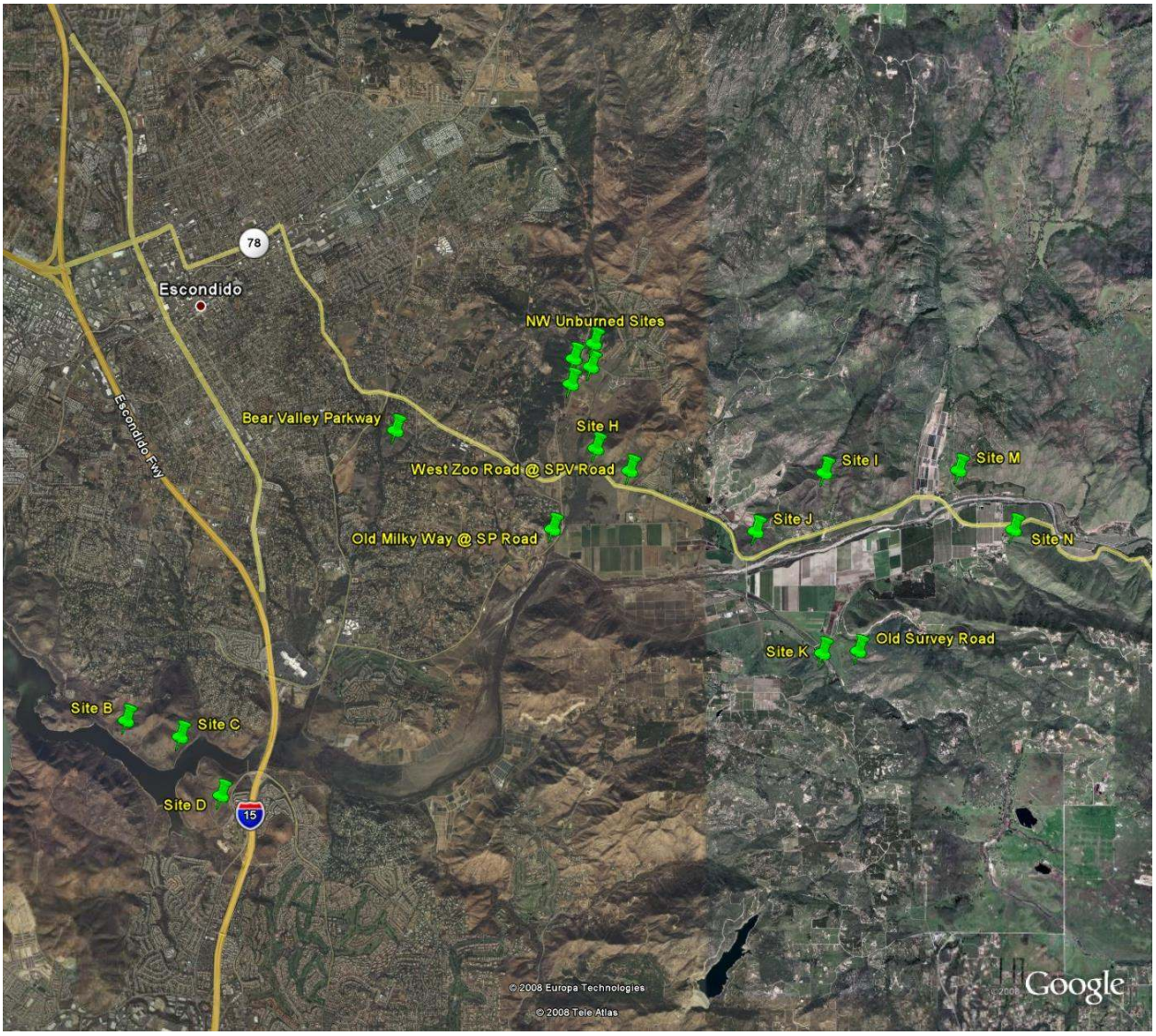

Figure 1. Locations of the sites surveyed and mapped in 2008. In addition to the nine lettered sites (B, C, D, H, I, J, K, M, N), several other sites in the vicinity that supported unburned or partially burned cactus scrub were also covered.

The objectives of this study were:

1. Generally map locations of unburned and partly burned cactus scrub and unburned coastal sage scrub refugia in the SDRV, paying particular attention to stands of prickly-pear cactus (the only form of cactus naturally represented in the area). Generally describe the major vegetative components of these refugia.
2. Survey for Cactus Wrens and California Gnatcatchers during the breeding season and determine whether the birds are actively nesting or only foraging. Estimate the number of pairs of Cactus Wrens and California Gnatcatchers in the study area. This will help to determine the loss of wrens and gnatcatchers and their habitats relative to MSCP objectives and regulatory implications.
3. For the nine sites, map cactus scrub and coastal sage scrub that lacks cactus and describe *baseline* conditions of vegetation species and wildlife use. The baseline condi-

tions will later be compared with results of future monitoring efforts. For completeness, to the extent possible, survey and map any other cactus-containing sites in the local area.

4. Use the results of this mapping and monitoring effort to inform recovery actions by the Coastal Cactus Wren Working Group.

Table 1: Results and Recommendations from Phase I Reconnaissance of 16 sites in the SDRV

Site	Name	Unburned Refugia	CAGN/CAWR Monitoring	Restoration or Control	Erosion Control	Owner
A	Lusardi Canyon				**X**	HOA/County
B	Bernardo Mtn. SW	**X**	**X**	Restoration	**X**	City
C	Bernardo Mtn. SE	**X**	**X**	Restoration	**X**	City/SDRVC
D	Bernardo Bay	**X**	**X**	Restoration	**X**	City
E	Schooler	**X**				private
F	Raptor Ridge				**X**	City
G	Cloverdale Creek					HOA
H	Crowder Property	**X**	**X**	Control		SDRVC
I	Wild Animal Park E	**X**	**X**	Control	**X**	City/WAP
J	SP Battle Monument	**X**	**X**	Control	**X**	State Parks
K	Bandy Canyon	**X**	**X**	Restoration		City
L	Old SDRP Office					City
M	Rockwood Canyon	**X**	**X**	Restoration		City
N	San Pasqual Academy		**X**	Restoration	**X**	City
O	Boden Canyon				**X**	CDFG
P	Clevenger Canyon				**X**	City

Source: CBI and Klein-Edwards Professional Services.

Methods

Mapping

Map each site in the field using aerial photographs, and create final maps as ".kml" files using Google Earth. Within Google Earth, create a folder for each surveyed sites that contains the following subfolders:

- **Scrub Polygons** (described on the next page).
- **Weed Polygons** (described on the next page).
- **Survey Paths and Waypoints**, with subfolders for each survey date (GPS tracks were not recorded for Site H on 27 June or Site J on 25 July because the surveyor did not have the GPS unit on those dates). These data were transferred from a GPS unit (Garmin GPSmap 60Cx; accuracy typically ~5–10 m). Mapped waypoints show

where the surveyor played digital vocalizations of Cactus Wren, California Gnatcatcher, or both, per the following codes:

- Vw Cactus Wren vocalization played.
- Vc California Gnatcatcher vocalization played.
- Vwc Vocalizations of both species played.

- **Cactus Wren (CACW) Territories**, with subfolders for each survey date (no folder is created if no Cactus Wren territories are found during the surveys). Map the presence of lone adults, pairs, and family groups, each of which shall be presumed to represent a territory. Locations of independent juveniles are not mapped, as such birds may be dispersing from their natal territories and should not be presumed to be on territory.

- **California Gnatcatcher (CAGN) Territories**, with subfolders for each survey date (no folder is created if no California Gnatcatcher territories are found during the surveys). Map the presence of lone adults, pairs, and family groups, each of which shall be presumed to represent a territory. Locations of independent juveniles are not mapped, as such birds may be dispersing from their natal territories and should not be presumed to be on territory.

The **scrub polygons** show the boundaries of burned, partially burned, and unburned cactus scrub, as well as unburned coastal sage scrub (i.e., scrub lacking cactus as a dominant element). These polygons are created in the field using color print-outs from Google Earth. To create the maps in the field, write on the aerial photos using pens and then later transcribe that information into Google Earth mapping polygons. All scrub and weed polygons should be ground-truthed during at least one field visit.

Each scrub polygon is named with a code specifying (1) the dominant plant species, (2) whether the patch was found to be totally burned, partially burned, or unburned, and (3) the polygon's general location within the site. For example:

Ac_Ef_Ol_part burned_NW

This file name would refer to a patch of scrub dominated by *Artemisia californica*, *Eriogonum fasciculatum*, and *Opuntia littoralis* that was partly burned and located in the northwestern part of the site. The code "Ol" is used as shorthand referring to native species of prickly-pear cactus, but *O. oricola* or hybrids could also be represented. For this reason, the text of this report refers to all prickly-pear as "*Opuntia* sp."

Below is a listing of the species codes used in the scrub polygons:

Ac = *Artemisia californica*
Bc = *Brickellia californica*
Bsal = *Baccharis salicifolia*
Bsar = *Baccharis sarothroides* (may include *B. pilularis*)
Cmel = *Centaurea melitensis* (may include *C. solstitialis*)
Cmac = *Calystegia macrostegia*
Ec = *Encelia californica*
Ef = *Eriogonum fasciculatum*
Es = *Eremocarpus setigerus*
Gc = *Gutierrezia californica* (may include *G. sarothrae*)
Hf = *Hemizonia fasciculata*
Hw = *Hesperoyucca whipplei*
Ka = *Keckiella antirrhinoides*
Lf = *Lessingia filaginifolia*
Ls = *Lotus scoparius*
Ml = *Malosma laurina* (may include *R. ovata*)
Ol = *Opuntia littoralis* (presumably includes *O. oricola* and hybrids)
Op = *Opuntia prolifera*
Rc = *Rhamnus crocea*
Ro = *Rhus ovata*
Sa = *Salvia apiana*
Sc = *Scrophularia californica*
Smel = *Salvia mellifera*
Smex = *Sambucus mexicana*
Vl = *Viguiera laciniata*

It is not necessary to attempt to identify mustards to species; most of these plants may be dry at the time of the surveys. A map code of "mustard" refers to mustard-dominated areas. The map code "ruderal" refers to certain areas dominated by a mix of various weedy species (mostly non-natives but often including some natives).

Scrub polygon outlines in green indicate unburned cactus scrub, outlines in red indicate partially burned cactus scrub, outlines in black indicate severely burned cactus scrub, and outlines in blue indicate unburned coastal sage scrub (i.e., scrub that lacks cactus as a dominant element).

Weed polygons utilize color-coded screens to indicate the relative prevalence of non-native weeds within cactus scrub and unburned coastal sage scrub polygons according to the following scale:

- **Green (Code 1):** Virtually no non-native weeds, or very limited patches (e.g., along roads or trails).

- **Blue (Code 2):** Non-native weeds noticeable, but not close to being co-dominant.

- **Yellow (Code 3):** Non-native weeds co-dominant in the understory, but generally limited to non-native annual grasses and low forbs. At Site H, which is regularly grazed by cattle, Code 3 areas generally include mustard, but not at the density typical of Code 4 areas; with suspension of grazing some of these areas could revert to Code 4.

- **Orange (Code 4):** Understory includes the taller and more troublesome non-native weeds (e.g., mustard, *Centaurea melitensis*) as co-dominants.

- **Red (Code 5):** Tall and troublesome non-native weeds represent the only dominant understory component.

Several sites were found to include areas in which the disturbance-adapted Fascicled Tarweed (*Hemizonia fasciculata*) is locally dominant, but this native species is not regarded as a "weed" for purposes of the "weediness" index. Fascicled Tarweed could warrant consideration for weed control in certain situations, but this species can generally be expected to drop out as native shrubs become established over time.

Surveys

Conduct three walking transects through each monitoring site. Use playback of digital recordings of the wren and gnatcatcher to elicit responses from these two species. Record each transect with a GPS, with waypoints taken at each location where wren or gnatcatcher vocalizations are played.

Conduct surveys primarily during the morning hours, in fair weather, i.e., little wind and no rain or drizzle, with temperatures generally less than 85° F.

Record territories as the basic unit of measurement for the wren and gnatcatcher populations, as indicated by the presence of at least one *adult* Cactus Wren or one *adult* California Gnatcatcher. Independent juveniles (i.e., those without adults nearby) should be recorded but not counted as representing territories, as they may be dispersing birds. Record locations of territories, represented by at least one adult bird, on aerial photographs.

During subsequent visits to the same site, be conservative in identifying new territories. That is, the default assumption should be that a territorial bird seen in the general vicinity of a previous sighting of that species is a member of the same pair, rather than a bird from a previously undetected territory. If a question exists, spend extra time in the area attempting to detect additional adults that would answer the question definitively. If another pair cannot be detected this helps to establish that only one territory/pair is involved.

Note the ages (adult/juvenile) and sexes of the birds detected. Also note basic behaviors. Once molt begins in late summer, note the appearance of male gnatcatchers, in part because the presence or absence of a cap could help to distinguish one bird from another.

Record all vertebrate wildlife species detected at each site. Record the dominant plant species at each wren and gnatcatcher territory.

Summary and Analysis

Population Status

Tables 2 summarizes the numbers of apparent Cactus Wren and California Gnatcatcher territories detected at each site covered in 2008. Tables 3 and 4 summarize the numbers of territories of Cactus Wrens and California Gnatcatchers detected at each site during each round of surveys. Note that some sites were covered only twice and that Site I (Wild Animal Park East) was covered only once.

Table 2: Summary of Cactus Wren and California Gnatcatcher Territories Detected in the SDRV in 2008

		Territories Detected	
Site	**Name**	**Cactus Wren**	**California Gnatcatcher**
B	Bernardo Mtn. Southwest	2	11
C	Bernardo Mtn. Southeast	0	7
D	Bernardo Bay Natural Area	0	3
H	Crowder Property	3	5
I	Wild Animal Park East	10	10
J	San Pasqual Battlefield	5	3
K	Bandy Canyon	0	0
M	Rockwood Canyon	1	0
N	San Pasqual Academy	0	0
	Northern Unburned Sites	4	2
	San Pasqual Road @ Old Milky Way	2	5
	Bear Valley Parkway	6	8
	Old Survey Road Site	0	0
	West Zoo Road Site	0	0
	TOTAL	**33**	**54**

Table 3: Cactus Wren Detections by Survey

	Cactus Wren Territories Detected (Number of New Territories Given in Parentheses)			
Site	**Round 1**	**Round 2**	**Round 3**	**Total**
B	2 (2)	2 (0)	2 (0)	**2**
C	0 (0)	0 (0)	0 (0)	**0**
D	0 (0)	0 (0)	0 (0)	**0**
H	2 (2)	2 (0)	3 (1)	**3**
I	10 (10)	—	—	**10**
J	5 (5)	5 (0)	4 (0)	**5**
K	0 (0)	0 (0)	0 (0)	**0**
M	1 (1)	1 (0)	1 (0)	**1**
N	0 (0)	0 (0)	0 (0)	**0**
Northern Unburned Sites	4 (4)	4 (0)	—	**4**
SP Road @ Old Milky Way	1 (1)	2 (1)	2 (0)	**2**
Bear Valley Parkway	6 (6)	6 (0)	—	**6**
Old Survey Road Site	0 (0)	0 (0)	0 (0)	**0**
West Zoo Road Site	0 (0)	0 (0)	—	**0**
CUMULATIVE TOTAL	**31**	**32**	**33**	**33**

Table 4: California Gnatcatcher Detections by Survey

	California Gnatcatcher Territories Detected (Number of New Territories Given in Parentheses)			
Site	**Round 1**	**Round 2**	**Round 3**	**Total**
B	8 (8)	9 (3)	10 (0)	**11**
C	7 (7)	7 (0)	6 (0)	**7**
D	2 (2)	3 (1)	3 (0)	**3**
H	4 (4)	4 (1)	3 (0)	**5**
I	10 (10)	—	—	**10**
J	3 (3)	3 (0)	3 (0)	**3**
K	0 (0)	0 (0)	0 (0)	**0**
M	0 (0)	0 (0)	0 (0)	**0**
N	0 (0)	0 (0)	0 (0)	**0**
Northern Unburned Sites	2 (2)	2 (0)	—	**2**
SP Road @ Old Milky Way	4 (4)	4 (1)	4 (0)	**5**
Bear Valley Parkway	7 (7)	6 (1)	—	**8**
Old Survey Road Site	0 (0)	0 (0)	0 (0)	**0**
West Zoo Road Site	0 (0)	0 (0)	—	**0**
CUMULATIVE TOTAL	**47**	**54**	**54**	**54**

A statistical analysis of the data should be completed that provides detection probabilities for wrens and gnatcatchers, and population sizes for the study area as a whole should be estimated with 95% confidence intervals, but the raw numbers strongly suggest that a two-visit survey protocol is adequate for the purpose of estimating the population sizes of Cactus Wrens and California Gnatcatchers in the study area.

The number of Cactus Wren territories detected increased by only a single territory (3%) during each of the second and third rounds of surveys, and numbers of territories detected during each visit showed only minor inconsistencies, suggesting that Cactus Wrens were

only rarely missed during any given site visit. A complicating factor is that Site I was covered only once and two of the other sites were covered only twice; nevertheless, the results demonstrate the effectiveness of the survey methods.

The number of California Gnatcatcher territories detected increased by seven territories (15%) in the second round, but no additional gnatcatcher territories were detected during the third round of surveys. As with Cactus Wrens, the numbers of gnatcatcher territories detected at each site did not vary wildly from visit to visit.

The total of 33 Cactus Wren territories detected during these surveys—which covered virtually all of the potentially suitable cactus scrub in the SDRV (i.e., the area around Lake Hodges and the San Pasqual Valley)—represents a 63% decline from the estimate of 90 territories in the SDRV during the 1980s and early 1990s.

With regard to the California Gnatcatcher, the San Diego MSCP refers to the SDRV as one of San Diego County's "core" population areas, supporting more than 200 pairs during favorable periods. Unitt (2004) remarked that the slopes around Lake Hodges support "probably the single largest population concentration" of California Gnatcatchers in the county. It is possible that some of these birds were able to use areas of partially burned coastal sage scrub, chaparral, and other marginally suitable habitats that were not surveyed in 2008 (because the surveys focused on unburned and partially burned cactus scrub and unburned coastal sage scrub).

Productivity

Tables 5 and 6 indicate the numbers of fledglings detected at each territory in 2008.

Table 5: Summary of Cactus Wren (CACW) Fledglings Detected

Site	CACW Territory	CACW Fledglings Detected
B	A	2
B	B	2
Subtotal	**2 CACW Territories**	**4 CACW Fledglings**
H	A	2
H	B	2
H	C	0
Subtotal	**3 CACW Territories**	**4 CACW Fledglings**
I	A	0
I	B	0
I	C	0
I	D	0
I	E	3
I	F	2
I	G	1
I	H	2
I	I	1
I	J	4
Subtotal	**10 CACW Territories**	**13 CACW Fledglings**

Site	CACW Territory	CACW Fledglings Detected
J	A	2
J	B	1
J	C	3
J	D	2
J	E	1
Subtotal	**5 CACW Territories**	**9 CACW Fledglings**
Northern Unburned Sites	A	0
Northern Unburned Sites	B	0
Northern Unburned Sites	C	0
Northern Unburned Sites	D	0
Subtotal	**4 CACW Territories**	**0 CACW Fledglings**
M	A	1
Subtotal	**1 CACW Territory**	**1 CACW Fledgling**
SP Road @ Old Milky Way	A	3
SP Road @ Old Milky Way	B	0
Subtotal	**2 CACW Territories**	**3 CACW Fledglings**
Bear Valley Parkway	A	3
Bear Valley Parkway	B	2
Bear Valley Parkway	C	1
Bear Valley Parkway	D	1
Bear Valley Parkway	E	2
Bear Valley Parkway	F	2
Subtotal	**6 CACW Territories**	**11 CACW Fledglings**
TOTAL	**33 CACW Territories**	**45 CACW Fledglings**

Table 6: Summary of California Gnatcatcher (CAGN) Fledglings Detected

Site	CAGN Territory	CAGN Fledglings Detected
B	A	0
B	B	0
B	C	0
B	D	0
B	E	2
B	F	3
B	G	1
B	H	0
B	I	0
B	J	0
B	K	0
Subtotal	**11 CAGN Territories**	**6 CAGN Fledglings**
C	A	0
C	B	1
C	C	1
C	D	0
C	E	0

Site	CAGN Territory	CAGN Fledglings Detected
C	F	0
C	G	0
Subtotal	**7 CAGN Territories**	**2 CAGN Fledglings**
D	A	0
D	B	0
D	C	1
Subtotal	**3 CAGN Territories**	**1 CAGN Fledgling**
H	A	1
H	B	0
H	C	0
H	D	0
H	E	0
Subtotal	**5 CAGN Territories**	**1 CAGN Fledgling**
I	A	0
I	B	0
I	C	0
I	D	0
I	E	0
I	F	0
I	G	0
I	H	0
I	I	2
I	J	0
Subtotal	**10 CAGN Territories**	**2 CAGN Fledglings**
J	A	0
J	B	0
J	C	0
Subtotal	**3 CAGN Territories**	**0 CAGN Fledglings**
Northern Unburned Sites	A	0
Northern Unburned Sites	B	0
Subtotal	**2 CAGN Territories**	**0 CAGN Fledglings**
SP Road @ Old Milky Way	A	2
SP Road @ Old Milky Way	B	1
SP Road @ Old Milky Way	C	3
SP Road @ Old Milky Way	D	0
SP Road @ Old Milky Way	E	0
Subtotal	**5 CAGN Territories**	**6 CAGN Fledglings**
Bear Valley Parkway	A	0
Bear Valley Parkway	B	0
Bear Valley Parkway	C	1
Bear Valley Parkway	D	0
Bear Valley Parkway	E	0
Bear Valley Parkway	F	0
Bear Valley Parkway	G	0
Bear Valley Parkway	H	0
Subtotal	**8 CAGN Territories**	**1 CAGN Fledgling**
TOTAL	**54 CAGN Territories**	**19 CAGN Fledglings**

The total of 45 fledglings detected at 33 Cactus Wren territories (1.36 fledglings/pair) is probably a useful measure of this species' productivity in 2008. This is because (a) most sites were covered at least twice, which allowed for multiple chances to detect juveniles at each territory; (b) the surveyor was typically able to refind Cactus Wren pairs during multiple visits, which again increased the chances of finding juveniles, if present; (c) the surveys were conducted late in the season and therefore did not fail to detect any late-fledging birds; and (d) the surveyor documented many Cactus Wren family groups that stayed together well into August and even early September, suggesting that late-season surveys probably did not severely undercount juvenile wrens due to their having already dispersed from their natal territories.

On the other hand, the total of 19 fledglings detected at 54 California Gnatcatcher territories (0.35 fledglings/pair) probably does not represent a reliable measure of productivity. Unlike the wrens, which tended to stay together late into the season, the surveyor found that gnatcatcher family groups typically broke up within a few weeks after fledging. For example, unlike the situation with the wrens, gnatcatcher pairs seen with juveniles during the first or second round of surveys typically had driven the young from the natal territory by the time the next survey was completed. Also, the surveyor saw no indication of "double-clutching" by gnatcatchers (or wrens) in 2008. For these reasons, the surveyor believes that surveys conducted earlier in the season would have produced a more reliable count of gnatcatcher fledglings. Nevertheless, in light of the generally dry and disturbed habitat conditions, the very low number of juvenile gnatcatchers detected suggests that gnatcatcher productivity was relatively low in 2008.

Estimates of Potential Maximum Population Sizes

Tables 7 and 8 provide estimates of the maximum number of Cactus Wren and California Gnatcatcher territories that each site could support under ideal circumstances, once the scrub habitats reach maturity (through natural means and/or restoration). This exercise involves some degree of speculation, especially since these sites have not been surveyed for more than 10 years. A given area may support the maximum number of territories only during rare "boom years," when the local population has built to a peak over a number of years with favorable rainfall patterns. Furthermore, territories can extend well beyond the limits of a given site, meaning that observation of a territorial bird at a site may represent only part of a territory rather than a full territory; this cannot be effectively sorted out during surveys like these, in which birds are followed for only a short period of time during each survey and the surveyor cannot always be confident that a territorial bird seen during one field visit is the same bird seen in the same general area during a subsequent visit. Finally, given that the limits of the sites are largely defined by the extent of habitat potentially suitable for occupation by wrens and/or gnatcatchers in 2008, and as these limits can become blurred as scrub habitats regenerate (within only a few years for gnatcatchers), the estimates in the following tables pertain to the habitat areas as mapped in 2008, as well as the expanses of vegetation located between mapped polygons, based on the surveyor's experience with these species in cismontane southern California (mostly in Orange County).

Table 7: Estimates of Potential Maximum Population Sizes Cactus Wren

Site	Actual Territories Detected in 2008	Estimated Maximum Number of Territories at Site
B	**2**	**5**
C	**0**	**5**
D	**0**	**0**
H	**3**	**8**
I	**10**	**28**
J	**5**	**7**
K	**0**	**4**
M	**1**	**3**
N	**0**	**2**
Northern Unburned Sites	**4**	**8**
SP Road @ Old Milky Way	**2**	**6**
Bear Valley Parkway	**6**	**9**
Old Survey Road Site	**0**	**2**
West Zoo Road Site	**0**	**1**
CUMULATIVE TOTAL	**33**	**88**

Table 8: Estimates of Potential Maximum Population Sizes California Gnatcatcher

Site	Actual Territories Detected in 2008	Estimated Maximum Number of Territories at Site
B	**11**	**15**
C	**7**	**12**
D	**3**	**5**
H	**5**	**9**
I	**10**	**28**
J	**3**	**7**
K	**0**	**4**
M	**0**	**3**
N	**0**	**3**
Northern Unburned Sites	**2**	**10**
SP Road @ Old Milky Way	**5**	**7**
Bear Valley Parkway	**8**	**12**
Old Survey Road Site	**0**	**2**
West Zoo Road Site	**0**	**1**
CUMULATIVE TOTAL	**54**	**118**

Management Recommendations

Cactus Wren

The 2008 surveys demonstrated that Sites I and J support the only extant "core" population of Cactus Wrens in the SPRV. These two sites accounted for 15 of the 33 Cactus Wren territories detected in 2008 (45%), and if the peripheral Bear Valley Parkway site is excluded (six territories), that share increases to 55%.

Only Sites I and J, and arguably Site H, contain large expanses of cactus scrub habitat that are well-connected to surrounding natural areas. The Bear Valley Parkway site also includes expansive cactus scrub, but this area appears to be functionally isolated from other natural habitat areas by surrounding development.

Thus it appears that maintaining large expanses of healthy cactus scrub habitat at Sites I and J, and possibly H, will be critical to the long-term viability of Cactus Wrens in the San Pasqual Valley and surrounding areas.

Cactus Wrens were least abundant in the easterly and southerly sites—only a single territory was found at sites K, M, N, and Old Survey Road combined. Cactus Wrens are, therefore, close to being locally extirpated from these parts of the study area.

In light of these factors, planned cactus scrub restoration efforts focus on building upon the "core" Cactus Wren populations at Sites I and J, and possibly Site H, rather than creating expanses of cactus scrub habitat that are located more than 1 km from the core population.

The weed maps produced in 2008 should be useful in allowing land managers to (1) identify areas with the biggest weed problems (Weed Codes 4, 5), as well as (2) identify areas where weeds are not currently problematic (Weed Codes 1, 2). In the latter areas, native herbs and grasses should be protected from indiscriminant spraying of herbicides.

Planting cactus within otherwise cleared fuel modification areas may represent a useful management approach. This strategy could save homeowners' associations money in the long run, as stands of cactus may not require much maintenance compared with strips of bare land that must be repeatedly cleared.

Although it may be functionally isolated from other expansive natural areas, the 40-acre Bear Valley Parkway Site supports high-density populations of both Cactus Wrens and California Gnatcatchers in scrub that is generally mature and in good health. Because this area is isolated from other natural areas, it could serve as an important refugium for Cactus Wrens if another large wildfire were to destroy most or all of the core population at Sites I and J.

Given that decline of coastal-slope populations of the Cactus Wren appears to be a regional phenomenon that may be caused by factors other than fire (although fire is clearly a contributing cause, at minimum), it may be worthwhile to start a program of testing for blood-borne disease, such as West Nile Virus, in these declining Cactus Wren populations.

California Gnatcatcher

The conservation outlook appears to be less dire for California Gnatcatchers than it is for Cactus Wrens. The 2008 surveys turned up 64% more California Gnatcatchers than Cactus Wrens (54 vs. 33) and the study area contains large expanses of well-connected coastal sage scrub that burned badly in 2007 but that can be expected to regenerate within the next 4–5 years into scrub that is usable by nesting gnatcatchers. Although the 2008 surveys suggested that California Gnatcatcher productivity was probably low this year, productivity is likely to increase as scrub matures, especially if normal rainfall patterns occur. Therefore, management actions should focus on stabilizing and increasing the Cactus Wren population with the understanding that actions beneficial to Cactus Wrens will also likely benefit California Gnatcatchers.

