

Rancho La Costa
Habitat Conservation Area
(S016, S020, S022, S026 and S036)

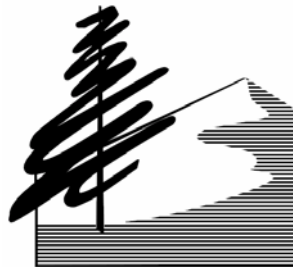
A Dedicated Natural Open Space System Set Aside as Part
of the La Costa Villages, University Commons and
Cassia Professional Offices Developments
which also includes the “Nelson” parcel.

Annual Report
October 2006 - September 2007

Prepared for:

U.S. Fish and Wildlife Service
California Department of Fish and Game
City of Carlsbad
City of San Marcos

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I. INTRODUCTION

This report summarizes the management activities carried out at the Rancho La Costa Habitat Conservation Area (HCA) by the Center for Natural Lands Management (Center or CNLM) from October 1, 2006 to September 30, 2007.

The HCA was created by combining several areas, which were dedicated to the Center for long term management from the La Costa Villages, University Commons, and Cassia Professional Offices (Cassia) developments. The Cassia property, which is about 1 acre, was added in January of 2007 and lies adjacent to the 'greens' property of La Costa Villages.

Each development dedicated several parcels that have been identified in the past by various names or associations. The La Costa Villages project dedicated parcels referred to as Oaks, Ridges, Greens, Choumas-Pappas, and Questhaven/Alemir, of which the former three are located in Carlsbad, and the latter two are located in the County of San Diego. The University Commons project dedicated parcels referred to as the "on-site parcels", Frank's Peak, Pfau (Conservation Easement), Huff, Wilern, Winston and Setter and Elfin Forest (Conservation Easement). The Elfin Forest parcels are located both on-site (San Marcos) and within the County of San Diego. The Setter parcel and Pfau CE is within the County of San Diego. All the other University Commons parcels are located within the City of San Marcos. The Nelson parcel was purchased by the National Fish and Wildlife Foundation and deeded to the Center. This parcel is located in the County of San Diego.

As of October 2007, the Center owns or holds conservation easements on all the properties set aside by these developments, except for one parcel that is owed to us by the La Costa Villages Development. The entire HCA is also completely funded.

The HCA is located approximately two miles inland from the Pacific Ocean and lies between El Camino Real, near Palomar Airport Road, and Elfin Forest (Figures 1 and 2). The HCA consists of several parcels separated by roads, homes, golf courses and other developments. Parcel sizes range from a few acres to over 500 acres. Vegetation communities include Diegan coastal sage scrub, chaparral, sycamore/oak woodland, willow woodland, native and nonnative grassland, and disturbed areas.

The tasks and objectives discussed below are those derived from the *Rancho La Costa Habitat Conservation Area Annual Work Plan 2006-2007* (CNLM 2006) and the *Habitat Management Plan for Rancho La Costa Habitat Conservation Area* (CNLM 2005), both of which were submitted to the County of San Diego, City of Carlsbad, City of San Marcos, United States Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG).

Management of the HCA includes posting and maintaining signs, fences, and gates (capital improvements), biological surveys, habitat restoration, public services and reporting. Each of these activities and their fiscal year results are summarized below and fully described within this report.

