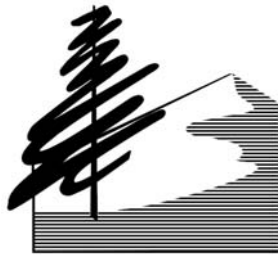


**Buena Vista Creek
Ecological Reserve**
(CNLM No: S037)

Annual Report
December 2007 - September 2008

Prepared for:
U.S. Fish and Wildlife Service
California Department of Fish and Game
City of Carlsbad

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October, 2008

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I. INTRODUCTION

This report summarizes the management activities carried out at the Buena Vista Ecological Reserve (Reserve) by the Center for Natural Lands Management's (CNLM or Center) during the 2007-2008 fiscal year (October 1 to September 30). These management activities were developed based on the management guidelines of the Buena Vista Creek Ecological Reserve Management and Funding Agreement (MFA) signed in August of 2007 (CNLM/CDFG 2007) between the Center and the California Department of Fish and Game (CDFG) and from the Buena Vista Creek Ecological Reserve Annual Work Plan (AWP) for the 2007-2008 fiscal year. Associated with the MFA and AWP is a detailed Property Analysis Record (PAR) and yearly budget, which outlines a list of management tasks and costs that were agreed upon during CNLM's negotiations with CDFG. CDFG has held title to the Reserve since approximately March 2007 and CNLM manages it pursuant to the MFA (as of August 2007) and agreed upon annual work plans.

The 134-acre Reserve is located along State Route 78 (SR-78) between the two termini of Haymar Drive (east and west) (Figures 1 and 2). SR-78 is along the northern boundary and a golf driving range is located along the western boundary. There is natural, but unprotected, land along the eastern and portions of the southern boundary, and houses exist along the remaining portions of the southern boundary. The dominant vegetation communities that occur include southern willow scrub and willow riparian forest and nonnative grassland. The state and federally listed least Bell's vireo (*Vireo bellii pusillus*) and thread-leaved brodiaea (*Brodiaea filifolia*), and the federally listed coastal California gnatcatcher (*Polioptila californica californica*) are known to occur on the Reserve.

HCA management includes maintaining signs and fences (capital improvements), biological surveys, habitat maintenance, public services and reporting. East of these activities and their fiscal year results are summarized below and fully described within this report.

Summary:

- No Trespassing signs were posted along the HCA boundary and at main access points
- Fencing was installed along portions of the southern and northern boundary. Access gates were also installed
- Three mini-kiosks were installed
- Signs were placed near the Heritage Trees to ensure their protection
- Trash and debris was removed as part of National Public Lands Day, and by the farmer who previously farmed portions of the property
- Many nonnative plant species were treated within the riparian areas by the Carlsbad Watershed Network, including thousands of pampas grass, palm, eucalyptus, shamel ash and other species
- About 10 acres of solid fennel were treated in the upland areas
- Vegetation communities were mapped and entered into GIS
- CDFG conducted one survey for sensitive bird species and recorded 2 pair and 2 individual coastal California gnatcatcher and 2 male least Bell's vireo
- CNLM participated in a number of public outreach events planned by Preserve Calavera

