

Burrowing Owl Mitigation Plan
for the
Fire Station 5 Classroom/Training,
Construction, Project 20-35
Shoreline Boulevard
Mountain View

Prepared for:
City of Mountain View
Public Works Department

Prepared by:
Philip Higgins, Wildlife Preservation Coordinator
Shoreline at Mountain View

October 4, 2022

TABLE OF CONTENTS

MITIGATION PLAN..... 1

INTRODUCTION..... 1

Environmental Setting 1

Impacts and Mitigation Provisions 3

Success Criteria 5

Habitat Enhancement and Creation Plan 6

MONITORING PLAN 8

Invertebrate Sampling 8

Vertebrate Sampling 8

Vegetation Sampling..... 8

FIGURE 1—Site Map—Existing Conditions 9

FIGURE 2—Proposed Burrowing Owl Mitigation Site 10

FIGURE 3 – Existing Conditions at Burrowing Owl Foraging Area.....10

APPENDIX A—OWL ECOLOGY..... 11

APPENDIX B—PREY ECOLOGY..... 13

APPENDIX C—TABLE 1: RECOMMENDED PLANTS OF MITIGATION AREA..... 14

APPENDIX D—REFERENCES 16

MITIGATION PLAN

Introduction

The Burrowing Owl Mitigation, Enhancement and Monitoring Plan addresses the negative impacts on nearby western burrowing owls (*Athene cunicularia*) and steps for mitigation and monitoring if the proposed Fire Station 5 Classroom/Training, Construction, Project 20-35 (Fire Station) project is constructed. The proposed project site is located adjacent to Shoreline at Mountain View (Shoreline) in the City of Mountain View. This Mitigation Plan describes an approach to compensate for the loss of burrowing owl foraging habitat due to the project by establishing new/enhanced foraging habitat in a designated area within Shoreline. The Monitoring Plan provides the procedures for determining whether the mitigations are meeting the expected success criteria.

Environmental Setting

Shoreline is comprised of approximately 750 acres located adjacent to the San Francisco Bay and opened to the public in 1983. Shoreline includes a 50-acre small boat sailing lake; an 18-hole municipal golf course; Michael's clubhouse and banquet facilities; historic Rengstorff House; irrigated and nonirrigated grasslands; wildlife and habitat areas; a self-guided interpretive sign system; and eight miles of paved trails. Extensive wetlands include two tidal marshes, two sloughs, a seasonal marsh and storm retention basin, two creeks and one irrigation reservoir on the golf course. Passive recreational activity opportunities include jogging, walking, bird watching, kite flying, sailing and golf.

Approximately 400 acres of Shoreline is underlain by a closed Class III municipal landfill. Refuse in cells beneath 6 acres of the project site is approximately 30 to 40 years old. Shoreline is also an important location for western burrowing owls, a species of special concern in California. Shoreline supports a subpopulation of these birds and is well-known as one of the last places in Santa Clara County where owls breed and reside year-round.

The proposed Fire Station project site covers an area of 5,250 square feet within Shoreline. See Figure 1, Site Map—Existing Conditions. The site is located within a walled-in area of the existing Fire Station #5 at 2195 N. Shoreline Boulevard in Mountain View. The station is located adjacent to the A – B parking lot and Crittenden Hill at Shoreline. The site consists of non-irrigated non-native grasses with ground squirrel burrows on site.

Several burrows in the area of the project site have been used by burrowing owls in the past including burrows on Crittenden Hill as recently as 2021 and burrows in the habitat islands within the A and B parking lots. This project site is approximately 853 feet from an active burrowing owl burrow used in 2021. The site provides foraging area within the home range for Shoreline burrowing owls; foraging areas are especially important during the breeding season when owls need high nutritional quality and quantity. Haug and Oliphant (1990) found the

mean home range of burrowing owls to be 2.41 square km (range 0.14 to 4.81 square km) and the mean maximum distance traveled from the burrow was 1.73 km (range 0.47 to 2.70 km). Sissons (2003) found the mean home range of burrowing owls varied from 0.34 to 7.56 square km. Based on these numbers, the project site is well within the foraging range of burrowing owls at Shoreline. Despite the human disturbance during its current use, the project site provides some prey species. Most of the prey items of burrowing owls have been found within ground squirrel burrows and the site contains pocket gopher activity (Higgins 2007).

A total of twenty-eight ground squirrel burrows were observed inside of the fenced-in Fire Station area. Of these burrows, twenty-two were located inside of the project footprint. In addition to ground squirrel burrows, pocket gopher activity was observed within the project footprint. Habitat at the site includes short grasses and bare ground within a non-irrigated area with one coyote brush and one non-native palm tree. Areas adjacent to the project footprint inside of the fenced-in area include patches of taller vegetation with more native species in an irrigated area: red fescue, alkaline mallow, creeping wildlife rye and sedges. Other areas on site include some raised beds with vegetables and some fruit trees.