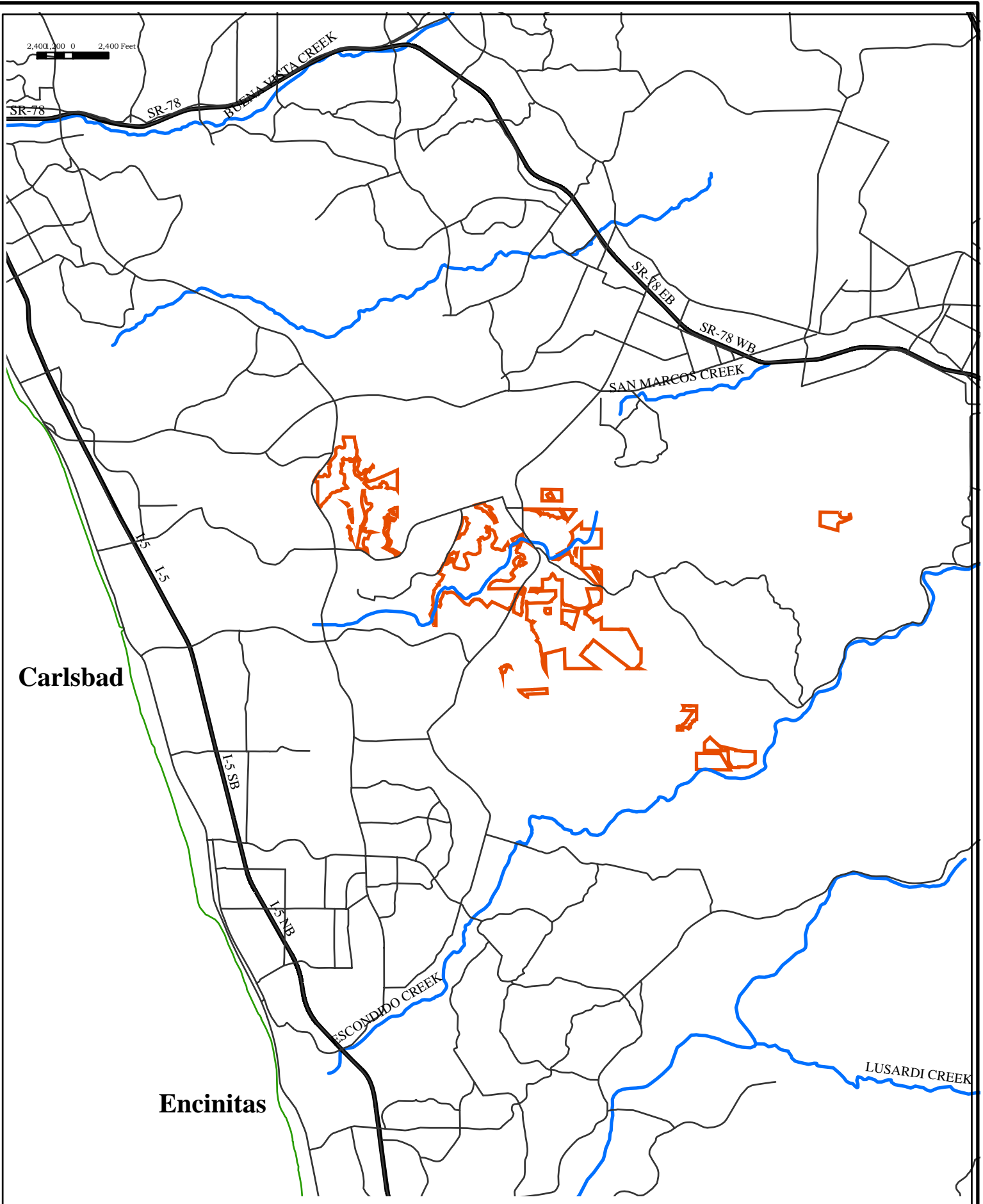


Figure 1
Preserve Vicinity
Rancho La Costa Habitat Conservation Area



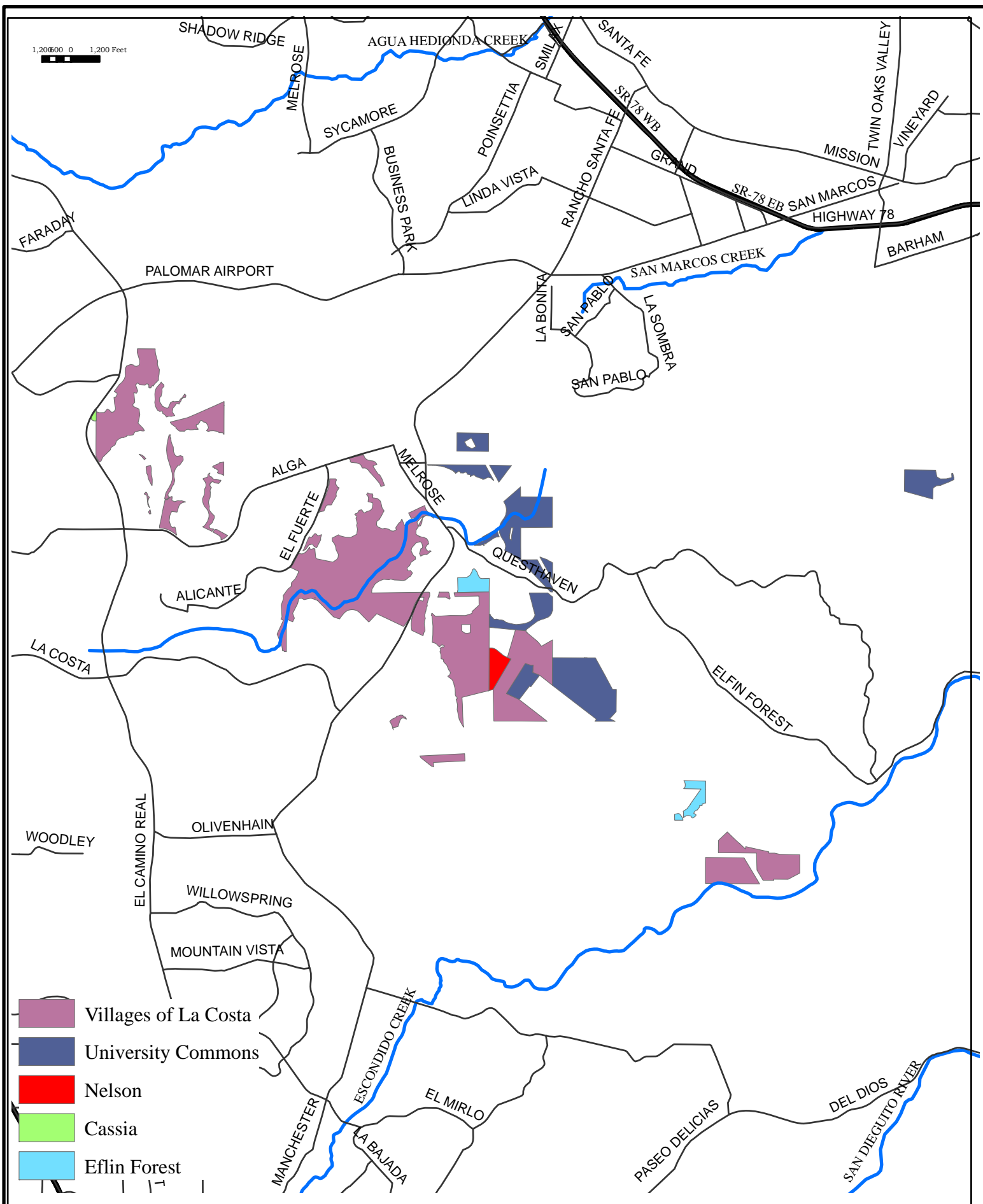


Figure 2
Preserve Location
 Rancho La Costa Habitat Conservation Area



SUMMARY OF 2006-2007 FISCAL YEAR ACTIVITIES

- In the spring of 2007, we documented 44 pair, and 10 single male CAGN. An additional 5 gnatcatchers were heard calling in different territories but were never observed to determine status or sex. Of the 44 pair, 27 were in Carlsbad, 4 were in San Marcos and 13 were in the County of San Diego. Of the 10 single males, 4 were in Carlsbad, 4 were in San Marcos and 2 were in the County of San Diego. Of the 5 unknown status individuals, 1 was in Carlsbad, 2 were in San Marcos and 1 was in the County of San Diego.
- Wildlife corridor tracking was completed at several locations within the HCA
- The condition of the thread-leaved brodiaea (*Brodiaea filifolia*) habitat at La Costa Greens was assessed
- Focused surveys for thread-leaved brodiaea and San Diego thornmint (*Acanthomintha ilicifolia*) were conducted.
- The existing trail system was improved. Five kiosks and about 300 linear feet of post and rail fencing were installed. Trail signs were posted throughout the trail system.
- Non-native plant species were controlled or removed
- Herbicide experiments were conducted on onion weed (*Asphodelus fistulosus*) and a pilot experiment was established to test the effects of specific weed removal techniques and treatments on thread-leaved brodiaea
- CNLM spent considerable time and resources enforcing access restrictions, picking up trash, and educating the public

II. CAPITAL IMPROVEMENTS

During the fiscal year we installed about 500 linear feet of barbed wire fencing along the western edge of the greens, about 100 feet at the trail entrance near the Melrose Road bridge, about 250 feet near the southern boundary of the questhaven parcel and about 500 additional feet in various locations. We also had boy scouts install several segments of fence in various locations. One scout installed about 100 feet of post-and-rail fencing along the Ridgline Trail at Box Canyon. Another scout installed a number of 20-foot segments of post and rope on the trail west of the old Rancho Santa Fe Road to guide users on the trail, and away from areas we don't want them to use.

