2023 BURROWING OWL MANAGEMENT AT THE SAN JOSÉ-SANTA CLARA REGIONAL WASTEWATER FACILITY BUFFERLANDS CONSERVATION EASEMENT

SUMMARY REPORT
YEAR 7

Prepared for:
Santa Clara Valley
Habitat Agency

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SANTA CLARA VALLEY HABITAT AGENCY

SCVAS Santa Clara Valley Audubon Society

TALON ECOLOGICAL RESEARCH GROUP

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ACKNOWLEDGMENTS

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Thanks to the staff at Santa Clara Valley Audubon Society (SCVAS) for continued collaboration on this project.

We also thank the Talon team for their work on the Supplemental Feeding Project, the Juvenile Burrowing Owl Overwintering Project, and the Banding Study at this site.

Grassroots Ecology did a great job establishing native plants in several areas on site for the last couple of years, thank you!

Furthermore, we thank Kelly's Stump Removal Service, Inc. for supplying copious amounts of wood chips to suppress noxious weeds and for bobcat-operation aiding artificial burrow installation.

We also thank Long's Custom Disking Inc. for their ongoing vegetation management services.

Thank you all for continued funding and assistance in support of crucial burrowing owl management and research at the San José-Santa Clara Regional Wastewater Facility in Alviso.

INTRODUCTION

Since October 2016, we have monitored and managed a burrowing owl colony at the San José-Santa Clara Regional Wastewater Facility (RWF) in a portion of the "Bufferlands" that has been designated for burrowing owl conservation. In July 2023, the City of San José signed an agreement with the Santa Clara Valley Habitat Agency to put a conservation easement over the 201 acres of open grassland and enroll the area into the Habitat Agency's reserve system (Figure 1). This Reserve is located south and west of the RWF facility in Alviso, north of State Highway 237 and east of Disk Drive (Figure 1). Since 2021, Talon Ecological Research Group (Talon) has partnered with the Santa Clara Valley Audubon Society to conduct the work under a renewed 5-year contract (2021–2026). This report represents a summary of management activities we conducted during Year 7 (January–December 2023). We also provide descriptions of site conditions throughout the year and information for planned activities during Year 8 (January–December 2024).