Just beyond the fenced-in area of the fire station are several irrigated non-native grass islands, that also contain ground squirrel burrows. A total of eighteen ground squirrel burrows were observed in these areas.

Comparison and Importance of Shoreline to other burrowing Owl sites in Santa Clara County:

1. Shoreline has supported a relatively stable, large population of burrowing owls compared to most Bay area sites. Reasons for this include:
 - a. Large open grassland areas with few trees;
 - b. Unmanaged short- and long-grass areas;
 - c. Golf course with irrigated grasslands;
 - d. Lots of ground squirrels that are not controlled (i.e., killed);
 - e. No urban development pressures;
 - f. No dogs allowed; and
 - g. Perhaps most importantly, the City's long-term commitment to have dedicated, scientific monitoring of owls by a burrowing owl expert and managing Shoreline to benefit burrowing owls following the advice of the expert.

2. Other sites with favorable conditions and large, stable owl populations are Moffett Airfield and the San Jose Airport. Both sites have a dedicated owl expert to help manage and preserve the population.
3. Areas where owls have declined drastically or disappeared include Mission College, Agnews and Tasman corridor. Loss of owls is due to urban development, use of mitigation banks and general lack of commitment to protecting burrowing owls.
4. Areas that seem good for owls, but have few, are Bixby Park and Sunnyvale Baylands park and landfill. Lack of irrigated lands, which provide good foraging, other high-quality foraging sites, lack of staff dedicated to owl protection and presence of dogs may be reasons for the low numbers of owls at these sites.

Impacts and Mitigation Provisions

This section details the plan to minimize impacts to burrowing owl foraging habitat at the proposed project site. The Mitigation Plan includes a Monitoring Plan to determine the success or failure of mitigation actions.

One of the most important factors for conserving any species at a particular location is the availability of food. For avian species, resource availability is especially important during the breeding season (Strong, Rimme and McFarland 2004). Hence, the loss of foraging habitat at the Fire Station project site would have a negative impact on successfully breeding burrowing owls at Shoreline at Mountain View.

Impact: The proposed project site in Shoreline will eliminate 5,250 square feet of foraging habitat approximately 853' from burrowing owl burrows in one of the highest densities of successful breeding pairs in the South Bay. To compensate for this impact, the City will mitigate within Shoreline by designating 7,880 square feet of dedicated, enhanced and maintained habitat for owl foraging, in perpetuity (Figure 1). "In perpetuity" means until the Fire Station project is no longer in operation, has been removed and the site restored to foraging habitat of the same or equivalent value as it was historically.

Mitigation Approach: To mitigate for the loss of foraging habitat at the proposed project site, this Mitigation Plan shall be approved by the California Department of Fish and Wildlife. The Mitigation Plan describes where to locate high owl foraging habitat; how to create and enhance habitat with structures appropriate to supporting owl prey, such as small rodents and insects; and type of species of native perennial ground-cover plants to be used in the mitigation areas. The Monitoring Plan provides benchmarks for an objective determination of success or failure of the habitat; it describes monitoring to determine the success or failure of the mitigation; and commits the City of Mountain View to maintenance and modifications if the habitat does not attain benchmarks for the prey base (benchmarks located in "Success Criteria" section below).

Location: Appropriate locations for the foraging habitat mitigation are sites near active owl burrows and on sites not likely to be disturbed by landfill activities, materials storage or other nonburrowing owl mitigation activities. Mitigation sites must:

- Be dedicated to owl habitat and no other nonnatural use. Appropriate sites are those where no landfill maintenance (such as soil placement which would destroy mounds and vegetation or brush/rock piles or landfill extraction well construction) is expected for at least three to five years. Any disturbance of the sites will require immediate rectification after completion of the disturbance to return the site to its original status prior to the disturbance. The proposed mitigation site is located at an area where no landfill cells are located underneath, thus ground disturbance should not be an issue at this particular location.
- Be sites where owls do nest nearby (as determined by a burrowing owl specialist) (Figure 2). Sites with trails and human activity fragmenting the site are not appropriate foraging habitat locations.

The objective of the Mitigation Plan is to maintain current levels of burrowing owl foraging habitat in Shoreline and, therefore, should include an area that will result in creating additional foraging habitat, which mitigates for lost habitat at the project site, and not merely enhancing existing foraging areas.

The proposed mitigation site consists of a gravel and temporary water retention basin for placing excess water and mud collected and deposited during Public Works normal maintenance operations. The site does not contain any vegetation. See Figure 1—Proposed Burrowing Owl Mitigation Sites.