Recommendations for Future Monitoring

Surveys and mapping should be repeated in 2009 and for as many years as funding is available. Over the coming years and decades, it will be important to evaluate whether Cactus Wrens are capable of sustaining their local population through the use of cactus scrub habitat that was damaged moderately to severely by the 2007 fire. If the population starts to show signs of collapse, as appears to be happening in the wake of the 1993 Laguna Beach fire in coastal Orange County, it may be important for managers to recognize and document the decline at an early stage. I believe that a two-round survey methodology is appropriate for these surveys.

If and when additional surveys are undertaken, the surveyor should review and update the habitat and weed maps. As most of the affected shrubs regenerate quickly, future mapping efforts should expand to include areas of coastal sage scrub that burned in 2008 but that are regenerating to again become usable by nesting California Gnatcatchers.

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Appendix A: Results of Surveys and Mapping at Each Study Site

Results are presented for each site, including photos taken during the surveys that show the general condition of the site's scrub habitats in 2008. A brief narrative describes the site and its scrub habitats, including a list of dominant plant species found on the site, and a table summarizes the 2008 survey dates, times, and weather conditions. Up to five figures show the following data, as described under Methods:

- Scrub polygons.
- Weed polygons.
- Survey paths and waypoints.
- Locations of Cactus Wren territories (if any).
- Locations of California Gnatcatcher territories (if any).

Lists and tables specify the vertebrate wildlife species detected during each survey. Each section concludes with brief discussions of any sensitive or otherwise interesting species observed at or near the site, including observations of Cactus Wrens and California Gnatcatchers made at each territory.

Site B: Bernardo Mtn. Southwest (North Shore of Lake Hodges)

This site covers approximately 50 acres, most of which burned in 2007.

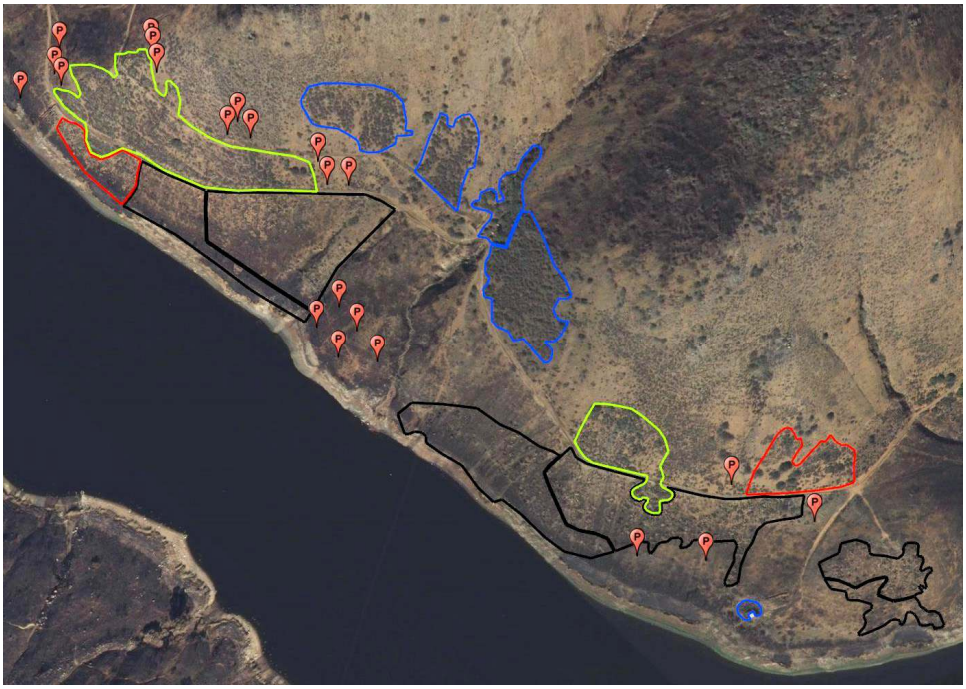

Figure 1. Scrub polygons and outlying cactus, Site B. Green polygons represent unburned cactus scrub; red polygons represent lightly to moderately burned cactus scrub; black polygons represent totally burned cactus scrub; blue polygons represent unburned coastal sage scrub (cactus not a dominant element). Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear.

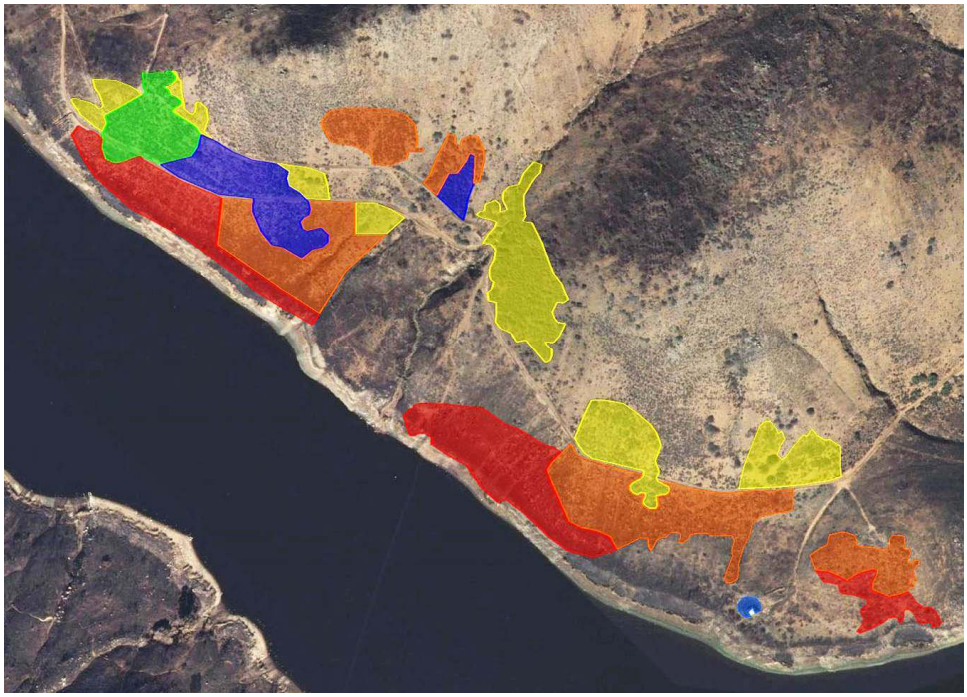

Figure 2. Weed polygons, Site B. Most of the area between Lake Hodges and the dirt road is severely infested with non-native mustards and Tocalote, although some localized areas have few or no weeds.

The dominant woody plant species at Site B, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Laurel Sumac (*Malosma laurina*), Black Sage (*Salvia mellifera*), California Brickellia (*Brickellia californica*), Chaparral Yucca (*Hesperoyucca whipplei*), and California Sunflower (*Encelia californica*). A very small area of unburned scrub (<0.1 acre) dominated by California Sagebrush, Mulefat (*Baccharis salicifolia*) and Broom Baccharis (*Baccharis sarothroides*), occurs in the southeastern part of the site. The dominant herbaceous species at Site B are non-native mustards, annual grasses, and Tocalote (*Centaurea melitensis*), and native Fascicled Tarweed (*Hemizonia fasciculata*) and Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*).

Two patches of unburned cactus scrub exist, one covering approximately 3.6 acres in the northwestern part of the site and the other covering approximately 1.3 acres in the southeastern part of the site. The dirt road that runs along the north side of Lake Hodges generally acted as a fire break in 2007 that allowed some areas of cactus scrub and coastal sage scrub to avoid burning or burn lightly, with weed problems generally mild to moderate, whereas areas between the road and the lake tended to burn severely, allowing weeds to proliferate in large swaths of the site.

Figure 3. Photo taken on 13 August 2008 showing the westerly patch of unburned cactus scrub at Site B with Lake Hodges in the background. The area shown here is dominated by prickly-pear, California Buckwheat, and California Sagebrush. This unburned area is nearly weed-free (Weed Code 1).

Figure 4. Photo taken at Site B on 13 August 2008 showing severely burned cactus scrub heavily infested with mustard (Weed Code 5).

Figure 5. Photo taken at Site B on 13 August 2008 showing severely burned cactus scrub that is not heavily infested with non-native weeds (Weed Code 2). In addition to prickly-pear, the foreground of this photo shows California Brickellia and Southern California Morning-glory. Dried mustard is visible in the background.

Survey Summary for Site B

Survey Date	Time	Start Conditions	End Conditions
18 June 2008	08:30-11:45	sunny; light breeze; ~76°F	sunny; light breeze; ~85°F
9 July 2008	07:55-12:30	100% overcast; still; ~75°F	hazy; moderate breeze; ~78°F
13 August 2008	08:00-13:15	thin, high clouds; still; ~75°F	100% high overcast; muggy; ~84°F

Non-avian vertebrates detected at Site B on 18 June: 1 Western Fence Lizard, 4 Orange-throated Whiptails, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected at Site B on 9 July: 2 Orange-throated Whiptails, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected at Site B on 13 August: 1 Side-blotched Lizard, 5 Orange-throated Whiptails (see Figure 6), 1 Red-diamond Rattlesnake (see Figure 7); 1 Desert Woodrat; California Ground Squirrel (present), Audubon Cottontail (present).

Figures 6, 7. Orange-throated Whiptail and Northern Red-diamond Rattlesnake photographed at Site B on 13 August 2008.

Bird Species Detected at Site B

Species	June 18	July 9	August 13
California Quail	10	20	20
Turkey Vulture	6	6	4
Red-tailed Hawk	0	2	1
American Kestrel	0	4	1
Mourning Dove	0	8	11
Costa's Hummingbird	2	0	2
Ash-throated Flycatcher	0	2	0
Cassin's Kingbird	2	8	3
Western Scrub-Jay	0	2	2
American Crow	0	5	0
Common Raven	2	3	0
Northern Rough-winged Swallow	0	1	0
Cliff Swallow	0	10	0
Bushtit	6	2	2
Cactus Wren	6	6	8
Bewick's Wren	4	5	8
Blue-gray Gnatcatcher	0	0	1
California Gnatcatcher	10	22	19
Wrentit	1	2	3
Northern Mockingbird	3	6	4
California Thrasher	2	3	3
Spotted Towhee	0	1	0

Species	June 18	July 9	August 13
California Towhee	12	28	28
Rufous-crowned Sparrow	2	0	0
Song Sparrow	0	0	1
Great-tailed Grackle	0	4	0
Brown-headed Cowbird	2	3	0
Hooded Oriole	0	1	0
House Finch	10	45	120
Lesser Goldfinch	2	10	6

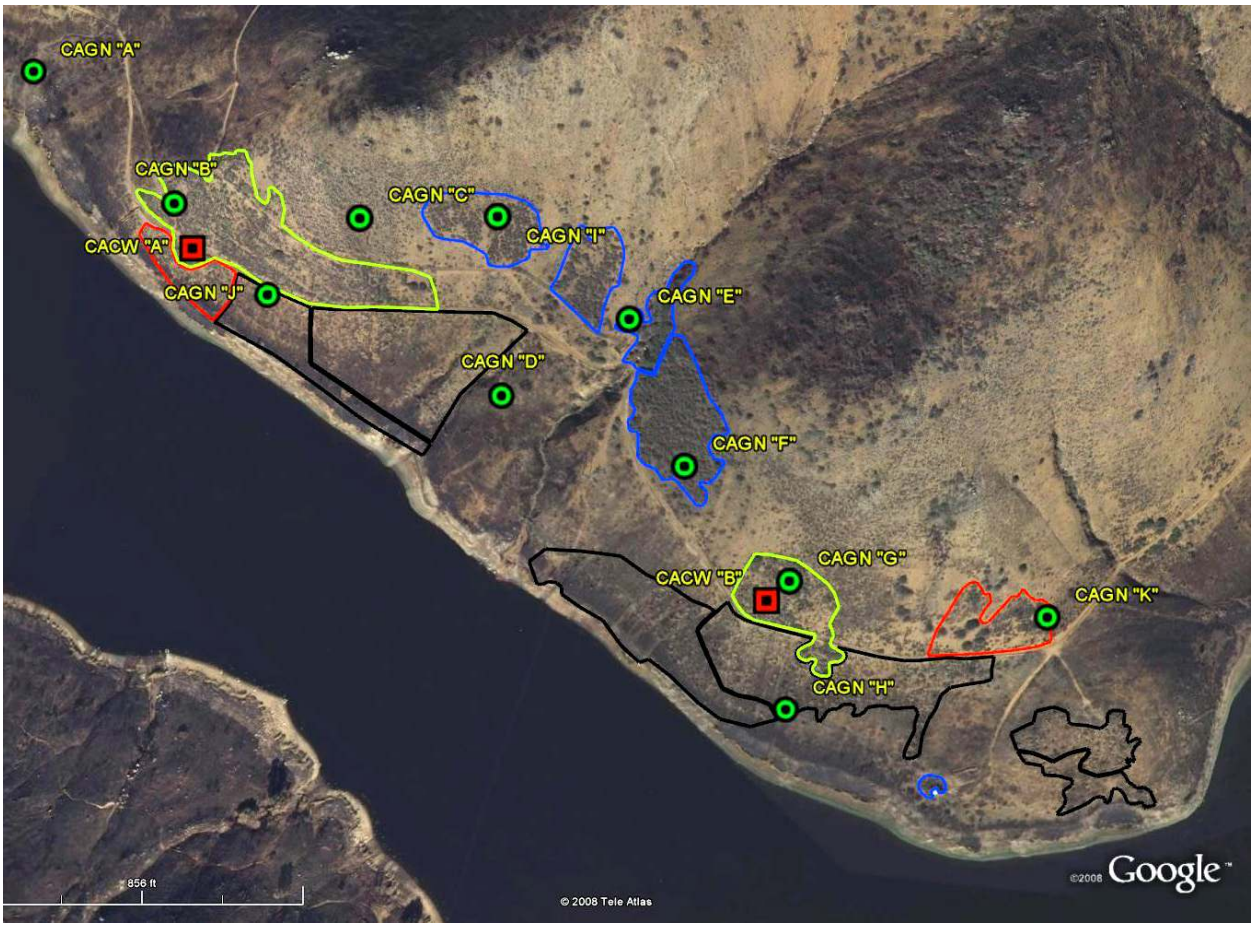

Figure 8. Composite map showing the two Cactus Wren territories (red squares) and 11 California Gnatcatcher territories (green circles) identified at Site B during three field visits in 2008.

Cactus Wren (CACW) Sightings at Site B

CACW Territory A: The surveyor observed the same family group of four birds on each of the three site visits. The birds stayed in and around the site's northwestern patch of unburned cactus scrub, which is dominated by prickly-pear, California Buckwheat, and California Sagebrush. On 13 August the surveyor observed one of the juveniles foraging in severely burned cactus scrub located south of the unburned patch of cactus scrub (see Figure 9).

Figure 9. Juvenile Cactus Wren photographed at Site B on 13 August 2008. This bird fledged from unburned and lightly burned cactus scrub at Territory A, but on this date it was foraging in a nearby area of severely burned cactus scrub. California Brickellia is evident in the foreground of this image. Moments before taking this photo, the surveyor saw this wren flush a Desert Woodrat from this clump of burned cactus.

CACW Territory B: A pair of Cactus Wrens also occupied the site's southeastern patch of unburned cactus scrub, which is dominated by prickly-pear, California Buckwheat, and California Sagebrush. The surveyor observed this pair during each of the three surveys, and on 13 August confirmed the presence of two fledglings. On 27 August the surveyor detected this family group a short distance northeast of Site B, foraging in cactus scrub on Site C (no territory credited to Site C).

California Gnatcatcher (CAGN) Sightings at Site B

CAGN Territory A: On 18 June the surveyor observed a pair moving quickly from east to west through burned, weedy habitat on the western edge of Site B. The habitat did not appear to be suitable for nesting by California Gnatcatchers, and the surveyor did not see birds in this area on the following two visits, so he considered it likely that this territory was centered in burned coastal sage scrub east of Site B and that the birds foraged over a wide area of weedy habitat.

CAGN Territory B: On 18 June the surveyor saw a pair and a nest with one egg in unburned scrub dominated by California Buckwheat, prickly-pear, and California Sagebrush at the western edge of Site B. The nest was approximately two feet up in California Sagebrush. The surveyor refound the pair on 9 July and saw that the nest held three eggs. On 13 August the surveyor saw a pair in the same area with no juveniles. The male's black cap was ~90% gone. The surveyor checked the nest, which was empty and intact. It was unclear whether this pair produced any viable young this year.

CAGN Territory C: On 18 June the surveyor saw a male foraging along the edge of unburned cactus scrub near the site's northwestern boundary. The bird was using habitat dominated by California Buckwheat, Chaparral Yucca, prickly-pear, California Sagebrush, and mustard. The surveyor did not record any birds in Territory C on 9 July. On 13 August

the surveyor saw a pair in this same area, both of which were in heavy molt, and the surveyor photographed the male (see Figure 10). In addition to the plants listed above, the birds were using California Sunflower.

Figure 10. This adult male California Gnatcatcher, photographed at Territory C of Site B on 13 August 2008, had almost completed its prebasic (post-breeding) molt. The glossy black cap was nearly reduced to a black line above the eye, and the rectrices (tail feathers) were still growing in. This is how most adult male California Gnatcatchers appear by mid-August.

CAGN Territory D: On 18 June the surveyor saw a pair foraging in partially burned habitat dominated by California Sagebrush, California Buckwheat, prickly-pear, and mustard. The surveyor also observed a territorial dispute between this pair and the male from Territory E. On 9 July the surveyor saw what he took to be the same pair, this time accompanied by three juveniles. On 13 August the surveyor saw a male in the same general area foraging in Laurel Sumac, prickly-pear, and herbaceous plants. The bird's cap was ~90% gone.

CAGN Territory E: On 18 June the surveyor saw a male in unburned habitat dominated by Black Sage, California Buckwheat, Laurel Sumac, and mustard. This bird engaged in a territorial dispute with the pair from Territory D. On 9 July the surveyor saw a pair with two juveniles in this area, foraging in Black Sage and Laurel Sumac. On 13 August the surveyor saw what appeared to be two adult females sparring in the draw that forms the core of Territory E. One of those birds was, presumably, the female from Territory E; the other appeared to be from Territory I. A bird heard calling from that same draw a few minutes earlier might have been the male from Territory E (although it might also have been the female).

CAGN Territory F: On 18 June the surveyor saw a pair in unburned habitat dominated by Black Sage and Laurel Sumac. On 9 July the surveyor saw a male with three juveniles in the same area. On 13 August the surveyor saw a pair with two juveniles in the same area; the male's black cap was essentially gone.

CAGN Territory G: On 18 June the surveyor saw a pair with a juvenile foraging in unburned habitat dominated by California Sagebrush, California Buckwheat, prickly-pear, and Chaparral Yucca. The male of this pair had a territorial dispute with the male from Territory H. On 9 July the surveyor saw a pair of California Gnatcatchers in this same area mobbing the pair of Cactus Wrens that occupied the same patch of habitat. On 13 August

the surveyor saw a pair of gnatcatchers in the same area, again mobbing a Cactus Wren. The male's cap was gone.

CAGN Territory H: On 18 June the surveyor saw a male foraging in partially burned cactus scrub habitat near the site's southeastern boundary. This bird was using habitat dominated by California Sagebrush, prickly-pear, California Buckwheat, and mustard. This bird had a territorial dispute with the male from Territory G. On 9 July the surveyor saw a male in the same general area foraging in habitat dominated by prickly-pear, California Sagebrush, and Laurel Sumac. On 13 August the surveyor saw a pair in the same general area using habitat dominated by California Brickellia, California Sagebrush, and California Buckwheat. The male's cap was about two-thirds gone.

CAGN Territory I: After apparently missing this pair on 18 June, on 9 July the surveyor detected a pair in a patch of unburned coastal sage scrub dominated by Black Sage near the northern site boundary. On 13 August the surveyor saw what appeared to be two adult females sparring in the draw that forms the core of Territory E. One of those birds retreated back to the northwest after the interaction was over, which suggested that the bird was from Territory I. Also in the area northwest of this draw was a recently-molted male with no black cap that appeared to be the male from Territory I.

CAGN Territory J: On 9 July the surveyor saw a male foraging along the main dirt road in the western half of the site, but the surveyor was not sure whether this was a bird recorded before or whether it represented a new territory. The bird was using California Sagebrush, prickly-pear, and California Buckwheat. On 13 August the surveyor saw a male very close to this spot using Laurel Sumac, prickly-pair, and mustard. The bird's cap was ~90% gone. From other observations of gnatcatchers on that date and on 9 July, it appeared to the surveyor that these birds seen on 13 August were best regarded as representing a separate territory.

CAGN Territory K: On 9 July the surveyor saw a male in partially burned cactus scrub habitat near the southeastern project boundary. The habitat was dominated by prickly-pear, Laurel Sumac, and mustard. On 13 August the surveyor saw a pair near the eastern project boundary, north of the dirt road, that he took to represent Territory K. The birds were in scrub dominated by Laurel Sumac, California Sunflower, prickly-pear, and California Buckwheat.

Other Sightings of Interest at Site B

On 18 June the surveyor detected two Rufous-crowned Sparrows on the site. On 9 July the surveyor observed a family of four American Kestrels, including at least two recently fledged juveniles, between the Lake Hodges parking lot and Site B (the surveyor included these birds as being on Site B on that date). Also on 9 July the surveyor saw an adult Least Bittern fly into a patch of reeds south of Site B (the surveyor did not include this bird as being on Site B on that date). On 13 August one of the juvenile Cactus Wrens from Territory A, rooting around in a patch of severely burned cactus, caused a Desert Woodrat to briefly break cover from this patch.

Site C: Bernardo Mtn. Southeast (North Shore of Lake Hodges)

This site covers approximately 32 acres, nearly all of which burned in 2007.

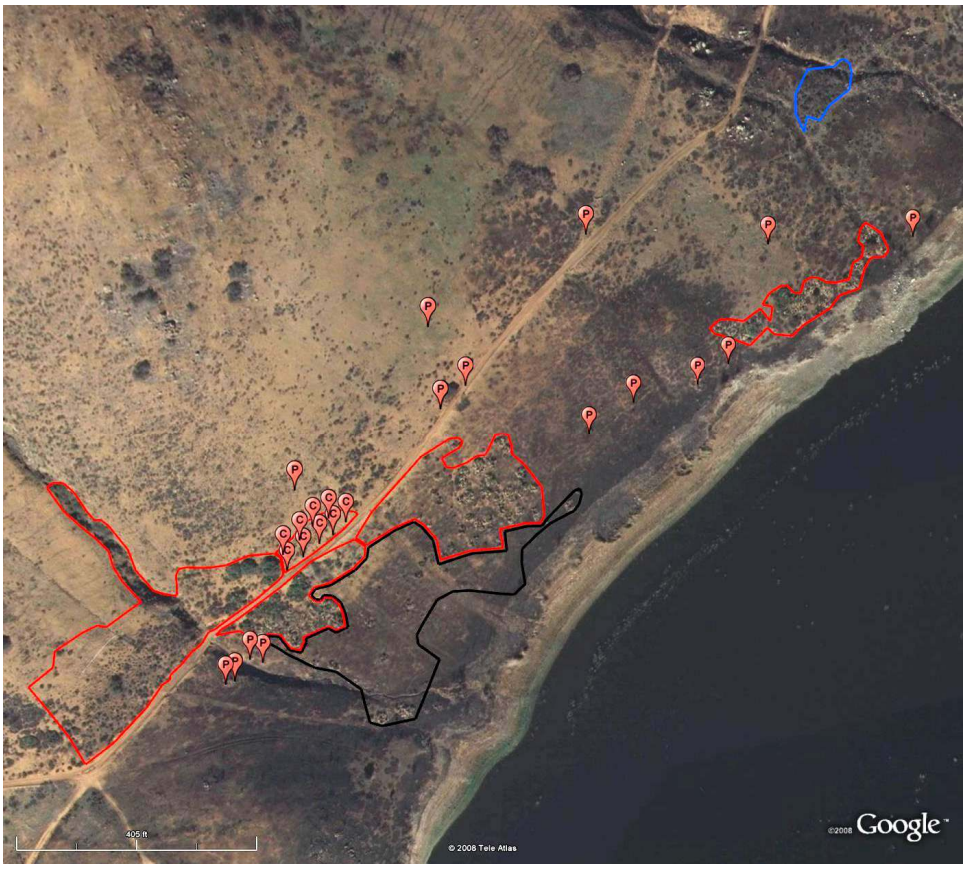

Figure 11. Scrub polygons and outlying cactus, Site C. Red balloons represent outlying cactus plants or small groupings, with "C" standing for cholla and "P" standing for prickly-pear. The site's cholla plants were planted as part of a cactus scrub restoration effort. Some additional areas of coastal sage scrub on Site C burned lightly in 2008, but since those areas do not contain cactus as a dominant element they were not mapped (although they were surveyed).

The dominant woody plant species at Site C, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Laurel Sumac (*Malosma laurina*), Mexican Elderberry (*Sambucus mexicana*), California Brickellia (*Brickellia californica*), Spiny Redberry (*Rhamnus crocea*), California Sunflower (*Encelia californica*), and Chaparral Bush Snapdragon (*Keckiella antirrhinoides*). Numerous small plants of Coastal Cholla (*Opuntia prolifera*) have been planted in a restoration area. The dominant herbaceous species are non-native mustards, annual grasses, and Tocalote (*Centaurea melitensis*), as well as native Fascicled Tarweed (*Hemizonia fasciculata*), Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), and Dove Weed (*Eremocarpus setigerus*).

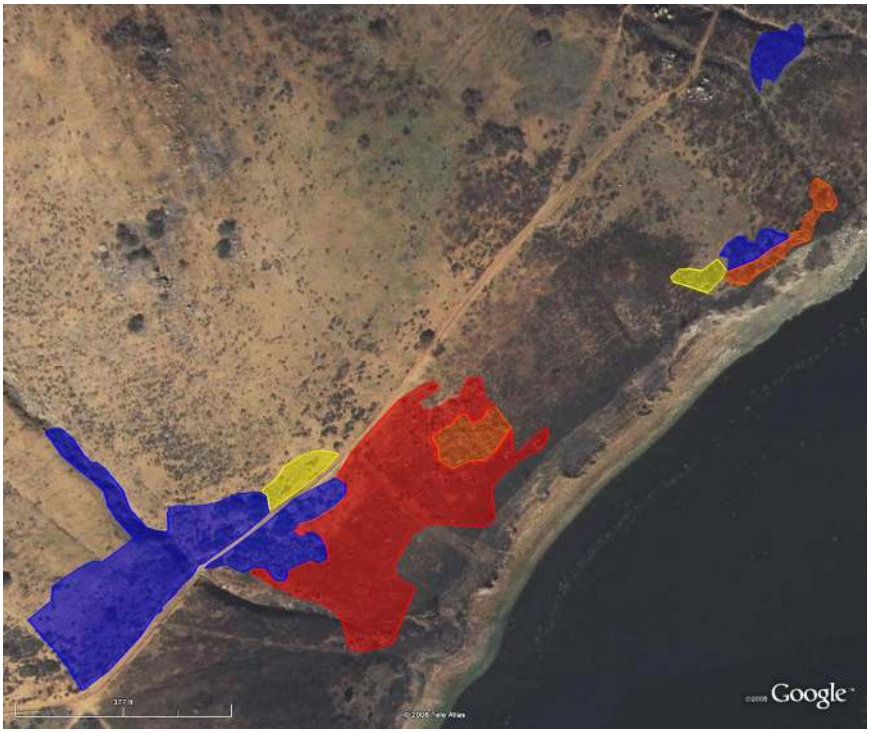

Figure 12. Weed polygons for Site C. The weediest part of Site C is located between Lake Hodges and the dirt access road, an expansive area vegetated primarily with mustard and Tocalote. Areas northwest of the road tend to be lightly to moderately weedy. The area shown in yellow in the western half of the site is part of a cactus scrub restoration site. This area nearly warranted a Weed Code of 4, but maintenance activities have generally kept the mustard under control in this area.

Cactus scrub has a spotty distribution at Site C, most of this vegetation having suffered moderate to heavy fire damage in 2007. The only patch that seems to be potentially large and healthy enough to support a pair of Cactus Wrens is in the southwestern part of the site. This patch consists of a core area covering approximately 0.7 acre that suffered light fire damage (Figure 13), peripheral areas covering another 2.3 acres that were moderately burned (Figure 14), including areas in the early stages of being restored (Figure 15), and 1.6 acres that burned completely in 2007 leaving dense weeds with scattered blackened prickly-pear (Figure 16).

Figure 13. Photo taken at Site C on 27 August 2008 showing lightly burned cactus scrub in the southwestern part the site. The vehicle in the background is parked near the boundary between Sites B and C. This patch of scrub is dominated by prickly-pear, California Sagebrush, California Buckwheat, Laurel Sumac, and Mexican Elderberry. This cactus scrub is generally intact (Weed Code 2).