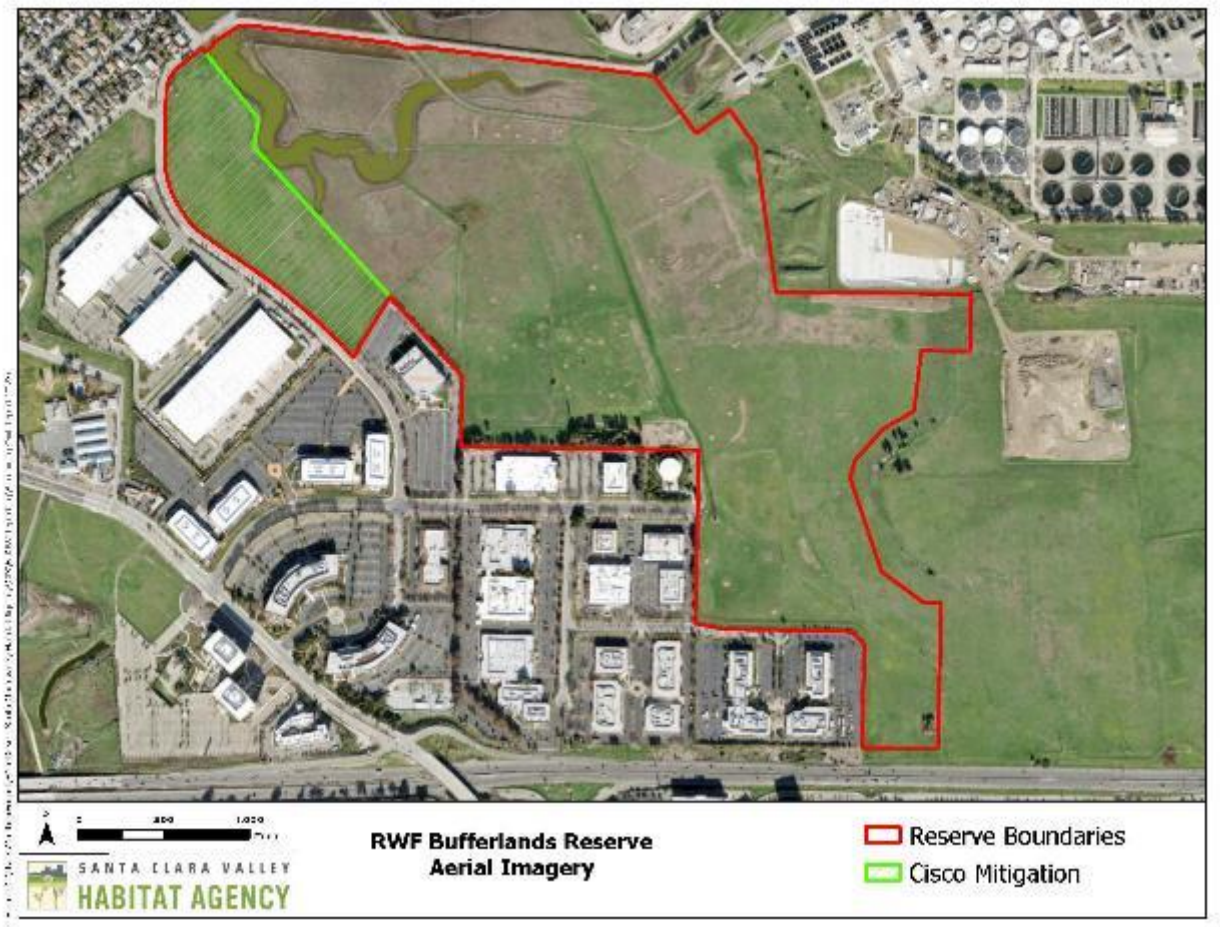

Figure 1. Burrowing owl management area at the San José/Santa Clara Regional Wastewater Facility (RWF) Bufferlands Conservation Easement outlined in red.

MANAGEMENT ACTIVITIES

This site includes regionally important breeding, foraging, and wintering habitat for burrowing owls. As during Year 1−6 of this work, we continued the following activities to enhance long-term viability of the burrowing owl colony within the 201-acre management area:

Monthly Surveys

Talon conducted monthly surveys for burrowing owls, usually starting at 7 am during the summer and 8 am during other times of the year. Surveyors included wildlife biologists Philip Higgins, Sandra Menzel, Ryan Phillips, and Grant Huber. We walked straight-line transects spaced approximately 15 to 20 meters apart, depending on vegetation height and visibility. We scanned all areas for burrowing owl presence and inspected ground squirrel burrows for signs of burrowing owl activity, such as whitewash, regurgitated pellets, feathers, prey remains, decoration, and bedding material. We recorded all burrowing owl observations, noting location, number of individuals, age and sex (if discernible), banding status, band number (if readable), behavior, and type of burrow used (artificial or natural). We also recorded locations of satellite burrows when owls flushed from their original burrows.

Motion-triggered Trail Cameras

In conjunction with an independent Burrowing Owl Banding Study conducted by Talon under contract with the Habitat Agency, motion-triggered trail cameras were installed at each active nest burrow. The resulting photographs (e.g., Figure 2) helped determine breeding phenology and provided crucial information for the banding effort. The images revealed from which burrow owlets had emerged, brood size, and approximate age of owlets. The images also aided in determining the banding status and identification of previously banded adults.

Figure 2. Motion-triggered trail cameras installed at nest burrows provided valuable information during the breeding season.

Juvenile Burrowing Owl Overwintering and Release

We soft-released four breeding pairs at RWF as part of the Juvenile Burrowing Owl Overwintering Project in 2023. The Habitat Agency funded this independent project and Talon implemented the work. On 15 April, we placed four males into separate hacking enclosures (Figures 3). We added one female into each enclosure on 23 April. All four soft-released pairs produced a total of 19 offspring.

Figure 3. Construction of hacking enclosures for the soft-release of breeding pairs of burrowing owls as part of the Juvenile Burrowing Owl Overwintering Project.

Nest Burrow Surveys

During monthly surveys at the height of the breeding season (April–July), we conducted focused nest burrow surveys, observing each known nest burrow for approximately 20–30 minutes through a scope. We also opened accessible artificial nest chambers and checked for eggs and/or nestlings. We determined nesting phenology at each burrow, the minimum number of young per pair, and the banding status/band number of the adults. This year, we observed a total of 10 adults forming five pairs during the breeding season (Figure 4). Four pairs were part of the Juvenile Burrowing Owl Overwintering Project as described above. All four overwintered pairs successfully produced a total of 19 young. One additional wild pair successfully fledged four young at nest burrow #51. We observed the first young inside a nest chamber in June.

Figure 4. Burrowing owl nest burrow location and soft-release enclosure (E1−E4) locations in the burrowing owl management area of the Bufferlands at the San José-Santa Clara Regional Wastewater Facility in 2023.

Supplemental Feeding

In 2017, Talon initiated an independent Supplemental Feeding Study funded by the Habitat Agency for nesting burrowing owls at Shoreline Park and Moffett Field. In 2018, Talon included RWF in the study and fed six out of a total of nine pairs and their offspring at this site. Each year since 2019, Talon supplementally fed adults and their offspring at all active nest burrows at RWF. Detailed information on this work is contained in the 2023 Santa Clara Valley Habitat Plan Burrowing Owl Management Report (Talon Ecological Research Group, unpublished report January 2024).