CNLM also installed about 500 linear feet of chain link fencing on each side of Rancho Santa Fe Road to guide wildlife under the wildlife crossing. Funds for this fence were provided by the Friends of Box Canyon. As part of our agreements, Brookfield Homes paid for the installation of about 1000 linear feet of barbed wire fencing along the northern boundary of the Winston parcel, about 500 linear feet of chain link fencing on each side of the Melrose Bridge and about 1000 linear feet of chain link and smooth wire fencing along the northern boundary of the newly built quarry trail (at the Brouwer parcel).

III. BIOLOGICAL SURVEYS

This fiscal year was the sixth year of biological surveys carried out by CNLM at the HCA. Previous surveys had been conducted by numerous biological consulting firms and are reported in the biological impact assessment reports and EIR's for the La Costa Villages, Cassia Professional Offices, and University Commons Open Space Areas.

The *Habitat Management Plan* (HMP, CNLM 2005b) outlines the goals of biological monitoring at the HCA. The general goals of the monitoring activities at the HCA at this time are to 1) conduct focused surveys for the coastal California gnatcatcher (CAGN), 2) evaluate the changes in structure and composition of the coastal sage scrub vegetation community, 3) identify and measure the potential threat that nonnative grass species may have to thread-leaved brodiaea and native grasslands, 4) study the use of wildlife corridors by mammal species and 5) assess/monitor the changes in the native ant community as part of San Diego horned lizard (*Phrynosoma coronatum blainvillii*) research.

Monitoring activities this fiscal year included focused surveys for CAGN, wildlife corridor surveys, focused annual plant surveys, and thread-leaved brodiaea habitat assessments.

Table 1 outlines survey dates, times, weather conditions and type of survey conducted. Unless noted otherwise, all surveys and monitoring activities that require wildlife agency permits were conducted by Markus Spiegelberg who is permitted by the USFWS and CDFG (USFWS PRT-787-924, Scientific Collectors Permit # 801106-05, CDFG MOU) and Jessie Vinje (TE094318-0) for the CAGN and other listed species. Jessie Vinje and Patrick McConnell conducted all plant and vegetation activities.

1. Birds

As stated in our HMP, CNLM has two primary goals regarding bird species found at the HCA. One is to determine the population status of the CAGN using “focused” total area surveys. The other is to try to develop a program that provides meaningful “trends” in the entire bird community (or selected species) using point counts. We alternate years for these activities. During this fiscal year, we conducted focused surveys for CAGN on all areas of the HCA, except for the steep terrain of Box Canyon.

In the spring of 2007, we documented 44 pair, and 10 single male CAGN. An additional 5 gnatcatchers were heard calling in different territories but were never observed to determine status or sex (Figure 3-5). Of the 44 pair, 27 were in Carlsbad, 4 were in San Marcos and 13 were in the County of San Diego. Of the 10 single males, 4 were in Carlsbad, 4 were in San Marcos and 2 were in the County of San Diego. Of the 5 unknown status individuals, 1 was in Carlsbad, 2 were in San Marcos and 1 was in the County of San Diego.

Other notable species include a northern harrier (*Circus cyaneus*), four (one at Huff, one at Box Canyon, one at Brower, and one at the Greens) red-tailed hawk (*Buteo jamaicensis*) nests, a number of Bell’s sage sparrow (*Amphispiza belli belli*), least Bell’s vireo (*Vireo bellii pusillus*), numerous rufous-crowned sparrows (*Aimophila ruficeps canescens*), grasshopper sparrows (*Ammodramus savannarum perpallidus*), and white-tailed kite (*Elanus leucurus*)(Figure 3).

2. Mammals

Mammal monitoring activities focused on continuing our wildlife tracking using wildlife cameras. Our goal is to understand and study trends in wildlife movement at “pinch point” locations and movement corridor locations within the HCA.

The MHCP Management and Monitoring Plan (MMP) outlines several locations of interest for wildlife movement studies in north San Diego county, of which only one is near or within a CNLM preserve:

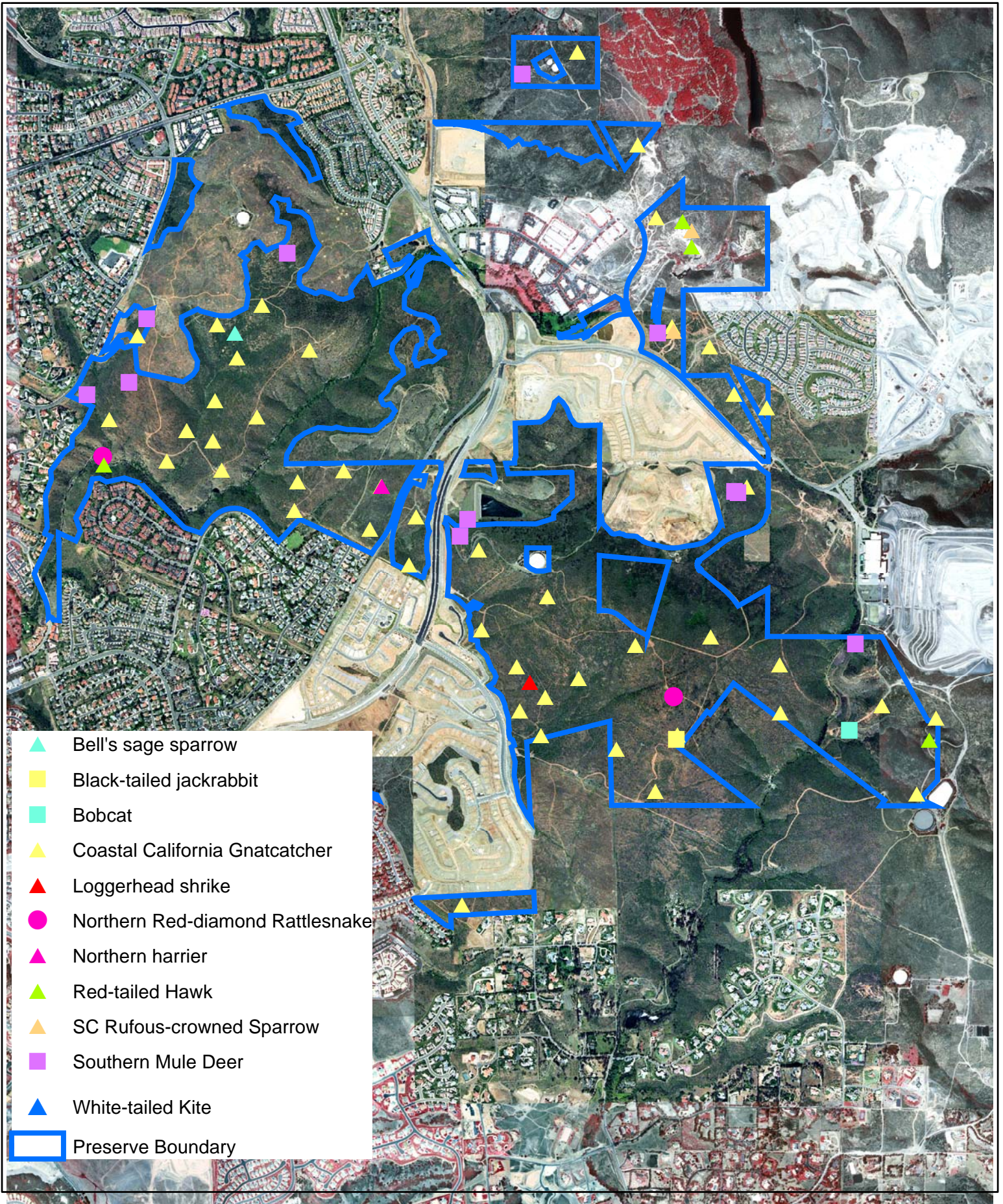


Figure 4
 Sensitive Species Observed - 2007
 Rancho La Costa Habitat Conservation Area





Figure 5
Sensitive Species Observed - 2007
Rancho La Costa Habitat Conservation Area

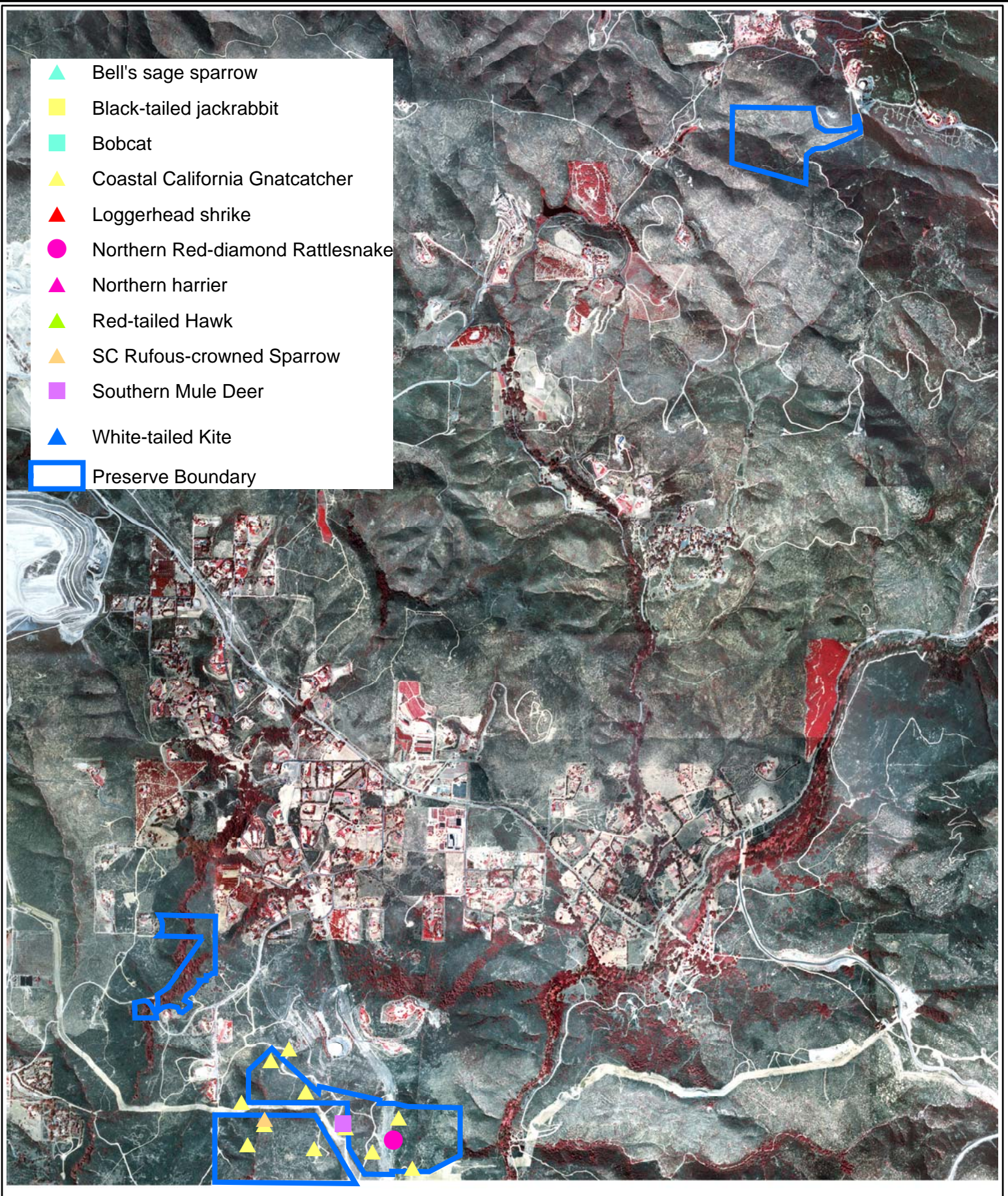


Figure 5
 Sensitive Species Observed - 2007
 Rancho La Costa Habitat Conservation Area



Table 1. Survey dates, times and weather conditions.

