
Burrowing Owl Mitigation Monitoring Year 5 Annual Report

LEGACY AMERICA CENTER OPEN SPACE PRESERVE SAN JOSE, SANTA CLARA COUNTY CALIFORNIA

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Date:

January 2007



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1.0 INTRODUCTION

In 2002, Legacy Partners constructed a Western Burrowing Owl (*Athene *cunicularia* hypugea*) mitigation habitat site on the Legacy Terrace Development Open Space Preserve, also known as America Center. The project site is located west of the intersection of Gold Street and Channel Drive in the Alviso District of the City of San Jose, Santa Clara County, California (Figure 1). San Tomas Aquino Creek is approximately 200 feet south of the burrowing owl mitigation site, and a service road lies between the mitigation site and the San Francisco Bay salt ponds to the north.

The burrowing owl mitigation habitat consists of 25.3 acres of open space preserve managed as foraging habitat, and includes 6.5 acres of potential burrowing owl breeding habitat. Four sets of artificial burrows were constructed within the constructed breeding habitat. Each set is comprised of six individual burrows. Three additional burrows were installed in 2006. A total of 27 artificial burrows are currently present within the burrowing owl breeding habitat.

2.0 METHODS

According to the Draff Burrowing Owl Habitat Management Plan, prepared by H.T. Harvey & Associates in July 2000, nesting habitat for burrowing owls should be monitored by a qualified biologist 3 to 4 times annually; minimally, once during the non-nesting season (September through January), and three times during the nesting season, preferably once at the beginning of the season (March-April), once at the height of the season (May-June), and once at the end of the season (July-August). All artificial burrows must be maintained on an annual basis prior to the start of the nesting season in February. An annual report is submitted to the City of San Jose at the end of each year.

Monitoring events consist of performing reconnaissance level surveys to determine the presence or absence of burrowing owls. Prior to each site visit, a search of the California Department of Fish and Game Natural Diversity Database (CNDDDB) is conducted to determine if burrowing owls have been reported to have occurred within or adjacent to the burrowing owl mitigation habitat. During each site visit, the burrowing owl breeding habitat is initially observed from a distance with the aid of a spotting scope or binoculars. The site is then traversed on foot and observations are made around the artificial burrows for signs of potential use, such as owl pellets, owl feathers, prey remains, eggshell fragments, and/or excrement. Observations are also made for signs indicating owl absence such as spider webs and debris inside the burrow entrances.

Maintenance is conducted on an annual basis in January or February. Each burrow is inspected, and burrows requiring cleaning or clearing are excavated, cleaned, and reinstalled as budget allows. Vegetation surrounding the burrows is maintained throughout the year to have a height no greater than five inches. Minor repairs, such as replacing and re-labeling posts and clearing surface debris, are performed throughout the year during monitoring events.