Figure 14. Photo taken at Site C on 27 August 2008 showing the northeastern part of the site's main stand of cactus scrub. This area of prickly-pear was heavily damaged by the 2007 fire and is moderately to heavily infested with Tocalote and mustard (Weed Code 4).

Figure 15. Photo taken at Site C on 27 August 2008 showing a cactus scrub restoration area in the southwestern part of the site. The habitat is dominated by prickly-pear, Coastal Cholla, California Sagebrush, and California Buckwheat. Workers are controlling much of the mustard and other non-native weeds that could otherwise overtake this area, but the native Dove Weed has been allowed to remain. This area did not burn badly in 2007 and should be potentially suitable for use by nesting Cactus Wrens within several years.

Figure 16. Photo taken at Site C on 27 August 2008 showing severely burned cactus scrub at Site C (see the black polygon on Figure 11 and the red polygon on Figure 12). Dense mustard and Tocalote (Weed Code 5) nearly obscure from view the blackened prickly-pear scattered across this area.

In the northeastern part of the site, a small patch of moderately burned cactus scrub covering approximately 0.4 acre is dominated by prickly-pear and Laurel Sumac. Also in this part of the site is an unburned area of coastal sage scrub covering approximately 0.2 acre that is dominated by California Sagebrush, Spiny Redberry, and Chaparral Bush Snapdragon.

Survey Summary for Site C

Survey Date	Time	Start Conditions	End Conditions
25 June 2008	08:35-11:10	70% overcast; light breeze ; ~74°F	hazy; light breeze; ~79°F
16 July 2008	09:45-12:20	hazy; light breeze ; ~80°F	hazy; light breeze; ~85°F
27 August 2008	08:00-11:20	100% overcast; still; ~72°F	hazy; light breeze; ~84°F

Non-avian vertebrates detected on 25 June: 3 Orange-throated Whiptails, Audubon Cottontail (present), several Coyotes howling and yipping in response to sirens.

Non-avian vertebrates detected on 16 July: 1 Western Fence Lizard, 1 Orange-throated Whiptail, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 27 August: 1 Western Fence Lizard, 1 Orange-throated Whiptail, Audubon Cottontail (present).

Bird Species Detected at Site C

Species	June 25	July 16	August 27
California Quail	10	10	30
Turkey Vulture	3	7	1
Cooper's Hawk	0	0	1
Red-tailed Hawk	0	0	1
Mourning Dove	1	1	3
Greater Roadrunner	1	2	1
Black-chinned Hummingbird	1	2	0
Anna's Hummingbird	1	1	7
Costa's Hummingbird	3	1	2
Selasphorus hummingbird	0	0	1
Acorn Woodpecker	1	0	0
Nuttall's Woodpecker	0	2	0
Black Phoebe	1	1	1
Cassin's Kingbird	3	4	0
American Crow	1	4	0
Common Raven	1	2	2
Tree Swallow	1	0	0
Northern Rough-winged Swallow	1	0	0
Cliff Swallow	50	0	0
Bushtit	0	0	20
Cactus Wren	0	0	4

Species	June 25	July 16	August 27
Bewick's Wren	1	4	9
House Wren	3	1	0
California Gnatcatcher	12	12	11
Wrentit	0	4	4
Northern Mockingbird	2	2	4
Yellow Warbler	2	0	0
Common Yellowthroat	2	0	1
Yellow-breasted Chat	1	0	0
California Towhee	8	12	18
Rufous-crowned Sparrow	0	3	2
Song Sparrow	3	0	0
Brown-headed Cowbird	1	0	0
Lazuli Bunting	0	0	1
Hooded Oriole	2	1	0
House Finch	5	15	20
Lesser Goldfinch	6	15	4
American Goldfinch		5	0

Cactus Wren Sightings at Site C

The surveyor did not detect any Cactus Wren territories on Site C, but during the final survey on 27 August he did find that the four birds from Territory B at Site B were present in the southwestern part of Site C (see Figure 17). Since these birds are already being counted under Site B (where they were seen during all three surveys of that site), they are not counted as also occupying Site C.

Figure 17. Photograph taken on 27 August 2008 of a Cactus Wren in a Mexican Elderberry in the southwestern part of Site C. This bird was part of a family group of four Cactus Wrens that occupied the eastern part of Site B and western part of Site C in 2008.

California Gnatcatcher (CAGN) Sightings at Site C

Figure 18 shows the locations of all California Gnatcatcher territories identified on this site during 2008.

Figure 18. Composite map showing the seven California Gnatcatcher territories (green circles) identified at Site B during three field visits in 2008.

CAGN Territory A: On 25 June the surveyor saw a pair in partially burned cactus scrub habitat near the southwestern site boundary, an area dominated by prickly-pear, California Sagebrush, California Buckwheat, and mustard. On 16 July the surveyor saw what he took to be the same pair in the same area. On 27 August the surveyor saw presumably the same pair in the same area. The male's cap was gone by this date (see Figure 19).

Figure 19. Adult male California Gnatcatcher, photographed at Territory A of Site C on 27 August 2008. This bird's cap had nearly molted out, leaving only a black line above the eye. Note also that the rectrices (tail feathers) were still growing in.

CAGN Territory B: On 25 June a second pair was using the same patch of partially burned cactus scrub habitat as the birds in Territory A. The habitat was dominated by prickly-pear, California Sagebrush, California Buckwheat, and mustard. On 16 July the surveyor saw what he took to be the same pair with one juvenile in the same area. On 27 August the surveyor saw what he took to be the same pair in dried mustard, and watched these birds fly into a patch of tules (*Scirpus* sp.) on the edge of Lake Hodges. The birds stayed in the tules for a few minutes then flew south along the edge of the lake, foraging in Mulefat (*Baccharis salicifolia*). The male's black cap was gone on the last date.

CAGN Territory C: On 25 June the surveyor saw a pair with at least one juvenile in partially burned, weedy coastal sage scrub habitat dominated by Laurel Sumac, California Sagebrush, Fascicled Tarweed, and mustard. On 16 July the surveyor saw what he took to be the same pair in the same area; the male was starting to lose its black cap. On 27 August the surveyor saw what he took to be the same pair a short distance west of the previous two sightings. The male's black cap was gone on the last date.

CAGN Territory D: On 25 June the surveyor saw a pair in weedy, heavily burned habitat dominated by mustard with scattered Laurel Sumac. On 16 July the surveyor saw what he took to be the male of this pair in the same area; it faced off with the male from Territory E. On 27 August the surveyor saw what he took to be the same pair in the same area. The male's black cap was gone on the last date.

CAGN Territory E: On 25 June the surveyor saw a pair in partially burned scrub habitat dominated by California Sagebrush, Spiny Redberry, Chaparral Bush Snapdragon, and Laurel Sumac. On 16 July the surveyor saw what he took to be this pair in the same area; the male faced off with the male from Territory D. On 27 August the surveyor saw what he took to be the male from this territory in the same area. The male's black cap was gone on the last date.

CAGN Territory F: On 25 June the surveyor saw a pair in partially burned scrub habitat dominated by California Buckwheat, California Sagebrush, Laurel Sumac, mustard, and Fascicled Tarweed. On 16 July the surveyor saw what he took to be this pair in the same area. On 27 August the surveyor saw what he took to be the same pair in the same area. The male's black cap was gone on the last date.

CAGN Territory G: On 25 June the surveyor saw a male in weedy, heavily burned habitat dominated by mustard with scattered Spiny Redberry and Laurel Sumac. On 16 July the surveyor saw what he took to be the same male a short distance to the northeast. The surveyor did not detect any gnatcatchers in this area on August 27.

Additional California Gnatcatcher Sighting: On 25 June the surveyor saw a juvenile or female in a patch of partially burned cactus scrub habitat near the lake shore dominated by prickly-pear and Laurel Sumac. Given that the surveyor did not refind any gnatcatchers at this location on later surveys, he concluded that this first sighting probably did not represent an occupied territory (more likely it was a lone female or dispersing juvenile).

Other Sightings of Interest at Site C

The surveyor heard a maximum of three Rufous-crowned Sparrows in the eastern part of the site during the surveys.

Site D: Bernardo Bay Natural Area

This site covers approximately 198 acres, of which approximately 185 acres burned in 2007; Figure 20 shows the areas of coastal sage scrub that remained intact.

Figure 20. Scrub polygons, Site D. Most of this large site burned severely in 2007, leaving only limited patches of unburned coastal sage scrub (without cactus) along the eastern boundary.

The dominant woody plant species at Site D, in roughly descending order from most to least widespread on the site, are California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Spiny Redberry (*Rhamnus crocea*), White Sage (*Salvia apiana*), California Brickellia (*Brickellia californica*), San Diego Sunflower (*Vigueria laciniata*), Broom Baccharis (*Baccharis sarothroides*), Black Sage (*Salvia mellifera*), and Poison Oak (*Toxicodendron diversilobum*). The dominant herbaceous species include non-native mustards, annual grasses, Tocalote (*Centaurea melitensis*), and Sweet Fennel (*Foeniculum vulgare*), as well as native Fascicled Tarweed (*Hemizonia fasciculata*), Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), Dove Weed (*Eremocarpus setigerus*) , and California Figwort (*Scrophularia californica*).

A small patch of unburned scrub, covering approximately 1.2 acres along the southwestern boundary of Rancho Bernardo Community Park, is dominated by California Buckwheat, California Sagebrush, and Broom Baccharis, along with various exotic weeds such as Sweet Fennel and mustard (Figure 21).

Figure 21. Photo taken on 15 August 2008 showing the small patch of unburned coastal sage scrub in the southern part of Site D. Visible in this image are native Broom Baccharis, California Buckwheat, and California Sagebrush, as well as non-native Russian Thistle (*Salsola tragus*), mustard, and annual grasses (Weed Code 3).

Farther north, a larger area of unburned scrub consists of three fairly distinct scrub subtypes that together cover approximately 12.1 acres. The largest area, covering approximately 9.3 acres, is dominated by California Buckwheat and California Sagebrush; Spiny Redberry, White Sage, and California Brickellia are locally dominant (Figure 22).

Figure 22. Photo taken on 15 August 2008 showing the main patch of coastal sage scrub at Site D as seen facing southeast. California Buckwheat and California Sagebrush are conspicuous in this image; the understory consists primarily of non-native grasses (Weed Code 3).

East of this patch of scrub is an unburned cut-slope of 0.8 acres, adjacent to the parking lot for Rancho Bernardo Community Park, which appears to have been planted with a species mix that included California Buckwheat and San Diego Sunflower, native species that now dominate this slope. Farther north, next to West Bernardo Drive and the dirt parking lot for the Bernardo Bay Natural Area is unburned scrub covering approximately 2.0 acres. This area, which appears to have been planted in recent years, is dominated by a mix of Broom Baccharis, California Buckwheat, California Sagebrush, and Black Sage, along with various weedy species (Figure 23).

Figure 23. Photo taken on 15 August 2008 showing disturbed coastal sage scrub in the northeastern part of Site D. The view is to the north, and the two most dominant shrubs in this area, California Buckwheat and Broom Baccharis, can be seen in the foreground and midground. Straw-colored masses of dried mustard can be seen in the background (Weed Code 4).

The surveys focused on the 13 acres of unburned scrub along the eastern boundary, but the surveyor also covered the remaining 185 acres to the west that burned in 2007. At the time of the surveys this large burned area was at an early stage of recovery, supporting mainly annual grasses and weeds with scattered patches of partially burned coastal sage scrub and some moderately burned native woodlands dominated by Coast Live Oak (*Quercus agrifolia*) and California Sycamore (*Platanus californica*). The surveyor did not map a few very limited patches of sparse, completely burned prickly-pear (*Opuntia* sp.) in western and central parts of the site, as these areas appeared unlikely to constitute = legitimate cactus scrub communities even if they were to eventually regenerate.

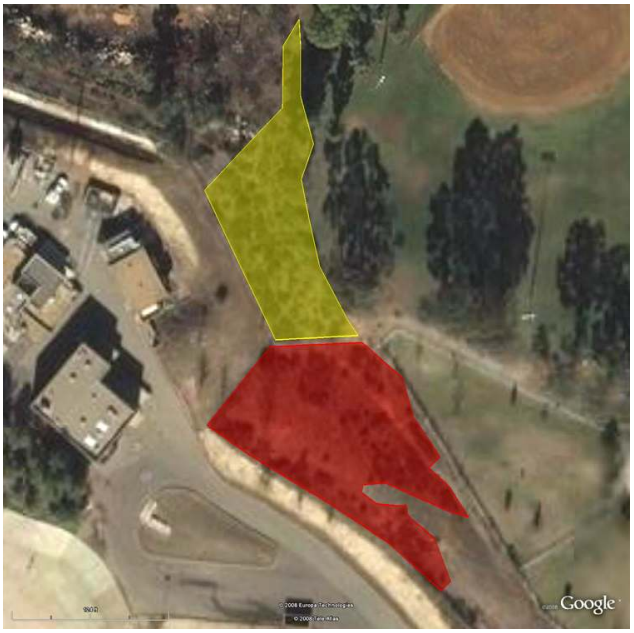

Figure 24. Weed polygons, Site D (southern part). As shown in Figure 21, the northern half of this area is moderately weedy (Weed Code 3), but the southern half is heavily infested with mustard and Sweet Fennel (Weed Code 5).

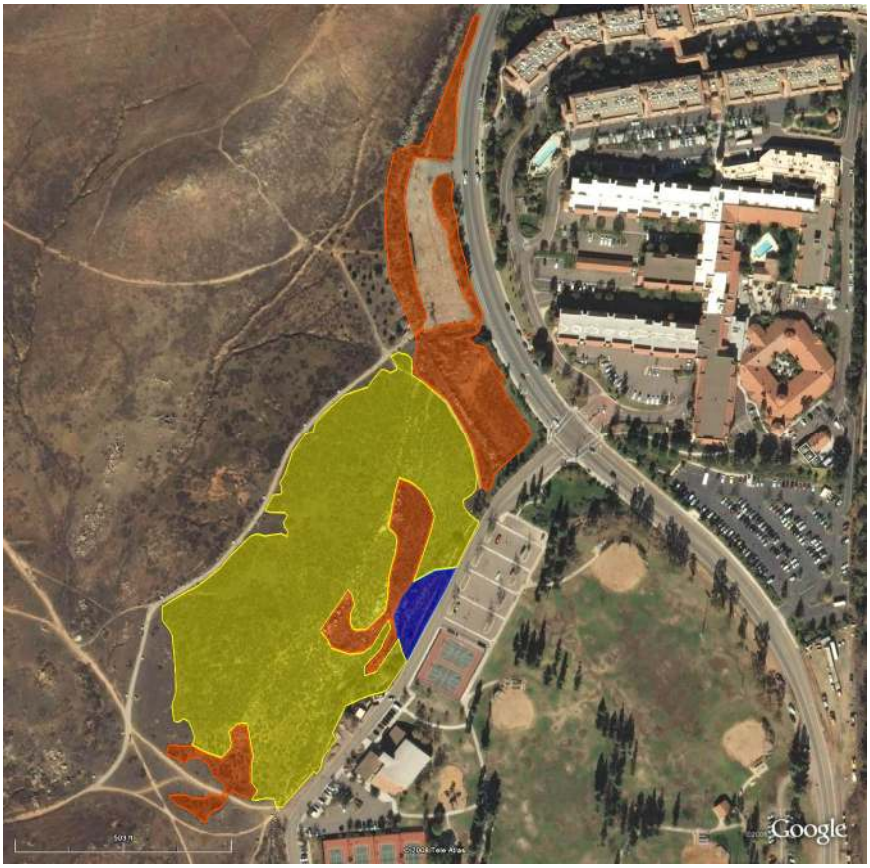

Figure 25. Weed polygons, Site D (northern part). The large yellow area (Weed Code 3) is characterized by an understory of non-native annual grasses. Mustard is generally present in the orange areas (Weed Code 4). The blue area is a restored cut-slope with soil too thin to support many grasses or ruderal herbs.

Survey Summary for Site D

Survey Date	Time	Start Conditions	End Conditions
6 June 2008	07:55-11:30	hazy; still; ~68°F	hazy; light breeze; ~81°F
11 July 2008	08:30-12:00	50% overcast; light breeze; ~75°F	90% overcast; muggy; ~80°F
15 August 2008	08:10-11:15	hazy; still ; ~77°F	hazy; light breeze; ~85°F

Non-avian vertebrates detected on 6 June: 3 Western Fence Lizards, 2 Orange-throated Whiptails, 1 Red-diamond Rattlesnake, California Ground Squirrel (present), and Audubon Cottontail (present).

Non-avian vertebrates detected on 11 July: 2 Western Fence Lizards, 1 Orange-throated Whiptail, California Ground Squirrel (present), and Audubon Cottontail (present).

Non-avian vertebrates detected on 15 August: 2 Granite Spiny Lizards, 5 Western Fence Lizards, 1 Orange-throated Whiptail, California Ground Squirrel (present), and Audubon Cottontail (present).

Bird Species Detected at Site D

Species	June 6	July 11	August 15
Great Egret	1	0	0
Turkey Vulture	2	1	6
Northern Harrier	0	1	0
Cooper's Hawk	0	0	1
Red-tailed Hawk	3	0	0
American Kestrel	0	0	1
Killdeer	0	0	1
Rock Pigeon	5	0	3
Mourning Dove	100	17	115
White-throated Swift	2	1	0
Black-chinned Hummingbird	0	0	1
Anna's Hummingbird	3	6	9
Nuttall's Woodpecker	2	0	1
Black Phoebe	5	1	0
Say's Phoebe	0	1	0
Ash-throated Flycatcher	1	3	0
Cassin's Kingbird	2	8	2
Western Kingbird	4	0	0
American Crow	4	1	2
Cliff Swallow	12	10	0
Bushtit	12	22	0
Bewick's Wren	9	7	9
House Wren	0	0	3
California Gnatcatcher	3	7	7
Wrentit	4	2	1
Northern Mockingbird	0	3	1
California Thrasher	5	1	0
European Starling	7	0	0
Common Yellowthroat	1	1	4
Yellow-breasted Chat	1	0	0
California Towhee	20	19	24
Song Sparrow	9	2	2
Black-headed Grosbeak	1	0	0
Blue Grosbeak	5	2	0
Red-winged Blackbird	33	0	25
Brown-headed Cowbird	0	2	0
Hooded Oriole	4	5	0
Bullock's Oriole	1	1	0
House Finch	25	30	50
Lesser Goldfinch	17	10	12

Cactus Wren Sightings at Site D

This site lacked cactus scrub habitat in 2008. As noted previously, some small, scattered stands of prickly-pear (*Opuntia* sp.) exist in the western and central part of the site, but these were badly burned in 2007 and do not appear to have been extensive enough to support Cactus Wrens even before the fire. To be thorough, however, the surveyor did use playback of Cactus Wren vocalizations at these locations.

California Gnatcatcher (CAGN) Sightings at Site D

Figure 26 shows the locations of all California Gnatcatcher territories identified on this site during 2008.

Figure 26. Composite map showing three California Gnatcatcher territories (green circles) identified at Site D during three field visits in 2008.

CAGN Territory A: On all three visits the surveyor saw this pair in the southern portion of the main patch of unburned coastal sage scrub. The birds were using scrub dominated by California Buckwheat and California Sagebrush, and at times also used White Sage and Spiny Redberry. The male's black cap remained essentially intact on the last survey date of 15 August (Figure 27).

Figure 27. This adult male California Gnatcatcher, photographed in California Buckwheat at Territory A of Site D on 15 August 2008, had not yet lost its black cap. Adult male California Gnatcatchers are typically well into the prebasic molt, including loss of the cap, by mid-August.

CAGN Territory B: On 6 June the surveyor saw an adult male in the northwestern part of the main patch of unburned coastal sage scrub. The bird was in an area dominated by California Buckwheat, California Sagebrush, and Spiny Redberry. The surveyor saw a pair in this area on 11 July and watched them for more than a half-hour, but did not see a nest or young. On 15 August the surveyor detected what he took to be the same pair a short distance south of the first two sightings. The birds were using scrub dominated by California Sagebrush, California Brickellia, and California Buckwheat. They soon flew north to the area where the surveyor had seen them before. Like the male in Territory A, this bird's cap remained essentially intact on 15 August.

CAGN Territory C: On 11 July the surveyor detected what he took to be a third pair, with a juvenile. The surveyor first saw what he believed to be an adult female in the northeastern corner of the site in unburned scrub dominated by a mix of Broom Baccharis, California Buckwheat, California Sagebrush, and Black Sage, along with various weedy species. The surveyor watched this female for only a few minutes as it skulked through the scrub without vocalizing. More than an hour later, after watching Pairs A and B, the surveyor encountered a third male foraging with a juvenile on the east-facing slope adjacent to the basketball courts in the park. The juvenile's back was not as brown as the adult females, and it flew with some difficulty/awkwardness, suggesting that it was a recently fledged bird. Since these three birds were not seen together at the same time, it is entirely possible that they did not actually represent a family group, but the surveyor considered this to be the most likely scenario. On 15 August the surveyor saw a pair in the same area where he had seen the adult female on 11 July, using the same habitat. The surveyor also saw an independent juvenile using Broom Baccharis and California Buckwheat about 200 m northwest of this location. This may have been the same juvenile seen on 11 July.

Other Sightings of Interest at Site D

On 6 June the surveyor heard a Least Bell's Vireo singing in willow woodlands south of the project site. On 11 July the surveyor observed a juvenile Northern Harrier foraging on the site as well as a juvenile Say's Phoebe; both presumably fledged in the local area.

Site H: Crowder Property

This site includes approximately 44 acres of unburned scrub and grass/scrub along San Pasqual Valley Road immediately west of the Wild Animal Park property.

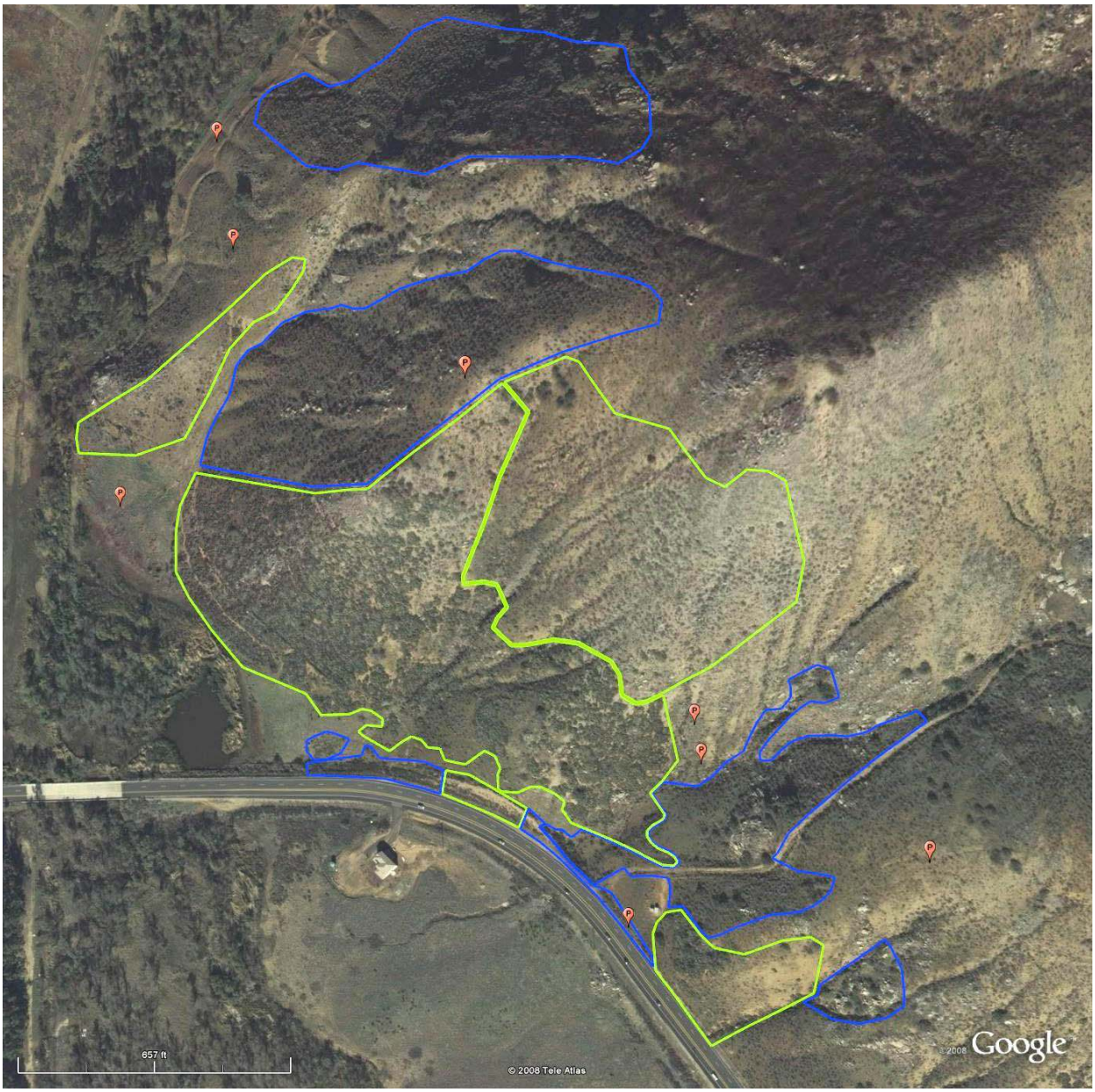

Figure 28. Scrub polygons, Site H. This site includes substantial areas of cactus scrub (green polygons) and coastal sage scrub (blue polygons) that did not burn in 2007. Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear. The scrub is generally healthy, although it shows clear evidence of past and ongoing grazing by cattle (see, for example, the weed polygons in Figure 31).At the time of this report, Sites H, I, and J comprise the only extensive area of extant scrub habitat remaining in the San Pasqual Valley/Lake Hodges study area.

The dominant woody plant species at Site H, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Mexican Elderberry (*Sambucus mexicana*), California Brickellia (*Brickellia californica*), White Sage (*Salvia apiana*), Laurel Sumac (*Malosma laurina*), Chaparral Bush Snapdragon (*Keckiella antirrhinoides*) and matchweed (*Gutierrezia* sp.). The dominant herbaceous species are non-native mustards, annual grasses, and Tocalote (*Centaurea melitensis*), as well as native Fascicled Tarweed (*Hemizonia fasciculata*), Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), Dove Weed (*Eremocarpus setigerus*), and Chaparral Dodder (*Cuscuta californica*).

The heart of this site is a 13.2-acre expanse of cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry (Figure 29).

Figure 29. Photograph taken on 21 July 2008 showing the main patch of intact cactus scrub at Site H. The view is to the south with prickly-pear, California Buckwheat, and Mexican Elderberry in the foreground and Highway 78 in the background.

The site also includes extensive areas of grazed scrub that consist of non-native weeds and annual grasses with scattered small shrubs and prickly-pear (Figure 30).

Figure 30. Photograph taken on 22 August 2008 showing the extensive area of grazed cactus scrub located northeast of the area shown in Figure 29. The view is to the northwest and shows sparse growth of California Buckwheat and prickly-pear interspersed with annual grasses and mustard.