The mitigation area will have the gravel removed and a six-foot-tall chain link fence installed to prevent access into the area by unauthorized individuals and vehicles. The fenced area results in a greater than 1:1 replacement ratio, for the loss of 5,250 square feet and the establishment of 7,880 square feet.

Habitat Requirements: Structures to create and enhance habitat for owl foraging include:

- pipes, concrete boxes and brush piles to increase rodent populations; and
- native perennial ground-cover plants that will provide year-round cover for prey species and an additional food source.

Diagrams to show the dimensions and placement of pipes and brush piles shall be reviewed with a burrowing owl specialist. Diagrams will show:

- whether pipes should be in piles, side-by-side, single pipes sporadically placed or a combination;
- whether any pipes should be partially buried or both ends are open; and

- how brush piles should be placed, and the choice of native plants and quantities.

The Mitigation Plan describes maintenance of the foraging areas and structures. Rodents are expected to colonize the habitat on their own.

Future Site Disturbance: Any foraging habitat that will be disturbed by any future activities must be replaced prior to disturbance with the same amount of habitat disturbed following the location criteria in Point No. 3 above. Or, if the disturbance will be brief, the foraging habitat can be reestablished at its original location. Details and plans for adequately responding to such disturbances must be developed with a burrowing owl specialist in advance of the disturbance. As no landfill is located underneath the proposed mitigation site, there should not be any landfill activities at the location, thus no site disturbance.

Maintenance: The mitigation site will be maintained by the City of Mountain View to ensure that the habitat structures and vegetation are in good condition to support burrowing owl prey species. At least twice a year, a burrowing owl specialist will inspect the mitigation site to determine the condition of the habitat features. The City of Mountain View will undertake maintenance of structures and planting as required by the burrowing owl specialist.

Remedial Measures: If the mitigation site does not meet the success criteria as given in this Plan, a burrowing owl specialist will assess the habitat conditions and develop recommendations for altering the habitats to improve conditions for burrowing owl prey. The City will discuss these recommendations with the California Department of Fish and Wildlife, who will determine what measures are required and how much monitoring is needed to assess the effectiveness of the remedial measures.

Responsible Parties. The City of Mountain View will be responsible for ensuring the mitigation and monitoring plan is implemented according to the conditions specified in the Plan.

Success Criteria

Mitigation for this project will be considered successful when the mitigation site meets all of these success criteria:

Vegetation: The success criteria will include a 90 percent survival rate for perennial and shrub species after five years. A diversity of plant species will be included to provide both cover and an additional food supply for species such as rodents and invertebrates.

After these mitigation success criteria are achieved, monitoring of the success criteria will continue for an on-going basis, and a compliance check will be initiated every 5 years to ensure the habitat is succeeding in providing prime foraging habitat for prey species of burrowing owls. This Mitigation Plan does require that the City of Mountain View maintain the mitigation site for burrowing owl foraging habitat in perpetuity, i.e., as long as the Fire Station Project causing the impact is in operation. If the site does not meet these success criteria, the City will work

with the California Department of Fish and Wildlife to determine what remedial measures are required and how much additional monitoring may be needed.

Habitat Enhancement and Creation Plan

Habitat creation involves providing foraging habitat where no foraging habitat existed previously. This is the ideal solution to offset any loss of foraging at the Fire Station project site.

Maintenance will include replacing any lost perennial native plants within the first five years of growth and installation and upkeep of an irrigation system to provide adequate watering for the perennial plants. Modifications, maintenance and monitoring of the site will be conducted in accordance with this Mitigation Plan and with supervision from a burrowing owl specialist as approved by the City of Mountain View and the California Department of Fish and Wildlife.

The mitigation site will contain a mosaic of suitable habitat types to encourage a diversity of prey species for burrowing owls. Features to create and enhance habitat for prey species of burrowing owls include the following:

Brush Piles: Installation of several brush piles that consist of large logs loosely spaced in a crisscrossed pattern forming the foundation. Smaller branches and twigs create the next layer and dead vegetation placed on top creates the final layer. The damp, warm interior of the brush piles attracts many animal species providing an ideal habitat for birds, reptiles, amphibians and rodents.

Rock Piles: Rock piles should be several feet in diameter and 2' to 3' in height. The foundation consists of large boulders with hiding places in between and smaller rocks placed on top. Reptiles and amphibians are attracted to the thermal heat provided by the surface rocks and the moist environment under the rocks.

Logs: Place large branches or small tree trunks around the site to provide ideal habitat for invertebrates such as beetles and grubs as the wood decomposes.

Pipe Piles: Place pipe of various pipe diameters and lengths in piles above and below ground. Pipe above ground may have both ends open while below ground pipe is to have one end buried into the soil. Some pipe piles may be covered with vegetation. Rodents, amphibians and invertebrates are attracted to the moist conditions within the pipes, which also provide cover and protection.