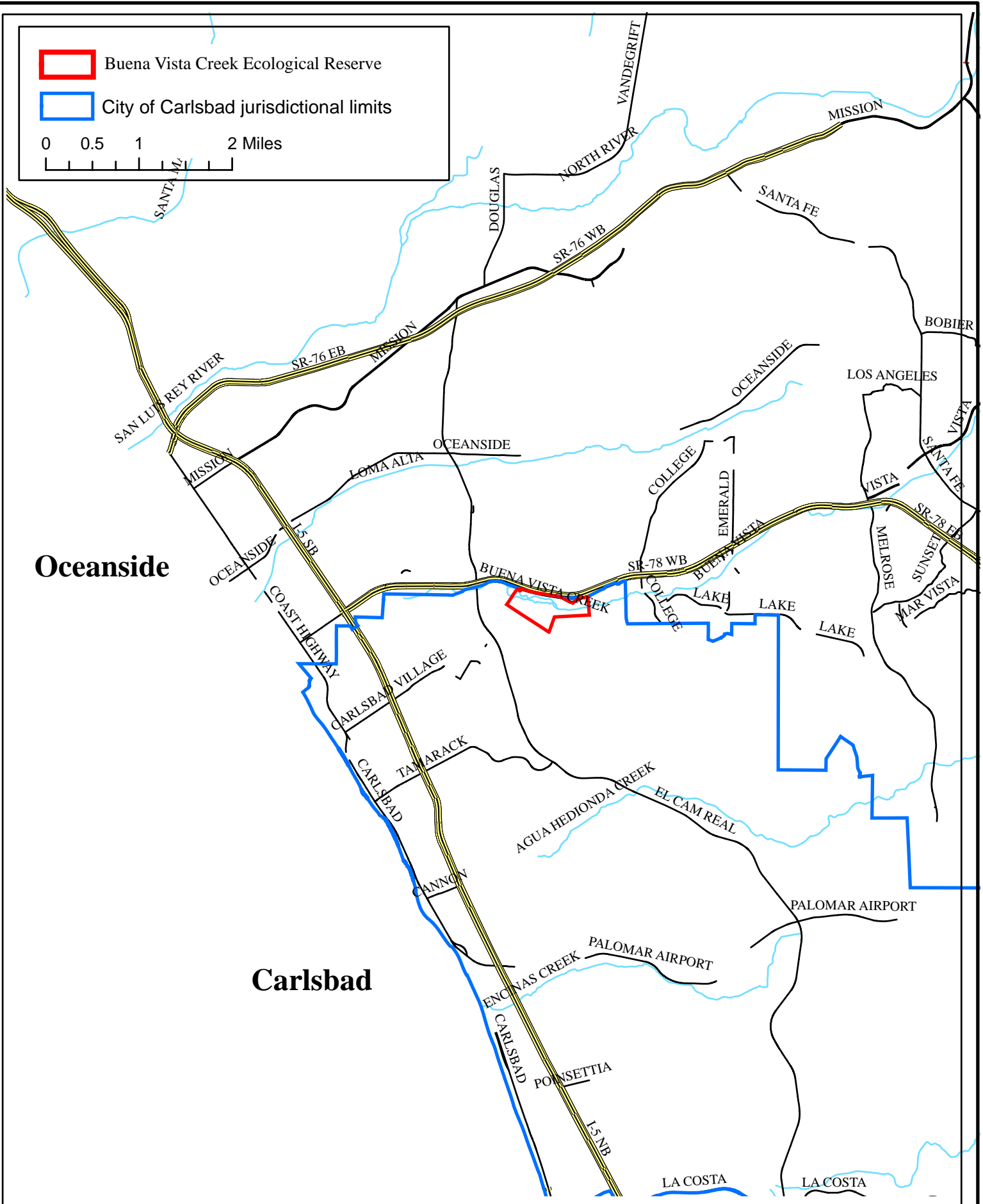


Figure 1
Project Location
Buena Vista Creek Ecological Reserve-Carlsbad, CA





Figure 2
Project Vicinity
Buena Vista Creek Ecological Reserve-Carlsbad, CA

- Fuel zones were cleared or thinned as prescribed
- Routine patrols were conducted
- Database development was initiated
- An annual work plan for the upcoming fiscal year was developed
- A draft habitat management plan was prepared

II. MANAGEMENT ACTIVITIES

The following sections identify and describe the activities that were performed during this management year. Based upon the Property Analysis Record (PAR) developed by the Center to outline long term management tasks and costs, management activities for the HCA can be categorized as follows: Capital Improvements, Biological Surveys, Habitat Restoration, Public Services, Reporting, Office Maintenance, and Operations. Each of these categories will be discussed below.