Survey Date	Time	Weather Conditions	Type of Survey*	Location
February 21 & 28; March 13, 16 & 17; May 10, 2007			BRFI	RLC "The Greens"
February 26 – March 28, 2007	one month		WC	Hidden Canyon
February 20 – March 28, 2007	one month		WC	Base of Denk Mountain (DKN 1)
March 30 – May 5, 2007	one month		WC	San Marcos Creek
January 23 – February 16, 2007	08:30-13:00		WC	Elfin Forest
April 17, 2007			ACIL	RLC "The Greens"
March 22, 2007	7:15- 1:15	Clear and sunny, 0 mph wind, 51 F	CAGN	RLC "The Greens"
March 28, 2007	06:30-11:15	Clear, 0-5 mph wind, 50-62 °F	CAGN	Box Canyon
March 28, 2007	7:00 - 11:30	Clear and sunny, 0 mph wind, 50 F	CAGN	UC "Wilern Parcel" and "Brouwer"
March 29, 2007	7:30 - 12:00	Clear and sunny, 0 mph wind, 50 F	CAGN	RLC "Choumass-Pappas"
March 30, 2007	7:30 - 12:00	Clear and sunny, 0 mph wind, 50 F	CAGN	RLC "Choumass-Pappas" and Elfin Forest
March 30, 2007	06:30-11:30	Partly cloudy, 1-2 mph wind, 50-70 °F	CAGN	Denk Mountain
April 3, 2007	7:50- 12:15	Clear and sunny, 0 mph wind, 50 F	CAGN	UC "Huff" and "Brower"
April 4, 2007	11:30 - 12:30	Hazy, 7 mph wind, 61 F	CAGN	UC "Frank's Peak"
April 4, 2007	06:30-11:30	Overcast, 0-2 mph wind, 58-71 °F	CAGN	Denk Mountain
April 6, 2007	06:45-12:30	Overcast, 6:45-12:30 mph wind, 60-62 °F	CAGN	Box Canyon
April 9, 2007	7:20 - 9:30	Cloudy, 2 mph wind, 58 F	CAGN	RLC "The Greens"
April 10, 2007	7:15 - 8:30	Cloudy, 0 mph wind, 58 F	CAGN	RLC "The Greens"
May 5, 2007	06:45-11:30	Overcast, 0-4 mph wind, 55-70 °F	CAGN	Box Canyon

* CAGN = Coastal California gnatcatcher. WC= Wildlife Camera. WT=Wildlife Tracking. BRFI = Thread-leaved Brodiaea. ACIL = San Diego Thornmint

- [CNLM [Reference # SMC 1](#)] San Marcos Creek (SMC) at Rancho Santa Fe Road Wildlife Undercrossing Bridge (connects La Costa Villages HCA area in Carlsbad with University Commons HCA area in San Marcos)

CNLM has located several other areas of interest for wildlife movement tracking at its Rancho La Costa HCA:

- [CNLM [Reference # SMC 2](#)] San Marcos Creek at Melrose Road Wildlife Undercrossing Bridge (connects La Costa Villages HCA area in Carlsbad with University Commons HCA area in San Marcos and is about ½ mile upstream of the Rancho Santa Fe Wildlife Under-crossing Bridge)
- [CNLM [Reference # SMC 3](#)] San Marcos Creek near the west end of Box Canyon and Gibraltar Street. This connects Box Canyon to the La Costa Golf Course (which

connects indirectly/directly to Batiquitos Lagoon). This is mostly willow and sycamore woodland

- [CNLM [Reference # RSF 1](#)] Rancho Santa Fe (RSF) Road Wildlife Under-crossing Tunnel (connects HCA areas on the eastern and western sides of Rancho Santa Fe Road about ½ mile south of the intersection of San Elijo Road and Rancho Santa Fe Road
- [CNLM [Reference # EF 1](#)] Elfin Forest (EF) tributary creek to Escondido Creek (on CNLM property). A small, narrow riparian strip of oak/sycamore woodland that serves as a movement corridor in Elfin Forest (about ¼ mile west of the intersection of Suerte del Este and Fortuna Del Este in Elfin Forest
- [CNLM [Reference # HC 1](#)] Hidden Canyon (HC) Wildlife Corridor. This area is located in the southeastern most portion of San Marcos, and connects CNLM land in Carlsbad and San Marcos (La Costal Villages and University Commons) to Elfin Forest, Harmony Grove and Escondido. Habitat in this location includes willow woodland restoration areas, Diegan coastal sage scrub and chaparral
- [CNLM [Reference # DKN 1](#)] Denk Tank (DKN) North Corridor along Vallecitos Water District (VWD) water reservoir. Located from the RSF under-crossing to about 250 meters east along the VWD fence line. This is a “leader” path to and from the RSF under-crossing

CNLM’s HMP focuses primarily on mammalian predators, such as grey fox (*Urocyon cinereoargenteus*), mountain lion (*Felis concolor*), bobcat (*Lynx rufus*) and coyote (*Canis latrans*). However, we are also documenting other use of these movement areas to include mule deer (*Odocoileus hemionus*) and raccoon (*Procyon lotor*). The following questions were asked in conjunction with these locations:

1. What mammalian predators are using the corridor areas described above?
2. What is the frequency and temporal variation of mammalian predator use of these corridors?
3. How does the mammalian predator use of these areas change over time?
4. What are the characteristics of each wildlife movement area and how might that affect movement?

This year we focused on SMC 1, DKN 1, RSF 1, HC 1 and EF 1. We installed wildlife cameras at DKN 1, RSF 1, HC 1 and EF 1 for various durations, but usually about one month. At RSF 1, CNLM worked with the San Diego Tracking Team (SDTT) to note mammal activity at each end and within the wildlife under-crossing. We set out several transects leading up to and through to under-crossing. SDTT monitored these transects during each season of the year. Monitoring consisted of walking the transect once per season and noting any track, scat or sign of mammalian predators and the mule deer and raccoon. We were unable to work at SMC 2 and 3 as we could not find suitable locations to attach a wildlife camera and ensure they would not get stolen.

We posted wildlife cameras (Cuddeback Digital Scouts) at the HC 1, DKN 1, SMC 1 and EF 1 sites. The Cuddeback digital remote cameras record date and time of the movement taken by a picture allowing us to quantify movement in any given month.

Results. SDTT tracking results at RSF 1 found that coyote, fox, bobcat, mule deer and racoon approached the wildlife under-crossing at both sides, and for the first time, coyote passed through the crossing in the summer months.