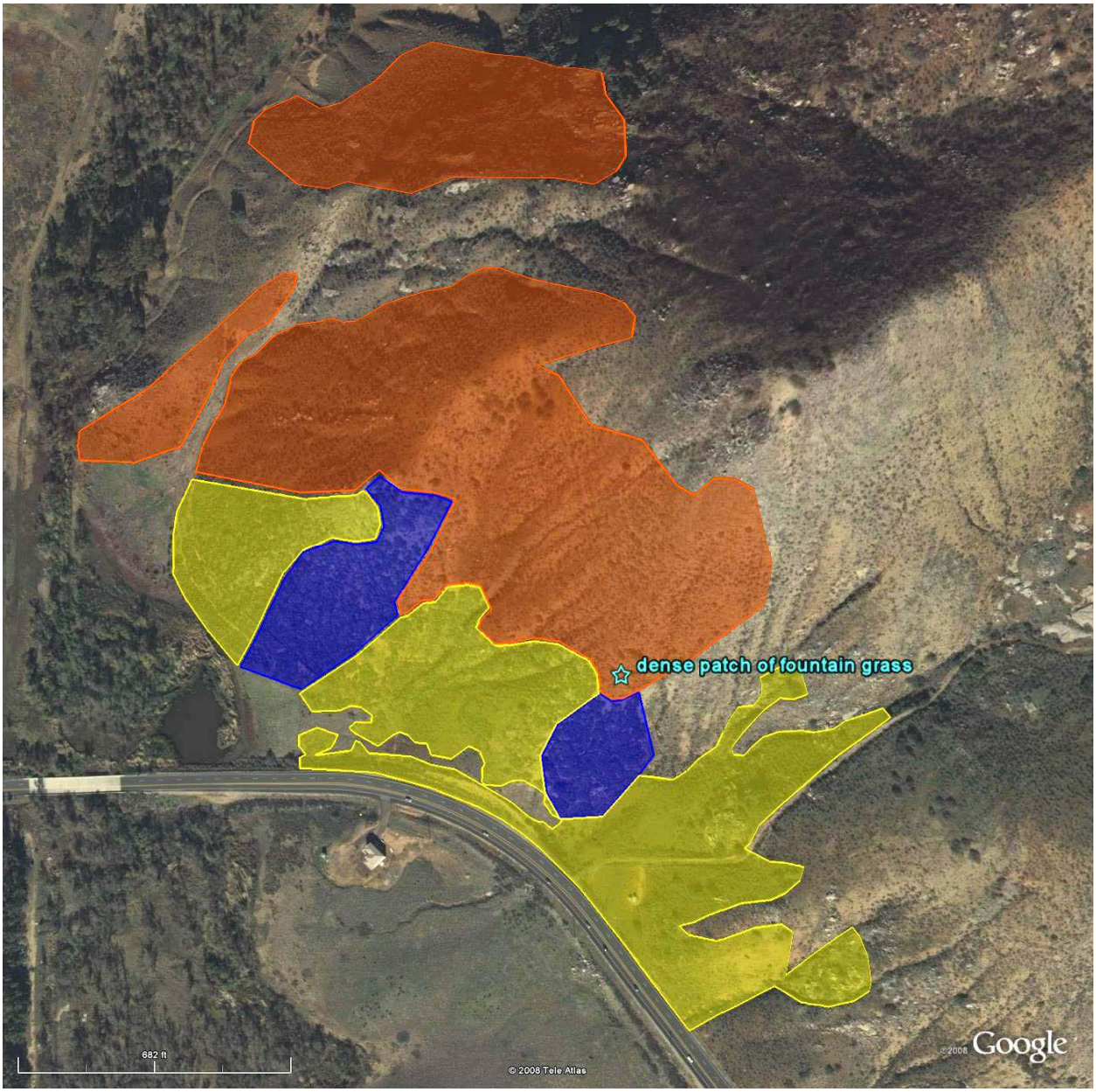

Figure 31. Weed polygons, Site H. Apart from two areas of dense cactus scrub shown in blue (Weed Code 2), the southern part of the site is moderately weedy (Weed Code 3). Shrubs tend to be sparser and weedy species more prevalent in the northern part of the site (Weed Code 4). See also Figure 32, below.

Figure 32. Photo taken on 21 July 2008 showing the dense stand of non-native fountain grass (*Pennisetum* sp.) that occurs in the location shown in Figure 31. This invasive grass does not occur widely on Site H, but could spread in the future via wildfire or other disturbances.

Survey Summary for Site H

Survey Date	Time	Start Conditions	End Conditions
27 June 2008	07:50-11:35	100% overcast; light breeze; ~66°F	hazy; light breeze; ~77°F
21 July 2008	08:15-12:15	hazy; still; ~77°F	hazy; light breeze; ~87°F
22 August 2008	08:30-11:55	100% overcast; still; ~66°F	hazy; still; ~82°F

Non-avian vertebrates detected on 27 June (no GPS track for this survey): 1 Side-blotched Lizard, California Ground Squirrel (present), and Audubon Cottontail (present).

Non-avian vertebrates detected on 21 July: 2 Granite Spiny Lizards, 1 Side-blotched Lizard, 1 Desert Woodrat, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 22 August: 2 Western Fence Lizards, 1 Side-blotched Lizard, 3 Orange-throated Whiptails (see Figure 33), California Ground Squirrel (present).

Figure 33. Photo taken on 22 August 2008 showing an Orange-throated Whiptail at Site H. This was among the lizard species most routinely encountered at Site H and elsewhere in the San Pasqual Valley during the 2008 surveys.

Bird Species Detected at Site H

Species	June 27	July 21	August 22
California Quail	0	0	2
Turkey Vulture	1	11	22
Red-shouldered Hawk	0	1	1
Red-tailed Hawk	4	3	2
American Kestrel	1	1	0
Rock Pigeon	2	3	5
Mourning Dove	8	7	3
Greater Roadrunner	0	1	1
Black-chinned Hummingbird	0	0	1
Anna's Hummingbird	0	3	3
Costa's Hummingbird	1	0	0

Species	June 27	July 21	August 22
Selasphorus hummingbird	0	0	1
Nuttall's Woodpecker	1	4	1
Downy Woodpecker	0	0	1
Northern Flicker	1	0	0
Black Phoebe	1	0	1
Ash-throated Flycatcher	1	1	0
Cassin's Kingbird	4	18	3
American Crow	2	2	2
Common Raven	1	10	4
Northern Rough-winged Swallow	1	0	0
Cliff Swallow	10	0	0
Bushtit	0	4	20
Rock Wren	0	0	1
Cactus Wren	4	6	10
Bewick's Wren	0	2	5
House Wren	1	1	0
Blue-gray Gnatcatcher	0	0	1
California Gnatcatcher	5	5	5
Wrentit	3	12	7
Northern Mockingbird	4	6	7
California Thrasher	0	1	0
Common Yellowthroat	0	0	1
Spotted Towhee	0	0	1
California Towhee	27	24	26
Rufous-crowned Sparrow	6	2	2
Song Sparrow	0	0	4
Black-headed Grosbeak	0	2	0
Blue Grosbeak	1	0	0
Lazuli Bunting	0	1	2
Hooded Oriole	0	0	1
House Finch	15	35	25
Lesser Goldfinch	15	10	4

Cactus Wren (CACW) Sightings at Site H

Figure 34 shows the locations of the three Cactus Wren and five California Gnatcatcher territories identified at Site H in 2008.

CACW Territory A: On 27 June the surveyor observed a pair of Cactus Wrens foraging in unburned cactus scrub dominated by prickly-pear, California Buckwheat, and California Sagebrush. On 21 July the surveyor observed an adult and two juveniles approximately 170 m east of the sighting on 27 June. One juvenile was in the early stages of nest-building. On 22 August the surveyor observed two adults and two juveniles, one of them nest-building, in the same area as on 21 July (see Figure 35).

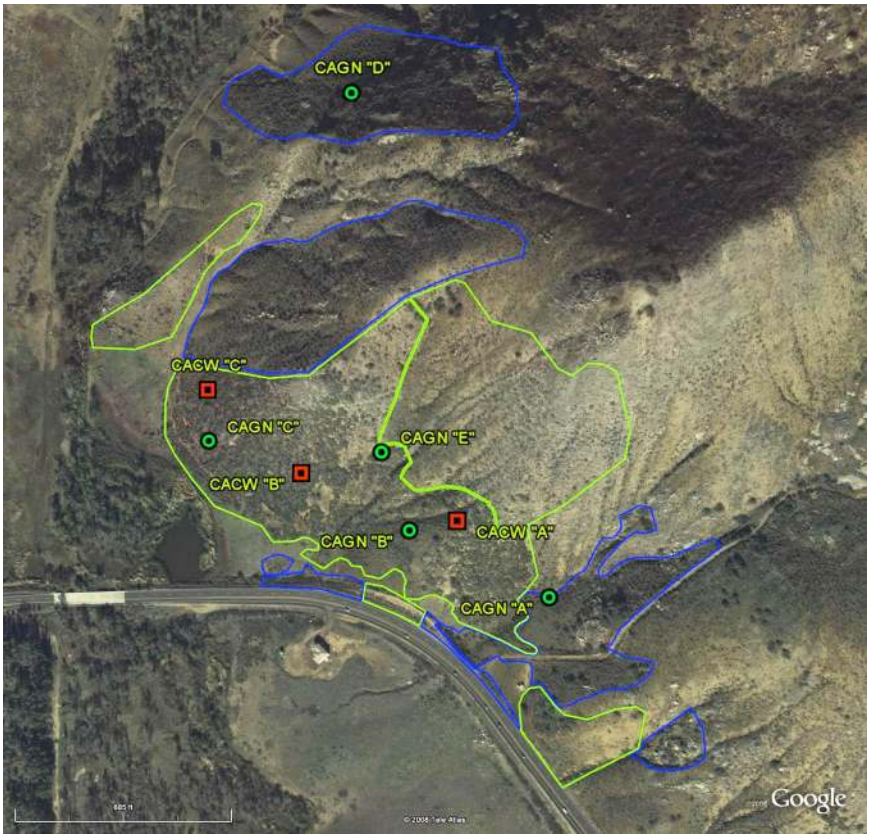

Figure 34. Composite map showing the three Cactus Wren territories (red squares) and five California Gnatcatcher territories (green circles) identified at Site H during three field visits in 2008.

Figure 35. Photo taken on 22 August 2008 of a juvenile Cactus Wren at Territory A, Site H. The habitat shown here consists of prickly-pear and California Buckwheat. At the time of this photo, the bird and the three other members of its family group were foraging and building nests in cactus scrub on the site's east side.

CACW Territory B: On 27 June the surveyor observed a second pair of wrens foraging in unburned cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. The surveyor saw these birds in the same location on 21 July, this time with a single juvenile. On 22 August the surveyor saw four birds together in this area, but did not see them well; he presumed this was a pair with two young birds.

CACW Territory C: On 22 August the surveyor saw a pair of adult Cactus Wrens in the northwestern part of the site and was able to verify that they were not part of the family from Territory B. This was an area where the surveyor had seen a pair of adult Cactus Wrens on 27 June, but at that time he had presumed that they were the birds from Territory B. On 22 August the birds were quietly foraging in prickly-pear, California Sagebrush, California Buckwheat, and Mexican Elderberry. They did not respond to playback of digital recordings.

California Gnatcatcher (CAGN) Sightings at Site H

CAGN Territory A: On 27 June the surveyor observed a pair with one juvenile in unburned coastal sage scrub dominated by California Sagebrush, White Sage, California Buckwheat, and Laurel Sumac. The surveyor saw a pair of adults in the same general location on both 21 July and 22 August. By the latter date the male's black cap was nearly gone.

CAGN Territory B: On 27 June the surveyor observed a male in unburned cactus scrub dominated by prickly-pear, California Buckwheat, and California Sagebrush. On 21 July the surveyor saw a pair in the same general area and noted that the male was starting to lose its black cap. The pair tussled with a pair of Wrentits. On 22 August the surveyor saw a pair of adults in the same area and noted that the male's cap was nearly gone.

CAGN Territory C: On 27 June the surveyor observed a male in unburned cactus scrub dominated by prickly-pear, California Buckwheat, and California Sagebrush. On 21 July the surveyor saw a male in the same general area, carrying food to a spot located deep within cactus scrub. The bird was starting to lose its black cap. The surveyor did not refind these birds on 22 August.

CAGN Territory D: On 27 June the surveyor observed a pair in grazed coastal sage scrub dominated by California Sagebrush and White Sage. He did not refind California Gnatcatchers in this area on 21 July or 22 August.

CAGN Territory E: On 21 July the surveyor observed a pair in unburned cactus scrub dominated by prickly-pear, California Buckwheat, and California Sagebrush. This appeared to represent a new territory, as it seems unlikely that these birds were the pair from Territory D, approximately 340 m to the north. On 22 August the surveyor saw a pair in the same area, and even on this late date the male's cap was largely intact.

Other Sightings of Interest at Site H

The surveyor heard up to four Least Bell's Vireos singing in the willow woodlands southwest of this site, two north of San Pasqual Valley Road and two south of this road. This high count was made on 27 June. The surveyor also heard Yellow Warblers, Yellow-breasted Chats, and Bullfrogs in this riparian area.

The surveyor detected Rufous-crowned Sparrows during each survey, with a high count of six on 27 June.

On 27 June, immediately after completing the survey, the surveyor saw an adult Wood Stork circling over the San Pasqual Valley with a few Red-tailed Hawks. The stork settled down into the Wild Animal Park, where it has lived since 1986 (Unitt 2004).

Site I: Wild Animal Park East

This site covers approximately 280 acres and contains the most extensive area of extant cactus scrub in the San Pasqual Valley. This site and adjacent Sites H and J comprise a critically important expanse of unburned and lightly burned cactus scrub that was occupied by substantial numbers of Cactus Wrens and California Gnatcatchers in 2008.

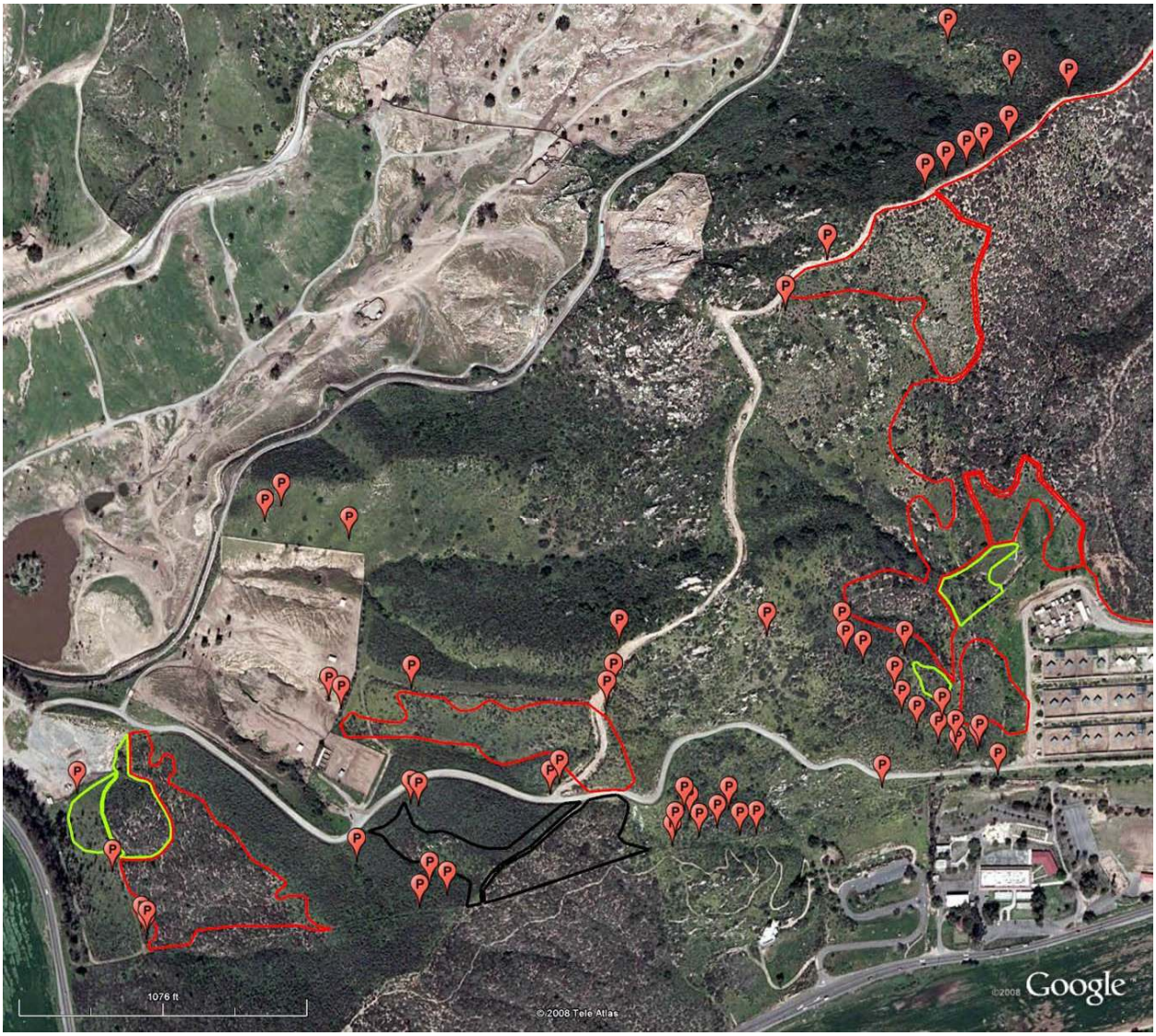

Figure 36. Scrub polygons and scattered cactus plants, Site I, Part 1. Green polygons represent unburned cactus scrub; red polygons represent lightly to moderately burned cactus scrub; and black polygons represent totally burned cactus scrub. Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear. Scrub that is part of Site J (Battlefield Monument) is visible in the southernmost part of this aerial image.

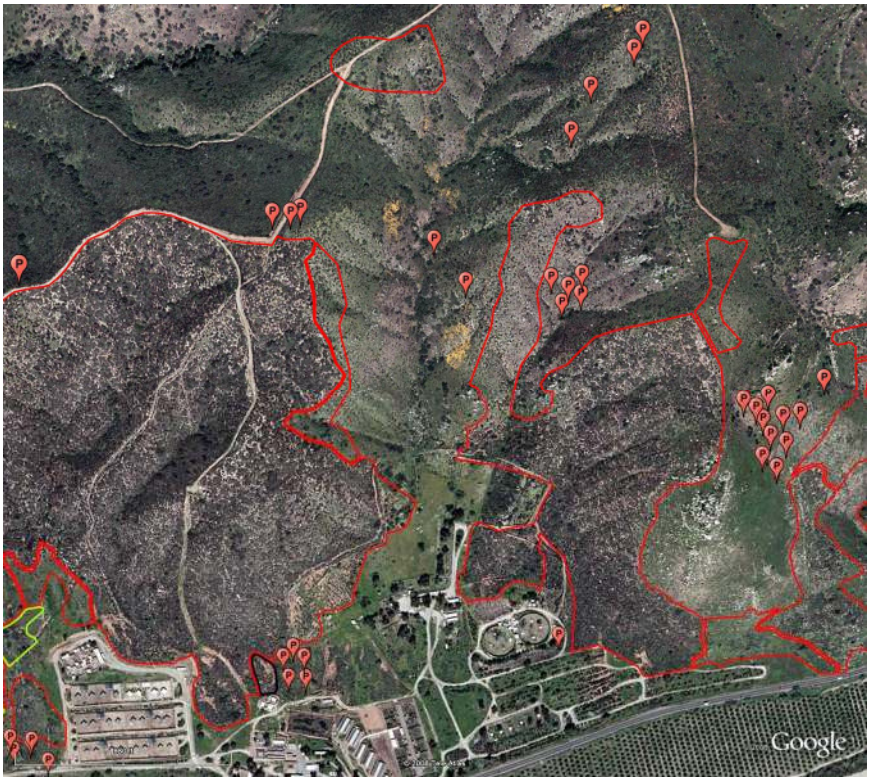

Figure 37. Scrub polygons and scattered cactus plants, Site I, Part 2. This aerial image overlaps with Part 1 along the western edge.

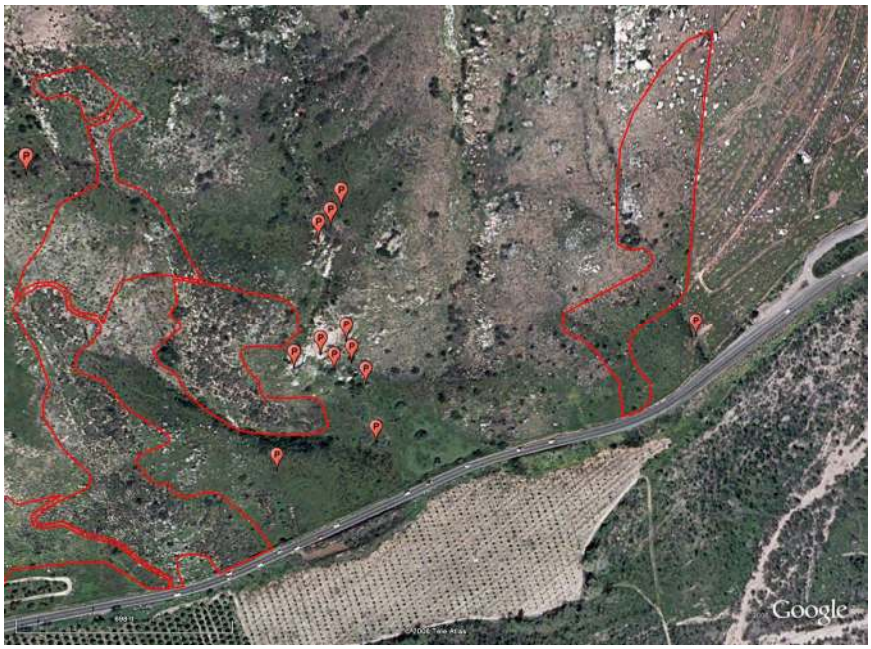

Figure 38. Scrub polygons and scattered cactus plants, Site I, Part 3. This aerial image overlaps with Part 2 along the western edge.

The dominant woody plant species at Site I, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), California Brickellia (*Brickellia californica*), Laurel Sumac (*Malosma laurina*), Mexican Elderberry (*Sambucus mexicana*), California Sunflower (*Encelia californica*), matchweed (*Gutierrezia* sp.), Chaparral Bush Snapdragon (*Keckiella antirrhinoides*), Bushrue (*Cneoridium dumosum*), and White Sage (*Salvia apiana*). The dominant herbaceous species include a variety of non-native species, especially mustards, annual grasses, Tocalote (*Centaurea melitensis*), Brass Buttons (*Cotula coronopifolia*), Fountain

Grass (*Pennisetum setaceum*), Castor Beach (*Ricinus communis*), and Tree Tobacco (*Nicoatiana glauca*). Prevalent native understory species include Fascicled Tarweed (*Hemizonia fasciculata*), Chaparral Dodder (*Cuscuta californica*), Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), California Figwort (*Scrophularia californica*), Coulter's Snapdragon (*Antirrhinum coulterianum*), Hartweg's Twinevine (*Funastrum cynanchoides* ssp. *heterophyllum*), pincushion plant (*Navarretia* sp.), and Dove Weed (*Eremocarpus setigerus*).

Figure 39. Weed polygons, Site I, Part 1. Weediness in the western part of Site I varies greatly, from the large area in green (Weed Code 1) to the two areas in red (Weed Code 5).

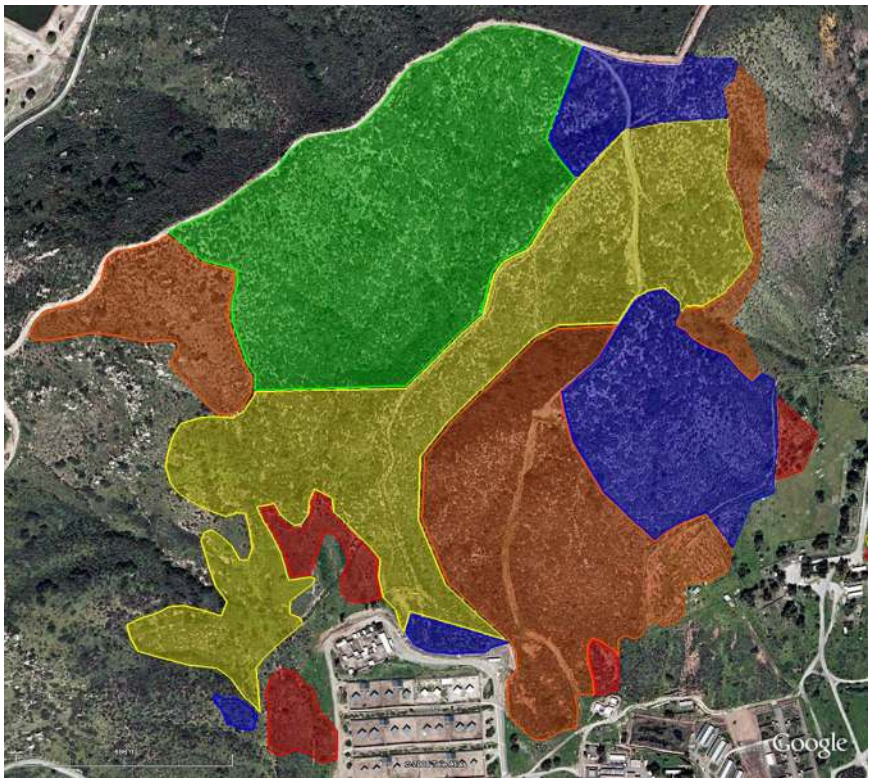

Figure 40. Weed polygons, Site I, Part 2. Weeds tend to be prevalent in areas with deeper soils and along roads and fire breaks.

Figure 41. Weed polygons, Site I, Part 3. Mustard infestations tend to be greater in areas of scrub on the eastern side of this site than on the western side, although this is only a general tendency.

Figures 42–45 show representative cactus scrub habitat conditions across Site I.

Figure 42. Photo taken facing north from the western part of Site J on 18 August 2008 showing cactus scrub in the western part of Site I on the hillside in the background. Scrub in that part of Site I is healthy and intact, with few weeds. Tall Mexican Elderberries are scattered across the dense carpet of prickly-pear, California Buckheat, and California Brickellia. California Figwort is conspicuous in the foreground (on Site J).

Figure 43. Photo taken facing west from the central part of Site I on 6 August 2008 showing a transition from heavily burned cactus scrub in the foreground to scrub that burned lightly in the background. Weeds are scarce in the area shown (Weed Codes 1 and 2).

Figure 44. Photo taken on 29 August 2008 in the south-eastern part of Site I showing cactus scrub with a tall plant that appears to be a hybrid between non-native *Opuntia ficus-indica* and the local native species (*O. oricola* or *O. littoralis*). Apart from its size, the other intermediate features are spines length, pad shape, and thickness of the joints between pads. This was one of two plants with this general appearance that the surveyor saw at Site I.

Figure 45. The greatest damage to cactus scrub at Site I from the 2007 fire occurred in the area depicted in this photo, taken on 29 August 2008. The area shown here largely corresponds to the large blue area (Weed Code 2) in Figure 41; the weeds evident in the foreground are localized and did not warrant mapping as a separate weed polygon. The surveyor found only one Cactus Wren territory in this large area, which appears to have supported dense cactus scrub before the recent fire.

Survey Summary for Site I

Survey Date	Time	Start Conditions	End Conditions
28 July 2008	07:15-12:10	100% overcast; light breeze; ~67°F	hazy; light breeze; ~85°F
6 August 2008	07:40-11:00	clear; light breeze; ~70°F	clear; light breeze; ~85°F
29 August 2008	06:45-11:45	100% overcast; still; ~66°F	90% overcast; still; ~82°F
2 Sept. 2008	09:40-11:50	clear; light breeze; ~80°F	clear; still; ~88°F

Due to issues relating to access, as well as the considerable extent of cactus scrub at Site I, this site's scrub areas were covered during only a single pass whereas scrub at the other sites was covered at least twice and generally three times. As indicated in the following table, four surveys were required to cover all the available at Site I one time. Due to the in-

ability to survey each area multiple times or to field-check vegetation mapping, the results from Site I can be assumed to be somewhat less reliable than those obtained at other sites covered in 2008. Nevertheless, the surveyor believes that Cactus Wrens were responsive during all four days of surveys and that additional rounds of surveys probably would not have changed the results to a great degree.

Non-avian vertebrates detected on 28 July: 1 Orange-throated Whiptail, 1 Coyote, 2 Mule Deer, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 6 August: 1 Orange-throated Whiptail, 2 Mule Deer, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 29 August: 3 Western Fence Lizards, 1 Northern Red-diamond Rattlesnake, 3 Mule Deer, Audubon Cottontail (present).

Non-avian vertebrates detected on 2 September: 4 Mule Deer.

Bird Species Detected at Site I

Species	July 28	August 6	August 29	Sept. 2
California Quail	20	10	5	5
Turkey Vulture	15	1	9	4
Cooper's Hawk	1	0	0	0
Red-tailed Hawk	4	0	0	3
American Kestrel	5	1	1	1
Mourning Dove	23	9	2	5
Common Ground-Dove	1	0	0	0
Greater Roadrunner	1	2	1	2
Black-chinned Hummingbird	1	0	0	0
Anna's Hummingbird	3	1	3	0
Costa's Hummingbird	2	0	1	1
Nuttall's Woodpecker	1	0	0	0
Black Phoebe	0	1	4	1
Say's Phoebe	1	0	0	1
Ash-throated Flycatcher	0	1	1	0
Cassin's Kingbird	8	7	0	0
Western Kingbird	0	0	1	0
American Crow	8	0	8	2
Common Raven	4	1	2	2
Cliff Swallow	14	0	0	0
Rock Wren	2	2	4	1
Bewick's Wren	0	5	6	2
Cactus Wren	8	9	5	7
House Wren	0	0	3	1
California Gnatcatcher	7	5	7	7
Western Bluebird	0	3	0	0

Species	July 28	August 6	August 29	Sept. 2
Wrentit	2	2	1	0
Northern Mockingbird	23	14	9	3
California Thrasher	3	3	2	2
Orange-crowned Warbler	1	0	0	0
Yellow Warbler	0	0	1	0
California Towhee	22	14	32	14
Rufous-crowned Sparrow	2	0	2	0
Blue Grosbeak	1	0	0	0
Red-winged Blackbird	0	0	80	0
Hooded Oriole	3	0	1	0
House Finch	20	10	100	35
Lesser Goldfinch	10	2	5	5
American Goldfinch	2	0	0	0

Cactus Wren (CACW) Sightings at Site I

Figure 46 shows the locations of the 10 Cactus Wren territories identified at Site H in 2008.