A. CAPITAL IMPROVEMENTS

Capital improvement activities this fiscal year included the installation of fences, signs and gates. About 3,000 linear feet of three strands of smooth wire were installed along portions of the southern boundary and northern boundary east of the Adobe (Figure 3). Gates were installed at the north eastern edge, and along the southern edges of the Reserve (Figure 3). CNLM and CDFG “No Trespassing Signs” were posted along all fence lines or via U-channel posts at key access points and along the riparian forest area. We also installed 3 mini kiosks at each of the yellow access gates along the northern boundary and at the terminus of Marron Road.

CNLM also repaired the old fence along the downhill side of the upland farm areas. We also installed four large signs, two at the Heritage Eucalyptus and two at the Heritage Pepper trees. The signs state that the trees shall not be destroyed in both English and Spanish.

B. BIOLOGICAL SURVEYS

The only biological survey activity planned for the fiscal year was to map the vegetation communities. However, during some of our nonnative removal activities, we observed the state and federally listed thread-leaved brodiaea (*Brodiaea filifolia*), and thus we conducted a brief survey of all suitable habitat for this species.

1. Vegetation Mapping. Vegetation mapping was completed in the fall of 2007 (Figure 3). The vegetation communities found growing on the Reserve include southern riparian forest, riparian woodland, southern willow scrub, coyote brush scrub, Isocoma scrub, freshwater marsh, Diegan coastal sage scrub, and native grasslands. Large areas of non-native vegetation also occur, including fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), and ornamental vegetation. Disturbed phases of all of the above-mentioned native habitats occur on the Reserve as well. Additionally, there are disturbed areas such as roads and well-used trails, and fallow agriculture areas, on the eastern end of the Reserve.