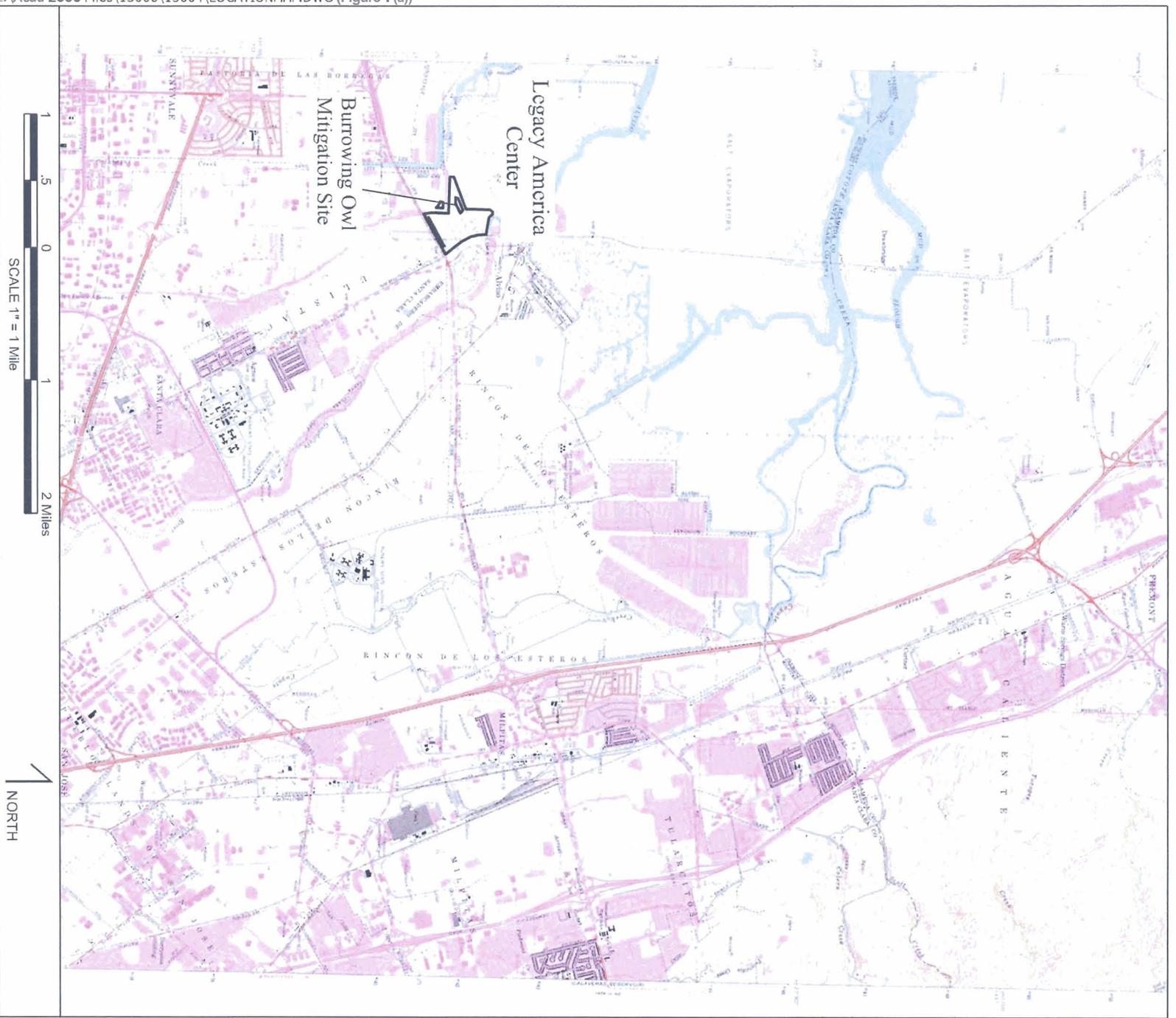


Figure 1

Legacy America Center
Site Location Map
San Jose, Santa Clara County, CA

Directions: Highway 237, north of Great America Pkwy Ext.
Basemap: USGS DRC Millipias Quad