Mulch: Place mulch or leaf matter in small heaps and spread out over several areas to attract ground-living invertebrates that inhabit this type of environment.

Native Plants: Based on the advice of a burrowing owl expert, native perennial ground-cover plants in dense plantings will be planted at the mitigation site. Native perennial plants enhance the prey base of burrowing owls (Moulton, *et al.* 2006) by providing an additional year-round

source of cover especially for small rodents who occur in greater abundance in a mixture of high density and diversity of shrubs and mixed grass (Windberg 1998). A water source is required at the sites for plant establishment. An estimated 400-450 plants will be planted within the mitigation area.

A variety of California native plants (Appendix C) will be planted in the following approximate quantities: perennial ground covers 80 percent and grasses 20 percent. In addition to California native plants (Appendix C), the site will have rock and brush piles and other habitat enhancements to encourage a variety of burrowing owl prey species.

Proposed Mitigation Site

The proposed mitigation site will actually be larger than the area of impact (area resulting in loss of foraging habitat). The Fire Station project site covers an area of 5,250 square feet, while the mitigation site will cover an area of 7,800 square feet, a net increase of 2,550 square feet. The mitigation site presently consists of a gravel trail where Vac-con vacuum trucks access a basin to deposit wastewater from city projects. Thus, this mitigation site presently provides limited foraging habitat for the prey base of burrowing owls. To enhance this area, the City of Mountain View will remove the six-foot-tall chain link fence on the northern periphery of the site and relocate the fence to delineate and protect the new mitigation area. Once the new fence is put in place the mitigation area will be planted with a diversity of low growing (so as not to provide perching locations for raptor predators of burrowing owls) drought tolerant native plants that will provide cover and a year-round source of additional food in the form of nectar, pollen, berries, seeds and forage for rodent and invertebrate prey species. A drip irrigation watering system will also be installed and extended from the present adjacent site.

This mitigation site was chosen for several prime reasons:

1. The mitigation site is directly adjacent to existing prime nesting burrowing owl habitat. A total of ten successful pairs of burrowing owls have produced offspring over the past five years close by to this area. The distances of these successful nests have varied from 232 feet to 1,699 feet. Year-round wintering owls have used burrows as close as 96 feet from the mitigation areas (Figure 2).
2. Ninety percent of all burrowing owls year-round at Shoreline over the past few years have used burrows within a radius of 1,542 feet of the mitigation area.
3. The mitigation site is immediately adjacent to a prime foraging habitat that has been enhanced over the past five years with the planting of 1,510 native plants, the installation of rock and brush piles and the installation of 10 water cannons to irrigate grass species to provide foraging areas for ground squirrels, and rodents and friable soil for pocket gophers (Figure 3).
4. The mitigation site is not located above a closed-landfill cell, and as such, will not require cap repairs due to subsidence from trash decomposition.

MONITORING PLAN

Monitoring the mitigation site will involve invertebrate, vertebrate and vegetative sampling. Monitoring will occur to decipher if prey inhabit the site and determine if the Mitigation Project is successful or not.

Invertebrate Sampling

Invertebrate trapping will include both ground sampling and above-ground/midair sampling. Ground sampling involves the use of pitfall traps, which consist of plastic containers placed flush in the ground with a 2 to 3 cm mixture of water, salt and biodegradable laundry detergent placed inside the container. The salt acts as a preservative, and the detergent breaks the water surface tension permitting invertebrates to sink. A lid will be placed on top of the container supported by wooden skewers underneath to allow invertebrates to enter but prevent small mammals from entering. The traps will be left in place for a few days each month for the duration of a year. For above-ground/midair sampling, sweep nets will be used to catch invertebrates that reside on low-growing vegetation or that fly just above the ground. This method will be conducted on the occasions that the pitfall traps are set and checked.

Vertebrate Sampling

Motion detection cameras will be placed at strategic locations within the mitigation areas once the vegetation reaches approximately one foot in height. The cameras will be left in place for several weeks over a 24-hour period and the camera footage will be retrieved on a regular basis and the data recorded onto a file to create a table of all species observed. The cameras will be moved around the mitigation areas to provide a more detailed sampling of species present. Sampling of gopher presence would merely involve observing their mounds at the site.

Note: Vertebrate sampling would not occur until vegetation has reached about 1' in height to provide cover for rodents.

Vegetation Sampling

Vegetation sampling involves:

1. Once a year, counting the shrubs/perennials and evaluating their vigor to determine the percent of plants surviving; and
2. Once a year, using a method such as randomly chosen quadrants to estimate the cover of other plant species.

The sampling protocol for vegetation monitoring must be designed by an ecologist or other specialist with expertise in monitoring plant cover.