A summary of wildlife activity recorded at HC 1, DKN 1, SMC 1 and EF 1 using remote cameras is summarized in Table 3. Our data suggests that these locations do function as wildlife movement locations as expected and will be important for future study. We noted several “hits” of mule deer at the HC1 and DKN 1 locations and one at the SMC 1 and EF 1 location. Mule deer were observed grazing in front of the DKN 1 location, just 50 yards away from the RSF wildlife undercrossing. We also noted number mule deer track on both sides of the Melrose Road bridge. Our EF 1 camera had mostly coyote and racoon versus last year, when we found mostly bobcat and mule deer at that location. Despite all the construction activity around the San Marcos Creek bridge on Rancho Santa Fe (SMC 1), it was encouraging to see a mule deer at that location (and many signs near the camera).

Table 2. Results of wildlife camera studies (number of animals observed during session)*

Camera Location:	HC 1	DKN 1	SMC 1	EF 1
Species:	2/26-3/28, 2007	2/20-3/28, 2007	3/30-5/5, 2007	1/23-2/16, 2007
Coyote	4	1		11
Bobcat	1			
Mule deer	7	4	1	1
Raccoon				10

*hits per session

Other notable mammals observed include a black-tailed jack rabbit on Denk Mountain. Additionally, mule deer and a bobcat were observed in several locations throughout the HCA during daytime surveys and patrolling activities.

3. Reptiles

During the fiscal year we observed several red-diamond back rattlesnakes (*Crotalus rubber*) and one San Diego horned lizard (*Phrynosoma coronatum blainvillii*) which was observed at the peak of the Brouwer parcel.

4. Vegetation Sampling

In 2004, CNLM began pilot studies on the Greens parcel where there are several thousand thread-leaved brodiaea. Our goal has been to quantify the cover of nonnative and native plant species, and conduct de-thatching experiments, so that we can determine if de-thatching can help

reduce nonnative cover. In 2006-2007 we revamped the pilot study and methodology (Appendix A). The management objective is to increase, or protect, a stable mean density, of thread-leaved brodiaea and to decrease the percent cover of nonnative grasses, specifically purple false brome (*Brachypodium distachyon*).

The results from the 2006-2007 vegetation sampling effort will not be presented until the 2007 – 2008 annual report since the effects of the treatments will not be known until after the flowering season for thread-leaved brodiaea in May 2008.

5. Plant Species and Sensitive Plants

In 2006-2007, the only focused sensitive plant surveys were for thread-leaved brodiaea and San Diego thornmint. Approximately 11,000 thread-leaved brodiaea (TLB) plants and approximately 26 San Diego thornmint plants were located at the Greens property (Figure 4).

The number of individual TLB estimated to be protected by this preserve (per the Villages of La Costa HCP) was estimated to be 4,610. However, when the plants are counted in their vegetative state, as opposed to the flowering state, many more individuals are actually located. When CNLM conducted vegetative surveys for thread-leaved brodiaea, approximately 11,000 were counted (even though the entire known occupied area was not surveyed) and when CNLM conducted surveys during the flowering stage for thread-leaved brodiaea, only five plants were located throughout the entire known occupied area. It is estimated that only 10-percent of any thread-leaved brodiaea population actually flowers in any given year and this number is greatly reduced following inadequate rain and/or drought years. The low numbers for San Diego thornmint are likely attributed to the second drought year in a row in San Diego County. During the 2005–2006 fiscal year, only 150 San Diego thornmint plants were counted. No other focused sensitive plant species were conducted.

CNLM has revised its biological monitoring schedule of activities as presented in the HMP based on recent data collected (Table 3). The primary change is that we have moved the monitoring of CSS Vegetation Plots to 2009 from 2008.

IV. HABITAT MAINTENANCE AND RESTORATION

Habitat restoration goals for the HCA at this time include removing non-native plants and may include other tasks in the future. Also, it should be noted that habitat restoration activities, which include non-native plant removal, will be conducted between 2003-2010 on the “Greens”, Brouwer, and Huff parcels by Morrow Development and Brookfield Homes, the developers of the La Costa Villages and the University Commons Open Space. These projects are ongoing and are considered mitigation for impacts associated with the various development projects.

Table 3. Updates and Changes to the Schedule of Biological Monitoring Tasks (from the HMP)

Monitoring task	Year					
	2005	2006	2007	2008	2009	2010
A1. CSS Vegetation Plots	X	X			X	X
A2. Bird Community		X		TBD*	TBD	TBD
A2. CAGN Monitoring	X		X		X	
A3. Horned lizard, orange-throated whiptail and spadefoot toad	X	X	X		X	
A4. <i>Brodiaea filifolia</i>	X	X	X	X		
A5. Sensitive Plants	See Table 4 of the HMP	See Table 4 of the HMP	See Table 4 of the HMP	See Table 4 of the HMP	See Table 4 of the HMP	See Table 4 of the HMP
A6. Wildlife Corridors	X	X	X		X	
A3. Herp arrays	X	previously planned, but now discontinued				

* To be determined

During the 2006-2007 fiscal year many nonnative and invasive plants were removed from the HCA, including fennel (*Foeniculum vulgare*), artichoke thistle (*Cynara cardunculus*), tamarisk (*Tamarix* spp.), fountain grass (*Pennisetum setaceum*), eucalyptus (*Eucalyptus* spp.), castor bean (*Ricinis communis*), mustard (*Brassica* spp. and *Hirschfeldia incana*), bristly ox-tongue (*Picris echinoides*); acacia (*Acacia* spp.), hottentot fig (*Carpobrotus edulis*), date palms (*Phoenix canariensis*), shamal ash (*Fraxinus uhdei*), myoporum (*Myoporum laetum*), pampas grass (*Cortaderia* spp.), gazania (*Gazania* spp.), Cape marigold (*Dimorphotheca sinuata*), perennial pepperweed (*Lepidium latifolium*), onion weed, and tree tobacco (*Nicotiana glauca*).

Approximately 100 fennel, 1,200 artichoke thistle (approximately 4 acres); 20 tamarisk resprouts, an acre of fountain grass and many individual fountain grass were treated with herbicide. More than 50 moderate to large-sized eucalyptus trees were drilled and filled with herbicide, many castor bean shrubs were cut and treated with herbicide, and hundreds of mustard seedlings were treated with herbicide. About 1/20- acre of bristly ox-tongue, 20 acacia trees, several patches of hottentot fig were treated with herbicide. Approximately ten date palms were drilled and filled and several shamal ash were cut and sprayed. Approximately 30 myoporum shrubs were cut and sprayed, 100 pampas grass clumps, one patch of gazania, and 1/4-acre of Cape marigold was treated with herbicide and individuals were hand pulled. Several thousand perennial pepper weed individuals were sprayed; 50 onion weed were hand pulled; and hundreds of tree tobacco seedlings were sprayed or cut and sprayed.