3.0 RESULTS AND DISCUSSION

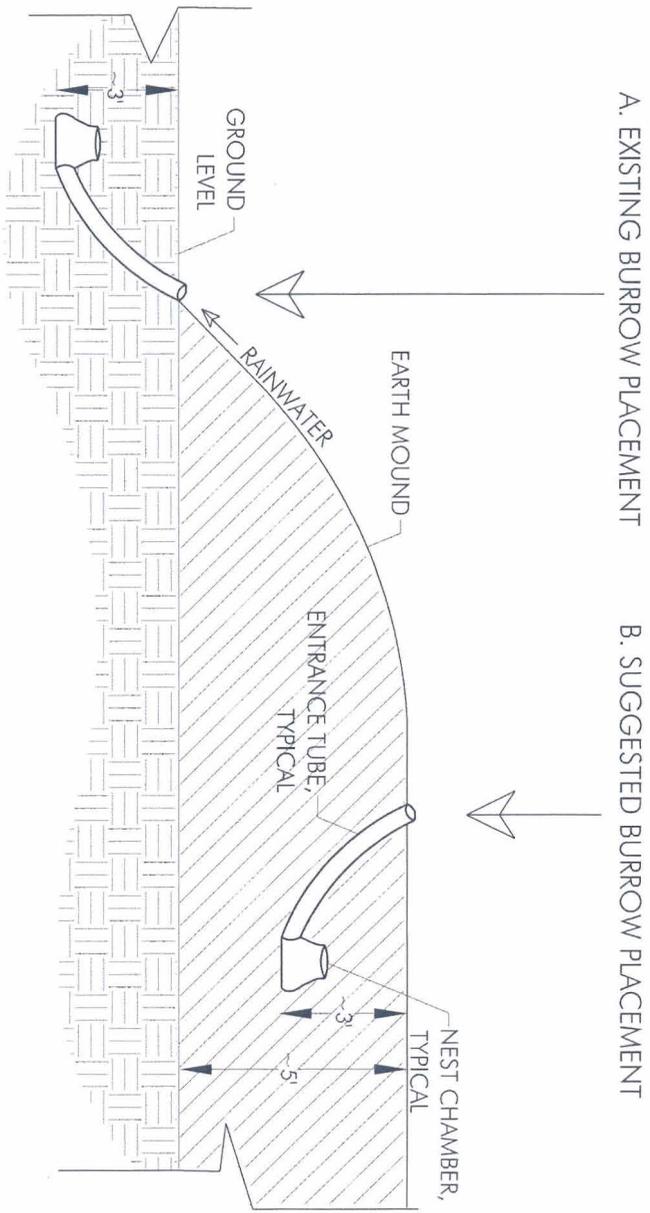
Burrowing owl monitoring was performed by WRA wildlife biologists Spencer Badet or Bill Stagnaro on March 16, March 29, July 14, and August 31, 2006 (Appendix A). No burrowing owls were observed within or adjacent to the owl breeding habitat during the 2006 monitoring efforts. Typical signs of use by owls including droppings, feathers, prey remains, or pellets were not present at any of the burrows.

Searches of the CNDDDB prior to each site visit indicated that no burrowing owls have been reported to occur in the immediate vicinity of the project area in recent years. However, burrowing owl activity was noted in 2005 on City of San Jose properties 1.25-2.5 miles east of the mitigation site, and owls were also present in 2005 at the Moffett Naval Air Station roughly 3.5 miles to the west. Owls were present in and around the Alviso burrowing owl mitigation property in 1971. These findings indicate that burrowing owls inhabit and actively use available habitat in the vicinity, and there is a good chance that they will colonize the Alviso mitigation site if suitable habitat is available for them.

WRA wildlife staff agree with a 2002 letter from H.T. Harvey & Associates explaining that the artificial burrows were originally constructed in a manner that renders them sub-optimal habitat for burrowing owls. As illustrated in Figure 2, the location of the burrow openings near the base of the earth mounds and the placement of the nesting chambers below ground level make the burrows likely to fill with rainwater, soil, and debris, thereby rendering them useless as owl habitat. Furthermore, the location of the burrow entrance near to and facing the earth mound reduces visibility for any owls that might potentially use the burrows, increasing the risk of predation by cats, foxes, raptors, or other species. Owls are therefore less likely to use these artificial burrows, and any owls that do so could have a greater risk of predation. A more desirable burrow design would have the burrow located within the mound, with the entrance at the top of the mound, as shown in Figure 2. Also, as noted in previous reports, the original owl burrows were constructed with approximately five-inch diameter entry tubes. Studies show that burrowing owls select for four-inch diameter burrow entrances, and these smaller diameter entrances reduce the likelihood of predation by mammals (Smith and Belthoff 2001). Fitting both new and existing burrows with four-inch entry tubing increases the habitat suitability for owls.