Figure 1: Project site (Fire Station) and Proposed Mitigation area

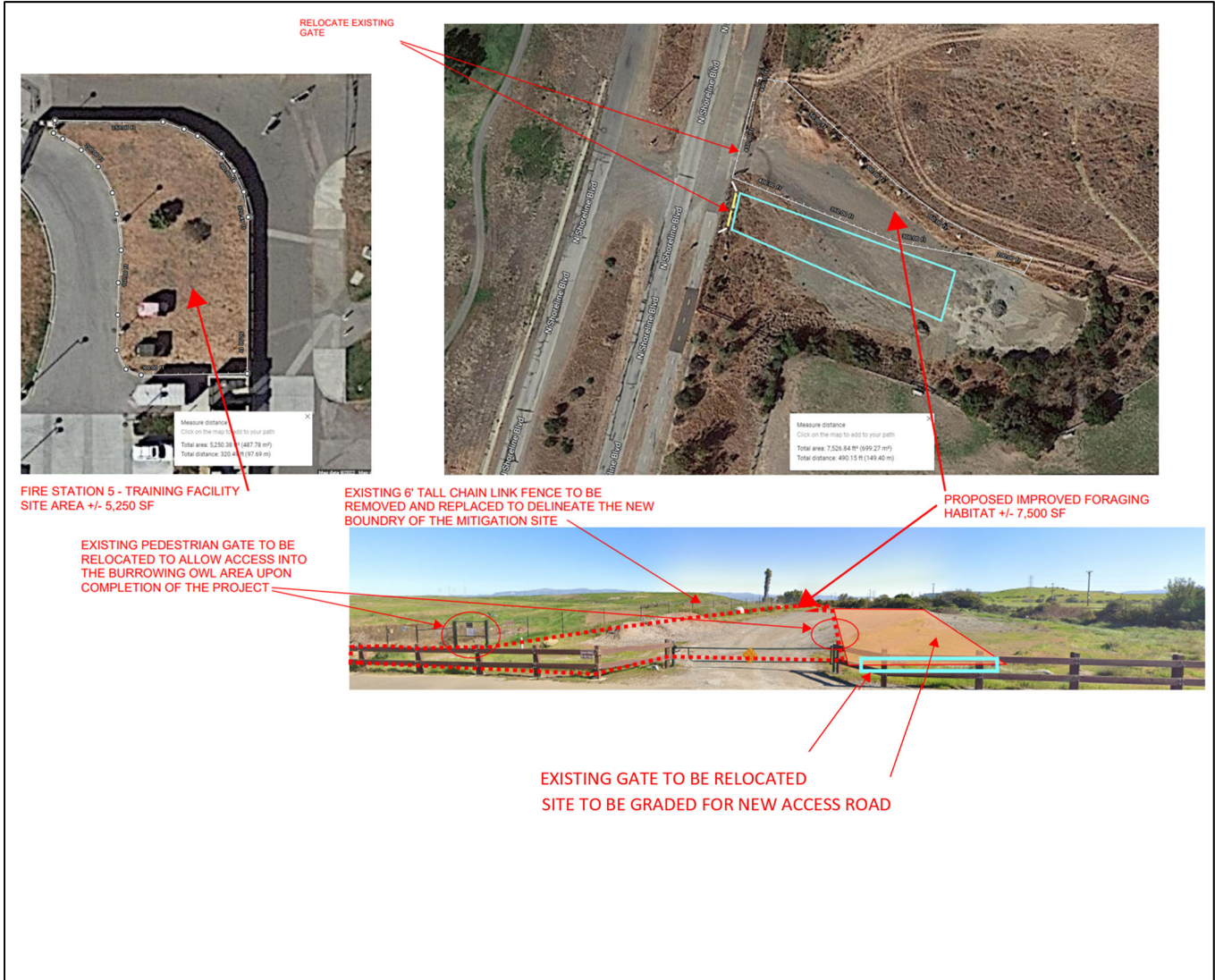


Figure 2: Location of project site in comparison to proposed mitigation site and successfully nesting burrowing owl burrows over the past five years



Figure 3: Existing conditions at burrowing owl foraging area adjacent to the proposed mitigation site, this foraging habitat will be replicated at the proposed mitigation site



APPENDIX A

OWL ECOLOGY

The Western burrowing owl (*Athene cunicularia hypugea*) is a diminutive denizen of short grasslands and semi-arid areas whose life history is centered in and around an underground burrow, a unique aspect among owl species. The burrow is used for nesting, escape from predators, shelter during inclement weather, a food supply, thermoregulation and social interaction (Coulombe 1971 and Thomsen 1971). The range of the Western burrowing owls includes most of western North America from southern Canada to northern Mexico, and west of the Mississippi River. Habitat loss, alteration of existing habitat, and reduction and removal of colonial sciurid populations have resulted in the burrowing owls being listed as endangered in Canada, Minnesota and Iowa, and listed as a Species of Special Concern in most other U.S. states, including the state of California (Sheffield 1997).