Call-Broadcast Sound Systems

In early 2020, Talon received funding from the Habitat Agency and from private donors to purchase two custom-built call-broadcast sound systems from MurreMaid (http://www.murremaid.com). The purpose of these solar-powered units is to automatically broadcast burrowing owl calls at certain time intervals to provide a "social attraction" cue thought to attract or retain burrowing owls at particular locations. These units have been successfully used by the San Diego Zoo Institute for Conservation Research (https://institute.sandiegozoo.org/species/burrowing-owl) to help retain relocated burrowing owls at their new location. These sound systems have also been used by researchers seeking to attract colonial tern species to sites in the South Bay Salt Pond Restoration Project (Hartman, et al. 2019). We used the units during the soft-release of the owls from the Juvenile Overwintering Project, enticing these owls to stay on site. We deployed the units each year during soft-releases of overwintered owls.

Vegetation Management

Long's Custom Disking Inc. conducted a first mowing to a height of approximately 6 inches starting in May 2023 (Figure 5). This task took approximately three days to complete. A second mowing was conducted in June 2023 (Figure 6) and a third partial mowing in November 2023 to specifically target stinkwort (Figure 7). We met with the contractor prior to each mowing event to discuss areas of concern (exclusion areas) for burrowing owls and directed/monitored mowing around nest burrows/enclosures in May and June.

Application of herbicides on mounds and berms to control invasive weed species and grasses did not occur in 2023. We opted for an additional mowing in November instead. Stinkweed, mustard, and pepperweed were especially pervasive in some areas this year. Pepperweed is a perennial plant species, and it reached the edge of an area containing mounds with artificial burrows and with burrows that have been occupied by burrowing owls in the past. Mowing does not control the spread of this species.

Figure 5. Area mowed in May 2023 outlined in red.

Figure 6. Area mowed in June 2023 outlined in red. Outlined in yellow are areas excluded from mowing for the protection of native plant species.

Figure 7. Area mowed in November 2023 outlined in red.

To contain the spread of yellow starthistle, we continued collaboration with a local tree removal company that delivered wood chips to the site free of charge. Kelly's Stump Removal, Inc. (https://www.kellysstumpremoval.com), based in Sunnyvale, delivered numerous loads of wood chips, and spread the piles with a bobcat (Figure 8) covering a large area that was previously overgrown with starthistle. This management technique has been very successful in reducing the spread of yellow starthistle in areas that we targeted.


Figure 8. Kelly's Stump Removal, Inc delivered numerous truckloads of mulch and spread the material with a bobcat covering a large area that was previously overgrown with yellow starthistle. (Photograph taken in November 2020)

Vegetation Management Volunteer Engagement

We organized four volunteer workdays during Year 7 (Figure 9). Dates were as follows: 25 February, 22 April, 21 October, and 2 December. We also conducted targeted vegetation management throughout the growing season without volunteers.

Figure 9. Volunteers helped removing invasive, non-native vegetation.
(Photograph taken on 21 October 2023)

Native Plant Areas

During Year 1 of this contract, we planted a small area with native plants along the fence line just north of the gate at Nortech Parkway. We continued watering and weeding established plants. Watering was challenging because there is no water source on site. We watered the plants solely by carrying water containers into the site. We continued to add plants and also seeded different species including three native grasses (purple needlegrass, California brome and red fescue), California poppies, hookers evening primrose, annual sunflower, slender sunflower, and Bolanders sunflower.

Starting in 2021, we collaborated with Grassroots Ecology (grassrootsecology.org) to establish additional native plant areas. They seeded/planted test plots with a wide variety of species and continued this work throughout 2022 and 2023. This planting area provides a diversity of low-growing native plants. While these low-growing plants do not provide perching opportunities for aerial predators of burrowing owls, they provide cover and food for prime burrowing owl prey species, including rodents and invertebrates. This project has been very successful, and we have observed a diversity of burrowing owl prey species within the newly established native plant areas. We have also observed egrets on numerous occasions foraging in this area and during a nighttime burrowing owl banding session in 2023, we observed a burrowing owl actively foraging inside this area.

Habitat Enhancement for Prey Population

At three locations, we stacked up palettes and filled the hollow spaces with pinecones, leaf litter, bark, and twigs to create habitat for burrowing owl prey species. Additionally, we added about 10 small piles consisting of larger pieces of bark around the native plant area. We have observed numerous lizards and invertebrates under the pieces of bark.

Artificial Burrow Installation

In November 2023, we installed five artificial burrow complexes prior to the 2024 breeding season to accommodate soft-release of burrowing owls as part of the Juvenile Overwintering Project. Each complex contained two separate burrows constructed of an irrigation valve box for a nesting chamber and a 6-foot-long piece of 6-inch diameter irrigation pipe. Kelly's Stump Removal, Inc. excavated the holes with a bobcat and assisted with backfilling.