Maintenance activities since 2003 have emphasized work to improve the suitability of owl habitat at the America Center Open Space Preserve. In 2003, 2004, and 2005, work was done to improve the existing 24 burrows. A number of the burrows were excavated, emptied of dirt and debris, and fitted with new, optimal-diameter entry tubing. Measures were taken to discourage the flow of surface water into the nesting chambers, but some chambers have still flooded if they were below a water table, and other design flaws still persist; therefore, maintenance in 2006 was aimed at installing new burrows which would be more suitable for owl use and which may increase the chances that owls will colonize the mitigation site. On March 16 and 29, 2006, WRA biologists Spencer Badet and Bill Stagnaro installed three new burrows according to the "suggested burrow placement" strategy illustrated in Figure 2. Routine maintenance was also performed on the original 24 burrows as time permitted, including clearing of vegetation and debris and upgrading of entry tubes.

Light maintenance was performed during monitoring visits on July 14 and August 31, 2006. Vegetation and debris was cleared from around burrow entrances while perch stakes were secured and relabeled.



SCALE 1/4" = 1 Foot

Figure 2

Existing and Suggested Placement of Artificial Owl Burrows at the Legacy Terrace Development Open Space Preserve

San Jose, Santa Clara County, CA



4.0 CONCLUSION AND RECOMMENDATIONS

No burrowing owls have been observed at the Alviso mitigation site, nor has any evidence been observed to suggest that owls have used the artificial burrows. Five years of monitoring is complete, and no further monitoring or focused maintenance is planned.

The burrows at the Alviso site will remain in place. Many of the burrows will continue to provide potential habitat for burrowing owls for a number of years to come, barring extreme maintenance needs.

It is recommended that the property managers take steps to ensure that the two earthen mounds housing the owl burrows do not become overgrown with weeds. Mowing or selective application of herbicides may be appropriate, although caution should be used during the owl breeding season between February and August. If owls are discovered using the burrows in the future, the site should be avoided during the period from February to August. A biologist should be consulted if work is necessary near the mitigation burrows while owls are present.

This report concludes five years of maintenance and monitoring on the Legacy Terrace Development Open Space Preserve.

5.0 REFERENCES

- California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocols and Mitigation Guidelines. Sacramento, California.
- California Department of Fish and Game. 2006. Natural Diversity Database (CNDDDB), Wildlife and Habitat Data Analysis Branch. Sacramento.
- H.T. Harvey & Associates. 2000. Draft Legacy Terrace Development Burrowing Owl Habitat Management Plan. San Jose, California.
- Smith, B.W. and J.R. Belthoff. 2001. Effects of nest dimension on the use of artificial burrow systems by burrowing owls. *Journal of Wildlife Management* 65:318-326
- WRA, Inc. 2006. Year 4 Legacy America Center Burrowing Owl Mitigation Monitoring Report. San Rafael, California.
- WRA, Inc. 2005. Year 3 Legacy America Center Burrowing Owl Mitigation Monitoring Report. San Rafael, California.
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APPENDIX A
FIELD NOTES

Field Notes
Spencer Badet
WRA

LEGACY PROJECT, BURROWING OWL ARTIFICIAL BURROW MONITORING
13004
March 16,2006

Purpose: Monitor and repair BUOW burrows

Weather: Partly cloudy, slight breeze, -65F

Monitor: Spencer Badet and Bill Stagnaro

Methods: Burrows were approached on foot from main fire road before turn off to gate. Burrows were examined for owls and owl sign. Minor maintenance was done in upgrading one burrow with a new entry tube (#8) and clearing vegetation from burrow entrance if it was obstructed.

Results: No owls or owl sign were detected. One burrow was excavated in order to replace the entry tube—this burrow was filled with water, rendering it unusable to owls. Many of the burrows, which were installed below ground level, appeared to be filled with water. It was decided that the best course of action would be to return in the near future and install new burrows near the top of the mounds. This would give owls a better view of their surroundings (making them more likely to utilize these new burrows) and make the burrows less likely to fill with water, thus increasing the chances that owls will eventually colonize the site.