Burrowing owls are opportunistic and generalists when it comes to their dietary requirements (Haug, Millsap and Martell 1993), with local conditions such as floral and faunal composition affecting both the relative proportion and diversity of species that are preyed upon (Zarn 1974). They prey upon a variety of invertebrates such as beetles and grasshoppers and rodents such as mice and gophers. Hence, their diet is site-specific. Burrowing owls are predominantly crepuscular hunters; however, foraging has been observed nocturnally and diurnally (Thomsen 1971, Haug and Oliphant 1990, Haug, Millsap and Martell 1993). Pellet analysis (N = 3,092 pellets) of burrowing owls in Santa Clara County, including owls at Shoreline at Mountain View, yielded 7,227 individual prey items representing a total of 11 orders. Of these orders, three represented 92.1 percent of all prey items: Dermaptera (earwigs) (48.61 percent of all prey items), Coleoptera (beetles) (27.52 percent of all prey items), and Orthoptera (grasshoppers and crickets) (15.97 percent of all prey items). Vertebrates represented 6 percent of the diet and four classes were represented: California voles (*Microtus californicus*) were the most common vertebrates representing 1.87 percent of the diet, while both house mice (*Mus musculus*) and Botta's pocket gopher (*Thomomys bottae*) represented 1.08 percent each of the diet. Other rodents included the Western harvest mouse (*Reithrodontomys megalotis*) (0.39 percent), the deer mouse (*Peromyscus maniculatus*) (0.04 percent) and unidentified rodents (0.71 percent of the diet). Jack rabbits (*Lepus californicus*) (0.06 percent), and California ground squirrels (*Spermophilus beecheyi*) (0.22 percent) were only found as prey remains at the burrow entrances apart from one juvenile ground squirrel found in a pellet. Although invertebrate numbers were significantly greater than vertebrate numbers, the total weight for the three invertebrate orders was estimated at 4,489 g, representing 17.47 percent of total biomass, while the total weight of the rodents was estimated at 21,210 g, or 82.53 percent of total biomass. Hence, vertebrates dominated the diet by biomass and were probably more important as a food source for burrowing owls in this region (Trulio and Higgins 2012).

The habitat requirements of burrowing owls are very specific: short vegetation, openness and burrow availability (Thomson 1971, Zarn 1974, and Green and Anthony 1997); however, they will habituate to human-altered habitats and are often found in urban parks, golf courses, airports, agricultural areas, vacant lots in residential areas and college campuses (Haug, Millsap and Martell 1993, Trulio 1997 and Millsap 1999).

Once abundant throughout its range, this species is now experiencing a population decline as a direct result of habitat destruction and fragmentation (Dyer 1987, Sheffield 1997). This population decline has become so severe at some locations that the burrowing owl has become extirpated in parts of its range (Holroyd, Rodriguez-Estrella and Sheffield 2001, DeSante, Ruhlen and Rosenberg 2004). Urban areas are especially prone to burrowing owl declines, as suitable habitat is replaced with urban sprawl and nowhere is this more prevalent than Santa Clara County, California, where present burrowing owl populations are experiencing a severe decline (Buchanan 1996, Trulio 2003).

Apart from degradation and fragmentation of habitat, additional factors impacting the owl's survival rate are the quality and abundance of prey species, predation rates on burrowing owls, competition for resources and human disturbance. All of these impacts have a significant role in the decline of this bird species (Rosenberg and Haley 2004).

APPENDIX B

PREY ECOLOGY (OF SPECIES FOUND FROM PELLET ANALYSIS STUDY OF OWLS IN SANTA CLARA COUNTY)

Maintaining short vegetation in burrowing owl habitat may be a crucial conservation technique for successful burrowing owl nesting and adult survival (Green and Anthony 1997), but short vegetation has adverse affects on rodent and invertebrate survival. Burrowing owls are opportunistic feeders and their diet is very diverse. This diversity of prey species requires habitat heterogeneity to successfully accommodate a broad prey base. Fragmented habitats in general support fewer species of rodents (Bolger *et al.* 1995), while unmowed habitat had the highest density of small mammals (Adams 1984, Jones, Bock and Bock 2003). Jones *et al.* (2003) found small rodents in significantly greater abundance in areas with the most and tallest vegetative cover, while Giulio *et al.* (2001) found that insect diversity was greater in extensively managed meadows (areas mowed once or twice per year) as opposed to intensively managed meadows (areas mowed more than two times per year). A mosaic of different habitats consisting of both tall and short vegetation would enhance the prey base of burrowing owls by providing a diversity of habitats for insect and mammal species.