The Huff restoration site was also treated four times for nonnative plants occurring in and adjacent to the restoration site such as Russian thistle (*Salsola tragus*) (several hundred treated), castor bean, tree tobacco, and nonnative grasses and forbs. The majority of the plants treated are listed in the above paragraph. Additionally, we contracted with the San Diego State University (SDSU) Soil Ecology Restoration Group (SERG) to perform soil analysis testing at the Huff restoration site to determine whether or not the site is lacking in minerals and nutrients due to poor native plant establishment in some portions of the site. SERG determined that portions of the site are lacking in soil minerals and nutrients and suggested replanting portions of the site using container plants and nutrient-rich mulch. CNLM will replant portions of the site with native container plants during the winter of 2007.

We also sprayed all of the fuel breaks, which were covered in non-native species such as crown marigold (*Chrysanthamum* spp.), filaree (*Erodium* spp.), and mustard species. At this time we have most “zero” tolerance species under control, except for eucalyptus, which we have plan to remove during the upcoming fiscal year and every year thereafter until we eradicate all of the eucalyptus in the HCA.

Additionally, in coordination with University of California at Davis, Agriculture Extension, we established herbicide experiments at the Wilern parcel during the last two fiscal years. These experiments were established to determine the effectiveness of herbicides on the invasive and nonnative plant, onion weed. The experiments tested different rates of specific herbicides on onion weed and other native plants that occurred in the test plots with onion weed. Additionally, these herbicides were also tested for their effectiveness on onion weed seed production. Preliminary results indicated that Telar is an effective herbicide for onion weed.

V. PUBLIC SERVICE

CNLM public service activities during this fiscal year included patrolling, public outreach projects, and public education. During this fiscal year, most of the public service activities at the HCA involved patrolling and enforcing the CNLM no trespassing policy in Box Canyon, working with Eagle Scouts and other volunteers on trail projects, additional patrolling and enforcement, and meeting with easement holders, private citizens, and homeowners associations (HOAs).

At this time, the Greens, and the western portion of the HCA (Box Canyon) are posted as “No Trespassing”. This is either because CNLM does not want people in the canyon area, or because access to the HCA requires people to cross over private land. The eastern portions of the HCA are open to the public for hiking and mountain biking, but no motorized vehicles or firearms are allowed.

Patrolling

CNLM patrolled the HCA on a regular basis, sometimes during biological surveys and sometimes during directed patrolling efforts. During the patrolling efforts, CNLM spent a considerable amount of time blocking off and patrolling trails that are not part of the designated

trail system on the mountain located northeast of Camino Junipero and in other locations in the HCA. Fences and signs were installed directing users to the designated trails and contact was made with local users to inform them of the newly established, legal trail system.

In the summer, we had many problems with trespass at Box Canyon and hired an enforcement company to patrol the area from about mid August to mid October. Our efforts resulted in many citations and a decrease in unwanted use. Prior to the beginning of summer, CNLM staff removed large quantities of graffiti from Box Canyon; however, the canyon was vandalized and painted shortly after the summer began.

Additionally, several itinerant encampments were located at the Greens. These camps were posted with notices to vacate the premises and all debris and refuse was removed during the fiscal year. Finally, several truckloads of trash were removed from the HCA during the fiscal year. The majority of the trash was removed from the Choumas-Pappas and Elfin Forest “off-site” parcels.

Public Outreach Projects and Public Education

We worked with three eagle scouts on trail related projects. One scout installed about 200 linear feet of post-and-rope fencing near the eastern edges of Denk Mountain and lined about 200 feet of trail with rocks. Another Scout installed a kiosk and two benches at the top of Denk Mountain and the last scout installed one kiosk and four segments of about 40 feet of post-and-rope at the trail just west of the old RSF road. Additionally, several local high school students volunteered their time to improve the trails located off of old Rancho Santa Fe Road and along the northern end of the Ridgeline Trail.

In 2005, we mapped and created a permanent trail system that was posted by the summer of 2006 (Figures 5 and 6 of last years annual report). During this fiscal year, CNLM also added two additional kiosks. We now have ten kiosks posted at all major trailheads two posted within the preserve. We have been updating information in these kiosks on a regular basis.

In May of 2007, about fifteen members of the San Diego Mountain Bikers Association helped us fix about 500 yards of trail by creating water bars and removing unwanted rocks from the trail. One volunteer spent many hours blocking unwanted trail for us, and improved many hundreds of yards of trail at the same time. Trail use has increased in the last years since the opening of Camino Junipero, and we have had many positive responses to our trail work and trail system. Despite that however, we still have unauthorized trail creation and off-trail activity. We are installing more fence and signs next fiscal year to address these issues.

CNLM also met with a group of about 30 mountain bikers to educate them about the HCA and to let them know that we don't appreciate unauthorized use.

CNLM also worked with private landowners whose land borders the eastern portion of the HCA (near the Huff parcel). These owners have been concerned about people crossing their property from our property. We installed informative literature in strategic locations (i.e., kiosks, trail

heads, and at private land/CNLM land juncture points) to help them keep the public off of their private lands. We also spoke with members of the public using our preserve about the issue of trespass onto private land in the vicinity of the HCA.

CNLM also provided informative literature to several of the local HOAs to be included in HOA newsletters. The literature included information about the private property ownership issues around the HCA as well as CNLM contact information.

Additionally, CNLM worked with the San Diego Zoo to have a speaker give a talk to one of the local HOAs about rattlesnakes (*Crotalus* spp.) that are found in the San Diego region. A young boy was bitten by a rattlesnake near the Greens, which prompted concern among neighbors.

VI. REPORTING

Reporting activities include report writing, all data analysis, geographic information system (GIS) data gathering, compilation, and analysis, meetings and regional coordination, and photo documentation activities.

Data that have been entered into ARCVIEW GIS (9.1) includes sensitive species locations; parcel, project and preserve boundaries; sensitive plant and animal locations; pit array locations; and photo-documentation stations.

About 20 photo-documentation stations were set up in 2003 and digital photographs were taken in each location. Photo-documentation was taken in 2006 at these stations. A number of photos were taken during the year of habitat enhancement projects and plants and wildlife observed.