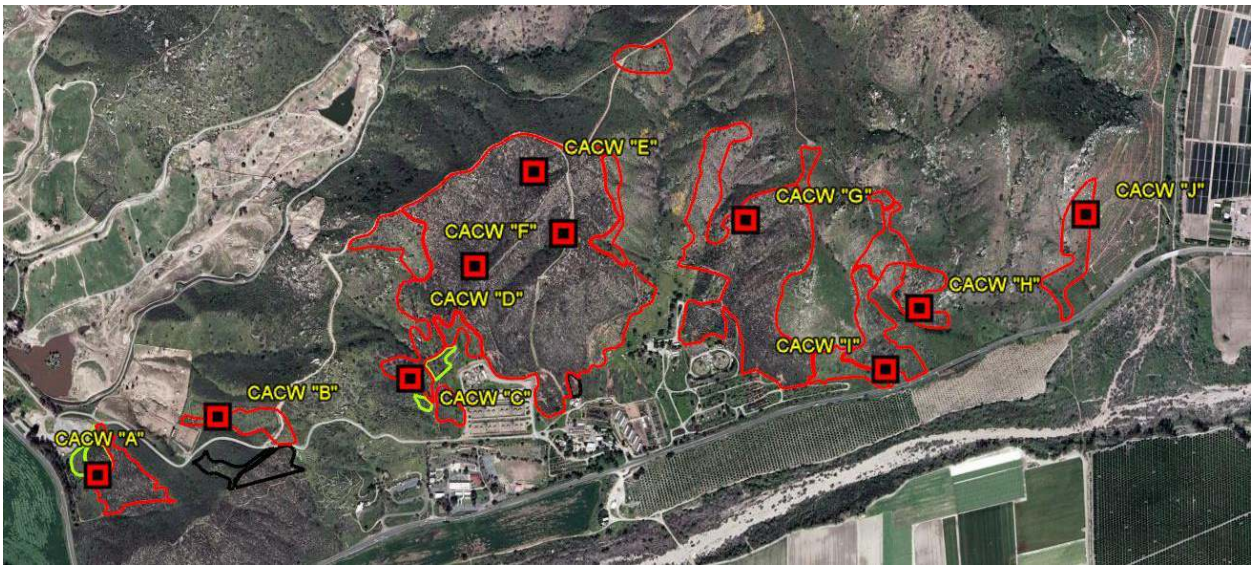

Figure 46. Composite map showing the 10 Cactus Wren territories identified at Site I during a single pass of surveys in 2008.

CACW Territory A: On 28 July the surveyor observed a pair in a small patch of unburned scrub dominated by prickly-pear, California Buckwheat, Mexican Elderberry, and California Brickellia.

CACW Territory B: On 28 July the surveyor observed a pair in open, partially burned scrub dominated by prickly-pear, mustard, California Sagebrush, and California Buckwheat.

CACW Territory C: On 28 July the surveyor observed two adults that may have been a pair covering a large area in the southern-central part of the site. The surveyor saw only one bird for several minutes, and when the second bird appeared the two birds did not come together in response to playback of Cactus Wren vocalizations; rather, after disappearing into the scrub together they emerged several seconds later with one bird going south and the other north. This suggested that they may actually have been adults from two different territories, but the surveyor was not able to verify this on 28 July and so recorded only one territory. The birds were in unburned and lightly burned scrub dominated by California Sagebrush, prickly-pear, California Buckwheat, Laurel Sumac, and Mexican Elderberry.

CACW Territory D: On 28 July the surveyor observed a pair in burned scrub dominated by prickly-pear, California Sagebrush, Laurel Sumac, and Mexican Elderberry.

CACW Territory E: On 6 August the surveyor observed a family group consisting of a pair with three juveniles in partially burned scrub dominated by prickly-pear, California Buckwheat, California Brickellia, and Sugarbush (*Rhus ovata*). These birds interacted aggressively with two Northern Mockingbirds and a Greater Roadrunner.

CACW Territory F: On 6 August the surveyor observed a family group consisting of a pair with two juveniles in partially burned scrub dominated by prickly-pear, Laurel Sumac, California Brickellia, and California Buckwheat. The surveyor saw what he presumed to be these birds in the same general area on 29 August, and it was on this latter date that he verified the number of juveniles in this group.

CACW Territory G: On 29 August the surveyor observed a family group consisting of a pair with one juvenile in partially burned scrub dominated by prickly-pear, California Brickellia, Laurel Sumac, matchweed, and Mexican Elderberry (see Figure 47). The juvenile was carrying nesting material.

Figure 47. Photo taken on 29 August 2008 of a juvenile Cactus Wren at Territory G, Site I. The surveyor saw this bird carrying nesting material shortly after this photo was taken.

CACW Territory H: On 29 August the surveyor observed a family group consisting of a pair with two juveniles in partially burned scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Laurel Sumac. The surveyor saw what he presumed to be these birds in the same general area on 2 September, and it was on this latter date that he verified the number of juveniles in this group.

CACW Territory I: On 2 September the surveyor observed a family group consisting of a pair with one juvenile in partially burned scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, California Brickellia, California Encelia, Laurel Sumac, and Mexican Elderberry. The birds were very responsive to playback of digital recordings.

CACW Territory J: On 2 September the surveyor observed a family group consisting of a pair with four juveniles in partially burned scrub dominated by prickly-pear, California Sagebrush, California Buckwheat, Laurel Sumac, Chaparral Bush Snapdragon, and mustard.

California Gnatcatcher (CAGN) Sightings at Site I

Figure 48 shows the locations of the 10 California Gnatcatcher territories identified at Site H in 2008.

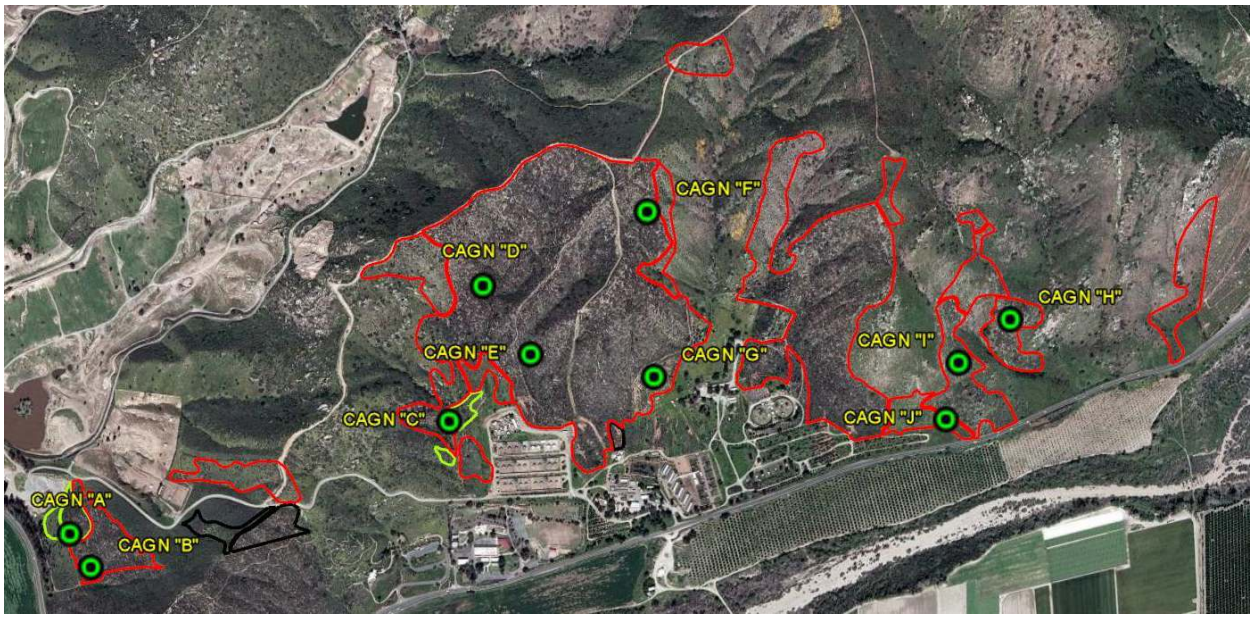

Figure 48. Composite map showing the 10 California Gnatcatcher territories identified at Site I during a single pass of surveys in 2008.

CAGN Territory A: On 28 July the surveyor observed a pair in a small area of unburned scrub dominated by prickly-pear, California Buckwheat, Mexican Elderberry, and California Brickellia.

CAGN Territory B: On 28 July the surveyor observed an adult male in partially burned scrub dominated by prickly-pear, California Buckwheat, Mexican Elderberry, and California Brickellia.

CAGN Territory C: On 28 July the surveyor observed a pair in unburned and lightly burned scrub dominated by California Sagebrush, prickly-pear, California Buckwheat, Laurel Sumac, and Mexican Elderberry.

CAGN Territory D: On 28 July the surveyor observed a pair in burned scrub dominated by prickly-pear, California Sagebrush, Laurel Sumac, and Mexican Elderberry.

CAGN Territory E: On 6 August the surveyor observed a male in partially burned scrub dominated by prickly-pear, California Brickellia, and California Buckwheat. The bird's cap was essentially intact.

CAGN Territory F: On 6 August the surveyor observed a pair in partially burned scrub dominated by prickly-pear, California Buckwheat, California Brickellia, and Chaparral Yucca. The male's cap was not entirely intact, but the surveyor was not able to discern how much had molted out.

CAGN Territory G: On 6 August the surveyor detected a male in partially burned scrub dominated by prickly-pear, California Brickellia, mustard, and California Buckwheat. The surveyor was not able to see the bird, but another observer present, J.P. Montagne, confirmed that it was a male.

CAGN Territory H: On 29 August the surveyor observed a pair in partially burned scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Laurel Sumac. The male's black cap had almost completely molted out.

CAGN Territory I: On 29 August the surveyor observed a family group consisting of a pair of adults and two juveniles in partially burned scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and California Encelia. The male retained a nearly full black cap on this late date (see Figure 49).

Figure 49. This photo, taken on 29 August 2008, shows a male California Gnatcatcher at Territory I, Site I, in California Buckwheat. The bird's nearly full black cap, unusual at such a late date, shows that this bird was different from another adult male present in the same general area a few days later.

CAGN Territory J: On 2 September the surveyor observed a pair in partially burned scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, California Brickellia, California Encelia, Laurel Sumac, and Mexican Elderberry. The male's cap had molted out, proving that this was a different bird than the male seen nearby at Territory I on 29 August (which had a nearly full cap, as shown in Figure 49).

Other Sightings of Interest at Site I

On 28 July the surveyor observed an adult Cooper's Hawk flying over Site I. On the same date, within the Wild Animal Park proper, the surveyor saw the adult Wood Stork that has lived there since 1986 (Unitt 2004). On 6 August the surveyor recorded single juveniles of Cactus Wren and California Gnatcatcher; these were not considered to represent territories as they were probably dispersing birds. The surveyor recorded two Rufous-crowned Sparrows on each of two survey days.

Site J: San Pasqual Battle Monument

This site covers approximately 46 acres, most of which support cactus scrub that burned only lightly or moderately in 2007.

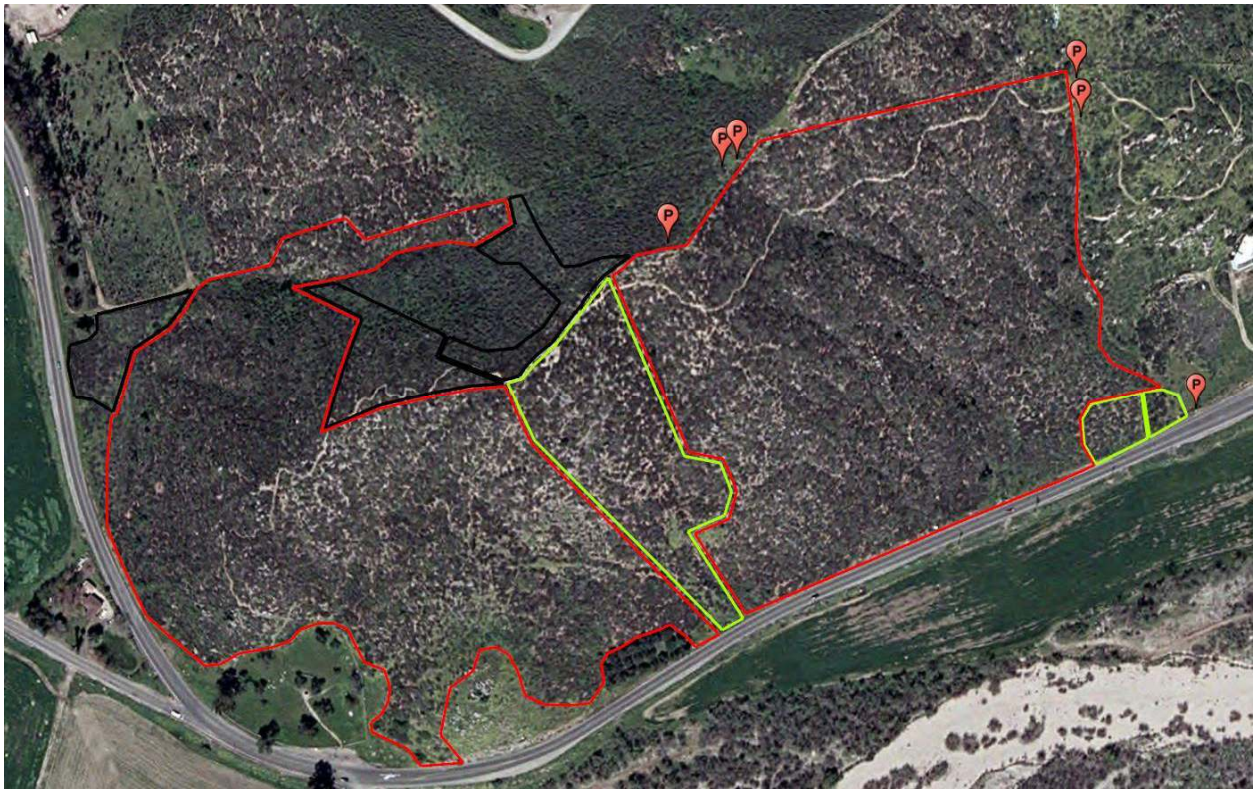

Figure 50. Scrub polygons and scattered cactus plants, Site J. Green polygons represent unburned cactus scrub; red polygons represent lightly to moderately burned cactus scrub; and black polygons represent totally burned cactus scrub. Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear. Scrub that is part of Site I (Wild Animal Park) is visible in the northernmost part of this aerial image.

The dominant woody plant species at Site J, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Brickellia (*Brickellia californica*), California Sagebrush (*Artemisia californica*), Mexican Elderberry (*Sambucus mexicana*), and Chaparral Bush Snapdragon (*Keckiella antirrhinoides*). Weeds are under control across most of Site J (see Figure 51). The most abundant native herbs include Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), California Figwort (*Scrophularia californica*), Chaparral Dodder (*Cuscuta californica*), Deerweed (*Lotus scoparius*), Dove Weed (*Eremocarpus setigerus*), Coulter's Snapdragon (*Antirrhinum coulterianum*), Fascicled Tarweed (*Hemizonia fasciculata*), Hartweg's Twinevine (*Funastrum cynanchoides* ssp. *heterophyllum*), and pincushion plant (*Navarretia* sp.). Non-native weeds are largely limited to areas that have been disturbed, and include mustards, annual grasses, Tocalote (*Centaurea melitensis*), and Tree Tobacco (*Nicotiana glauca*).

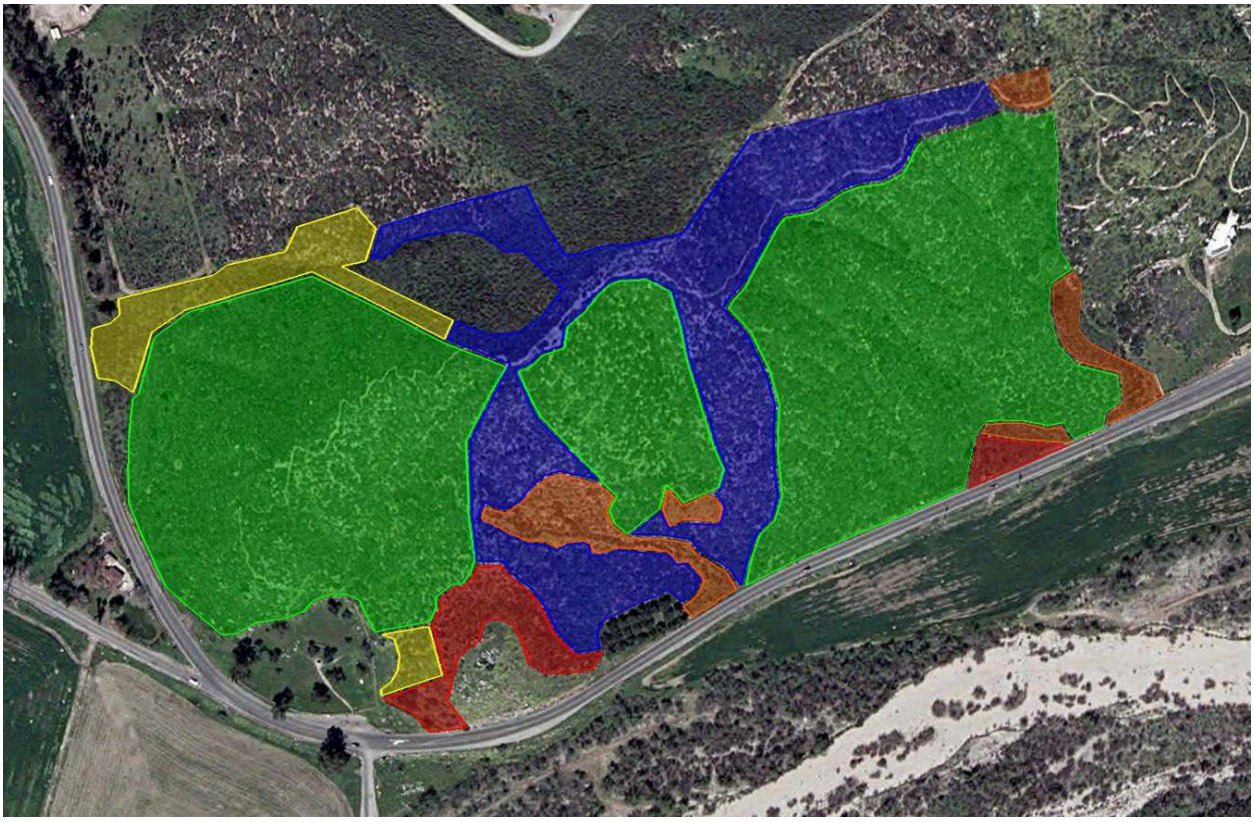

Figure 51. Non-native weeds are scarce across most of Site J. Out of approximately 38 acres of cactus scrub, the surveyor classified 33 acres under Weed Codes 1 or 2. The areas classified under Weed Codes 3–5 are along scrub edges or in parts of the site that have been subject to disturbance.

Figures 52–54 show representative cactus scrub habitat conditions across Site J (see also Figure 42, which shows the northwestern part of Site J in the foreground).

Figure 52. Photo taken on 25 July 2008 showing dense, lightly burned cactus scrub on the west side of Site J. Prickly-pear and California Brickellia are evident in the foreground.

Figure 53. Photo taken on 25 July 2008 showing unburned cactus scrub on the central southern side of Site J. Most of this patch has few weeds (Weed Codes 1 and 2), but the midground of this photo shows some dense stands of mustard (Weed Code 4) that represent symptoms of prior disturbance.

Figure 54. Photo taken on 18 August 2008 showing dense mustard (Weed Code 5) on the southeastern side of Site J. The cactus scrub in the background burned fairly intensely in 2007, but was not infested with weeds at the time of the 2008 surveys (Weed Code 1).

Survey Summary for Site J

Survey Date	Time	Start Conditions	End Conditions
30 June 2008	08:35-12:25	hazy; light breeze; ~80°F	hazy; light breeze; ~87°F
25 July 2008	07:10-11:20	hazy; still; ~68°F	hazy; light breeze; ~83°F
18 August 2008	07:50-11:50	100% overcast; still; ~68°F	hazy; light breeze; ~86°F

Non-avian vertebrates detected on 30 June: 4 Granite Spiny Lizards, 2 Orange-throated Whiptails, two Coyotes, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 25 July (no GPS track for this survey): 2 Granite Spiny Lizards, 1 Orange-throated Whiptail, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 18 August: 2 Orange-throated Whiptails, California Ground Squirrel (present), Audubon Cottontail (present).

Bird Species Detected at Site J

Species	June 30	July 25	August 18
Great Egret	1	0	0
Snowy Egret	0	0	1
Cattle Egret	11	14	2
Turkey Vulture	12	22	45
Cooper's Hawk	1	0	0
Red-shouldered Hawk	0	0	2
Red-tailed Hawk	1	1	2
American Kestrel	1	0	0
Mourning Dove	13	12	25
Greater Roadrunner	1	1	2
Anna's Hummingbird	0	5	4
Costa's Hummingbird	4	6	4
Nuttall's Woodpecker	0	1	0
Black Phoebe	0	0	1
Ash-throated Flycatcher	1	0	0
Cassin's Kingbird	1	5	7
American Crow	4	9	8
Common Raven	4	4	4
Cliff Swallow	2	2	12
Bushtit	0	12	0
Cactus Wren	17	15	13
Rock Wren	0	2	2
Bewick's Wren	0	3	3
California Gnatcatcher	6	6	7

Species	June 30	July 25	August 18
Western Bluebird	0	0	2
Northern Mockingbird	12	17	16
California Thrasher	0	2	0
European Starling	0	0	25
California Towhee	6	18	8
Rufous-crowned Sparrow	3	3	0
Black-headed Grosbeak	0	1	4
Blue Grosbeak	0	1	0
Lazuli Bunting	1	1	2
Brown-headed Cowbird	4	3	1
Hooded Oriole	1	4	4
House Finch	15	20	25
Lesser Goldfinch	10	5	0
American Goldfinch	0	2	0

Cactus Wren (CACW) Sightings at Site J

Figure 55 shows the locations of the five Cactus Wren and three California Gnatcatcher territories identified at Site I in 2008.

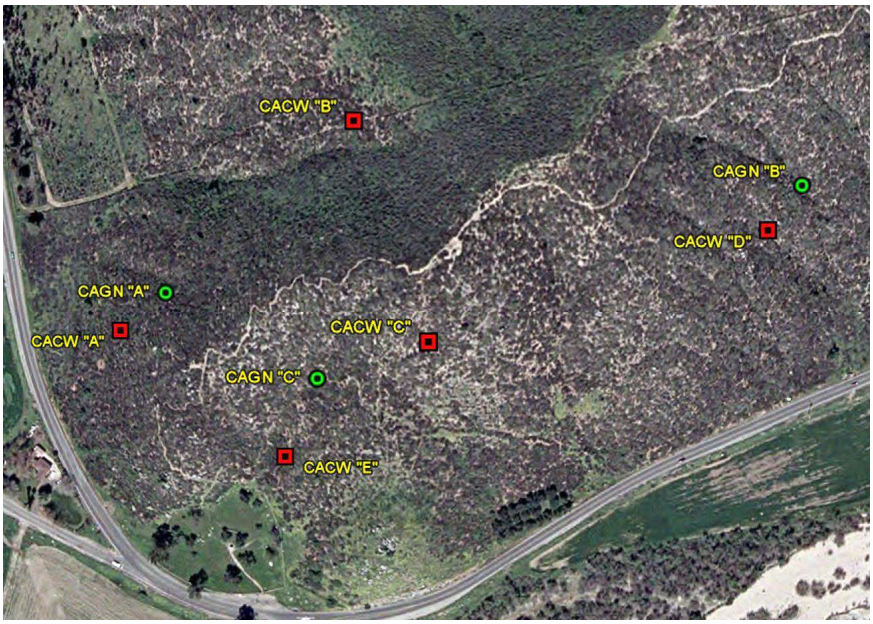

Figure 55. Composite map showing the locations of five Cactus Wren territories and three California Gnatcatcher territories detected during three surveys of Site J in 2008.

CACW Territory A: On 30 June the surveyor observed a family group consisting of a pair of adults and two juveniles in the southwestern portion of the site. They were using partially burned cactus scrub dominated by prickly-pear, Mexican Elderberry, and California Figwort. The cactus in this area was in good shape, although most of the other shrub species had burned away. This family group of wrens was mobbed by a male California Gnatcatcher. On 25 July the surveyor watched the same family group for nearly an hour, including interactions with the Cactus Wrens from Territory B. The birds were in partially burned

scrub dominated by prickly-pear, California Brickellia, California Figwort, and Mexican Elderberry. All of these wrens were along the fence between this site and the Wild Animal Park, and at one point an adult from each family skirmished just on the north side of the fence. On 18 August the surveyor saw the four-member family group foraging in lightly burned scrub dominated by prickly-pear, Mexican Elderberry, California Brickellia, California Buckwheat, California Figwort, and Chaparral Bush Snapdragon.

CACW Territory B: On 30 June the surveyor observed an adult and a juvenile together in severely burned cactus scrub along the fence-line between Site J and the Wild Animal Park property (Site I). It appeared that playback of vocalizations attracted these birds onto Site J from the adjacent Wild Animal Park property. The only dominant shrub species in this area was prickly-pear. The juvenile wren was attacked by a Northern Mockingbird (the wren was not harmed). On 25 July the surveyor saw both adults from Territory B, but not the juvenile, a short distance southwest from where he saw them on 30 June. The birds were in partially burned cactus scrub dominated by prickly-pear, California Brickellia, California Figwort, and Mexican Elderberry. This pair from Territory B skirmished with the adults from Territory A. It is possible that the juvenile was around, but did not come down to the area where the adults were interacting with the birds from Territory A. On 18 August the surveyor saw and photographed what he presumed to be the juvenile from Territory B, which responded to playback by flying up to and perching on the chain link fence between Sites J and I.

CACW Territory C: On 30 June the surveyor observed a family group consisting of a pair of adults and three juveniles in unburned cactus scrub on the south-central part of the site. The habitat was dominated by prickly-pear and California Buckwheat. On 25 July the surveyor saw two adults and two juveniles in the same general area, using habitat dominated by prickly-pear, California Buckwheat, and California Brickellia. On 18 August the surveyor saw at two adults and at least two juveniles in the same area, again using unburned scrub dominated by prickly-pear, California Buckwheat, and California Brickellia.

CACW Territory D: On 30 June the surveyor observed a family group consisting of one adult and two juveniles in the eastern part of the site. These birds were using partially burned scrub dominated by prickly-pear, California Brickellia, Mexican Elderberry, and California Figwort. The adult wren was chased for approximately 50 yards by a male California Gnatcatcher. On 25 July the surveyor observed this family group again, this time seeing both adults as well as the two juveniles. On 18 August the surveyor again detected two adults and two juveniles in this area, using habitat dominated by prickly-pear, Mexican Elderberry, California Brickellia, and California Buckwheat (see Figure 56).

CACW Territory E: On 30 June the surveyor observed a family group consisting of two adults and one juvenile in lightly burned scrub in the southwestern part of the site. This scrub was dominated by prickly-pear, California Buckwheat, and California Sagebrush. This family group was mobbed by a pair of California Gnatcatchers. On 25 July the surveyor had difficulty finding any Cactus Wrens in this part of the site. The surveyor stayed near the edge of this territory for approximately 20 minutes, occasionally using playback of Cactus Wrens and California Gnatcatchers, until finally a wren responded with some fairly

quiet vocalizations. After several more minutes, the surveyor could see a single adult wren on a large granite boulder near the southern part of the territory. He watched this bird for several more minutes but never saw a mate or juveniles.

Figure 56. Adult Cactus Wren photographed on 18 August 2008 at Site J, Territory D. The bird is in habitat consisting of prickly-pear, California Brickellia, and Mexican Elderberry. In general, adult and juvenile wrens are more readily distinguished from each other earlier in the breeding season, when young birds are in fresh plumage and adults are in worn plumage (birds of all ages tend to look worn by late summer/early fall). In good light, eye color can be a good field mark, and the original photograph of this bird shows the red eye of an adult. Adults also tend to have longer bills than do juveniles (this bird's bill looks fairly long).

California Gnatcatcher (CAGN) Sightings at Site J

CAGN Territory A: On 30 June the surveyor observed a pair in partially burned cactus scrub dominated by prickly-pear, Mexican Elderberry, and California Figwort. The cactus in this area was in good shape, although most of the other shrub species had burned away. The male gnatcatcher mobbed a family group of Cactus Wrens. On 25 July the surveyor saw a pair skulking in lightly burned scrub approximately 170 m east of where he saw the pair on 30 June. The male's cap was starting to fade. The birds were using scrub dominated by prickly-pear, California Buckwheat, and California Brickellia. It is possible that this was a new pair, but the surveyor considered it somewhat more likely that this was the pair from Territory A wandering a short distance after the breeding season. On 18 August the surveyor saw a pair foraging near the northwestern project boundary that he took to be the same birds from Territory A; the male's cap had faded considerably (see Figure 57).