Rodents provide a superior food source for burrowing owls and the mitigated habitat should focus on encouraging rodent abundance. A basic ecology of the three most numerous rodent species from owl pellet analysis were:

Microtus californicus (California vole): Prefers dense grass cover, brush piles, logs and underground burrows. Feeds mainly on leafy parts of grasses, sedges and herbs. Forages above ground and creates runways from the burrow (Brylski, 1, 2006). *Microtus* prefer grasslands with *Bromus*, *Lolium* and *Avena* grass species (Batzli and Pitelka 1970).

Thomomys bottae (pocket gopher) prefers friable soil for burrowing, soil moisture impacts burrowing activity. Feeds predominantly on leaves of forbs and grasses, roots, tubers, bulbs and stems (Polite, 2006).

Mus musculus (house mouse) prefers to remain near cover such as buildings, dense vegetation and rubbish piles. Feeds on a wide variety of foods, including grasses, grains, fruits, seeds, arthropods and roots (Brylski, 2, 2006).

APPENDIX C

**TABLE 1: RECOMMENDED PLANTS FOR MITIGATION AREA
(based on availability)**

Species	Scientific Name
"Bee's Bliss" sage	<i>Salvia x 'Bee's Bliss'</i>
"Dara's Choice" sage	<i>Salvia x 'Dara's Choice'</i>
Black sage	<i>Salvia mellifera</i>
California aster	<i>Symphotrichum chilense</i>
California blackberry	<i>Rubus ursinus</i>
California buckwheat	<i>Eriogonum fasciculatum</i>
California fuchsia	<i>Epilobium spp.</i>
California Poppy	<i>Eschscholzia californica</i>
California rose	<i>Rosa californica</i>
California sagebrush	<i>Artemisia californica</i>
Ceanothus "Anchor Bay"	<i>Ceanothus "Anchor Bay"</i>
Ceanothus spp.	<i>Ceanothus</i>
Clarkia Elegans	<i>Clarkia Elegans</i>
Cleveland sage	<i>Salvia clevelandii</i>
Coyote brush "Pigeon Point"	<i>Baccharis pilularis ssp. pilularis 'Pigeon Point'</i>
Coyote mint	<i>Monardella villosa</i>
Creeping wildrye	<i>Elymus triticoides</i>
Deer grass	<i>Muhlenbergia rigens</i>
Hummingbird sage	<i>Salvia spathacea</i>
Lilac verbena	<i>Verbena lilacina</i>
Manzanita spp.	<i>Arctostaphylos</i>
Maritime ceanothus	<i>Ceanothus maritimus</i>

Species	Scientific Name
Marsh baccharis	<i>Baccharis glutinosa</i>
Marsh goldenrod	<i>Euthamia occidentalis</i>
Narrow leaf milkweed	<i>Asclepias fascicularis</i>
Nodding needlegrass	<i>Nassella cernua</i>
Purple needlegrass South Bay	<i>Nassella pulchra</i>
Saint Catherine's lace	<i>Eriogonum giganteum</i>
Santa Cruz Island buckwheat	<i>Eriogonum arborescens</i>
Silver bush lupin	<i>Lupinus albifrons</i>
Spreading gum plant	<i>Grindelia stricta</i> var. <i>platyphylla</i>
Yarrow	<i>Achillea millefolium</i>

APPENDIX D

REFERENCES

Adams, Lowell W. 1984. Small Mammal Use of an Interstate Highway Median Strip. *Journal of Applied Ecology* 21:175-178.

Batzli, G. O. and F. A. Pitelka. 1970. Influence of Meadow Mouse Populations on California Grasslands. *Ecology* 51:1027-1039.

Bolger, Douglas T., Allison C. Alberts, Raymond M. Sauvajot, Paula Potenza, Catherine McCalvin, Dung Tran, Sabrina Mazzoni, and Michael E. Soule. 1995. Response of Rodents to Habitat Fragmentation in Coastal Southern California. *Ecological Applications* 7:552-563.

Brylski, P. 1. 2006. M134. California Vole. California Wildlife Habitat Relationship System. California Department of Fish and Game. Retrieved from the World Wide Web March 24, 2006. <http://www.dfg.ca.gov/whdab/html/M134.html>

Brylski, P. 2. 2006. M142. House Mouse. California Wildlife Habitat Relationship System. California Department of Fish and Game. Retrieved from the World Wide Web March 24, 2006. <http://www.dfg.ca.gov/whdab/html/M142.html>

Buchanan, Janis Taylor. 1996. A Geographic Analysis of the Burrowing Owl Population in Santa Clara County, California. M.S. thesis, San Jose State University.

Coulombe, Harry N. 1971. Behavior and Population Ecology of the Burrowing Owl, *Speotyto cunicularia*, in the Imperial Valley of California. *Condor* 73:162-176.