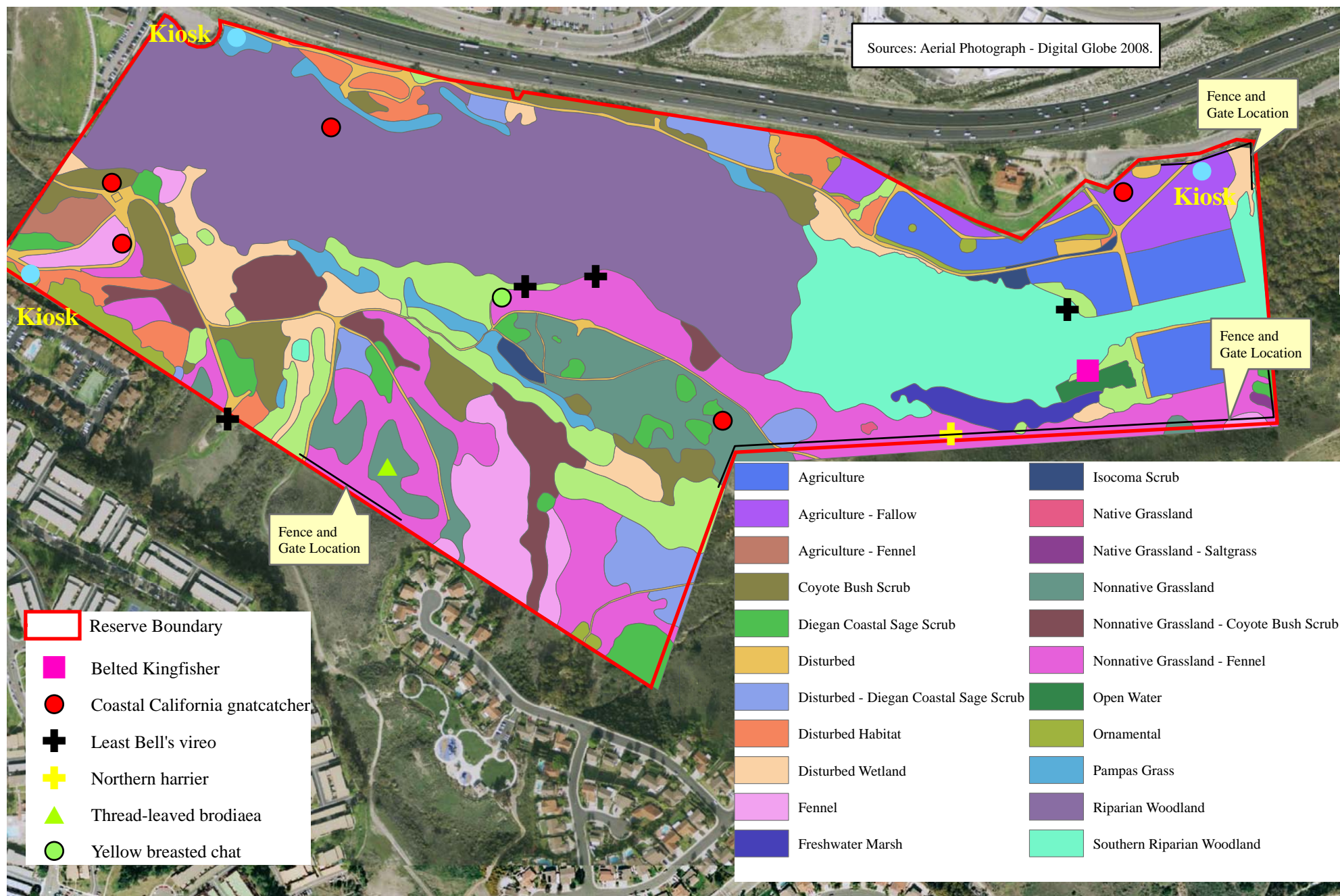


Figure 3
Vegetation Communities, Sensitive Species (2008) Locations, Fence and Gate Locations

Buena Vista Creek Ecological Reserve - Carlsbad, California

180 90 0 180 Feet



Center for Natural Lands Management

Many nonnative species, including pampas (*Cortaderia* spp.), eucalyptus (*Eucalyptus* spp.), ash, palm (*Washingtonia* spp.) dominated the site as of August 2007. During the fall of 2007, the San Elijo Lagoon Conservancy, as part of the Carlsbad Watershed Networks Invasive Species Program, started treating nonnatives with herbicides and as of December, 2007 had treated most of these species. Therefore, although each vegetation community described below still has some nonnative component, most of nonnative plant species in the riparian areas have been treated. In the spring of 2008, CNLM, with funding provided by Preserve Calavera, treated most of the fennel and mustard on the upland areas on the southern side of the creek.

Southern Riparian Forest and Riparian Woodland

The southern riparian forest and riparian woodland communities on the Reserve are dominated primarily by arroyo willow (*Salix lasiolepis*). The riparian woodland also has co-dominants including other willow species— willow (*S. gooddingii*) and red willow (*S. laevigata*), Fremont's cottonwood (*Populus fremontii* var. *fremontii*), and California sycamore (*Platanus racemosa*).

Southern Willow Scrub

The southern willow scrub on the Reserve is dominated by arroyo willow with co-dominants including mulefat (*Baccharis salicifolia*) and narrow-leaf willow (*S. exigua*). Understory vegetation, when present, is composed primarily of nonnative species.

Coyote Brush Scrub

The coyote bush scrub on the Reserve is considered an early successional and transitional phase of coastal sage scrub, and was mapped separately because coyote bush (*Baccharis pilularis*) is the sole component of this vegetation community and had established as a monotypic stand. Other native species were mostly nonexistent and the understory is usually comprised of nonnative grasses and forbs.

Isocoma Scrub

The Isocoma scrub on the Reserve is also considered an early successional and transitional phase of coastal sage scrub, and was mapped separately because coastal goldenbush (*Isocoma menziesii* var. *menziesii*) was the sole component of this vegetation community and had established as a monotypic stand. Other species were mostly nonexistent and the understory was usually comprised of nonnative grasses and forbs or the native saltgrass (*Distichlis spicata*).