Bird Species Diversity – Other Sensitive Species

The RWF Bufferlands provide nesting habitat for other grassland bird species such as golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus leucurus*), and American kestrel (*Falco sparverius*), as well as foraging habitat for northern harrier (*Circus cyaneus*) and loggerhead shrike (*Lanius ludovicianus*). Of these species, the harrier and shrike are California Species of Special Concern (CSSC) while the golden eagle and white-tailed kite are considered Fully Protected by the California Department of Fish and Wildlife. During the 2022 breeding season, we also observed tricolored blackbirds which is also a CSSC.

For a sixth year in a row, a pair of golden eagles attempted to nest in a palm tree adjacent to the management area (Higgins and Menzel. 2023. Golden Eagles Nesting in an Urban Setting in a Canary Island Date Palm Tree, San José , California. *Journal of Raptor Research 57*: *114-115*). This year and in 2022, the pair did not produce offspring. The palm tree is located in the Bufferlands northeast of the Nortech gate, approximately 30 feet outside of the management area. Generally, palm trees are unusual substrates for golden eagle nests.

Other raptors that have successively reproduced on site include, red-tailed hawks (*Buteo jamaicensis*, American kestrel, and barn owls (*Tyto alba*).

POPULATION TRENDS

Breeding Season

Data for this population were collected opportunistically from 1996–2013 and then more consistently since 2014. The number of adult owls observed during the breeding season has fluctuated between a low of two adults in 2012 and a high of 35−37 adults in 2017 (Figure 10).

In 2023, five pairs were successful and produced a total of 23 young (Table 1). Four of these pairs were released as part of the Juvenile Burrowing Owl Overwintering Project. Productivity was 4.6 young/pair which was higher than the average productivity of 3.5 young/pair (2015−2023) at this breeding site.

In 2022, six pairs were successful and produced a total of 36 young (Table 1). Five of these pairs were released as part of the Juvenile Burrowing Owl Overwintering Project. In 2021, two of six

pairs were successful and produced a total of nine young. Of the six pairs, three pairs were released as part of the Juvenile Overwintering project. Additionally, three single males were released, two of which remained on site and paired up with females. One of the two pairs that reproduced successfully in 2021 was comprised of a female that was released at RWF as part of the Juvenile Overwintering Project in 2020, while the male hatched at RWF in 2019.

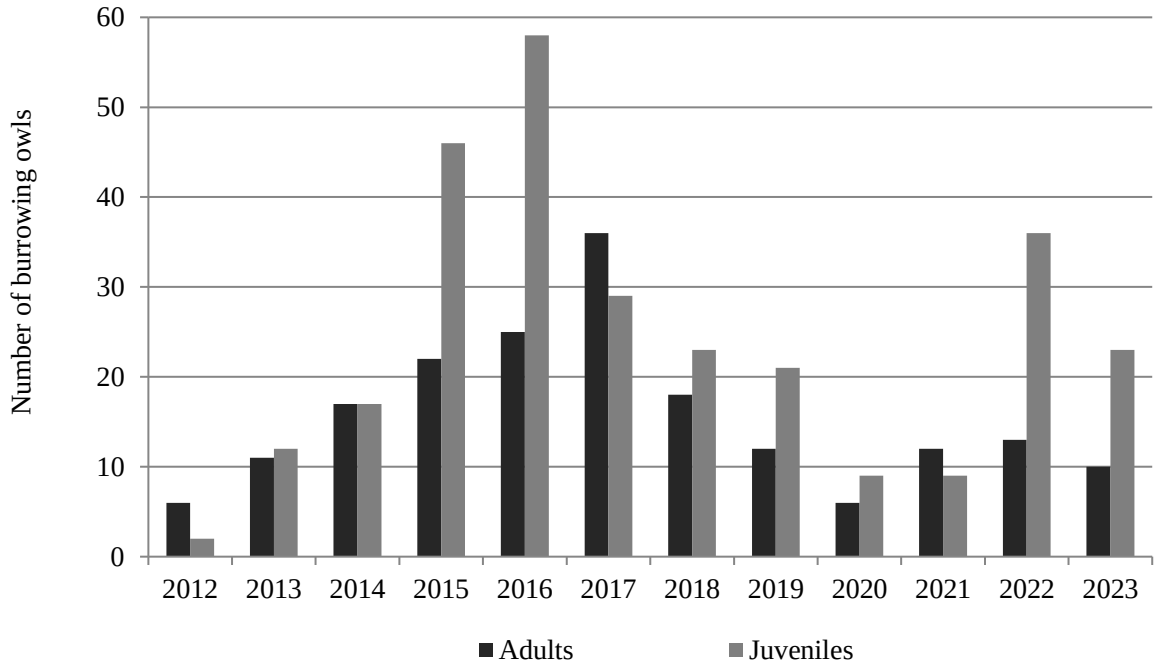

Figure 10. Annual counts of the number of nesting burrowing owls and their young in the burrowing owl management area of the Bufferlands at the San José-Santa Clara Regional Wastewater Facility (RWF), 2012–2023.