Figure 57. Photo taken on 18 August 2008 of an adult male California Gnatcatcher at Site J, Territory A. This bird is in the middle of prebasic (post-breeding) molt, with the black cap nearly gone and the rectrices (tail feathers) growing in.

CAGN Territory B: On 30 June the surveyor observed a pair in the eastern part of the site. These birds were using partially burned scrub dominated by prickly-pear, California Brickellia, Mexican Elderberry, and California Figwort. The male gnatcatcher chased an adult Cactus Wren for approximately 50 yards. On 25 July the surveyor saw a pair about 80 m farther south that he took to be the same birds.

CAGN Territory C: On 30 June the surveyor observed a pair mobbing a family group of Cactus Wrens in lightly burned scrub in the southwestern part of the site. This scrub was dominated by prickly-pear, California Buckwheat, and California Sagebrush. On 25 July the surveyor saw an adult male skulking in the same area. On 18 August the surveyor again saw a pair of adults in the same area, foraging in prickly-pear, California Brickellia, Mexican Elderberry, and California Buckwheat. The male's cap remained largely intact on this late date.

Other Sightings of Interest at Site J

The surveyor observed a Cooper's Hawk flying over the site on 30 June and he saw three Rufous-crowned Sparrows on the site on 30 June and 25 July. On 18 August the surveyor saw an independent juvenile California Gnatcatcher (not associated with any territorial adults) in the small olive grove in the southwestern part of the site.

Site K: Bandy Canyon

This site covers approximately 17 acres along Bandy Canyon Road just east of Ysabel Creek Road.

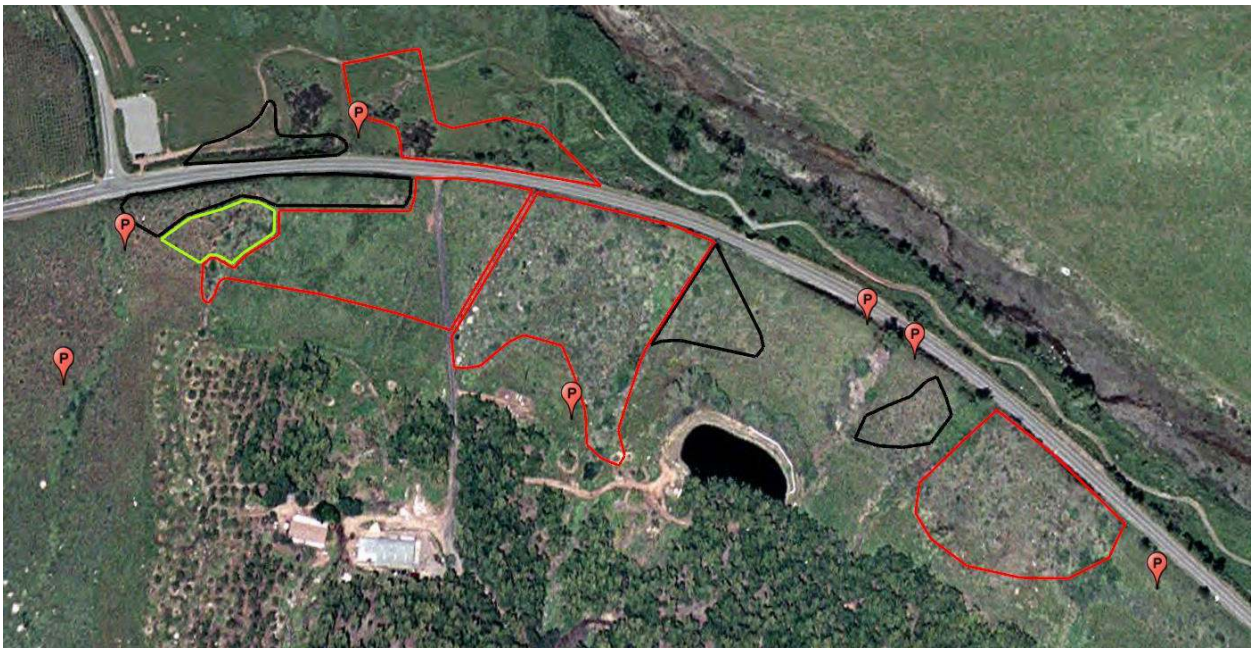

Figure 58. Scrub polygons and scattered cactus plants, Site K. Green polygons represent unburned cactus scrub; red polygons represent lightly to moderately burned cactus scrub; and black polygons represent totally burned cactus scrub. Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear.

The dominant woody plant species at Site K, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Sagebrush (*Artemisia californica*), California Buckwheat (*Eriogonum fasciculatum*), Laurel Sumac (*Malosma laurina*), Mexican Elderberry (*Sambucus mexicana*), White Sage (*Salvia apiana*), and California Brickellia (*Brickellia californica*). Weeds are prevalent in most areas that burned in 2007 and commonly include mustards, annual grasses, and Tocalote (*Centaurea melitensis*). The weedy native Fascicled Tarweed (*Hemizonia fasciculata*) occurs commonly across much of the site and various other native herbs are present, including Jimsonweed (*Datura wrigthii*), California Figwort (*Scrophularia californica*), Hartweg's Twinevine (*Funastrum cynanchoides* ssp. *heterophyllum*), Douglas's Nightshade (*Solanum douglasii*), and Western Ragweed (*Ambrosia psilostachya*).

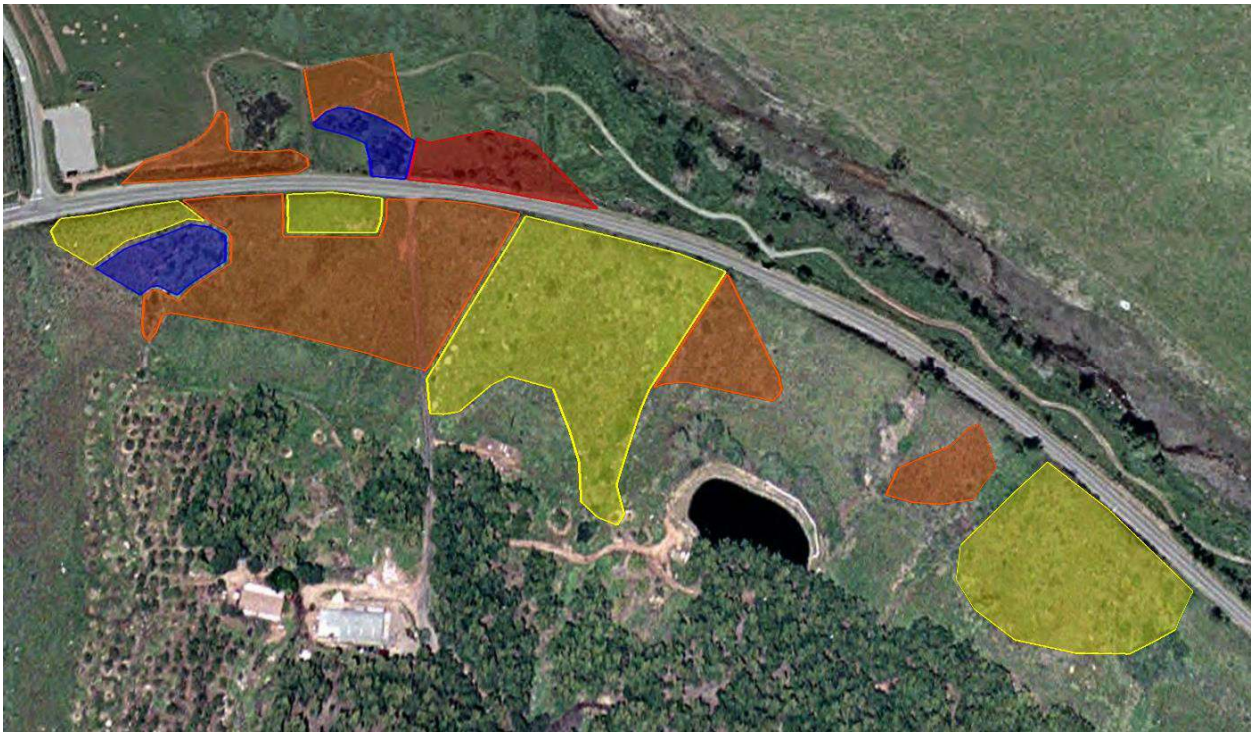

Figure 59.Weed polygons, Site K. This is one of the weedier sites, with large areas classified as Weed Code 4 or 5 and only small areas classified as Weed Code 1 or 2. Fascicled Tarweed, a weedy native, is common in some of the areas classified as Weed Code 3.

Nearly the entire site burned in 2007, although a small area of unburned cactus scrub covering approximately 0.4 acre remains near the western site boundary. The cactus scrub at this site is unusual in that it occurs on a north-facing slope that is divided by two small, willow-lined drainage courses. The cactus scrub at this site could be marginally suitable for a small number of Cactus Wrens and California Gnatcatchers, but the surveyor did not detect either species during the surveys in 2008.

Figure 60. Photo taken on 29 August 2008 showing of the 0.4-acre patch of unburned cactus scrub at the western end of Site K. The view is to the southwest. This scrub is dominated by prickly-pear, Mexican Elderberry, California Sagebrush, California Buckwheat, and Laurel Sumac.

Figure 61. Photo taken on 29 August 2008 showing a patch of burned cactus scrub in the center of Site K. The view is to the northeast. Apart from the dried mustard in the foreground (Weed Code 4), this scrub is dominated by prickly-pear and Mexican Elderberry, and is classified as Weed Code 3.

Figure 62. Photo taken on 29 August 2008 showing a patch of burned cactus scrub at the east end of Site K. The view is to the southwest. This scrub is dominated by prickly-pear, Mexican Elderberry, and Laurel Sumac, with native Fascicled Tarweed as the predominant understory species. This scrub is classified as Weed Code 3.

Survey Summary for Site K

Survey Date	Time	Start Conditions	End Conditions
24 June 2008	08:10-09:55	100% overcast; still; ~70°F	100% overcast; still; ~73°F
14 July 2008	10:25-11:25	hazy; light breeze; ~83°F	hazy; light breeze; ~83°F
12 August 2008	07:30-09:30	100% overcast; still; ~66°F	50% overcast; still; ~72°F

Non-avian vertebrates detected on 24 June: California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on14 July: California Ground Squirrel (present).

Non-avian vertebrates detected on 12 August: 1 Western Fence Lizard, Audubon Cottontail (present).

Bird Species Detected at Site K

Species	June 24	July 14	August 12
Mallard	0	0	1
California Quail	2	0	15
Great Egret	0	1	0
Cattle Egret	10	0	0
Turkey Vulture	9	16	50
Red-shouldered Hawk	2	1	2
Red-tailed Hawk	1	0	1
American Kestrel	0	0	1
Rock Pigeon	0	3	4
Mourning Dove	8	1	12
Greater Roadrunner	0	0	2
Black-chinned Hummingbird	1	1	0
Anna's Hummingbird	4	0	0
Acorn Woodpecker	2	0	0
Nuttall's Woodpecker	4	1	3
Downy Woodpecker	2	1	1
Northern Flicker	1	0	0
Pacific-slope Flycatcher	1	0	0
Black Phoebe	6	1	12
Ash-throated Flycatcher	0	1	0
Cassin's Kingbird	2	4	2
Bell's Vireo (nearby in river)	2	2	1
American Crow	20	8	10
Common Raven	2	10	17
Cliff Swallow	50	0	5
Bushtit	2	0	20
White-breasted Nuthatch	0	0	1

Species	June 24	July 14	August 12
Bewick's Wren	2	0	4
House Wren	3	2	3
Western Bluebird	0	0	11
Northern Mockingbird	0	2	9
California Thrasher	0	1	1
Yellow Warbler	5	3	9
Common Yellowthroat	12	4	4
Yellow-breasted Chat	3	3	3
Spotted Towhee	3	2	0
California Towhee	2	2	10
Song Sparrow	15	5	12
Black-headed Grosbeak	0	0	4
Blue Grosbeak	4	4	2
Lazuli Bunting	0	1	8
Brown-headed Cowbird	8	0	0
Hooded Oriole	2	0	2
House Finch	45	10	45
Lesser Goldfinch	16	10	14
American Goldfinch	6	0	0

Sightings of Interest at Site K

On each of the three surveys the surveyor heard multiple Yellow Warblers and Yellow-breasted Chats singing from willow patches on and near the site, and up to two Least Bell's Vireos singing in the river near the site.

Site M: Rockwood Canyon

This 7.3-acre site is located at the edge of an avocado grove near the juncture of Rockwood Canyon and Santa Ysabel Creek, just northeast of the small cemetery along San Pasqual Valley Road. Site M consists of two partially burned patches of cactus scrub that cover approximately 4.7 and 0.9 acres and a stand of unburned cactus scrub that covers approximately 1.7 acres (see Figure 63).

The dominant woody plant species at Site M, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), California Brickellia (*Brickellia californica*), Mexican Elderberry (*Sambucus mexicana*), and matchweed (*Gutierrezia* sp.). Much of the site is heavily infested with mustard, and Fountain Grass (*Pennisetum setaceum*) is widespread, occurring in even some of the less-weedy areas.

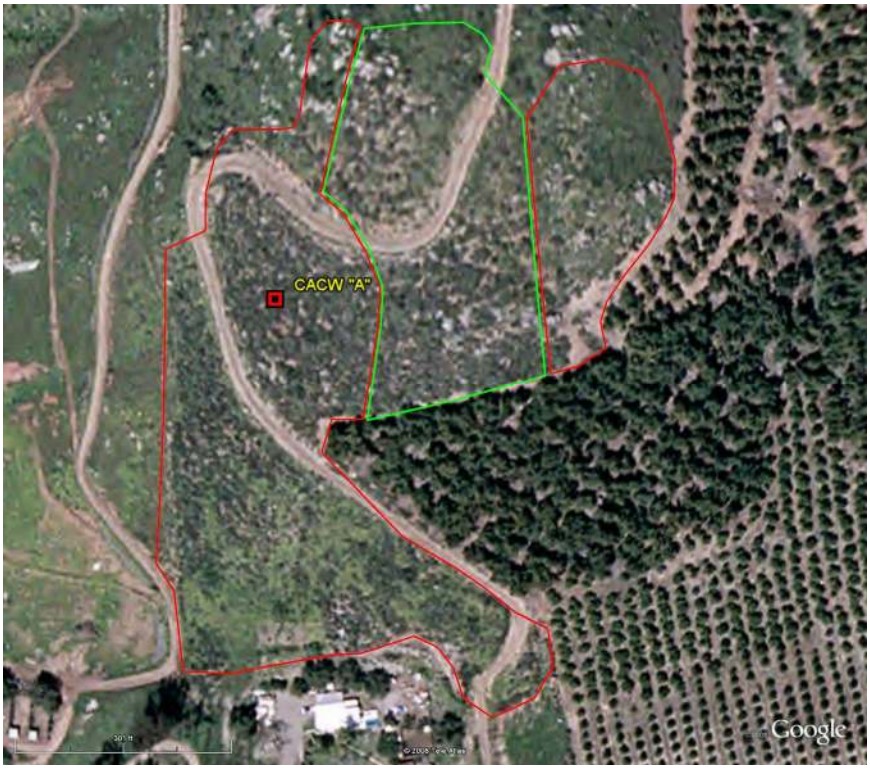

Figure 63. Scrub polygons and Cactus Wren territories, Site M. Green polygon represents unburned cactus scrub; red polygons represent lightly to moderately burned cactus scrub; and black polygons represent totally burned cactus scrub. The site's single Cactus Wren territory is indicated with a red square.

As shown in Figure 64, most of the site is either heavily infested with weeds (Weed Codes 4 and 5) or nearly weed-free (Weed Codes 1, 2).

Figure 64. Weed polygons, Site M. Dense stands of mustard are found in the areas shown in orange and red (Weed Codes 4, 5). Although weeds are generally well-controlled in the blue area (Weed Code 2), Fountain Grass is scattered across this area.

Figure 65. This photo, taken on 12 August 2008 on the south side of Site M, shows sparse, partially burned cactus scrub in a sea of mustard (Weed Code 5). The view is to the south from the dirt road that passes through this site.

Figure 66. Photo taken on 12 August 2008 showing partially burned cactus scrub in the center of Site M (Weed Code 3 in the right-foreground, Weed Code 2 elsewhere). Prickly-pear is fairly dense through this part of the site, forming the core of the site's lone Cactus Wren territory in 2008.

Figure 67. Photo taken on 12 August 2008 facing north from near the same spot where the previous photo was taken. This cactus scrub did not burn in 2007.

Survey Summary for Site M

Survey Date	Time	Start Conditions	End Conditions
17 June 2008	08:30-10:45	sunny; light breeze; ~76°F	sunny; light breeze; ~84°F
3 July 2008	08:30-09:45	hazy; still; ~78°F	hazy; still; ~84°F
12 August 2008	10:50-11:45	hazy; light breeze; ~78°F	hazy; light breeze; ~83°F

Non-avian vertebrates detected on 17 June: 4 Granite Spiny Lizards, 5 Orange-throated Whiptails, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 3 July: 2 Granite Spiny Lizards, Audubon Cottontail (present).

Non-avian vertebrates detected on 12 August: none.

Bird Species Detected at Site M

Species	June 17	July 3	August 12
California Quail	20	10	0
Turkey Vulture	4	1	9
Red-shouldered Hawk	1	1	0
Red-tailed Hawk	1	0	0
American Kestrel	0	1	0
Mourning Dove	5	2	2
Common Ground-Dove	2	0	0
Greater Roadrunner	1	0	0
Black-chinned Hummingbird	0	1	0
Anna's Hummingbird	0	2	2
Nuttall's Woodpecker	1	0	0
Black Phoebe	0	0	1
Ash-throated Flycatcher	2	0	1
Cassin's Kingbird	1	0	1
American Crow	2	2	0
Common Raven	6	2	0
Northern Rough-winged Swallow	1	1	0
Cliff Swallow	0	1	0
Bushtit	0	2	0
Cactus Wren	1	1	3
Bewick's Wren	0	1	1
Western Bluebird	3	0	0
Northern Mockingbird	3	0	6
European Starling	1	0	0
Spotted Towhee	2	2	0
California Towhee	7	2	5
Rufous-crowned Sparrow	0	1	0
Black-headed Grosbeak	1	0	0

Species	June 17	July 3	August 12
Blue Grosbeak	1	0	1
Brown-headed Cowbird	2	0	0
Hooded Oriole	1	1	2
House Finch	10	10	20
Lesser Goldfinch	5	7	3

Cactus Wren (CACW) Sightings at Site M

CACW Territory A: On 17 June and 3 July the surveyor saw one adult Cactus Wren on the site. On the first date the surveyor watched this bird for approximately 30 minutes as it sang from the telephone line and from lightly-burned cactus scrub. The surveyor did not see a mate or a nest. On the second date the surveyor watched this bird for several minutes, again not seeing a mate or a nest. Finally, on 12 August, within 30 seconds of playing the digital recordings, the surveyor noted a pair of adults with a fledgling in the same part of the site where only a single adult had been during the first two surveys. It seems likely that, during the first two surveys, the second member of the pair was at the nest when the lone bird was responding to playback.

Other Sightings of Interest at Site M

On 3 July the surveyor saw an adult Rufous-crowned Sparrow on the site.

Site N: San Pasqual Academy

This small site consists of 5.7 acres of partially burned scrub and 1.0 acre of totally burned cactus scrub on a west-facing slope just east of the academy.

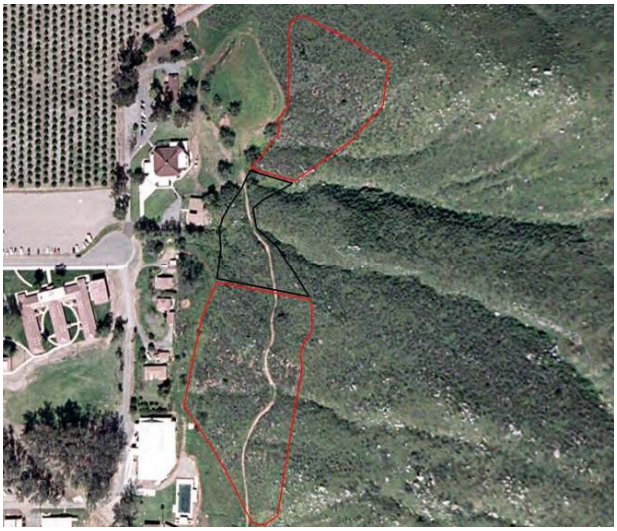

Figure 68. Scrub polygons, Site N. Red polygons represent lightly to moderately burned cactus scrub; the black polygon represents totally burned cactus scrub.

The dominant woody plant species at Site N, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Brickellia (*Brickellia californica*), California Sunflower (*Encelia californica*), Mexican Elderberry (*Sambucus mexicana*), and California Sagebrush (*Artemisia californica*). The site is uniformly weedy (Weed Code 5) due to a heavy infestation of mustard and Tocalote (*Centaurea melitensis*) throughout, but there are pockets of prickly-pear that are being filled in with various native herbaceous species. Native herbs seen on the site include Southern California Morning-glory (*Calystegia macrostegia* ssp. *arida*), California Figwort (*Scrophularia californica*), Dove Weed (*Eremocarpus setigerus*), Coulter's Snapdragon (*Antirrhinum coulterianum*), Fascicled Tarweed (*Hemizonia fasciculata*), and Hartweg's Twinevine (*Funastrum cynanchoides* ssp. *heterophyllum*).

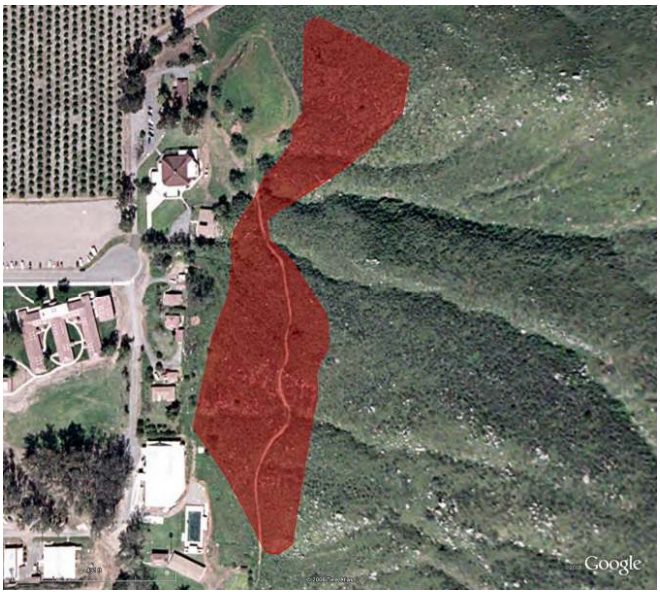

Figure 69. Although prevalence of mustard and Tocalote across Site N led to classification of the entire site under Weed Code 5, various native herbaceous species were recorded at this site. Therefore, any weed control efforts in this area should not assume that the entire area lacks native herbs in the scrub understory.

Figure 70. Photograph taken on 29 August 2008 showing cactus scrub at the southern end of Site N. Scrub in this part of the site has very little structure, consisting instead of sparse prickly-pear and a few other shrub species, such as California Sage-brush, growing among large volumes of mustard and Tocalote.

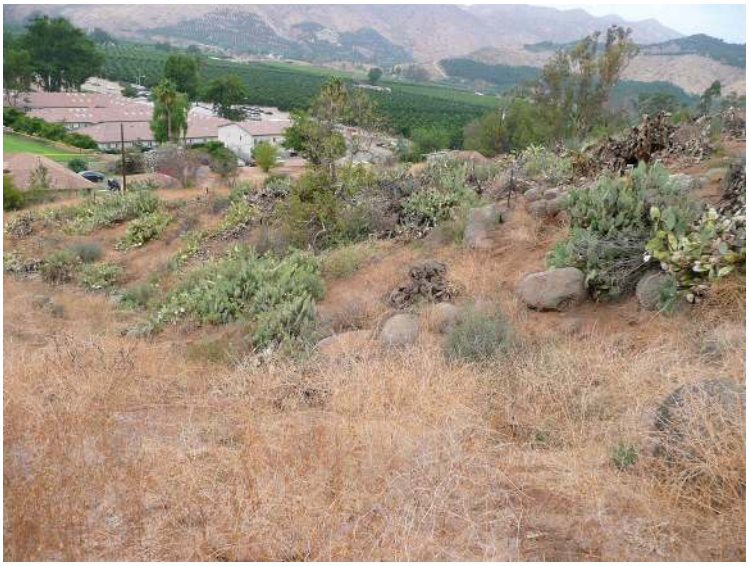

Figure 71. One of the largest and most intact patches of cactus scrub at Site N, photographed on 29 August 2008. The area shown is along the southwestern edge of the site, and the view is to the northwest.

Figure 72. Photo taken on 29 August 2008 showing the northern part of Site N. The prickly-pear in this area is burned fairly severely, and mustard and Tocalote are abundant. Still, various native herbs can be found growing among the patches of prickly-pear.

Survey Summary for Site N

Survey Date	Time	Start Conditions	End Conditions
13 June 2008	08:10-9:55	sunny; still; ~65°F	sunny; still; ~77°F
3 July 2008	09:55-10:45	hazy; light breeze; ~84°F	hazy; light breeze; ~84°F
12 August 2008	10:05-10:40	hazy; light breeze; ~74°F	hazy; light breeze; ~74°F

Non-avian vertebrates detected on 13 June: 1 Western Fence Lizard, 2 Orange-throated Whiptails, 1 Coastal Western Whiptail, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 3 July: 1 Western Fence Lizard, California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 12 August: California Ground Squirrel (present), Audubon Cottontail (present).

Bird Species Detected at Site N

Species	June 13	July 3	August 12
California Quail	10	0	0
Turkey Vulture	1	0	0
Red-tailed Hawk	0	1	0
American Kestrel	0	0	1
Mourning Dove	5	7	2
White-throated Swift	2	0	0
Black-chinned Hummingbird	0	1	0
Anna's Hummingbird	2	1	1
Costa's Hummingbird	2	0	0
Nuttall's Woodpecker	0	0	1
Black Phoebe	1	0	0
Cassin's Kingbird	0	0	0
Western Kingbird	0	2	0
American Crow	2	0	2
Common Raven	14	4	0
Cliff Swallow	12	10	0
Bushtit	8	0	0
Bewick's Wren	1	0	0
Northern Mockingbird	5	4	4
Phainopepla	2	1	0
Spotted Towhee	2	0	0
California Towhee	4	1	4
Black-headed Grosbeak	1	1	0
Brown-headed Cowbird	2	1	0
Hooded Oriole	3	3	1

Species	June 13	July 3	August 12
Bullock's Oriole	1	1	0
House Finch	20	15	10
Lesser Goldfinch	15	5	4
American Goldfinch	1	0	0

Sightings of Interest at Site N

The site's cactus scrub appears to be marginally suitable for occupation by Cactus Wrens or California Gnatcatchers, but the surveyor did not detect either species on this site. The surveyor did not make any sightings of particular interest at Site N.

Northern Unburned Sites

This site consists of a series of five unburned patches of scrub northwest of Site H, along Cloverdale Road. The surveyor covered these sites twice.

Patch 1 covers approximately 1.2 acre, roughly 0.8 acre of which consists of cactus scrub dominated by prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), and California Sagebrush (*Artemisia californica*); some of this area is within a fuel modification zone for adjacent residences. The remaining 0.4 acre and is dominated by California Sagebrush and California Buckwheat. The closest the surveyor could get to this patch was approximately 150 meters. See Figures 73–75.

Patch 2, located a short distance west of Patch 1, covers approximately 3.8 acres. This patch consists of two polygons of cactus scrub—dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry (*Sambucus mexicana*)—separated from each other by a 0.4-acre strip of scrub dominated by California Sagebrush, California Buckwheat, and White Sage (*Salvia apiana*). See Figures 73, 74, 76.

Figure 73. Scrub polygons, Patch 1 (the two eastern polygons) and Patch 2 (the three western polygons), Northern Unburned Sites. Green polygons represent unburned cactus scrub; blue polygons represent unburned coastal sage scrub (cactus not a dominant element).

Figure 74. Weed polygons, Patches 1 and 2. Part of Patch 1 had been recently cleared of weeds for fuel modification, but the surveyor concluded that the regular disturbance of this area was likely to result in accumulations of mustard and other non-native weeds in between the clearance activities. Patch 2 was generally intact, with core areas classified as Weed Code 2 and disturbed edges classified as Weed Codes 3 and 4, mainly because of mustard and Tocalote (*Centaurea melitensis*).

Figure 75. Photo taken on 8 August 2008 showing Patch 1, which consists of a narrow strip of disturbed cactus scrub and coastal sage scrub between an avocado orchard and residences. The view is to the northwest from Rockwood Road. The lower part of the slope is subject to clearing for fuel modification.

Figure 76. Photo taken on 8 August 2008 showing Patch 2, which is larger than Patch 1 and includes this hillside of fairly healthy cactus scrub. The view is to the northwest from Rockwood Road.