Freshwater Marsh

The freshwater marsh on the Reserve is dominated by perennial, emergent monocots. Uniform stands of bulrushes (*Scirpus* spp.) or cattails (*Typha* spp.) characterize the habitat.

Diegan Coastal Sage Scrub

The Diegan coastal sage scrub on the Reserve is comprised of low, soft-woody subshrubs. The dominant shrub species include California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum* ssp. *fasciculatum*). The associated species include lemonadeberry (*Rhus integrifolia*), deerweed (*Lotus scoparius*), California encelia (*Encelia californica*), coastal goldenbush (*Isocoma menziesii*), and coastal prickly pear (*Opuntia littoralis*).

Nonnative Grassland

The nonnative grassland on the Reserve is comprised of a dense to sparse cover of nonnative annual grasses associated with other native and nonnative annual forbs. The primary nonnative grass in the nonnative grasslands is wild oat (*Avena* spp.). Soft chess brome (*Bromus hordeaceus*) and red brome (*Bromus madritensis* ssp. *rubens*) occur to a lesser degree. Fennel is also present in this habitat, but its density has been reduced as part of management efforts in the spring of 2008.

Native Grassland

The native grassland on the Reserve is comprised of native bunchgrass species. The dominant bunchgrasses are species of needle grass (*Nassella pulchra*, *N. lepida*). Co-dominate species include nonnative grasses (wild oat, soft chess brome) and nonnative forbs including storksbill (*Erodium cicutarium*, *E. botrys*, and *E. moschatum*).

Disturbed Habitat

The disturbed habitat on the Reserve is characterized as any area where the native vegetation community has been significantly altered by construction or other land-clearing activities. The species composition and site conditions of these areas are not characteristic of the disturbed phases of any plant communities in the Reserve. Typical plant species include Russian-thistle (*Salsola tragus*), horseweed (*Conyza* spp.), fountain grass (*Pennisetum setaceum*), fennel, and other annual non-native grasses and forbs.

Exotic and Ornamental Vegetation

The exotic vegetation on the Reserve includes primarily large stands dominated completely by pampas grass which have been treated with herbicide, but still stand as large dead clumps. The ornamental vegetation on the Reserve includes horticultural vegetation such as eucalyptus (*Eucalyptus* spp.) and acacia (*Acacia* spp.) that were either planted on purpose along the slopes adjacent to the Reserve or that have escaped from nearby areas into the natural areas in the Reserve.

Disturbed Land and Fallow Agricultural Lands

Disturbed areas in the Reserve support no native vegetation and may also be characterized by the presence of man-made structures, such as roads. The dirt roads in the Reserve were categorized as disturbed areas. Agriculture within the Reserve encompasses fallow flower fields.

Open Water

The pond located along the southern boundary of the Reserve is considered open water.

Table 1. Buena Vista Creek Ecological Reserve Vegetation Communities

Vegetation Community	Total Acreage
Southern Riparian Forest	14.2
Riparian Woodland	34.6
Southern Willow Scrub	8.0
Coyote Brush Scrub	5.8
Isocoma Scrub	0.6
Freshwater Marsh	1.3
Diegan Coastal Sage Scrub	7.0
Non-native Grasslands	7.8
Non-native Grassland-Fennel	16.0
Non-native Grassland-Coyote Bush Scrub	4.6
Native Grasslands	0.1
Open Water	0.5
Disturbed Habitat	8.4
Ornamental Vegetation	2.2
Disturbed Land	4.0
Fallow Agricultural	11.3
Fennel Dominated Habitat	5.0
Exotic/Pampas Grass	2.6
Total	134

2. Sensitive Plant Species One survey for sensitive plant species was conducted in the spring of 2008. In May of 2008 Patrick McConnell surveyed the upland areas south of Buena Vista Creek for thread-leaved brodiaea and observed 20 individuals (flowering) in 3 close-by locations

on the northwest facing hillside just uphill from the SDGE access road (Figure 3). No other sensitive species were observed during these surveys.