Table 1. Annual breeding burrowing owl population data, 2012–2023, for the burrowing owl management area of the Bufferlands at the San José-Santa Clara Regional Wastewater Facility (RWF). In parentheses are the number of adult owls released as part of the Juvenile Burrowing Owl Overwintering Project, 2020−2023.

Year	# Adults	# Pairs	# Successful pairs	Breeding success (%)	# Young	Avg. # young/ successful pair	Avg. # young/all pairs
2012	6	3	2	67	3	1.5	1
2013	10−12	5−6	4	80	12	3	2.4
2014	16−18	8−9	5	63	17	3.5	2.1
2015	22−23	10	9	90	46	5.1	4.6
2016	25−26	13	12	92	58	4.8	4.5

Year	# Adults	# Pairs	# Successful pairs	Breeding success (%)	# Young	Avg. # young/ successful pair	Avg. # young/all pairs
2017	35−37	17	9	53	29	3.2	1.7
2018	18	9	7	78	22	3.1	2.4
2019	12	5	4	80	21	5.3	4.2
2020	8 (3)	3	2	67	9	4.5	3.0
2021	12 (9)	6	2	33	9	4.5	1.5
2022	13 (11)	7	6	86	36	6	5.1
2023	10 (8)	5	5	100	23	4.6	4.6

Monthly Survey Results

The number of owls we observed during monthly surveys fluctuated throughout the year. This natural variability was similar to that observed at adjacent colonies. An unusual difference in this colony compared to neighboring colonies is the decrease in the number of burrowing owls during winter. The populations of burrowing owls at both Shoreline and Moffett Field increase during the winter (they usual peak during November−January) when migratory burrowing owls arrive on site. In contrast, the colony at RWF does not appear to experience this influx of migratory owls. The population actually decreases each winter, then increases again as the breeding season approaches (Figure 11).

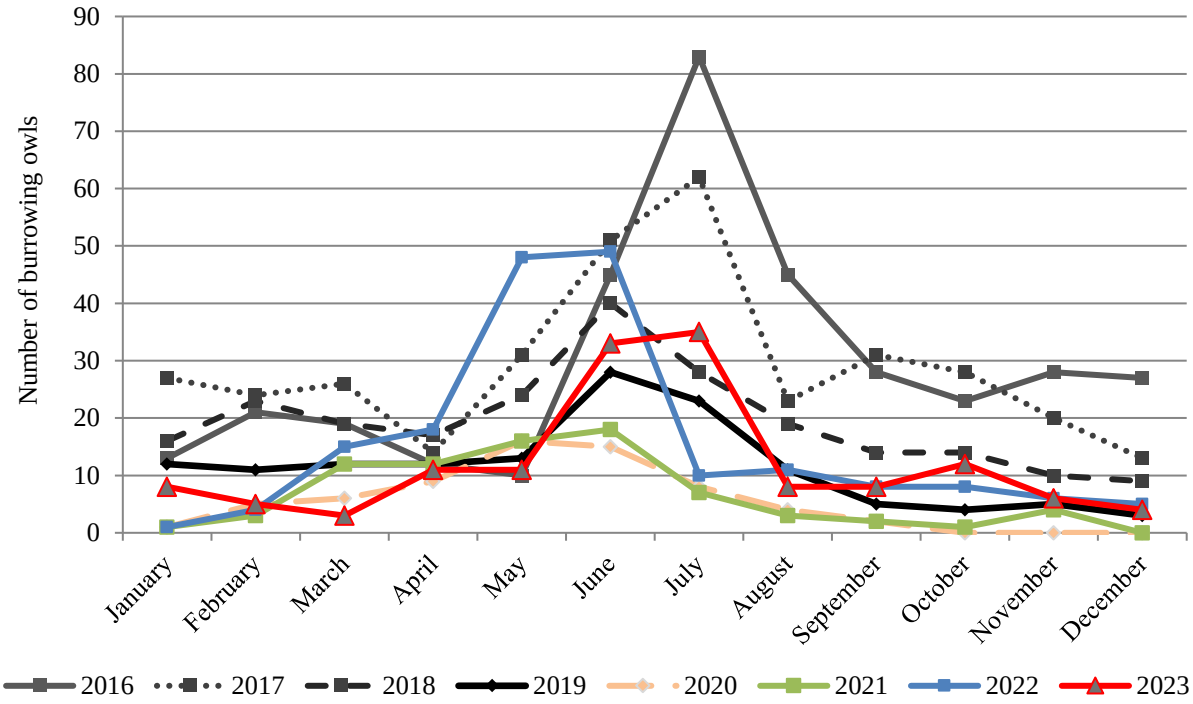

Figure 11. Counts of the total number of burrowing owls (adults and juveniles) observed each month at the San José-Santa Clara Regional Wastewater Facility Bufferlands management area, 2016–2023.