Patch 3 is located south of Rockwood Road, on a small hillside topped by a residence. This patch covers approximately 3.6 acres. Of this area, 2.7 acres consist of cactus scrub dominated by prickly-pear, California Sagebrush, Mexican Elderberry, and California Buckwheat with few weeds (Weed Code 2); the remaining 0.9 acre is dominated by California Sagebrush, California Buckwheat, and White Sage, and mustard and other weeds are moderate to severe in these areas (Weed Code 3–5). See Figures 77–79.

Patch 4, located across Cloverdale Road from Patch 3, covers approximately 0.7 acre and is dominated by California Sagebrush and White Sage with a few scattered prickly-pear plants. Cactus is not dominant in this scrub, and probably is not extensive enough to hold a Cactus Wren nest, so the surveyor did not classify this area as a form of cactus scrub, but rather as coastal sage scrub with some individual cactus plants. See Figures 77, 78.

Figure 77. Scrub polygons, Patch 3 (the two eastern polygons) and Patch 4 (the two western polygons). Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear.

Figure 78. Weed polygons, Patches 3, 4. Mustard, Tocalote, and other weeds were scarce within the large area of cactus scrub on the south side of Patch 3 (Weed Code 2), but the rest of these patches are moderately to severely infested (Weed Codes 3–5).

Figure 79. Photo taken on 8 August 2008 showing Patch 3. The view is to the southwest from Rockview Road. This generally healthy scrub is dominated by prickly-pear, California Sagebrush, Mexican Elderberry, and California Buckwheat.

Patch 5 is a substantial expanse of scrub covering approximately 5.7 acres. From north to south, this patch consists of 0.2 acre of ruderal vegetation mixed with California Buckwheat and White Sage; 0.3 acre of scrub dominated by California Sagebrush and White Sage; 0.3 acre of road-cut dominated by California Buckwheat; 2.0 acres dominated by prickly-pear, California Sagebrush, California Buckwheat, and Mexican Elderberry; 1.6 acres dominated by California Buckwheat and California Sagebrush with scattered prickly-pear plants; 1.0 acre dominated by California Sagebrush, prickly-pear, and California Buckwheat; and 0.3 acre of road-cut dominated by California Sunflower (*Encelia californica*), California Buckwheat, and Deerweed (*Lotus scoparius*). See Figures 80–83.

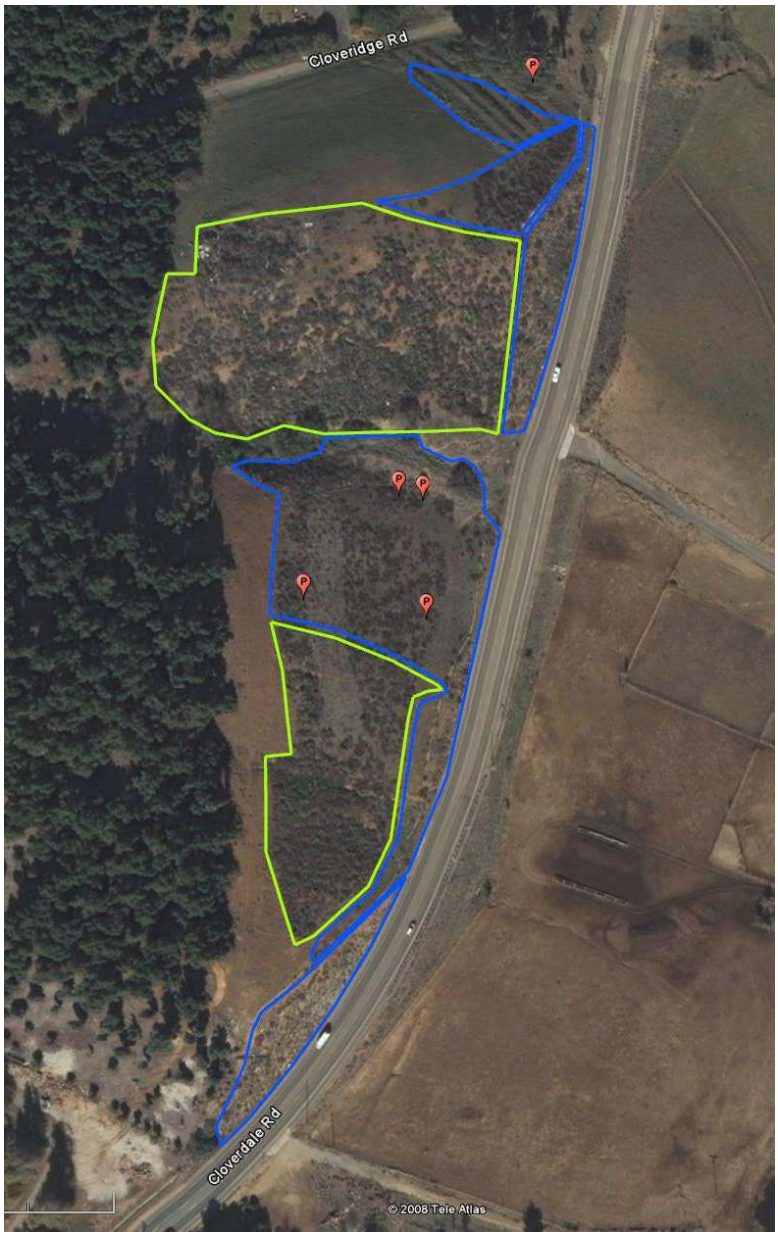

Figure 80. Scrub polygons, Patch 5. Green polygons represent unburned cactus scrub; blue polygons represent unburned coastal sage scrub (cactus not a dominant element). Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear.

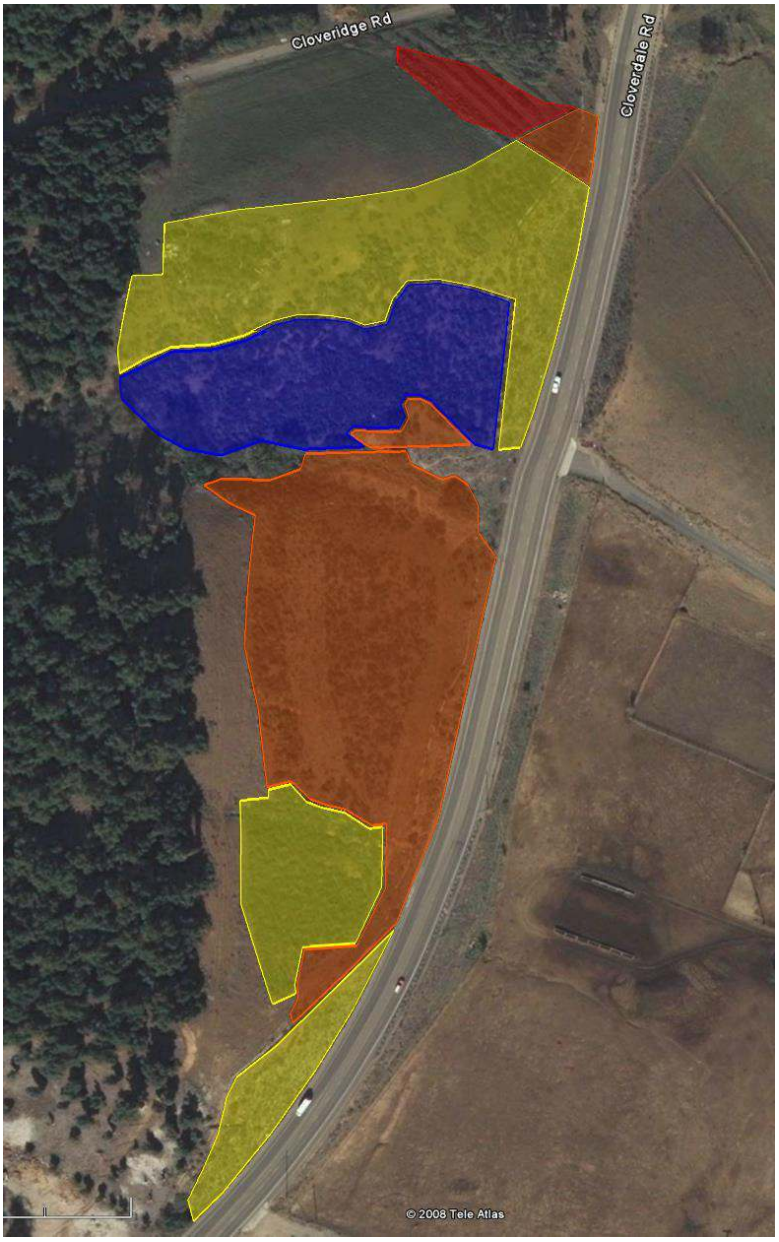

Figure 81. Weed polygons, Patch 5. As can be seen more clearly in Figure 80, most of this site has been subjected to mechanical disturbance. This appears to have allowed most of the site to become moderately to severely infested with Mustard, Tocalote, and annual grasses (Weed Codes 3–5).

Figure 82. Photo taken on 8 August 2008 showing intact cactus scrub at Patch 5 as viewed facing west from Cloverdale Road. This is the area shown in blue on Figure 81 (Weed Code 2). Shrubs most evident in this photo are prickly-pear, California Buckwheat, and Mexican Elderberry.

Figure 83. Photo taken on 8 August 2008 showing disturbed scrub in the southern half of Patch 5 as viewed facing south from near Cloverdale Road. This scrub shows signs of major disturbance in recent years, which has resulted in large areas being classified as Weed Code 4.

Survey Summary for Northern Unburned Sites

Survey Date	Time	Start Conditions	End Conditions
14 July 2008	07:05-09:20	hazy; still; ~70°F	hazy; light breeze; ~78°F
8 August 2008	07:45-10:30	sunny; still; ~74°F	sunny; light breeze; ~84°F

Non-avian vertebrates detected on 14 July: California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 8 August: 1 Side-blotched Lizard, 1 Orange-throated Whiptail, California Ground Squirrel (present), Audubon Cottontail (present).

Bird Species Detected at Northern Unburned Sites

Species	July 14	August 8
Turkey Vulture	0	15
Red-shouldered Hawk	1	3
Red-tailed Hawk	1	3
American Kestrel	0	1
Mourning Dove	8	14
Greater Roadrunner	3	2
Black-chinned Hummingbird	0	1
Anna's Hummingbird	3	7
Costa's Hummingbird	2	2
Nuttall's Woodpecker	5	2
Northern Flicker	1	0
Black Phoebe	3	1
Cassin's Kingbird	4	4

Species	July 14	August 8
Western Scrub-Jay	2	4
American Crow	15	20
Common Raven	6	4
Hutton's Vireo	0	1
Cliff Swallow	4	0
Bushtit	10	0
Cactus Wren	8	0
Bewick's Wren	1	0
California Gnatcatcher	4	3
Western Bluebird	0	2
Northern Mockingbird	13	10
European Starling	3	0
Common Yellowthroat	0	2
Yellow-breasted Chat	1	0
Spotted Towhee	0	1
California Towhee	6	16
Lark Sparrow	1	0
Song Sparrow	2	9
Black-headed Grosbeak	2	2
Blue Grosbeak	2	1
Lazuli Bunting	0	2
Brown-headed Cowbird	4	1
Hooded Oriole	1	5
Bullock's Oriole	1	0
House Finch	30	45
Lesser Goldfinch	8	7
Nutmeg Mannikin	2	2

Figure 84 shows the locations of Cactus Wren and California Gnatcatcher territories detected at the Northern Unburned Sites in 2008.

Cactus Wren (CACW) Sightings at Northern Unburned Sites

CACW Territory A: On 14 July the surveyor found a pair of Cactus Wrens in a patch of cactus scrub covering approximately 1.8 acres dominated by prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), and Mexican Elderberry (*Sambucus mexicana*). On 8 August the surveyor saw what he took to be the same pair of wrens in the same patch of cactus scrub. The surveyor watched them for several minutes and saw no indication of juveniles.

CACW Territory B: On 14 July the surveyor found a pair of Cactus Wrens in a patch of cactus scrub covering approximately 1.6 acres dominated by prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), and Mexican Elderberry (*Sambucus mexicana*). On 8 August the surveyor heard at least two wrens in the same patch of cactus scrub. These birds remained buried in dense vegetation

for several minutes and since this was gated, private land the surveyor was not able to see them clearly. The surveyor saw no indication of juveniles.

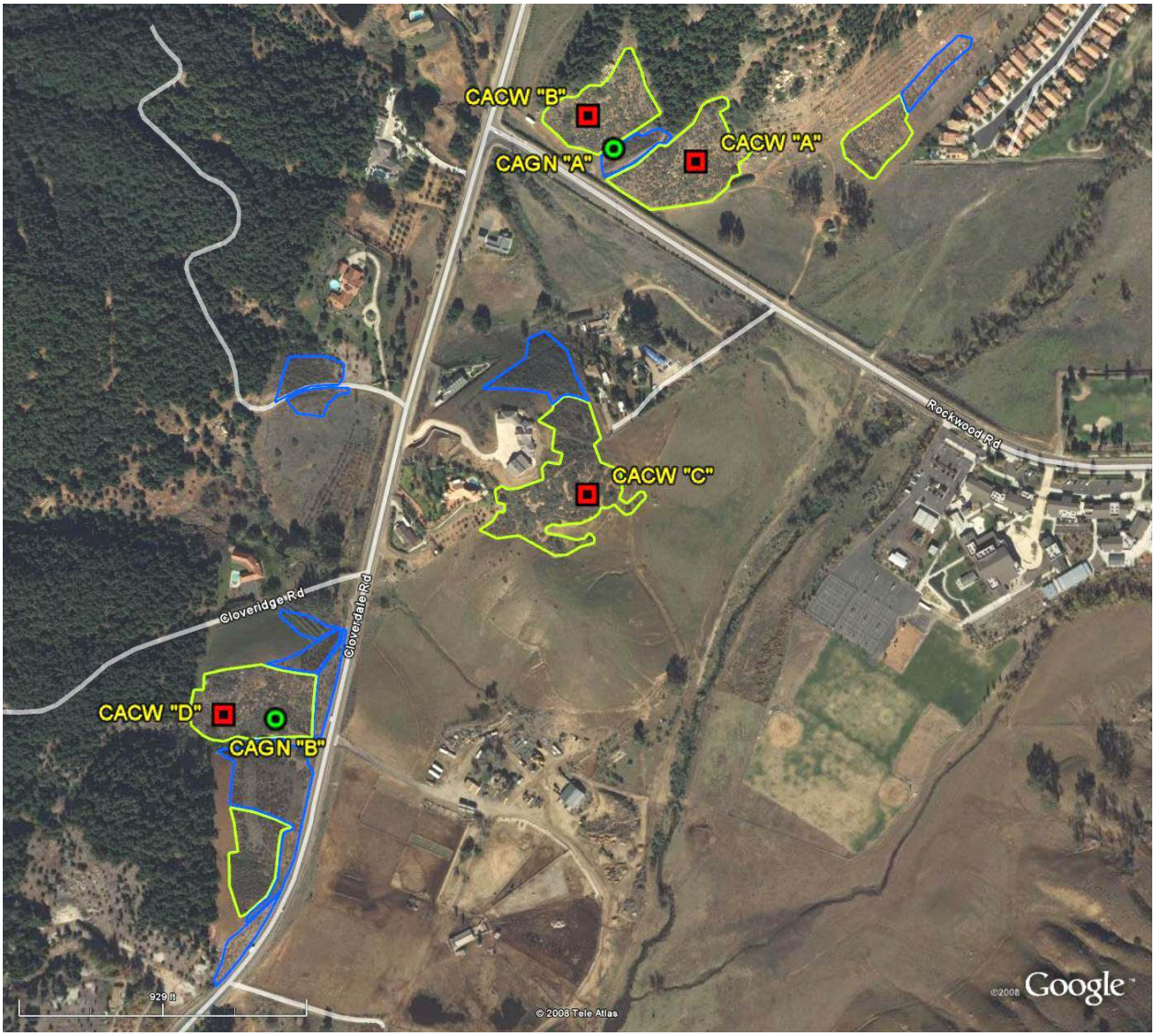

Figure 84. Composite map showing the locations of four Cactus Wren territories and two California Gnatcatcher territories detected during three surveys of the Northern Unburned Sites in 2008.

CACW Territory C: On 14 July the surveyor found a pair of Cactus Wrens in a patch of cactus scrub covering approximately 2.9 acres dominated by prickly-pear, California Sagebrush, Mexican Elderberry, and California Buckwheat. On 8 August the surveyor saw at least two Cactus Wrens in the same patch of scrub. The surveyor could not get very close to the habitat or the birds, but saw no clear indication of juveniles.

CACW Territory D: On 14 July the surveyor found a pair of Cactus Wrens nest-building in a patch of cactus scrub covering approximately 2.0 acres dominated by prickly-pear, California Sagebrush, California Buckwheat, Mexican Elderberry, and California Brickellia. On 8 August the surveyor saw this same pair in the same location. The birds came together

and displayed to each other while close to the surveyor, so he was confident that they did not have any juveniles with them.

California Gnatcatcher (CAGN) Sightings at Northern Unburned Sites

CAGN Territory A: On 14 July the surveyor observed a pair in a strip of coastal sage scrub dominated by California Sagebrush, California Buckwheat, and White Sage; this strip of scrub lay between two larger expanses of cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. On 8 August the surveyor saw this pair again in the patch of cactus scrub just east of the first sighting.

CAGN Territory B: On 14 July the surveyor observed a pair in a patch of cactus scrub covering approximately 2.0 acres dominated by prickly-pear, California Sagebrush, California Buckwheat, and Mexican Elderberry. On 8 August, in the same area, the surveyor saw an adult male that had nearly lost its black cap.

Other Sightings of Interest at Northern Unburned Sites

On 14 July the surveyor heard a Yellow-breasted Chat singing from the San Dieguito River channel just downstream from Rockwood Road. On 14 July the surveyor heard two Nutmeg Mannikins calling in flight over the San Dieguito River channel at Rockwood Road (the San Diego Bird Atlas reports few records of this exotic species for San Diego County).

San Pasqual Road @ Old Milky Way Site

This additional site consists of approximately 27 acres of unburned and partially burned scrub on the west side of San Pasqual Road just south of its intersection with Old Milky Way (see Figure 85).

Figure 85. Scrub polygons and outlying cactus, San Pasqual Road at Old Milky Way Site. Green polygons represent unburned cactus scrub (~14 acres); red polygon represents lightly to moderately burned cactus scrub (~7 acres); black polygon represents totally burned cactus scrub (~6 acres). Red balloons represent outlying cactus plants or small groupings; all are marked "P" for prickly-pear.

The dominant woody plant species at this site, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), California Brickellia (*Brickellia californica*), Laurel Sumac (*Malosma laurina*), White Sage (*Salvia apiana*), and California Sunflower (*Encelia californica*). This parcel shows evidence of having been terraced and planted with fruit trees; scattered sick and dead avocado and olive trees remain on the site as do remnants of the irrigation system. As Figure 86 shows, most of the site is classified as Weed Codes 3–5 due to moderate to severe infestations of annual grasses, Fountain Grass (*Pennisetum setaceum*), Mustard, and Tocalote (*Centaurea melitensis*).

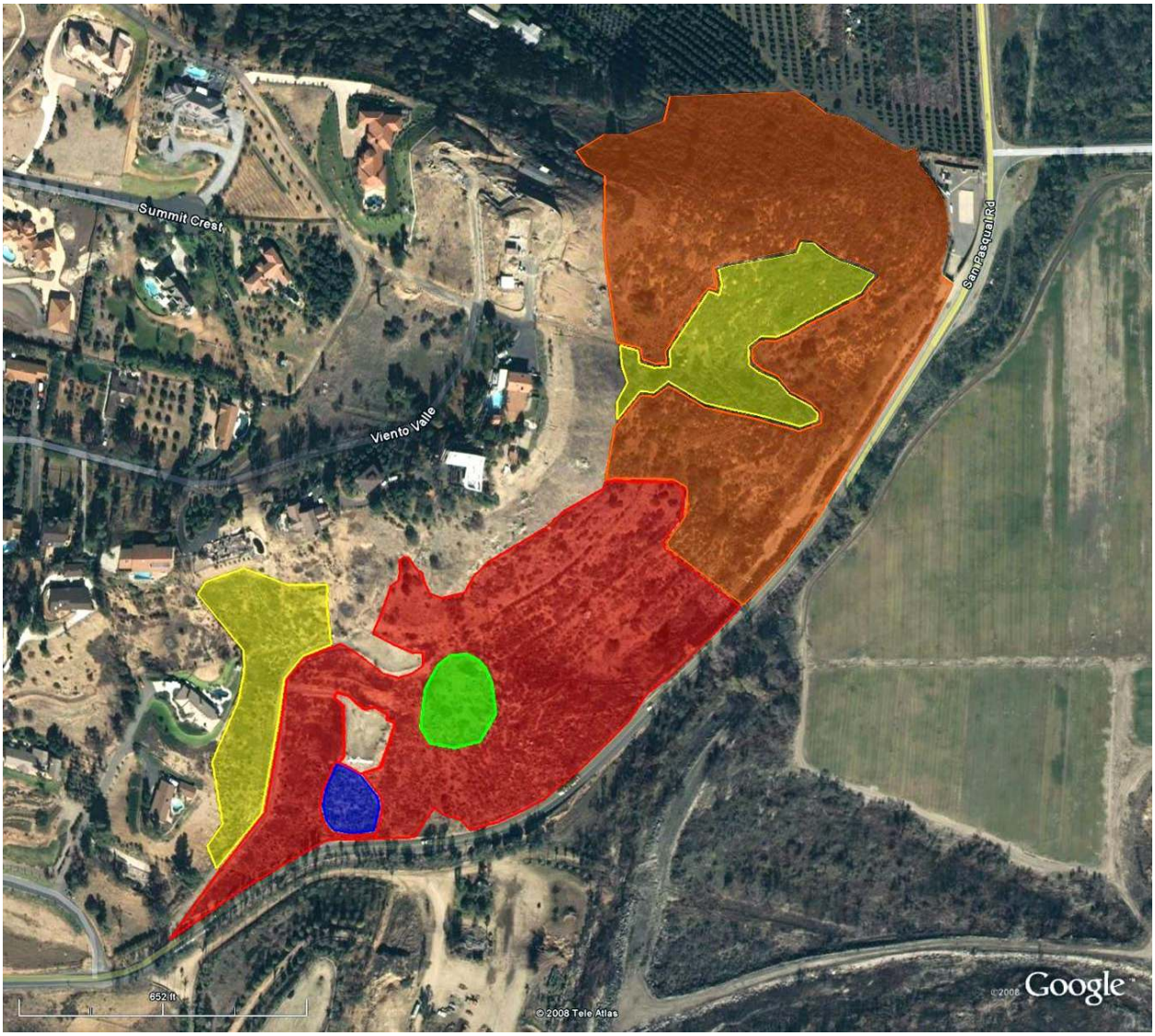

Figure 86. Weed polygons, San Pasqual Road at Old Milky Way Site. This parcel's history of agricultural use is reflected in the prevalence of non-native weeds across most of the site. Weeds are prevalent even in the northeastern part of the site, where the cactus scrub habitat is fairly dense. The two southerly circular polygons classified as Weed Code 1 and 2 are of interest, as this area burned thoroughly in 2007 and the surrounding areas are classified as Weed Code 5.

Figure 87. Photo taken on 23 July 2008 showing unburned cactus scrub in the northern half of the site. This habitat is dominated by prickly-pear, California Buckwheat, California Sagebrush, and Laurel Sumac. Evident in the background are dried weeds, including large volumes of Fountain Grass.

Figure 88. Photo taken on 27 August 2008 showing partially burned cactus scrub in the central part of the site. Evident in this view are prickly-pear, California Sagebrush, and California Sunflower. Non-native annual grasses, mustard, and Tocalote provide the understory (Weed Code 4).

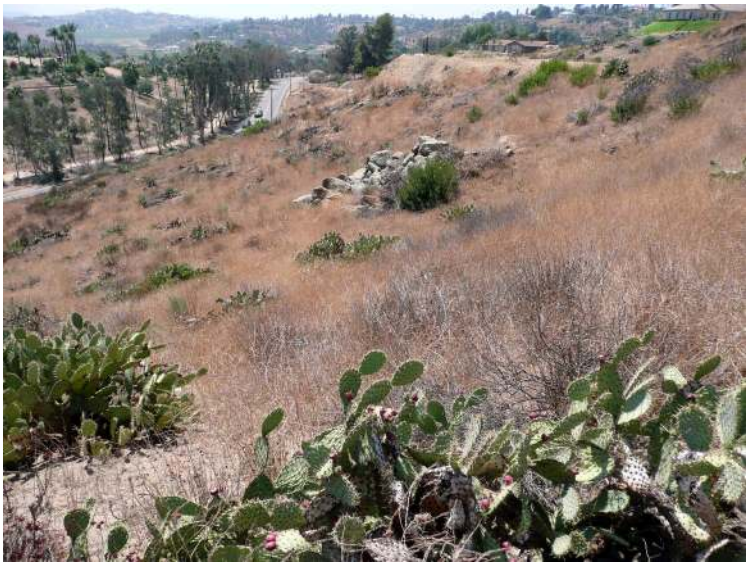

Figure 89. Photo taken on 27 August 2008 showing totally burned cactus scrub in the southern part of the site. Prickly-pear and other scorched shrubs are sparsely distributed among a large expanse of dried mustard and Tocalote (Weed Code 5).

Figure 90. This area of severely burned cactus scrub in the southern part of the site is nearly weed-free (Weed Code 1) despite being surrounded by a sea of dense mustard (see Figure 89). Evident in this photo are prickly-pear, Dove Weed (*Eremocarpus setigerus*), California Buckwheat, and Laurel Sumac.

During the first survey, on 20 June, the surveyor walked the entire area but took notes only on the Cactus Wrens and California Gnatcatchers that he detected. The surveyor took complete notes for the second and third surveys.

Survey Summary for San Pasqual Road @ Old Milky Way Site

Survey Date	Time	Start Conditions	End Conditions
20 June 2008	late a.m.	not recorded	not recorded
23 July 2008	06:40-08:15	100% overcast; still; ~67°F	hazy; still; ~72°F
27 August 2008	11:40-13:35	clear; light breeze; ~87°F	clear; moderate breeze; ~87°F

Non-avian vertebrates detected on 20 June: Southern Alligator Lizard.

Non-avian vertebrates detected on 23 July: California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 27 August: California Ground Squirrel (present).

Bird Species Detected, San Pasqual Road @ Old Milky Way Site (Species Lists Prepared Only for Second and Third Surveys)

Species	June 20	July 23	August 27
California Quail		10	5
Turkey Vulture		0	2
Red-tailed Hawk		0	2
Rock Pigeon		4	0
Mourning Dove		5	7
Greater Roadrunner	2	1	0
Black-chinned Hummingbird		0	1

Species	June 20	July 23	August 27
Anna's Hummingbird		5	3
Nuttall's Woodpecker		1	2
Cassin's Kingbird		8	3
American Crow		7	0
Common Raven		2	1
Northern Rough-winged Swallow		1	0
Bushtit		30	0
Cactus Wren	2	4	6
California Gnatcatcher	5	10	14
Western Bluebird		4	2
Wrentit		4	0
Northern Mockingbird		0	2
California Towhee		18	8
Black-headed Grosbeak		1	0
Lazuli Bunting		1	0
Bullock's Oriole		2	0
House Finch		35	20
Lesser Goldfinch		10	0
American Goldfinch		4	0

The surveyor found most of the Cactus Wrens and California Gnatcatchers in unburned areas, with some observed use of the partially burned areas and virtually no observed use of the totally burned areas.

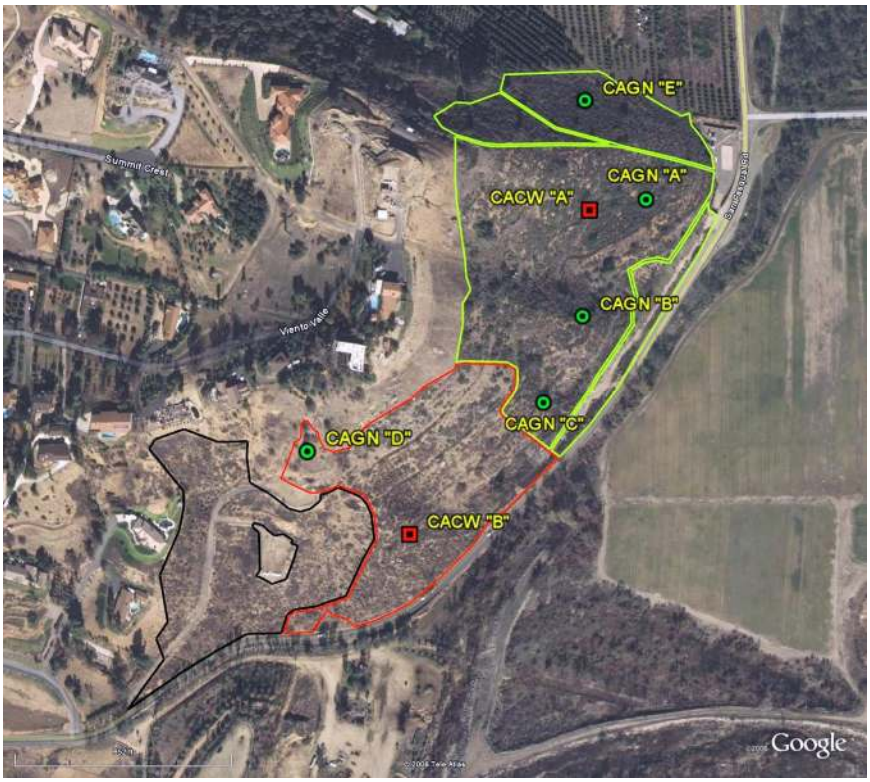

Figure 91. Composite map showing the two Cactus Wren territories (red squares) and five California Gnatcatcher territories (green circles) identified at this site during three field visits in 2008.