3. Sensitive Wildlife Species CNLM staff heard and observed least Bell's vireo and coastal California gnatcatchers during our management activities. CDFG staff conducted one visit to the site and noted these species as well. Between both organizations, we estimate 3-4 pair of vireo and 3-4 pair of gnatcatcher (Figure 3). CNLM noted a pair of Northern harriers (*Circus cyaneous*) along the southern boundary of the Reserve. Based on their behaviors, including swooping down on the preserve manager, we conclude that they were likely nesting. Other sensitive or notable species observe include the Cooper's hawk (*Accipiter cooperii*), yellow-breasted chat (*Icteria virens auricollis*), belted kingfisher (*Ceryle alcyon*), and red-tailed hawk (*Buteo jamaicensis*).

C. HABITAT MAINTENANCE AND RESTORATION

Habitat maintenance activities at the HCA include removing nonnative plant species, clearing and thinning fuel modification zones and mowing and/or herbicide treatment of agricultural areas.

1. Fuel Zones The fuel zone at the terminus of Marron Road was mowed twice during the late spring and early summer. The fuel zone along the southern boundary of the Reserve was weed-whipped in the middle of May. The temporary fuel zone south of Ms. Shelley Caron's residence was mowed once during the month of May.

The Center also sprayed portions of the upland agricultural areas in the spring of 2008 to decrease the amount of Chrysanthemum (*Chrysanthemum* spp) and other nonnative cover, which was very dense in this area. Spraying was effective at reducing cover of the Chrysanthemum and other nonnative species in the agricultural areas and temporary fuel zone.

2. Nonnative Species Removal The Carlsbad Watershed Network, via their grants, treated almost all the pampas (thousands of clumps), palms (hundreds of trees) and Eucalyptus (less than 30 trees) in the fall of 2007. In the fall of 2008, they started treating shamash and cape ivy and retreating any pampas, palm or Eucalyptus resprouts. CNLM assisted in these efforts by providing maps of nonnative species locations and attending meetings with CWN.

In the spring of 2008, CNLM weed whipped most of the dead fennel and mustard within the upland areas of the Reserve south of Buena Vista Creek. These areas were heavily infested with these species. Soon after weed whipping, most of the new sprouts of both species were treated with herbicide with very effective kill rate. The only areas not treated on the south side were the areas around the SDGE power poles.

CNLM also treated or tried to kill artichoke thistle () along the northern boundary of the Reserve as it was observed. We also treated about ½ acre of tecolote (*Centaurea melitensis*) near the north eastern boundary of the HCA.

Despite all these nonnative removal efforts, the site is still very infested with nonnative plant species. Table 2 summarizes these species, their severity and our planned management actions. CNLM recommends that CDFG work with us to obtain additional funding to treat these nonnative species.

Table 2 also outlines other threats, their severity and our proposed management actions.

3. Habitat Restoration Preserve Calavera received a grant from the Wetlands Recovery Project to begin the restoration of 1.8 acres of riparian habitat in the fallow agricultural fields north of Buena Vista Creek. CNLM was hired by Preserve Calavera to conduct a wetland delineation on the agricultural areas south of Buena Vista Creek. We determined that much of the area that the restoration project is to occur in is not Army Corps of Engineers or CDFG jurisdictional wetlands. CNLM will be providing services to Preserve Calavera for them to implement this grant.