Burrowing Owl Fatalities

During Year 7, we found the remains of two burrowing owls in August; both were likely predated by a mammal based on feather extraction and markings on the quills. The remains were located at burrows E2 and #35. In September, we found the remains of one burrowing owl. Feathers appeared to be plucked rather than sheared off indicating potential raptor predation. The remains were located at burrows E3, only feathers were found, no other body parts.

SITE CONDITIONS

Flooding

Extensive flooding occurred in the first quarter of 2023. Record-level precipitation amounts resulted in approximately 30−40% of the Reserve being flooded in January and February, and approximately 70−80% in March. Flooding reduced roosting, foraging, and breeding habitat for burrowing owls. We found dozens of dead ground squirrels as a result of burrow inundation. Flooding delayed the onset of the breeding season and we had to wait for the artificial burrows to dry out to be able to soft-release burrowing owl pairs as part of the Juvenile Overwintering Project. The site finally dried out by mid-April.

Native Vegetation

As a result of the flooding in 2023, some native plant species thrived once the site dried up in April. Native species that were abundant this year included *Dowingia* spp. (Figure 12), Congdon's tarplant, saltgrass, and alkali heath.

Figure 12. As a result of flooding in 2023, *Dowingia* spp. thrived in some areas in the bufferlands.

California Ground Squirrel Distribution and Abundance

Extensive flooding resulted in inundated California ground squirrel burrows from January until April 2023. Ground squirrels drowned and/or died of hypothermia. For the rest of the year, ground squirrels were patchily distributed throughout the management area, with large areas devoid of ground squirrel activity/burrows adjacent to areas where squirrels were abundant. Our general observation was that abundance was about the same as last year, although we did not conduct a formal assessment or count. Increasing abundance and density of ground squirrels through active management would be beneficial for burrowing owls in certain areas of the site. Ground squirrels usually experience higher mortality rates in the low-lying areas during wet years with higher survival rates in the upland areas. Installation of additional upland areas would help alleviate this problem; such upland areas would also be beneficial to burrowing owls.

Predator Abundance

We have observed a variety of burrowing owl predators in the management area, including red-tailed hawks, golden eagles, peregrine falcons, cats, skunks, and coyotes (Table 2). With increasing development around the management area, we are anticipating an increase in predation events, as described in the section *Surrounding Development* below.

We have observed a pair of nesting golden eagles on site for the last six years, as well as up to three pairs of red-tailed hawks nesting at or within sight of the management area.

Table 2. Predatory species of burrowing owls observed during monthly surveys, January−December 2023.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Golden eagle	1	1	1	1	1	1	1		1		1	
Red-tailed hawk		2	2	2	2	3	2	2	1	1		1
Barn owl											1	
Cooper's hawk			1									
American crow			1	1	2	4	6			2		
Common raven	2		1		2					0		
Coyote	2	1	1			2	1	1	1	1	1	
Striped skunk							1	1	1			
Feral cat						1	1	1	1		1	
Virginia Opossum							1	1				

Prey Abundance

The abundance of prey items for burrowing owls at this site is unknown. Castings show that owls mainly feed on invertebrates, including earwigs, grasshoppers, and beetles. Brush and rock piles were installed to provide microhabitats for prey species and some areas of the site were left un-mowed to provide suitable habitat for prey species that prefer taller vegetation. Areas around the slough are never mowed and the area along the eastern side of the site from the railway tracks to the overflow basin is also left unmowed. These unmowed areas provide ideal conditions for rodent species like California voles and western harvest mice. In addition, the new native plant areas will provide increasingly beneficial habitat for prey species as the plants get more and more established.

Surrounding Development and Anticoagulant Rodenticides

In 2017, open space west of the management area was developed. Large building complexes now stand west of Disk Drive adjacent to the Cisco site, as well as west of North First Street. Additional construction is proposed west of Coyote Creek at the former Cilker Orchard. These developments diminish adjacent burrowing owl foraging habitat. The tall buildings and light posts west of the Cisco site provide perches for raptors that prey on burrowing owls, such as red-tailed hawks and golden eagles, regularly observed at this location. Additionally, trees were planted along the buildings that offer additional perches for raptors. These developments may also attract mammalian predators including feral cats, raccoons, opossums, and rats. Furthermore, the destruction of the adjacent habitat pushes more predatory wildlife species, such as coyotes and large raptors, onto the Bufferlands. More species on this island of grassland habitat will thus compete for limited resources, including prey items such as small rodents.
Use of anticoagulant rodenticides in the neighboring urbanized areas is of concern to burrowing owl survival. We saw numerous bait boxes at buildings along Nortech Drive containing 0.005% Bromadiolone, a potent second-generation anticoagulant rodenticide, 4-hydroxycoumarin

derivative and vitamin K antagonist, often called a "super-warfarin" for its added potency and tendency to accumulate in the liver of the poisoned organism. Such rodenticides can cause secondary poisoning. During the 2018 breeding season, two burrowing owl pairs closest to the new developments failed to produce fledglings. One female was predated by a red-tailed hawk at the nest burrow, the cause for the other pair's failure is unclear. In 2019, six nestlings were orphaned at the same nest location; the fate of their parents was unknown. Fortunately, we were able to capture all six orphans and transfer them to the Wildlife Care Center at the Peninsula Humane Society in Burlingame where they were cared for as part of the Juvenile Burrowing Owl Overwintering Project. The Cisco site has not been occupied by breeding burrowing owls in 2020−2023.