DeSante, David F., Eric D. Ruhlen, and Daniel K. Rosenberg. 2004. Density and Abundance of Burrowing Owls in the Agricultural Matrix of the Imperial Valley, California. *Studies in Avian Biology* 27:116-119.

Dyer, O. 1987. *A Summary of Discussions*. Burrowing Owl Workshop Western Raptor Management Symposium, Boise, Idaho, October 28, 1987.

Green, Gregory A. and Robert G. Anthony. 1997. Ecological Considerations for Management of Breeding Burrowing Owls in the Columbia Basin. *Journal of Raptor Research* 9:117-121.

Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). *The Birds of North America*, No. 61 The American Ornithologists' Union Washington, D.C., USA, and the Academy of Natural Sciences, Philadelphia, Pennsylvania, USA.

Haug, Elizabeth A. and Lynn W. Oliphant. 1990. Movements, Activity Patterns, and Habitat Use of Burrowing Owls in Saskatchewan. *Journal of Wildlife Management*. 54:27-35.

Heske, Edward J., Richard Ostfeld and William Z. Lidicker Jr. 1983. Competitive Interactions Between *Microtus Californicus* and *Reithrodontomys megalotis* During Two Peaks of *Microtus* Abundance. *Journal of Mammalogy* 65:271-280.

Higgins, Philip G. 2007. Prey Base Analysis of Burrowing Owls in Urban Santa Clara County, California. M.S. thesis, San Jose State University.

Holroyd, Geoffrey L., Ricardo Rodriguez-Estrella and Steven R. Sheffield. 2001. Conservation of the Burrowing Owl in Western North America: Issues, Challenges and Recommendations. *Journal Raptor Research* 35:399-407.

Jones, Zach F., Carl E. Bock and Jane H. Bock. 2003. Rodent Communities in a Grazed and Ungrazed Arizona Grassland, and a Model of Habitat Relationships Among Rodents in Southwestern Grass/Shrublands. *American Midland Naturalist* 149:384-394.

Millsap, Brian A. and Cindy Bear. 1999. Density and Reproduction of Burrowing Owls Along an Urban Development Gradient. *Journal of Wildlife Management* 64:33-41.

Moulton, Colleen E., Ryan S. Brady and James R. Belthoff. 2006. Association Between Wildlife and Agriculture: Underlying Mechanisms and Implications in Burrowing Owls. *Journal of Wildlife Management* 70:708-716.

Polite, C. 2006. M081. Botta's Pocket Gopher. California Wildlife Habitat Relationship System. California Department of Fish and Game. Retrieved from the World Wide Web March 24, 2006. <http://www.dfg.ca.gov/whdab/html/M081.html>

Rosenberg, D. K., and K. L. Haley. 2004. The Ecology of Burrowing Owls in the Agroecosystems of the Imperial Valley, California. *Studies in Avian Biology* 27:120-135.

Sheffield, Steven R. 1997. *Current Status, Distribution, and Conservation of the Burrowing Owl (Speotyto cunicularia) in Midwestern and Western North America. Biology and Conservation of Owls of the Northern Hemisphere: 2nd International Symposium; 1997 February 5-9; Winnipeg, Manitoba.* Gen. Tech. Rep. NC-190. St. Paul, MN: U.S. Department of Agriculture.

Sissons, Robert A. 2003. Food and Habitat Selection of Male Burrowing Owls (*Athene cunicularia*) on Southern Alberta Grasslands. M.S. thesis, University of Alberta.

Strong, Allan M, Christopher C. Rimme and Kent P. McFarland. 2004. Effect of Prey Biomass on Reproductive Success and Mating Strategy of Bicknelus Thrush (*Catharus bicknelli*), a Polygynandrous Songbird. *Auk*. 121:446-451.

Thomsen, Lise. 1971. Behavior and Ecology of Burrowing Owls on the Oakland Municipal Airport. *The Condor* 73:177-192.

Trulio, Lynne A. 2003. *Burrowing Owl Declines in Silicon Valley*. Silicon Valley Environmental Partnership. Retrieved from the World Wide Web February 27, 2007. <http://www.svep.org>

Trulio, Lynne. 1997. Burrowing Owl Demography and Habitat Use at Two Urban Sites in Santa Clara County, California. *Journal Raptor Research* 9:84-89.

Trulio, Lynne A. and Higgins, Philip. 2012. The diet of Western Burrowing Owls in an urban landscape, *Western North American Naturalist*: Vol. 72:346-356.

Windberg, Lamar A. 1998. Population Trends and Habitat Associations of Rodents in Southern Texas. *American Midland Naturalist* 140:153-160.

Zarn, M. 1974. Burrowing Owl, *Speotyto cunicularia hypugaea*. Report No. 11. Habitat Management Series for Unique or Endangered Species. Bureau of Land Management, Denver, Colorado. 25p.