Other Wildlife Observed: Cliff Swallow, Turkey Vulture, European Starling

Field Notes
Spencer Badet
WRA

LEGACY PROJECT, BURROWING OWL ARTIFICIAL BURROW MONITORING
13004
March 29,2006

Purpose: Monitor and repair BUOW burrows

Weather: Overcast, occasional drizzle, slight breeze, **-65F**

Monitor: Spencer Badet and Bill Stagnaro

Methods: Burrows were approached on foot from main fire road before turn off to gate. Burrows were examined for owls and owl sign. Maintenance was conducted including installation of new burrows and weed removal using a string trimmer.

Results: No owls or owl sign were detected. Three new burrows were installed at the top of the two mounds. These new burrows will provide habitat which is more likely to be utilized by owls than the existing burrows. The new burrows should also be less likely to fill with water. Grass and weeds were trimmed back from the most overgrown burrows.

Other Wildlife Observed: Cliff Swallow, Red-Tailed Hawk, Turkey Vulture, European Starling.

Field Notes
Bill Stagnaro
WRA

LEGACY PROJECT, BURROWING OWL ARTIFICIAL BURROW MONITORING
13004
July 14,2006

Purpose: Monitor and repair BUOW burrows

Weather: Clear, Sunny, slight breeze, **-85F**

Monitor: Bill Stagnaro

Methods: Burrows were approached on foot from main fire road before turn off to gate. Burrows were examined for owls and owl sign. Minor maintenance was done in clearing vegetation from burrow entrance if it was obstructed.

Results: No owls or owl sign were detected. Very few avian species were observed. Many garden snails were living in the openings. The grass growing near the burrow berms was very long, up to 3 feet high, the grass near the burrow entrances shorter from the previous maintenance activities.

Other Wildlife Observed: Cliff Swallow, Turkey Vulture, European Starling.

Field Notes
Spencer Badet
WRA

LEGACY PROJECT, BURROWING OWL ARTIFICIAL BURROW MONITORING
13004
August 31, 2006

Purpose: Monitor **BUOW** burrows

Weather: Clear, Sunny, slight breeze, -80F

Monitor: Spencer Badet

Methods: Burrows were approached on foot from main fire road before turn off to gate. Burrows were examined for owls and owl sign. Minor maintenance was done in clearing vegetation from burrow entrance if it was obstructed.

Results: No owls or owl sign were detected. Very few avian species were observed. Extensive grass removal with a string trimmer will be necessary during the next monitoring visit.

Other Wildlife Observed: Ground squirrels, Red-tailed Hawk.

Fly-over (at distance): Black-necked Stilt, Long-billed Curlew, Great Egret, Mallard, Turkey Vulture

APPENDIX B
PROJECT AREA PHOTOGRAPHS



Photo Appendix

Top: Burrow 8, flooded, in March 2006.

Bottom: **Installation** of a new artificial burrow, March 2006.





Photo Appendix

Top: New burrow #25 complete with weed removal, March 2006.

Bottom: Burrow #25 in August 2006.



Field Notes
Spencer Badet
WRA

LEGACY PROJECT, BURROWING OWL ARTIFICIAL BURROW MONITORING
13004
August 31, 2006

Purpose: Monitor BUOW burrows

Weather: Clear, Sunny, slight breeze, -80F

Monitor: Spencer Badet

Methods: Burrows were approached on foot from main fire road before turn off to gate. Burrows were examined for owls and owl sign. Minor maintenance was done in clearing vegetation from burrow entrance if it was obstructed.

Results: No owls or owl sign were detected. Very few avian species were observed. Extensive grass removal with a string trimmer will be necessary during the next monitoring visit.

Other Wildlife Observed: Ground squirrels, Red-tailed Hawk.
Fly-over (at distance): Black-necked Stilt, Long-billed Curlew, Great Egret, Mallard, Turkey Vulture