LAND USE AND OTHER DISTURBANCES

San José Water Company

During our monthly survey on 10 June 2023, we saw tire tracks from a truck accessing the Cisco Site from Disc Drive heading to the east side of the Cisco Site. Someone then marked several spots with a red spray paint. There were approximately ten sprayed marks spaced evenly apart in a straight line. The vehicle drove through an area where Congdon's tarplant was growing. We reported this observation to City staff. City staff informed us that the GIS team at the RWF received an Underground Service Alert and through that system they were able to find out that the San José Water Company (SJWC) was working on locations for exploratory borings throughout the City. They were planning on drilling exploratory borings in the Cisco Site; however, City staff then informed that this disturbance could not occur during the burrowing owl nesting season. If SJWC plans to do work in burrowing owl habitat in the future, they must first contact the City so they can discuss potential disturbances with the Habitat Agency.

PGE

During the survey on 6 October 2023, subcontractors for PG&E were driving within the Cisco site with three trucks conducting maintenance work on one of the electrical pylons on the north-end of the site. Preferably, PG&E should notify the City/Habitat Agency prior to any work they are conducting within the burrowing owl management area to limit/prevent disturbance to burrowing owls even during the non-breeding season. Big trucks (Figure 13) could potentially collapse burrows and inadvertently kill burrowing owls inside the burrow.

Figure 13. In October 2023, subcontractors for PG&E entered the Cisco site and conducted maintenance work on an electrical pylon on the north-end of the site.

Independence Day Fireworks

During our monthly survey of the Cisco site in July 2023, we found fireworks debris in several locations, most likely left over from July 4th celebrations. The amount of garbage was less than in previous years. We observed one small area with burned vegetation where a small fire had occurred,

After 4 July 2017 and 2018, we found a lot of fireworks debris and alcohol bottles within the Cisco site near the homes on Grand Boulevard. Both years, the fence had been cut for access to the site. To prevent/reduce similar incidences in 2019, we asked for assistance. In early July 2019, Cathy Correia spoke with the San José Police Department captain of this area and informed him of activities on 4 July in previous years. He was aware of the illegal firework show in the neighborhood and suggested contacting him on the 4th to request patrolling the area. Although he could not assign officers specifically to the area, he mentioned that U.S. Fish and Wildlife Service (USFW) would likely have a ranger stationed on the road outside of the Don Edwards Education Center with a small fire truck. During our survey the day after Independence Day in 2019−2021, we were pleased to find that the fence had not been breached and we found very little debris. However, each year we detected small burnt areas from grass fires within the Cisco site, likely a result of fireworks.

Draft EIR for 237 Industrial Center - File Nos. C15-054 and SP 16-053

The approximately 64.5-acre proposed project site west of Coyote Creek at the former Cilker Orchard is currently primarily fallow farmland with a few structures. According to the City of

San José's website (https://www.sanJoseca.gov/your-government/departments/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/completed-eirs/237-industrial-center), the project includes two development options: "Option 1 proposes approximately 1.2 million square feet of light industrial development and Option 2 proposes a 436,880 square foot data center with a PG&E substation to provide the electrical needs for the data center on approximately 26.5 acres of the site and approximately 728,000 square feet of light industrial development."

The Draft EIR (https://www.sanJoseca.gov/home/showpublisheddocument?id=20857) shows on *Figure 2.0-4 Off-Site Utilities Improvements* (Figure 14) potential ground disturbance within the management area from the terminus of Nortech Parkway westward. This disturbance could have significant impacts to nesting and/or wintering burrowing owls.

In August 2022, Elena Antonakos, the Environmental Program Manager with Microsoft overseeing the mitigation and monitoring requirements of the Environmental Impact Report for this project requested coordination with their H.T. Harvey biologist. They were requesting to complete a preliminary burrowing owl habitat survey, wetland/Congdon tarplant delineation, and a salt marsh harvest mouse habitat survey that month. We accommodated their survey request.

On 15 September 2023, the U.S. Army Corps of Engineers asked for site access to verify the wetland delineation that H.T. Harvey performed for the utility installation. Talon provided access and escort to the wetland site thus avoiding disturbance to burrowing owls.

Figure 14. Off-Site Utilities Improvements as shown in Draft EIR for 237 Industrial Center (File Numbers C15-054 and SP 16-053) could significantly impact burrowing owls at the San José-Santa Clara Regional Wastewater Facility Bufferlands management area.