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Table 2. Threat assessment at the Buena Vista Ecological Reserve¹

Threat	Locations	Size or Severity	Actions 2007-2008 Management Year	Planned Actions
Weeds				
Pampas grass H	Throughout riparian and in some upland areas	Found throughout the Reserve	Nearly all Pampas was treated in the fall of 2007 and retreated in 2008.	CWN will continue to treat until the end of 2009
Perennial pepperweed (<i>Lepidium latifolium</i>) H	Riparian areas	Patch less than ½ acre in size	None	None
Saltcedar (<i>Tamarix</i> ssp) H	Riparian areas	Less than 30 individuals	None	These will be treated by CWN or CNLM in the next few years
Giant reed (<i>Arundo donax</i>) H	Riparian areas.	Less than 10 clumps	Clumps were treated in the fall of 2007 and again in the fall of 2008	CWN will continue to treat until the end of 2009
Fennel (<i>Foeniculum vulgare</i>) H	In open areas near the northwestern boundary. In the uplands south of Buena Vista Creek	Thousands of clumps existed at the time management commenced south of Buena Vista Creek. Hundreds were observed north of Buena Vista Creek	Thousands of clumps, or at least 90%, were treated south of Buena Vista Creek in the spring of 2008. None were treated north of Buena Vista Creek	Resprouts south of Buena Vista Creek will be treated in upcoming fiscal years as budget permits.
Artichoke thistle M	Along the northern boundary	Less than 100 clumps	About 50 clumps were hacked with machetes.	This species will be removed as budget permits
Hotentot fig (<i>Carpobrotus edulis</i>) H	Patch along northern boundary	Patch is about 1/10 of an acre	None	None planned
Shamal Ash (<i>Fraxinus uhdei</i>)	Riparian area	Unknown, but likely in the 100's	Stump spraying commenced in September of 2008	Continued stump spraying into the upcoming fiscal year
Palm trees (<i>Washingtonia</i> ssp, <i>Pheonix</i> ssp and others)	Riparian areas	Hundreds	Most were stumped sprayed in the fall of 2007. Those that were not killed were stump sprayed in the fall of 2008	CWN will continue to treat until the end of 2009
Acacia trees (<i>Acacia</i> ssp)	Riparian areas	Unknown, but likely less than 30 trees	None	None
Virgina creeper (<i>Parthenocissus</i> ssp.)	Riparian areas	Large stands	None	None
Erosion	Agricultural areas and along the northern access road	Not severe in the agricultural areas. The northern access road will require repair	None	CNLM will work with CDFG and the City of Oceanside Sewer department to maintain the road. Archeological artifacts are preventing basis maintenance to occur
Itinerants and Trespass	Riparian areas and upland areas	No itinerants known to occur at this time. Some motorcycle activity was observed. Fence and gate was vandlized	Any new camps observed were removed, or individuals found were arrested or told to leave. Frequent patrols.	Frequent patrols

Trash and Debris	Throughout	Minimal	CNLM participated in the National Public Lands Day clean up and the former farmer cleaned up the rest.	Remove as observed
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¹There are many nonnative species at the Reserve. We try to annotate the main species, but the list is not inclusive.

H, M, L refer to California Invasive Plant Council rankings, and potential severity of plants, if present. H=high, M=moderate, L=limited

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

4. Sewer spill grant. Late in the fiscal year, CDFG was awarded close to \$400,000 as a result of the City of Vista’s sewer spill into the Buena Vista Lagoon. These funds will be used for restoration of the fallow agricultural areas into southern willow scrub. CNLM will be meeting with CDFG to discuss the use of these funds.

D. PUBLIC SERVICES

Public services activities at the Reserve include patrolling, trash pick up, public education and volunteer activities. This year we also met with Preserve Calavera to plan and discuss trail alignments.

1. Patrolling The Preserve Manager or Ranger patrolled the site every week for most of the year, primarily on Sundays. Early in the fiscal year we had to remove some itinerants, but this subsided as the year progressed. In the winter and late summer, some vehicles got onto the property from the eastern Haymar side and drove around the property fencing. No damages were observed, other than vehicle tracks. In general, our patrols have minimized unwanted activities.