In June of 2005, CNLM completed and submitted the *Habitat Management Plan for the Rancho La Costa Habitat Conservation Area*. This document summarizes work activities since project inception and provides direction and time lines for future work. This document covers all properties listed in the introduction of this document. It also provides budget and financial information.

This report represents the sixth annual report for the HCA. An annual work plan for the upcoming fiscal year will be provided to the local jurisdictions and wildlife agencies in December of 2007.

Finally, the HCA managers have maintained all necessary agency permits to allow the continued monitoring of the HCA's biota.

Budgets/Finances: The total 2006-7 expenditures for Cassia, Nelson, La Costa Villages, University Commons (UC) and Elfin Forest (part of UC) were \$6,368, \$2,388, \$74,021, \$31,431 and \$4,411, respectively. The proposed budgets were \$9,588, \$2,434, \$72,166, \$33,295 and \$5,635. Our endowment status is provided in Table 3.

Table 4. Endowment Status

Project	Inception Date	Original Endowment	Endowment as of 4/30/07	Initial and Capital (4/30/07)	Total Preserve Funds	Inflation Adjusted Endowment as of 4/30/07
La Costa Villages	2/2002	\$1,364,400	\$1,883,152		\$1,883,152	\$1,629,566
University Commons	3/2002	\$623,954	\$832,851		\$832,851	\$719,182
Elfin Forest	8/2002	\$104,600	\$159,235		\$159,235	\$124,517
Nelson	6/2001	\$72,180	\$91,116		\$91,116	\$81,177
Cassia Professional Offices	1/2007	\$100,844	\$105,023	\$20,192	\$125,215	\$103,340
Totals:		\$2,265,978	\$3,071,377	\$20,192	\$3,091,569	\$2,657,722

VII. SUMMARY & DISCUSSION

Management at the Rancho La Costa Habitat Conservation Area this year was successful at protecting the HCA from human encroachment, building baseline biological data, removing non-native plant species and developing a better understanding of the HCA and its regional context. HCA management in the next year will involve more biological surveys, non-native plant removal, and public outreach.

VIII. REFERENCES

CNLM 2006. Rancho La Costa Habitat Conservation Area Annual Work Plan 2006-2007. December 2006.

CNLM 2005. Habitat Management Plan for the Rancho La Costa Habitat Conservation Area. June 2005.

APPENDIX A
Thread-leaved Brodiaea Research Study Methodology

Thread-leaved Brodiaea Research Study Methodology

Survey Design and Sampling Methodology

Three macroplots were established in 2007. Each macroplot was placed in areas known to support thread-leaved brodiaea. These macroplots were placed across the slope topography (perpendicular to the slopes). A balanced randomized complete block design was used to stratify the treatments. Each macroplot contains sixteen subplots, with four replicates of each treatment. Each subplot occupies an area of 1 meter by 10 meters. These rectangular belt subplots were chosen to better capture the clumped distribution of thread-leaved brodiaea. The treatments would consist of: 1) herbicide (Fusilade) application according to the label 2) herbicide application plus dethatching of dried litter material 3) Dethatching of dried litter material only and 4) control (no herbicide application or dethatching).

Monitoring will occur two times per year, once to capture vegetative thread-leaved brodiaea (February) and once to capture flowering thread-leaved brodiaea (May). This would help us to determine the true population of thread-leaved brodiaea in the study areas since less than 10 percent of the true population is estimated to bloom in any given year. It will also allow us to assess the effect of herbicide on thread-leaved brodiaea during its vegetative stage.

The study will continue for seven years to allow determination of variation that is related to weather and normal population dynamics. The first two years (2007 and 2008) would be pilot study years. Data collection and herbicide application to one subplot would occur in early 2008, to assess potential negative effects to thread-leaved brodiaea (if there are negative effects, or death, the project will be discontinued). Eight total years of data collection would occur with modifications to the sampling objectives and/or sampling methodology, if necessary, after assessing the results of the first two pilot years.

Within each subplot a direct vegetative count of thread-leaved brodiaea was conducted in February 2007 and a direct flowering count was conducted in May 2007. Species richness was collected by recording all species encountered within each subplot. Percent cover by species was collected in each subplot using a 0.5 by 1 meter quadrat placed at random intervals on the right and left hand sides of a meter tape placed in the middle of each subplot. Three quadrats were read per subplot, and placement of the quadrat on either side of the measuring tape was determined with the flip of a coin. The quadrat contained 36 points, located when metal wires arranged within the quadrat intersected at one decimeter intervals, thus supplying 108 total points per subplot for estimating percent vegetative and ground cover. Vegetative cover was recorded by species. Ground cover was recorded as either bare ground or litter. Bare ground was further characterized as whether or not gopher activity had occurred recently below each pair of intersecting wires. Likewise, litter was characterized as former live vegetation lying directly on the ground as thatch, or rabbit droppings.

Dethatching of dried litter material occurred in October 2007 in order to avoid affecting thread-leaved brodiaea during its vegetative, flowering, or seeding stages.

Statistical Methodology

Four attributes are being measured. These include percent cover, direct counts of vegetative and flowering thread-leaved brodiaea, and species richness. Average number of vegetative and flowering thread-leaved brodiaea will be calculated per macroplot, as will average percent cover by category (litter, bare, cover by species), and average species richness by category (native, non-native). From this, repeated measures ANOVA will be performed annually on these attributes after the first year's analysis is conducted in 2009. Analyses will also be run for site differences.

The potential effect of location has best been accounted for by stratifying the random placement of experimental units throughout each macroplot, and each of the three sites. Site effect will be analyzed despite this, and if no significant effect of site is determined, the variable SITE will be dropped from the analyses.

The null hypothesis is that there will be no difference between controls and experimental manipulation plots. The null hypothesis will be rejected if there is a difference in any of the response variables categorized by treatment. The null hypothesis will be rejected if the resulting probability (p) that the results are due to chance outcome alone (thus likely not due to treatment) is less than 5 percent ($p < .05$). An ad-hoc test will be run in order to identify which treatments differ, and graphics will be produced which carefully illustrate the emergent patterns.

Outcomes and Expectations

If the first year concludes any negative effect of dethatching, or herbicide application (lower average vegetative counts or flowering, not attributed to a low rainfall year) in comparison to controls, the experiment will be terminated. If only one of the two manipulations (herbicide or dethatching) is initially found to decrease vegetative or culm production, then only that treatment will be terminated, and the experiment will continue with the manipulation deemed to be non-harmful, and all subplots will be measured until all manipulations are concluded.