SURVEYS AT RWF EAST

In 2023, we did not access the eastern portion of the bufferlands, but regularly surveyed the area from the fence lines. Vegetation was tall throughout most of the site until later during the breeding season and we did not observe burrowing owls in those areas that we could survey without accessing the site. We plan to access the site in 2024 if and when the vegetation is suitable for burrowing owls.

PLANNED MANAGEMENT ACTIVITIES FOR YEAR 8

Vegetation Management

We will continue with vegetation management, including tractor mowing, weed whacking, hand pulling, mulching, and herbicide application.

Tractor Mowing

We will create maps outlining areas for mowing. Long's will mow the flat areas and larger berms at least twice during Year 8, once early in the breeding season (weather permitting in February/March 2024), and once later in the breeding season (May/June 2024).

Soil Mound Management

We will use various means to manage vegetation on the mounds. We will organize volunteer workdays to help us hand-pull weedy vegetation at unoccupied mounds. We will also conduct targeted vegetation management on our own. At occupied mounds, only biologists will either weed whack or hand pull vegetation as needed. After we pull or cut vegetation, we will ensure that burrow entrances are free of debris.

Herbicide Application

We will create a map outlining mounds, berms, and artificial burrow locations that are flush in the ground to be sprayed with herbicides. Weather permitting, spraying will occur in January/February 2024. We are hoping for the assistance from SCVHA to control perennial pepperweed during 2024 to limit the spread of this highly invasive species.

Brush and Rock Piles

The addition of several more rock and brush piles would potentially enhance prey abundance on site (personal observation at other sites). The rock and brush piles should be placed along the fence line, as shown in Figure 15. These areas are not suitable for nesting burrowing owls due to the proximity to tall trees and fences that provide prime perching areas for avian predators. Instead, these areas would be ideal locations for enhancing the prey base of burrowing owls and creating a buffer between buildings and the managed grasslands.

Figure 15. Proposed locations of additional rock and brush piles.

Table 3. Summary and approximate timing of burrowing owl management priorities for Year 8 (January–December 2024).

Management task	Timing
Tractor mowing	1st mowing in February/March, 2nd mowing May/June (timing will be based on vegetative growth and site conditions)
Weed whacking/hand pulling vegetation on soil mounds	Prior to the 2024 burrowing owl breeding season and ongoing as necessary
Herbicide application	January/February 2024
Brush and rock pile installation	On-going/as material becomes available
Plant native vegetation islands	During rainy season

OTHER INDEPENDENT PROJECTS AT RWF

The projects listed below are all independent projects conducted at the RWF Bufferlands, funded by the Habitat Agency.

Juvenile Burrowing Owl Overwintering Project

As part of the Juvenile Burrowing Owl Overwintering Project, Talon installed four additional artificial burrow complexes flush in the ground on existing raised areas in the management area in preparation for the soft-release of burrowing owls in February/March 2024. Eight hacking enclosures were also installed as of December 2023 ready for the release of burrowing owls over the coming months.

Supplemental Feeding Project

In 2024, Talon will continue to supplementally feed all burrowing owls on site during the breeding season.

Banding Study

During the 2024 breeding season, Talon will continue the banding study which includes identifying previously banded adults, and banding juveniles and unbanded adult burrowing owls at this site.

Call-Broadcast Sound Systems

We will deploy the call-broadcast system again during soft-releases of overwintered owls in 2024.

Pollinator/Prey Plants Project

Grassroots Ecology, under Talon's supervision, will maintain areas previously planted with native plants. The native plants are intended to provide cover and an additional food source to attract and increase the prey base for burrowing owls with special emphasis on rodents. Furthermore, the plants are intended to support native pollinator species.

OTHER SUGGESTIONS

Surveys at RWF East

We recommend continuing the surveys of the RWF Bufferlands adjacent to the east of the management area (Figure 1). Considering the proximity to the burrowing owl colony in the management area, regularly surveying these areas would enable us to monitor potential dispersal of owls nesting in, or fledging from, the management area. We may also detect migrating wintering owls. We suggest surveying these areas, if appropriate, at least two times per year; once during the breeding season (April/May) and once during winter (November/December). If we detect burrowing owls in this area during the breeding season, we would like to get permission to install motion-triggered trail cameras for additional observation. We would have to access the area regularly to retrieve data memory cards. If breeding pairs are present, we also ask to be granted access for supplemental feeding without requiring an escort.

Inter-Agency Communication

We continue to be available to provide information regarding the protection of burrowing owls and other natural resources at the Bufferlands at any time. We can meet at the site or discuss existing or upcoming challenges on the phone. With the goal of increasing the protection of burrowing owls and their habitat, we should be included in Inter-Agency communications between the Habitat Agency, the City of San José, Santa Clara Department of Public Works, PG&E, and other agencies regarding any activities/disturbances within the management area. It is important that we can provide our expertise on how activities may affect burrowing owls.