2. Trash Pick up

Prior to title transfer to CNLM, there was large amounts of trash throughout the property. The City of Carlsbad held its annual National Public Lands Day at the Reserve in the fall of 2007. Close to 100 people attended, including CNLM staff and CDFG staff, and cleaned up most of the trash south of Buena Vista Creek. Later in the year, the farmer, prior to leaving his agricultural activities, removed almost all the trash and debris around the agricultural areas and in the riparian area. At this time, the Reserve is very clean from trash and new trash blows in from SR-78 and surrounding areas. This trash is promptly removed.

3. Public Education and Volunteer Activities

CNLM staff participated in a number of volunteer events, sponsored and organized by Preserve Calavera. They included three willow planting efforts, two trash pick up events, and a raptor survey with a local raptor expert. CNLM provided information at these events about the natural history of the Reserve and our management activities.

4. Trail Planning Although the Reserve is not currently open to the public, CNLM began planning trail locations and other on-site activities in preparation for the Reserve opening. CNLM met with Preserve Calavera and walked various routes and discuss various trail alternatives. Tentatively, and only with CDFG consent, trails would include the access road along the northern boundary, and a loop trail from the terminus of Marron Road out into the Reserve south of Buena Vista Creek and back to Marron Road. In the future, a trail may be required to cross Buena Vista Creek and connect these trails.

E. REPORTING

Activities included within reporting requirements include the management of the HCA's database/GIS system, the photo-documentation stations, and the production of various status reports to the USFWS, CDFG, City of Carlsbad and Center administration.

1. Database/GIS Management. The Center has created a GIS database that includes 2007 and 2008 digital aerial photography, site boundary and parcel boundary, vegetation map and sensitive species.

2. Photo-documentation Stations. Photo-documentation occurred prior to title transfer to CDFG and are provided within the MFA. CNLM will update these photographs in the upcoming years. Various photographs were taken in 2008 and stored for future retrieval.

3. Reports

a. **Year-End/Agency Reports.** This report represents the first annual report for the property and will be submitted to the City of Carlsbad and wildlife agencies.

b. **Annual Work Plan.** A draft annual work plan for the next fiscal year has been developed and submitted to CDFG in September of 2008 for their review and comment.

c. **Management Plan.** The Center drafted a Habitat Management Plan for the Reserve and submitted it to CDFG in May of 2008 for their comment and review (CNLM 2008). Comments and review have yet to be received from CDFG.

d. **Budgets and Financial Status.** The total budget spent during this fiscal year was \$86,425, of the planned budget of \$93,294. As of just a year ago, the endowment was keeping up with inflation. However, the endowment has declined in the last year as a result of the current financial crisis in the United States. The Center is working at cutting budgets to ensure that there will be sufficient funds for future management. In addition, the Center still has 2.5 years of

Initial and Capital for the project, and thus, will not be using interest generated from the endowment for 2.5 years. This action is intended to allow the endowment to recover before using interest it provides.

Table 3. Endowment Status

Project	Inception Date	Original Endowment	Endowment as of 4/30/08	Endowment as of 10/31/08	Initial and Capital as of 10/31/2008	Total Preserve Funds	Inflation Adjusted Endowment as of 10/31/08
BV Creek	4/2007	\$776,644	\$799,735	\$579,906	\$109,567	\$689,473	\$806,439

III. SUMMARY AND DISCUSSION

First year management at the Buena Vista Creek Ecological Reserve was successful at building baseline biological data and developing a better understanding of the HCA and its regional context. HCA management in the upcoming fiscal year will be similar to the first year.

IV. REFERENCES

CNLM/CDFG 2007. Buena Vista Creek Ecological Reserve Management and Funding Agreement with attachments. August 20, 2007.

CNLM 2007. Buena Vista Creek Ecological Reserve 2007-2008 Annual Work Plan. Center for Natural Lands Management. December 2007.

CNLM 2008. Draft Habitat Management Plan for the Buena Vista Creek Ecological Reserve 2008-2012. Center for Natural Lands Management. May 2008.