Cactus Wren (CACW) Sightings, San Pasqual Road @ Old Milky Way Site

CACW Territory A: On 20 June the surveyor observed a pair in the northern portion of the site using unburned cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Laurel Sumac. On 23 July the surveyor saw a pair in the same area; no sign of juveniles. On 27 August the surveyor saw what he took to be this pair with three juveniles foraging in the same area. These birds were mobbed by a pair of adult California Gnatcatchers, probably those from gnatcatcher Territory A.

CACW Territory B: On 25 July the surveyor detected a second pair of wrens that he had not seen on the first visit. These birds were using partially burned scrub in the southwestern part of the site dominated by prickly-pear, California Buckwheat, California Sagebrush, and Laurel Sumac. The habitat was infested with mustard, all of it dead at the time of the survey. The surveyor did not see any juveniles. On 27 August the surveyor saw a single adult wren foraging in the same general area; he did not see the second adult or any juveniles.

California Gnatcatcher (CAGN) Sightings, San Pasqual Road @ Old Milky Way Site

CAGN Territory A: On 20 June the surveyor observed a male in the northern portion of the site using unburned cactus scrub dominated by prickly-pear, California Buckwheat, and Laurel Sumac. The surveyor detected a pair in this area on 25 July, in habitat dominated by prickly-pear, California Buckwheat, Laurel Sumac, and California Brickellia. On 27 August the surveyor saw a pair of adults in this area chasing two juveniles, possibly trying to get them out of the natal territory. These could have been two juveniles from a different territory that had wandered into Territory A, but it is likely that the birds were produced somewhere within this site. The surveyor watched one of the juveniles hide from the adult male by "freezing" in place on the edge of a large Laurel Sumac bush for about a minute while the adult hopped through the bush searching for the juvenile. Eventually, the adult flew off to join the adult female and the other juvenile, at which time the hiding juvenile flew a short distance away from the other birds and started foraging in low vegetation. The male's black cap was nearly gone on the last date of observation.

CAGN Territory B: On 20 June the surveyor observed a male a short distance south of Territory A using unburned cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, California Brickellia, and Laurel Sumac. On 25 July the surveyor saw a pair foraging in the same general area. On 27 August the surveyor saw a pair of adults and one juvenile foraging in Territory B. The male's black cap was gone on this last date.

CAGN Territory C: On 20 June the surveyor observed a pair with two juveniles a short distance south of Territory B using unburned cactus scrub dominated by California Buckwheat, prickly-pear, California Sagebrush, and mustard. On 25 July the surveyor saw a pair very close to where he saw the family group a month earlier. Nearby, the surveyor saw a group of three independent juveniles that may have included the two juveniles from Terri-

tory C. On 27 August the surveyor again saw two adults with two juveniles in Territory C. The male's black cap was gone on the last date of observation.

CAGN Territory D: On 20 June the surveyor observed an adult male near the southwestern boundary of this area in unburned coastal sage scrub dominated by mustard, Laurel Sumac, and Mexican Elderberry. The surveyor did not find any California Gnatcatchers in this part of the site on 25 July or 27 August; he did see a lone juvenile gnatcatcher foraging in this general area on 27 August.

CAGN Territory E: On 25 July the surveyor found what appeared to be an adult female gnatcatcher in a part of the site where he did not find any gnatcatchers on 20 June. This bird was in unburned scrub dominated by California Buckwheat, California Sagebrush, White Sage, prickly-pear, and Laurel Sumac. Given the substantial area of scrub in this part of the site, where the surveyor did not see any gnatcatchers on 20 June, he took this bird to represent a new territory. On 27 August the surveyor again saw a pair of adults in this part of the site, foraging in the same habitat. The male's black cap was gone on the last date.

Other Sightings of Interest, San Pasqual Road @ Old Milky Way Site

On 20 June the surveyor watched an adult Greater Roadrunner feed a Southern Alligator Lizard to a juvenile roadrunner.

Bear Valley Parkway Site

This additional site consists of approximately 40 acres of unburned scrub on a privately-owned parcel located between Bear Valley Parkway and Summit Drive a short distance south of San Pasqual Valley Road. The dominant woody plant species, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Sagebrush (*Artemisia californica*), California Buckwheat (*Eriogonum fasciculatum*), Mexican Elderberry (*Sambucus mexicana*), California Brickellia (*Brickellia californica*), Spiny Redberry (*Rhamnus crocea*), White Sage (*Salvia apiana*), and Chaparral Yucca (*Hesperoyucca whipplei*). Scrub in some seasonal drainage areas includes Poison Oak (*Toxicodendron diversilobum*) and Broom Baccharis (*Baccharis sarothroides*). Most of the herbaceous species occur in parts of the site that have been subject to past or ongoing disturbance, and so most are non-native annual grasses, non-native mustards, and Tocalote (*Centaurea melitensis*). Native herbaceous species found on the site include California Figwort (*Scrophularia californica*), Deerweed (*Lotus scoparius*), and California Aster (*Lessingia filaginifolia*).

The site includes approximately 33 acres of cactus scrub and five acres of coastal sage scrub that lacks cactus as a dominant element. Oak woodlands occur around the western, southern and eastern margins of the site, and scattered Coast Live Oaks (*Quercus agrifolia*) occur within the scrub, especially in the southwestern quadrant of the site. Habitat conditions at this site are generally good to excellent, especially in the eastern half of the site, which is less disturbed and weedy than the western half.

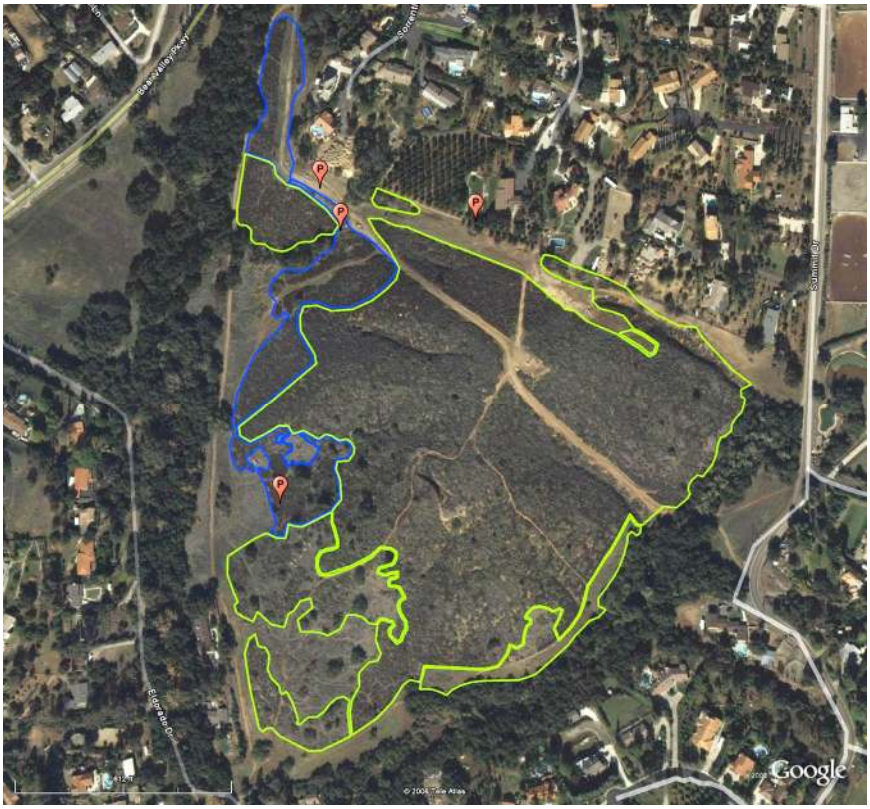

Figure 92. Scrub polygons and outlying cactus, Bear Valley Parkway Site. Green polygons represent unburned cactus scrub; blue polygons represent unburned coastal sage scrub (cactus not a dominant element). Red balloons represent outlying cactus plants or small groupings; "P" stands for prickly-pear.

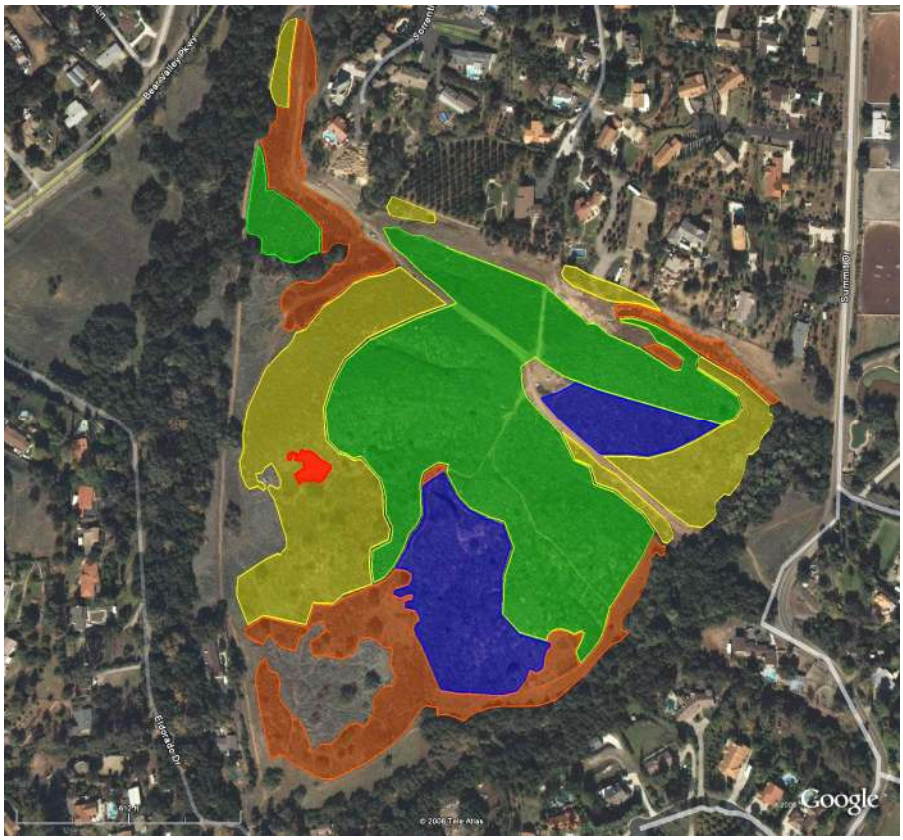

Figure 93. Weed polygons, Bear Valley Parkway Site. At least half the site, shown in green and blue, supports dense cactus scrub with few weeds (Weed Codes 1, 2). Annual grasses predominate in the understory of the areas shown in yellow (Weed Code 3). Mustard and Tocalote typify the understory of areas shown in Orange (Weed Code 4).

Figure 94. Photo taken on 4 August 2008, facing north, showing dense cactus scrub in the central portion of the Bear Valley Parkway Site. Identifiable in this image are prickly-pear, California Sagebrush, California Buckwheat, and Mexican Elderberry. Dried mustard visible in the foreground occurs in a narrow band along the dirt road through this part of the site, but otherwise the scrub is dense enough that herbaceous species have little room to become established (Weed Codes 1, 2).

Figure 95. Photo taken on 4 August 2008, facing east, showing coastal sage scrub in the northwestern portion of the Bear Valley Parkway Site. The area shown is dominated by California Sagebrush and California Buckwheat, and the understory is characterized by annual grasses (Weed Code 3). Cactus scrub is visible in the background of this photo.

Figure 96. Photo taken on 4 August 2008 showing a band of dense prickly-pear along the northeastern boundary of the Bear Valley Parkway Site. On this date the surveyor observed a family of Cactus Wrens foraging in this cactus patch and an adult singing from the roof of the small shed visible in the background (see Figure 97). The surveyor also observed Cactus Wrens using another patch of cactus scrub along the site's northern boundary, approximately 120 meters northwest of the one shown here.

Figure 97. Photo taken on 4 August 2008 showing an adult Cactus Wren from Territory A of the Bear Valley Parkway site perched on the shed shown in Figure 96. The surveyor observed Cactus Wrens using two different patches of cactus scrub that exist within the fuel modification zones along the northern edge of this site. Such observations provide evidence that planting native cactus in fuel modification zones can result in usable habitat for Cactus Wrens.

Figure 98. Photo taken on 20 August 2008 showing an adult male California Gnatcatcher in California Buckwheat at Territory C of the Bear Valley Parkway Site. This male's black cap had nearly molted out and its tail was growing in.

Survey Summary for Bear Valley Parkway Site

Survey Date	Time	Start Conditions	End Conditions
4 August 2008	07:20-11:15	hazy; still; ~69°F	hazy; light breeze; ~85°F
20 August 2008	08:00-12:20	100% overcast; still; ~68°F	clear; light breeze; ~83°F

Non-avian vertebrates detected on 4 August: Side-blotched Lizard (present), 1 Striped Racer, 1 Virginia Opossum (dead), California Ground Squirrel (present), Audubon Cottontail (present).

Non-avian vertebrates detected on 20 August: 1 Side-blotched Lizard, California Ground Squirrel (present), Audubon Cottontail (present).

Bird Species Detected, Bear Valley Parkway Site

Species	August 4	August 20
California Quail	30	10
Turkey Vulture	5	5
Red-shouldered Hawk	2	2
Red-tailed Hawk	2	0
Rock Pigeon	2	0
Mourning Dove	11	10
Black-chinned Hummingbird	6	7
Anna's Hummingbird	14	25
Costa's Hummingbird	2	0
Acorn Woodpecker	3	5
Nuttall's Woodpecker	3	6
Black Phoebe	2	3
Ash-throated Flycatcher	3	0
Cassin's Kingbird	4	8
Western Kingbird	1	1
Western Scrub-Jay	6	5
American Crow	10	15
Common Raven	4	2
Hutton's Vireo	2	2
Oak Titmouse	1	2
Bushtit	30	30
Cactus Wren	18	18
Bewick's Wren	7	15
House Wren	2	3
California Gnatcatcher	13	11
Western Bluebird	2	0
Wrentit	8	7
Northern Mockingbird	7	6
California Thrasher	0	5
Orange-crowned Warbler	0	1
Western Tanager	1	0
Spotted Towhee	2	5
California Towhee	26	22
Song Sparrow	0	1
Black-headed Grosbeak	1	0
Lazuli Bunting	1	5
Hooded Oriole	5	8
Bullock's Oriole	2	0
House Finch	45	40
Lesser Goldfinch	20	12

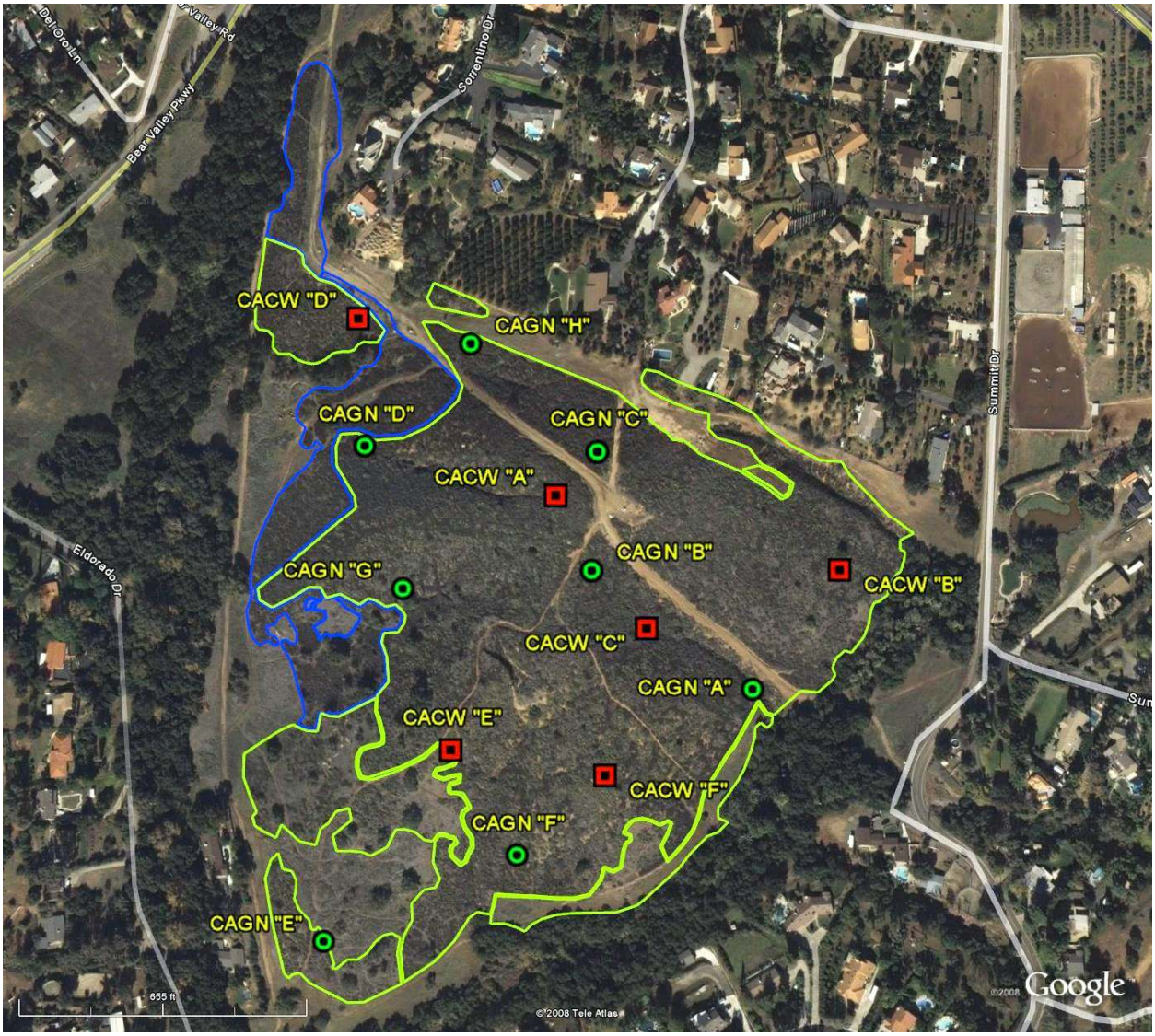

Figure 99. Composite map showing six Cactus Wren territories (red squares) and eight California Gnatcatcher territories (green circles) identified at the Bear Valley Parkway site during two field visits in 2008.

Cactus Wren (CACW) Sightings, Bear Valley Parkway Site

CACW Territory A: On 4 August the surveyor observed a family group consisting of a pair with three juveniles foraging in a stand of prickly-pear located immediately adjacent to a residential yard on the northeastern site boundary (see Figure 96). An adult flew to the roof of a shed (see Figure 97). The birds then flew off to the northwest to forage in cactus scrub habitat dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. On 20 August the surveyor saw three Cactus Wrens—not very well—in cactus scrub in the west-central part of the site. Since this was the area where the family group had been moving toward on 4 August, the surveyor considered it likely that these were the birds from Territory A. While trying to see these birds, the surveyor noted another Cactus Wren from either Territory E or F calling from the ridgeline to the south.

CACW Territory B: On 4 August the surveyor detected a pair of wrens in the northeastern corner of the site using habitat dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. On 20 August the surveyor noted a single adult and two juveniles in the same area.

CACW Territory C: On 4 August, south of Territory B, the surveyor detected a family group consisting of a pair of wrens with at least one juvenile. These birds were using habitat dominated by California Sagebrush, prickly-pear, California Buckwheat, and Poison Oak. On 20 August the surveyor again saw a pair with one juvenile in the same area.

CACW Territory D: On 4 August the surveyor detected an adult Cactus Wrens in the northwestern corner of the site. He first saw the bird foraging in a stand of dense cactus along the site boundary, but the bird then flew out of this stand and into a larger stand of cactus scrub dominated by prickly-pear, California Sagebrush, and California Buckwheat. On 20 August the surveyor obtained brief, distant views of three Cactus Wrens in the same part of the site and considered it likely that they represented Territory D. For the purpose of estimating productivity, the wrens at this territory are taken to have produced a single juvenile.

CACW Territory E: On 4 August the surveyor detected a family group consisting of a pair of wrens with two juveniles in the southwestern corner of the site. The birds were interacting with the family group in nearby Territory F. They were using habitat dominated by prickly-pear, California Sagebrush, California Buckwheat, and Mexican Elderberry. On 20 August the surveyor detected a pair of adults with one juvenile in the same general area. The adults were in heavy molt on the latter date.

CACW Territory F: On 4 August the surveyor detected a family group consisting of a pair of wrens with at least one juvenile in the southwestern corner of the site. The birds were interacting with the family group in nearby Territory E. They were using habitat dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. On 20 August the surveyor observed a pair with two juveniles in the same part of the site.

California Gnatcatcher (CAGN) Sightings, Bear Valley Parkway Site

CAGN Territory A: On 4 August the surveyor observed a pair in the northeastern portion of the site using cactus scrub dominated by California Sagebrush, prickly-pear, California Buckwheat, and Mexican Elderberry. Both birds were in full molt; the male's cap was nearly gone and the female was visibly missing feathers on the head, wings, and tail. On 20 August the surveyor found a pair of gnatcatchers in the same general area. The male had no cap, which helped the surveyor to determine that this was probably the male from Territory A instead of the male from nearby Territory B (since that male had a nearly full cap only 16 days earlier).

CAGN Territory B: On 4 August the surveyor observed a male a short distance northwest of the pair discussed above. The habitat was cactus scrub dominated by California Sage-

brush, prickly-pear, California Buckwheat, and Mexican Elderberry. This bird's cap was nearly intact. The surveyor could not refind this bird on 20 August.

CAGN Territory C: On 4 August the surveyor observed a family group consisting of a pair with one juvenile in the north-central part of the site using cactus scrub dominated by California Sagebrush, prickly-pear, California Buckwheat, and Mexican Elderberry. Chaparral Yucca was present. The male had lost at least half of its cap. On 20 August the surveyor observed a pair in the same area and photographed the male (see Figure 98).

CAGN Territory D: On 4 August the surveyor observed a pair in the northeastern portion of the site using cactus scrub dominated by California Buckwheat, prickly-pear, California Sagebrush, and Mexican Elderberry. The male was molting, but its cap remained fairly conspicuous. On 20 August the surveyor detected a pair in the same spot and noted that the male's cap was nearly gone.

CAGN Territory E: On 4 August the surveyor observed a male in the southwestern corner of the site using an area of ruderal vegetation mixed with prickly-pear, California Buckwheat, and Mexican Elderberry. The bird's cap was nearly absent. The surveyor did not refind these birds on 20 August.

CAGN Territory F: On 4 August the surveyor observed a pair in the southern central portion of the site using cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. The male's cap was about half-gone. On 20 August the surveyor observed a pair in the same general area and noted that the cap still appeared to be about half-gone.

CAGN Territory G: On 4 August the surveyor observed a pair just west of the site's central peak in cactus scrub dominated by prickly-pear, California Buckwheat, California Sagebrush, and Mexican Elderberry. The male's cap was about half-gone. On 20 August the surveyor observed a male in the same spot and noted that the cap still appeared to be about half-gone.

CAGN Territory H: On 20 August the surveyor detected an adult male foraging in cactus scrub dominated by California Sagebrush, California Buckwheat, and prickly-pear near the northwestern project boundary. Since he did not observe any gnatcatchers in this part of the site on 4 August, he considered it likely that this bird represented a new territory.

Other Sightings of Interest, Bear Valley Parkway Site

On 4 August the surveyor saw one juvenile California Gnatcatcher that was not associated with any adults or other juveniles. He also heard a Cactus Wren calling from a small patch of intact cactus scrub located southwest of the site, on the west side of Eldorado/Marion Lane.

Old Survey Road Site

This small, additional site consists of less than five acres of moderately to heavily burned scrub on the east side of Bandy Canyon Road, between Sites K and N.

Figure 100. Scrub polygons and outlying cactus, Old Survey Road Site. Red polygons represent lightly to moderately burned cactus scrub; the black polygon represents totally burned cactus scrub.

Figure 101. Weed polygons, Old Survey Road Site. Ripgut Brome is abundant in the northern polygon and the southwestern part of the southern polygon (Weed Code 5).

Figure 102. Photo taken on 29 August 2008 showing the southern patch of cactus scrub at the Old Survey Road site; the view is to the southeast. Scrub in the foreground is only moderately weedy (Weed Code 3) compared with that in the background (Weed Code 4).

Figure 103. Photo taken at the Old Survey Road site on 29 August 2008 showing the southern patch of scrub in the foreground and the northern patch of cactus scrub; the view is to the north. The northern patch of cactus scrub is characterized by small stands of prickly-pear scattered across a hillside of dense Ripgut Brome (Weed Code 5).

The dominant woody plant species, in roughly descending order from most to least widespread on the site, are prickly-pear (*Opuntia* sp.), California Sagebrush (*Artemisia californica*), and non-native Peruvian Pepper (*Schinus molle*). The most abundant herbaceous species are non-native annual grasses, especially Ripgut Brome (*Bromus diandrus*), but mustard and Canada Horseweed (*Conyza canadensis*) are also common. The only locally dominant native herb is Dove Weed (*Eremocarpus setigerus*). The site's southern patch of cactus scrub includes 1.1 acres of partially burned scrub and 0.3 acre of totally burned scrub. The northern patch of cactus scrub consists of approximately 1.3 acres of partially burned scrub. As shown in Figure 101, most of the habitat is severely infested with non-native weeds (Weed Codes 4, 5). Given that cactus scrub is of limited extent and in poor condition, it would have been somewhat unexpected to find Cactus Wrens or California Gnatcatchers at this site during the 2008 surveys.

Survey Summary for Old Survey Road Site

During the first survey, on 20 June, the surveyor walked the entire area but did not take notes; he did take complete notes during the second and third surveys.

Survey Date	Time	Start Conditions	End Conditions
20 June 2008	mid a.m.	not recorded	not recorded
14 July 2008	09:50-10:20	hazy; light breeze; ~82°F	hazy; light breeze; ~83°F
12 August 2008	09:35-09:55	50% overcast; still; ~74°F	hazy; light breeze; ~74°F

Non-avian vertebrates detected on 20 June: Not recorded.

Non-avian vertebrates detected on 14 July: California Ground Squirrel (present).

Non-avian vertebrates detected on 12 August: California Ground Squirrel (present).

Bird Species Detected, Old Survey Road Site

Species	June 20	July 14	August 12
Turkey Vulture		2	0
Red-tailed Hawk		1	0
American Kestrel		1	0
Mourning Dove		0	4
Anna's Hummingbird		0	1
Black Phoebe		2	0
Cassin's Kingbird		1	0
American Crow		4	0
Common Raven		2	0
Cliff Swallow		0	1
Bushtit		12	0
Hooded Oriole		1	0
House Finch		10	2
Lesser Goldfinch		2	2

Sightings of Interest, Old Survey Road Site

The surveyor did not make any sightings of particular interest at this site.

West Zoo Road Site

Annual grassland with scattered prickly-pear (*Opuntia* sp.) covering approximately 7.8 acres exists on private property east of Site H and west of West Zoo Road.

Figure 104. This area of grass/scrub at the corner of San Pasqual Valley Road and West Zoo Road could not be effectively surveyed in 2008 due to access issues.

Since this area could only be accessed by standing outside the fence near the intersection of San Pasqual Road and West Zoo Road, most of the cactus scrub habitat was too distant to be effectively surveyed. Therefore, the surveyor did not regard this area as one of the sites to be formally covered in this survey effort. Nevertheless, the surveyor did stop to check this location on 24 June and 22 August, playing recordings of Cactus Wren and California Gnatcatcher vocalizations both times. On the second date, a juvenile Cactus Wren responded from a stand of cactus toward the west-central portion of the polygon shown in Figure 104. The surveyor used a telescope to confirm that this was a juvenile and not a worn adult wren, and he watched it while using playback for several minutes to see whether any other Cactus Wrens might also respond. Since the bird appeared to be alone, the surveyor concluded that it was probably a dispersing juvenile (most likely from Sites H, I, or J) rather than a territorial bird. The surveyor regards this area as having potential to support a territorial pair of Cactus Wrens and/or California Gnatcatchers.